



# Testing the perfectionism model of binge eating in mother–daughter dyads: A mixed longitudinal and daily diary study

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## ARTICLE INFO

### Article history:

Received 10 November 2012

Received in revised form 31 December 2012

Accepted 14 February 2013

Available online 20 February 2013

### Keywords:

Binge eating

Perfectionism

Psychological control

Depression

Dietary restraint

Mother–daughter dyads

## ABSTRACT

The perfectionism model of binge eating is an integrative model explaining why perfectionism is tied to binge eating. This study extended and tested this emerging model by proposing daughters' socially prescribed perfectionism (i.e., perceiving one's mother is harshly demanding perfection of oneself) and mothers' psychological control (i.e., a negative parenting style involving control and demandingness) contribute indirectly to daughters' binge eating by generating situations or experiences that trigger binge eating. These binge triggers include discrepancies (i.e., viewing oneself as falling short of one's mother's expectations), depressive affect (i.e., feeling miserable and sad), and dietary restraint (i.e., behaviors aimed at reduced caloric intake). This model was tested in 218 mother–daughter dyads studied using a mixed longitudinal and daily diary design. Daughters were undergraduate students. Results largely supported hypotheses, with bootstrapped tests of mediation suggesting daughters' socially prescribed perfectionism and mothers' psychological control contribute to binge eating through binge triggers. For undergraduate women who believe their mothers rigidly require them to be perfect and whose mothers are demanding and controlling, binge eating may provide a means of coping with or escaping from an unhealthy, unsatisfying mother–daughter relationship.

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## 1. Introduction

Binge eating (i.e., rapidly and uncontrollably eating a large amount of food in a short period of time) is a health-damaging behavior linked to functional impairment and decreased quality of life (Wonderlich, Gordon, Mitchell, Crosby, & Engel, 2009). Dimensional models, in which binge eating is understood as occurring along a continuum from mild to severe, are supported by research (Fitzgibbon, Sanchez-Johnsen, & Martinovich, 2003). Mild to moderate levels of binge eating are especially common and impairing for young women (Mackinnon et al., 2011). In fact, levels of binge eating are at their highest in young women attending university (Keel, Baxter, Heatherton, & Joiner, 2007). Identifying factors that contribute to binge eating in undergraduate women will aid in our understanding and in developing targeted prevention programs, assessments, and interventions.

Personality traits (e.g., perfectionism) and exposure to negative parenting styles (e.g., psychological control) are two widely discussed contributors to binge eating (Polivy & Herman, 2002). To advance knowledge of binge eating, integrative models combining these putative contributors with other known triggers are needed. In the present research, we addressed this need by testing and extending the perfectionism model of binge eating in a sample of mother–daughter dyads studied with a mixed longitudinal and daily diary design.

### 1.1. Perfectionism and binge eating

Though evidence suggests perfectionism is tied to binge eating (Pratt, Telch, Labouvie, Wilson, & Agras, 2001), few models explain why this relationship occurs (for exceptions, see Boone, Soenens, & Braet, 2011; Heatherton & Baumeister, 1991). The perfectionism model of binge eating (Mackinnon et al., 2011; Sherry & Hall, 2009) is one such model and suggests perfectionism contributes to binge eating by generating situations or experiences known to trigger binge eating. These “binge triggers” include interpersonal discrepancies (i.e., viewing oneself as falling short of others' expectations), low interpersonal esteem (i.e., feeling unaccepted by, uneasy around, and disliked by others), depressive affect (i.e., feeling miserable and sad), and dietary restraint (i.e., behaviors aimed at reduced intake of calories). Sherry and Hall (2009) termed these four variables “binge triggers,” as evidence suggests they come before and contribute to binge eating (e.g., Heatherton & Baumeister, 1991; Herman & Polivy, 2004). Whether to escape perceptions of letting others down or feelings of disconnection from others, to reduce sadness, or to alleviate hunger brought on by extreme dietary restraint, evidence suggests these binge triggers help explain why women high in perfectionism binge eat (Mackinnon et al., 2011; Sherry & Hall, 2009).

### 1.2. Improving the literature on perfectionism and binge eating

To advance our understanding of the perfectionism–binge eating link, methodological and conceptual improvements are needed. For

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instance, cross-sectional designs are commonly used (Pratt et al., 2001), which preclude conclusions regarding temporal relationships. Other designs, such as multi-wave longitudinal designs (Bardone-Cone, Abramson, Vohs, Heatherton, & Joiner, 2006; Boone et al., 2011; Mackinnon et al., 2011) and daily diary designs (Boone et al., 2012; Sherry & Hall, 2009), offer advantages. Multi-wave longitudinal designs with at least three measurement occasions are needed to adequately test indirect effects (Cole & Maxwell, 2003). Daily diary designs are advantageous as they are more ecologically valid, increase reliability through repeated assessments, and diminish recall biases (Laurenceau & Bolger, 2005). To date, only two studies on perfectionism and binge eating used daily diaries (Boone et al., 2012; Sherry & Hall, 2009); however, their use of end-of-day reporting increases the potential for recall biases. Our study addresses methodological limitations of past work by using a mixed longitudinal and daily diary design with twice-per-day reporting.

From a conceptual standpoint, research on perfectionism and binge eating is limited by its overly narrow focus on individuals. Despite recognition that binge eating can be triggered by and maintained by negative social experiences (Rieger et al., 2010), researchers have yet to situate the perfectionism–binge eating link in its broader interpersonal context. Attributing binge eating to individual factors (e.g., perfectionism) without fully considering the impact of relationship factors may miss key information relevant to our understanding of binge eating.

The mother–daughter relationship is one important interpersonal relationship implicated in both perfectionism and binge eating. Research links mothers' parenting styles to daughters' perfectionism and suggests daughters may become perfectionistic to cope with pressures and demands their mothers place on them (Flett, Hewitt, Oliver, & Macdonald, 2002). Strained mother–daughter relationships and maternal pressures and demands also appear centrally involved in daughters' binge eating (Bruch, 1979; Polivy & Herman, 2002). In fact, evidence suggests daughters who are exposed to problematic maternal parenting (e.g., criticism, affectionless control) are more likely to binge eat (Striegel-Moore et al., 2005). In sum, research suggests focusing on daughters' individual factors (e.g., perfectionism) and the mother–daughter relationship is important to thoroughly understand binge eating.

### 1.3. Testing the perfectionism model of binge eating in mother–daughter dyads

The present study represents the most methodologically rigorous and conceptually rich test of the perfectionism model of binge eating to date. We propose that daughters' perception of their mothers imposing unrealistic expectations and harshly evaluating their performance (i.e., daughters' socially prescribed perfectionism) and daughters' exposure to a demanding and controlling parenting style (i.e., mothers' psychological control) may lead to binge eating through experiences known to trigger binge eating (i.e., discrepancies, depressive affect, and dietary restraint; Sherry & Hall, 2009; see Fig. 2). Each element of the perfectionism model of binge eating is described in more detail below.

#### 1.3.1. Perfectionism

Evidence suggests that perfectionism is a multidimensional construct. Hewitt and Flett (1991) argued socially prescribed perfectionism (i.e., perceiving others are demanding perfection of oneself) and self-oriented perfectionism (i.e., demanding perfection of oneself) are two key dimensions. Though socially prescribed and self-oriented perfectionism are correlated (Hewitt & Flett, 1991), they are differentially related to various outcomes. For instance, socially prescribed perfectionism is consistently related to interpersonal problems and to binge eating (Pratt et al., 2001; Sherry & Hall, 2009), whereas self-oriented perfectionism is more clearly related to problems in the achievement domain (e.g., academic stress; Hewitt & Flett, 1991). For these reasons, we focus on socially prescribed perfectionism in the present study. Unlike prior studies

(e.g., Sherry & Hall, 2009), where socially prescribed perfectionism was measured with reference to broad, undifferentiated perceptions of others (e.g., “People expect nothing less than perfection from me”), we measured daughters' socially prescribed perfectionism with reference to the mothers specifically (e.g., “My mother expects nothing less than perfection from me”). This approach resembles other dyadic studies (Mackinnon et al., 2012).

#### 1.3.2. Psychological control

Psychological control is a negative parenting style typified by controlling and manipulative behaviors used to govern a child's thoughts, feelings, and behaviors (Barber & Harmon, 2002). Psychologically controlling parents are demanding and pressure their children to meet their harsh, excessive expectations by withdrawing their love and expressing their disappointment (Barber, 1996). This form of parenting is tied to negative outcomes for youth including negative self-evaluations, depression, and disordered eating (Barber & Harmon, 2002; Salafia, Gondoli, Corning, Bucchianeri, & Godinez, 2009). Recently, investigators began studying the link between psychological control and perfectionism. Maternal psychological control (as reported by daughters) is tied to daughters' perfectionism (Fletcher, Shim, & Wang, 2012; Soenens et al., 2005, 2008b); however, maternal psychological control (as reported by mothers) is not correlated with daughters' perfectionism (Soenens et al., 2005, 2008a). Additional research suggests perfectionism mediates the relationship between maternal psychological control (as reported by daughters) and daughters' disordered eating (Soenens et al., 2008b); however, research testing the influence of maternal psychological control (as reported by mothers) on daughters' binge triggers and binge eating is needed. In the present study, we address this gap in the literature while building on evidence that links psychological control to negative outcomes.

#### 1.3.3. Discrepancies

Daughters high in socially prescribed perfectionism and daughters exposed to psychologically controlling mothers feel pressured (accurately or not) to achieve unobtainable, lofty expectations they believe are imposed on them by their mothers. Since meeting perceived or actual expectations of perfection from their mothers is improbable, these daughters will often evaluate themselves negatively, believing they have fallen short of their mothers' demands (see Fig. 2; see also Sherry & Hall, 2009). This form of negative self-evaluation (daughters' discrepancies) may leave daughters feeling that they have lost acceptance and love from their mothers. Like socially prescribed perfectionism, we measured daughters' discrepancies with reference to the mother specifically. As Fig. 2 shows, in our model, daughters' discrepancies are proposed to result from daughters' socially prescribed perfectionism and mothers' psychological control; daughters' discrepancies are also proposed to represent a form of mother–daughter discord that precipitates periods of depressive affect and attempts at dietary restraint in daughters, thereby generating conditions conducive to daughters' binge eating (see also Mackinnon et al., 2011; Sherry & Hall, 2009).

The initial perfectionism model of binge eating included low interpersonal esteem as a binge trigger (Sherry & Hall, 2009). Not surprisingly, scales used to assess these constructs are highly correlated ( $r = .72$ ; Sherry & Hall, 2009), raising questions about their independence. In the present study, we focused only on discrepancies because evidence suggests discrepancies are a prototypic form of social cognition for people high in socially prescribed perfectionism and discrepancies are more strongly tied to binge eating and the other variables of the perfectionism model of binge eating (compared with low interpersonal esteem; Sherry & Hall, 2009).

#### 1.3.4. Depressive affect

Feeling not good enough in the eyes of their mothers is depressing for daughters (Hewitt, Flett, Sherry, & Caelian, 2006). Daughters who are high in socially prescribed perfectionism and subjected to their mothers'

psychological control feel judged and disliked by their mothers, which may instigate periods of depressive affect. Evidence suggests that increased depressive affect may trigger episodes of binge eating, with binge eating providing comfort and distraction that may alleviate depressive affect (Haedt-Matt & Keel, 2011; Heatherton & Baumeister, 1991). Consistent with prior research, in our model, we suggest that daughters may binge eat in an attempt to alleviate their depressive affect (see Fig. 2).

### 1.3.5. Dietary restraint

In the present version of the perfectionism model of binge eating, dietary restraint is seen as an attempt to garner approval by and gain acceptance from one's mother by achieving bodily perfection through weight loss. Daughters' socially prescribed perfectionism and mothers' psychological control are thought to leave daughters feeling inadequate – subject to their mothers' dissatisfaction and disapproval. We see dietary restraint as an attempt by daughters to win their mothers' approval and/or to avoid their mothers' criticism by obtaining a thinner, “socially approved” body. Indeed, research suggests pressure from mothers strongly influences daughters' attempts at weight loss (McCabe & Ricciardelli, 2005). However, strict dietary restraint is hard to maintain, often leaving people in a hypocaloric state that predisposes binge eating (Herman & Polivy, 2004). Building on these findings, we assert daughters may binge eat to compensate for hypocaloric states arising from harsh dietary restraint (see Fig. 2; Herman & Polivy, 2004).

### 1.3.6. Binge eating

We conceptualize binge eating as a maladaptive coping response used in an effort to deal with situations and experiences (i.e., discrepancies, depressive affect, dietary restraint) brought on by perceived and actual demands from one's mother (i.e., daughters' socially prescribed perfectionism and mothers' psychological control). Feeling defective, depressed, and calorically deprived, our model suggests daughters turn to binge eating in an attempt to cope (see Fig. 2; Sherry & Hall, 2009). Binge eating may offer a brief escape from negative situations or experiences arising from an unhealthy and unsatisfying mother–daughter relationship (Heatherton & Baumeister, 1991; Mackinnon et al., 2011).

## 1.4. The present study

The perfectionism model of binge eating outlined here offers a conceptual framework for understanding how daughters' socially prescribed perfectionism and exposure to mothers' psychological control contribute to binge triggers and binge eating. Consistent with research suggesting mediation is an unfolding process best tested using three or more waves of data (Cole & Maxwell, 2003), our design (see Fig. 1) temporally separates predictors, mediators, and outcomes by measuring daughters' socially prescribed perfectionism, mothers' psychological control, and daughters' binge eating at Wave 1, daughters' discrepancies, depressive affect, and dietary restraint at Wave 2 (via daily diaries), and daughters' binge eating at Wave 3. Our short-term design is also well suited to assessing dynamic, short-term relations between variables (e.g., the impact of dietary restraint on binge eating). In addition, the present study advances perfectionism research by studying socially prescribed perfectionism (an interpersonal trait) in the context of an important, ongoing interpersonal relationship. Our study moves beyond research emphasizing only daughters' purportedly extreme or distorted perfectionistic perceptions in predicting binge eating (e.g., Mackinnon et al., 2011; Sherry & Hall, 2009), to include a role for both daughters' perceptions and daughters' exposure to controlling and demanding mothers.

### 1.4.1. Hypothesized direct effects and correlations

Binge eating appears temporally stable (Mackinnon et al., 2011); thus, we expected daughters' Wave 1 binge eating will be related to daughters' Wave 3 binge eating. Given evidence suggesting psychological control (as reported by mothers) is not significantly related to

daughters' perfectionism (Soenens et al., 2005, 2008a), we did not expect these constructs to be positively correlated. Based on findings linking socially prescribed perfectionism and psychological control to disordered eating (Salafia et al., 2009; Sherry & Hall, 2009), we expected daughters' socially prescribed perfectionism and mothers' psychological control will be positively correlated with daughters' Wave 1 binge eating (see Fig. 2). We also expected daughters' Wave 1 socially prescribed perfectionism and mothers' Wave 1 psychological control will be related to daughters' Wave 2 discrepancies (Salafia et al., 2009; Sherry & Hall, 2009). Building upon findings in Sherry and Hall (2009) and Mackinnon et al. (2011), we expected daughters' Wave 2 discrepancies will be related to daughters' Wave 2 depressive affect and dietary restraint; and daughters' Wave 2 depressive affect and dietary restraint will be related to daughters' Wave 3 binge eating (see Fig. 2).

### 1.4.2. Hypothesized indirect effects

In our study, we expected (a) daughters' Wave 1 socially prescribed perfectionism will indirectly affect daughters' Wave 2 depressive affect through daughters' Wave 2 discrepancies; (b) daughters' Wave 1 socially prescribed perfectionism will indirectly affect daughters' Wave 2 dietary restraint through daughters' Wave 2 discrepancies; and (c) daughters' Wave 1 socially prescribed perfectionism will indirectly affect daughters' Wave 3 binge eating through all three binge triggers (i.e., discrepancies, depressive affect, and dietary restraint; see Fig. 2). We also expected daughters' Wave 2 discrepancies will indirectly affect daughters' Wave 3 binge eating through daughters' Wave 2 depressive affect and dietary restraint. Mackinnon et al. (2011) and Sherry and Hall (2009) predicted, and found support for, a similar set of indirect effects.

Building prior work suggesting mothers' psychological control is tied to negative outcomes for daughters including depression and disordered eating (Barber & Harmon, 2002; Salafia et al., 2009; Soenens et al., 2008b), we expected: (a) mothers' Wave 1 psychological control will indirectly affect daughters' Wave 2 depressive affect via daughters' Wave 2 discrepancies; (b) mothers' Wave 1 psychological control will indirectly affect daughters' Wave 2 dietary restraint via daughters' Wave 2 discrepancies; and (c) mothers' Wave 1 psychological control will indirectly affect Wave 3 daughters' binge eating via all binge triggers (see Fig. 2). These indirect effects test our assertion that daughters' socially prescribed perfectionism and mothers' psychological control lead to mother–daughter discord (i.e., discrepancies), and this discord brings about depressive affect and attempts at dietary restraint that lead to binge eating.

## 2. Material and methods

### 2.1. Participants

We recruited 218 mother–daughter dyads. Daughters were undergraduates recruited via flyers and Dalhousie University's Department of Psychology participant pool. On average, daughters were 19.99 years old ( $SD=3.15$ ) and enrolled in their second year of university ( $M=2.14$ ,  $SD=1.16$ ). Most daughters were Caucasian (91.7%), born in Canada (94.0%), and reported being single (51.8%) or dating (36.2%). Daughters' average body mass index (BMI) was 23.12 ( $SD=4.40$ ). Our sample resembles other samples of young women from Dalhousie University (Mackinnon et al., 2011).

On average, mothers were 50.06 years old ( $SD=4.92$ ) and had 15.76 years of education ( $SD=3.01$ ). Most mothers were Caucasian (90.4%), born in Canada (84.4%), and reported their relationship status as married/common-law (82.6%) or separated/divorced (14.2%). Mothers' average BMI was 26.23 ( $SD=5.62$ ). Mothers and daughters saw each other in person an average of 2.51 days per week ( $SD=3.02$ ); spoke on the phone 3.67 days per week ( $SD=2.27$ ); texted each other 3.98 days per week ( $SD=2.60$ ); and emailed each other 2.33 days per week ( $SD=4.29$ ). Overall, 21.2% of daughters lived with their mothers; the remaining lived in the same state (29.5%) or country

(45.0%). Few daughters (3.7%) lived in a different country than their mothers and 0.6% did not indicate their proximity. For daughters, 72.5% were from intact families (i.e., parents married), 26.6% had divorced or separated parents, and 0.9% had a single mother.

## 2.2. Measures

Consistent with research suggesting socially prescribed perfectionism and psychological control are stable (Barber, Stolz, & Olsen, 2005; Hewitt & Flett, 1991), we used a long-term timeframe for these measures (i.e., during the past several years). As in past research, we used a weekly timeframe (i.e., during the past seven days) for binge eating and a short-term timeframe (i.e., since your last entry) for daily discrepancies, depressive affect, and dietary restraint scales (Mackinnon et al., 2011; Mushquash & Sherry, 2012). To reduce participant burden, we shortened the daily scales. For all scales, higher scores denote higher levels of the constructs.

### 2.2.1. Socially prescribed perfectionism

Socially prescribed perfectionism was assessed with the 5-item Multidimensional Perfectionism Scale socially prescribed perfectionism short-form (see Hewitt & Flett, 1991; Hewitt, Habke, Lee-Baggeley, Sherry, & Flett, 2008). Each item (e.g., “Others expect nothing less than perfection from me”) was modified to be mother-specific (e.g., “My mother expects nothing less than perfection from me”). All items were rated on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Evidence supports the reliability and validity of the mother-specific socially prescribed perfectionism short-form. For instance, in our study, this scale had a high Cronbach's alpha (.93) and was strongly correlated with the unmodified, original socially prescribed perfectionism short-form ( $r = .73, p < .001$ ).

### 2.2.2. Psychological control

Psychological control was assessed with the 8-item Psychological Control Scale (Barber, 1996). In Barber's original scale, participants rate their parents' behavior. Researchers have also modified this scale so parents can rate their own behavior (e.g., Soenens et al., 2008a). For instance, “My mother/father is a person who is always trying to change how I feel about things” was modified to “I am always trying to change how my daughter feels about things.” We used this mother-reported scale with mothers rating items on a 3-point scale ranging from 1 (*not like me*) to 3 (*a lot like me*). Research supports the reliability and validity of this scale. In our study, this scale had an adequate Cronbach's alpha (.74) and Soenens et al. (2008a) reported it was correlated with Barber's original youth-report scale ( $r = .31, p < .001$ ).

### 2.2.3. Discrepancies

Discrepancies were assessed using the three highest factor-loading items from the discrepancies subscale of the Reconstructed Depressive Experiences Questionnaire (see Bagby, Parker, Joffe, & Buis, 1994). Items (e.g., “I found that I didn't live up to others' ideals for me”) were modified to be mother-specific (e.g., “I found that I didn't live up to my mother's ideals for me”). All items were rated on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Evidence supports both the reliability and the validity of the mother-specific discrepancies subscale. For example, this scale had a high Cronbach's alpha (.96) in the present study and was strongly correlated with the unmodified, original discrepancies subscale of the Reconstructed Depressive Experiences Questionnaire ( $r = .73, p < .001$ ).

### 2.2.4. Depressive affect

Consistent with past daily diary studies (e.g., Sherry & Hall, 2009), we assessed depressive affect using the three highest factor-loading items from of the Profile of Mood States depression subscale (McNair, Lorr, & Droppleman, 1992). Daughters reported how accurately the words

representing depressive affect (e.g., “sad”) described their feelings. On each item, daughters selected a number on a 5-point scale from 0 (*not at all*) to 4 (*extremely*). Studies support the reliability and validity of this scale. Cronbach's alpha was high (.85) for this scale in our study and evidence indicated it is strongly correlated with the unmodified, original Profile of Mood States depression subscale ( $r = .97, p < .001$ ; Mackinnon et al., 2011).

### 2.2.5. Dietary restraint

In measuring dietary restraint, researchers recommend focusing only on items assessing specific, concrete behaviors used to restrict caloric consumption (Mackinnon et al., 2011). We measured dietary restraint using the four highest factor-loading items from the Dutch Restraint Eating Scale (van Strien, Frijters, Bergers, & Defares, 1986) that assess such specific, concrete behaviors. All items (e.g., “I refused food offered because I was concerned about my weight”) were rated on a 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Research supports the reliability and validity of this scale. In the present study, Cronbach's alpha for this scale was high (.92). Sherry and Hall (2009) found this scale is strongly correlated with the unmodified, original Dutch Restraint Eating Scale ( $r = .80, p < .001$ ).

### 2.2.6. Binge eating

Binge eating scales often assess emotionality and compensatory behaviors (e.g., purging) along with binge eating. In contrast, we wanted to measure binge eating behavior per se. Therefore, we used four items from the Eating Disorder Inventory bulimia subscale that focused only on binge eating behavior (Garner, Olmstead, & Polivy, 1983). Scale items (e.g., “I stuffed myself with food”) were rated on a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Evidence supports both the reliability and the validity of this scale. Cronbach's alphas in our study were adequate ( $> .74$ ) for this scale and it is strongly correlated with the unmodified, original Eating Disorder Inventory bulimia subscale ( $r = .66, p < .001$ ; Sherry & Hall, 2009).

## 2.3. Procedure

Dalhousie University's Ethics Board approved our study. All daughters responded to an ad inviting their participation in a study on personality. Daughters were required to have a female parent (i.e., any female adult who had been or was in a caretaking role, hereafter referred to as “mother”) who wanted to participate. Most female parents were biological mothers ( $N = 211$  or 96.8%), but we also included adoptive mothers ( $N = 3$ ), aunts ( $N = 1$ ), grandmothers ( $N = 1$ ), and guardians ( $N = 2$ ) that were identified by daughters as their female parent or caregiver. Mothers and daughters needed Internet access and had to speak and read English fluently. Participation was voluntary. Recruitment occurred between September 2010 and April 2011.

The study involved three waves (see Fig. 1). In Wave 1, daughters provided informed consent and received instruction on the study protocol. Then daughters completed demographics and Wave 1 measures (i.e., socially prescribed perfectionism and binge eating). With contact information provided by the daughters, mothers were emailed a link to an online consent form and upon consenting, were directed to an online survey assessing demographics and psychological control.

For daughters, Wave 2 began 1 week after completing Wave 1. Wave 2 involved two online surveys per day for 7 days in a row. These surveys assessed discrepancies, depressive affect, and dietary restraint. To assess the first and second half of daughters' days, we asked daughters to complete online surveys 8 h after waking and just before going to bed. To increase participation rates, we sent daughters two emails each day reminding them to complete their online surveys. All online surveys were date and time stamped.

Wave 3 occurred 1 week after daughters completed Wave 2. During Wave 3, daughters returned to our lab and completed the binge

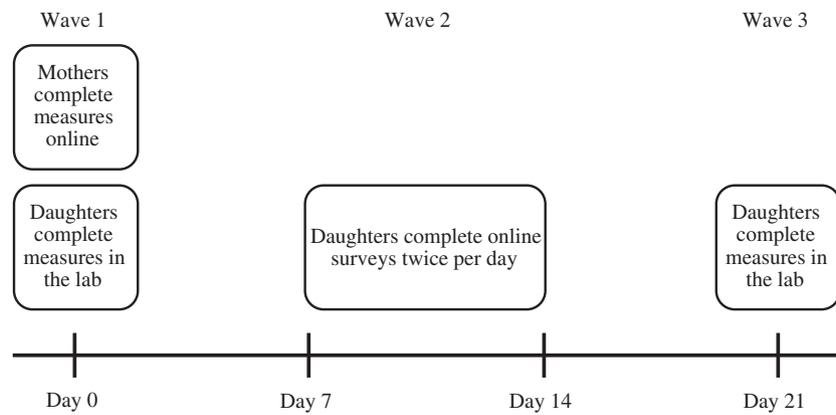


Fig. 1. Study protocol.

eating measure. Daughters were then debriefed and compensated with either \$25 or \$10 and three bonus points towards a psychology class.

#### 2.4. Data analytic strategy

We conducted missing value analysis, descriptive statistics, and tests of multivariate normality for all variables. Path analysis was used to test the path model for the perfectionism model of binge eating (see Fig. 2). We tested hypothesized indirect effects via bootstrapping.

### 3. Results

#### 3.1. Protocol compliance and missing data

All daughters in our study had their mother participate. Most daughters (99.1%) who completed Wave 1 also completed Wave 2, providing a total of 2575 diaries. Same day diaries (i.e., midday and bedtime diaries) were submitted roughly 8 h apart ( $M = 8.40$ ,  $SD = 4.51$ ). A total of 52 diaries were excluded as they were provided less than 2 h apart, meaning 2523 diaries (98.0%) were provided in a timely, useable manner and retained in the final sample. On average, daughters completed 11.81 (of a possible 14) daily diaries ( $SD = 2.54$ ). Response rates were high, with rates that ranged from a high of 96.1% on Day 2 and Day 3 to a low of 85.3% on Day 7. Most daughters who completed Wave 1 also completed Wave 3 (99.5%), and did so in a timely manner consistent with our protocol (i.e.,  $M = 21.51$  days after Wave 1,  $SD = 2.13$ ).

Missing data were minimal across all waves of our study (0.5 to 1.4%) and were missing completely at random as indicated by a

nonsignificant Little's Missing Completely at Random test,  $\chi^2(37, N = 218) = 37.38$ ,  $p = .45$  (Little, 1988). Given this minimal and completely random missing data, we handled missing data with expectation maximization in SPSS 17.0.

#### 3.2. Descriptive statistics and multivariate normality

Means, standard deviations, and bivariate correlations are presented in Table 1. For all our analyses, daughters' discrepancies, depressive affect, and dietary restraint were aggregated from all available daily diary data. Bivariate correlations showed daughters' Wave 1 socially prescribed perfectionism is not significantly related to mothers' Wave 1 psychological control. Daughters' Wave 1 socially prescribed perfectionism is significantly related to daughters' Wave 1 binge eating, Wave 2 discrepancies, Wave 2 depressive affect, Wave 2 dietary restraint, and Wave 3 binge eating. In addition, mothers' Wave 1 psychological control is significantly related to daughters' Wave 2 discrepancies, Wave 2 depressive affect, and Wave 2 dietary restraint, but is not significantly related to Wave 1 and 3 binge eating. Daughters' Wave 1 binge eating, Wave 2 discrepancies, Wave 2 depressive affect, Wave 2 dietary restraint, and Wave 3 binge eating are significantly interrelated. Most demographics (i.e., age, year in university, years of formal education, ethnicity, relationship status, mothers' BMI) were not significantly correlated with the model variables. Country of birth had insufficient variability to analyze. Daughters' BMI was significantly correlated with daughters' Wave 1 socially prescribed perfectionism ( $r = .21$ ,  $p < .01$ ) and daughters' Wave 2 discrepancies ( $r = .17$ ,  $p < .05$ ). As such, we used daughters' BMI as a covariate when testing the model. Overall, correlations in the present study resemble earlier research (Mackinnon et

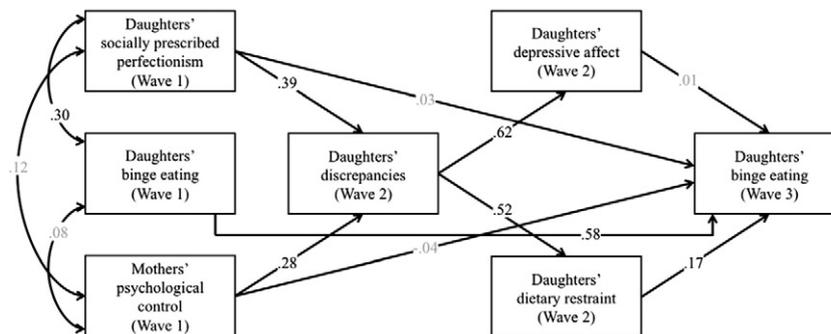


Fig. 2. The path model for the perfectionism model of binge eating. Rectangles represent observed variables. Single-headed arrows represent hypothesized paths. Double-headed arrows represent hypothesized correlations. Significant standardized coefficients are shown in black ( $p < .05$ ). Nonsignificant standardized coefficients are shown in gray. In the interest of clarity, error terms are not displayed. We included daughters' Wave 1 BMI as a covariate; however, in the interest of clarity, daughters' Wave 1 BMI is not displayed. Daughters' Wave 1 BMI was significantly and positively correlated ( $r = .30$ ,  $p < .01$ ) with daughters' Wave 1 socially prescribed perfectionism and unrelated ( $p > .05$ ) to daughters' Wave 1 binge eating, mothers' Wave 1 psychological control, daughters' Wave 2 discrepancies, depressive affect, and dietary restraint, and daughters' Wave 3 binge eating.

al., 2011; Sherry & Hall, 2009) and suggest merit in testing the perfectionism model of binge eating.

Small's omnibus test indicated our data were multivariate nonnormal (DeCarlo, 1997). Thus, two procedures robust to multivariate nonnormality were used in our study. Specifically, we used the Bollen–Stine bootstrap measure of model fit and we calculated parameter estimates using bias-corrected bootstraps with 20,000 ( $N=218$ ) bootstrap samples (Kline, 2005).

### 3.3. Path analysis

We assessed model fit with the Bollen–Stine bootstrap measure,  $\chi^2/df$  ratio, comparative fit index (CFI), and root-mean-square error of approximation (RMSEA) with a 90% confidence interval (90% CI). A well-fitting model is indicated by a nonsignificant Bollen–Stine bootstrap measure ( $p>.05$ ),  $\chi^2/df$  around 2, CFI $>.95$ , and RMSEA $<.08$  (Kline, 2005).

#### 3.3.1. Direct effects

The path model shown in Fig. 2 fit the data well: Bollen–Stine bootstrap  $p=.16$ ,  $\chi^2/df=2.06$ , CFI $=.98$ , RMSEA $=.07$  (90% CI: .02, .11). As hypothesized, daughters' Wave 1 binge eating was significantly related to daughters' Wave 3 binge eating, daughters' Wave 1 socially prescribed perfectionism was unrelated to mothers' Wave 1 psychological control, and daughters' Wave 1 socially prescribed perfectionism was significantly related to daughters' Wave 1 binge eating. In addition, daughters' Wave 1 socially prescribed perfectionism and mothers' Wave 1 psychological control were both significantly related to daughters' Wave 2 discrepancies, daughters' Wave 2 discrepancies were significantly related to daughters' Wave 2 depressive affect and dietary restraint, and daughters' Wave 2 dietary restraint was significantly related to daughters' Wave 3 binge eating. Unexpectedly, mothers' Wave 1 psychological control was not significantly correlated with daughters' Wave 1 binge eating, and daughters' Wave 2 depressive affect was not significantly related to daughters' Wave 3 binge eating. As expected, daughters' Wave 1 socially prescribed perfectionism and mothers' Wave 1 psychological control were not significantly related to daughters' Wave 3 binge eating as direct effects. Next, we tested if these two variables indirectly affected daughters' Wave 3 binge eating and the other variables of the model.

#### 3.3.2. Indirect effects

We computed indirect effects by multiplying path coefficients from the predictors to the mediators and from the mediators to the criterion. To test the significance of our indirect effects, we used random sampling with replacement to create 20,000 ( $N=218$ ) bootstrap samples from the original data. From these samples, we estimated bias-corrected standard errors and 95% CIs. A 95% CI that does not include zero

suggests the indirect effect is significant ( $p<.05$ ; Mallinckrodt, Abraham, Wei, & Russell, 2006). All hypothesized indirect effects were significant as shown in Table 2. We found that both daughters' Wave 1 socially prescribed perfectionism and mothers' Wave 1 psychological control indirectly affected (a) daughters' Wave 2 depressive affect (via daughters' Wave 2 discrepancies), (b) daughters' Wave 2 dietary restraint (via daughters' Wave 2 discrepancies), and (c) daughters' Wave 3 binge eating (via all three binge triggers). In addition, daughters' Wave 2 discrepancies indirectly affected daughters' Wave 3 binge eating via daughters' Wave 2 depressive affect and dietary restraint.

## 4. Discussion

Our study represents a needed advance in the perfectionism and binge eating literature. We tested and generally found support for a version of the perfectionism model of binge eating that emphasized the importance of daughters' socially prescribed perfectionism and mothers' psychological control in understanding daughters' binge triggers and binge eating. This model fit the data reasonably well, with six of seven hypothesized direct effects and all seven hypothesized indirect effects receiving support. Overall, the present study highlights the important influence that a mother–daughter relationship can have on daughters' binge triggers and binge eating and suggests that researchers should carefully consider both the interpersonal and the characterological context within which binge eating occurs.

### 4.1. The perfectionism model of binge eating in mother–daughter dyads

Little is known about why people binge eat. Our study integrates socially prescribed perfectionism, maternal psychological control, and three binge triggers into a coherent model organized around the mother–daughter relationship. Our study offers the most rigorous, comprehensive test of the perfectionism model of binge eating to date. Consistent with hypotheses and previous research (Mackinnon et al., 2011), binge eating was temporally stable in the present study. Controlling for this stability allowed us to stringently test the role of model variables in predicting changes in daughters' binge eating from Wave 1 to Wave 3.

Daughters' socially prescribed perfectionism and mothers' psychological control were unrelated in our study. The mother–daughter relationship is nuanced and replete with opportunities for (mis)interpretations. For instance, a daughter reporting that her mother is controlling and demanding may reflect exposure to a psychologically controlling mother or may reflect a daughter high in socially prescribed perfectionism who erroneously perceives her mother as controlling and demanding. Our results, along with other studies (Soenens et al., 2005, 2008a), suggest that perceiving one's mother as demanding perfection may have little to do with whether one's mother actually behaves in a controlling and demanding manner.

Consistent with prior work (Sherry & Hall, 2009), and as expected, daughters' socially prescribed perfectionism was positively and significantly correlated with daughters' binge eating. Socially prescribed perfectionism may encapsulate several core attributes of, or key concerns for, people who binge eat (Sherry & Hall, 2009). In testing our model, daughters' BMI was positively and significantly correlated with daughters' socially prescribed perfectionism, but was unrelated to other model variables. Longitudinal research is needed to understand the BMI-socially prescribed perfectionism link. Socially prescribed perfectionism may be associated with chronic binge eating that contributes to weight gain over time.

As predicted, daughters who perceived pressure from their mothers to be perfect viewed their mothers as dissatisfied with them and disappointed in them (i.e., daughters' discrepancies). This is consistent with work suggesting socially prescribed perfectionism leads to perceptions of having let others down (Sherry & Hall, 2009). Daughters who are high in socially prescribed perfectionism are in a bind. On the one

**Table 1**  
Means, standard deviations, and bivariate correlations.

Variable	M	SD	1	2	3	4	5	6	7
1. Daughters' Wave 1 socially prescribed perfectionism	15.06	8.08	–						
2. Daughters' Wave 1 binge eating	8.67	5.42	.24	–					
3. Mothers' Wave 1 psychological control	10.04	2.27	.16	.07	–				
4. Daughters' Wave 2 discrepancies	4.20	2.41	.36	.26	.31	–			
5. Daughters' Wave 2 depressive affect	1.56	1.76	.31	.20	.23	.61	–		
6. Daughters' Wave 2 dietary restraint	5.71	2.93	.28	.16	.23	.51	.43	–	
7. Daughters' Wave 3 binge eating	7.36	4.39	.21	.60	.05	.17	.18	.25	–

Note. A bivariate correlation of .10 is a small effect size, a bivariate correlation of .30 is a medium effect size, and a bivariate correlation of .50 is a large effect size. Bivariate correlations greater than .16 are significant at  $p<.05$ ; bivariate correlations greater than .18 are significant at  $p<.01$ ; and bivariate correlations greater than .23 are significant at  $p<.001$ .

**Table 2**  
Bootstrap analyses of indirect effects.

Hypothesized indirect effect	Unstandardized indirect effect ( <i>B</i> )	Standardized indirect effect ( $\beta$ )	Bootstrap estimates	
			SE for standardized indirect effect	95% confidence interval for standardized indirect effect (lower and upper)
Daughters' Wave 1 socially prescribed perfectionism to daughters' Wave 2 depressive affect	.053	.243	.046	.151, .331***
Daughters' Wave 1 socially prescribed perfectionism to daughters' Wave 2 dietary restraint	.077	.203	.040	.127, .283***
Daughters' Wave 1 socially prescribed perfectionism to daughters' Wave 3 binge eating	.019	.036	.018	.003, .075*
Daughters' Wave 2 discrepancies to daughters' Wave 3 binge eating	.164	.091	.044	.003, .177*
Mothers' Wave 1 psychological control to daughters' Wave 2 depressive affect	.137	.175	.089	.038, .371**
Mothers' Wave 1 psychological control to daughters' Wave 2 dietary restraint	.199	.147	.078	.033, .328**
Mothers' Wave 1 psychological control to daughters' Wave 3 binge eating	.050	.026	.016	.007, .081**

Note. SE = bias-corrected standard error.

\*  $p < .05$ .  
 \*\*  $p < .01$ .  
 \*\*\*  $p < .001$ .

hand, they want approval and acceptance from their mothers (Hewitt et al., 2006); on the other hand, our results indicate that these daughters often perceive the opposite from their mothers – disapproval and rejection.

Congruent with previous research (Sherry & Hall, 2009), and as expected, daughters' socially prescribed perfectionism influenced daughters' depressive affect and dietary restraint via daughters' discrepancies and influenced daughters' binge eating via all binge triggers. Socially prescribed perfectionism thus appears to represent an underlying personality trait that places daughters at risk for binge eating by setting conditions (e.g., caloric deprivation) in which bingeing is likely to occur. Our results highlight the importance that daughters' beliefs their mothers are demanding perfection of them have on daughters' emotions and behaviors and suggest that these beliefs add incrementally to our understanding of the variables of our model beyond maternal psychological control.

Contrary to hypotheses, mothers' Wave 1 psychological control was not significantly related to daughters' binge eating. Significant correlations observed between mothers' psychological control and daughters' disordered eating in earlier studies (Salafia et al., 2009) may reflect correlations artificially inflated by having daughters report on both their eating behaviors and on their mothers' parenting. Our study is the first (that we know of) to test the influence of maternal psychological control on binge eating specifically. It is possible that, as our results suggest, mothers' psychological control is only indirectly related to daughters' binge eating via daughters' discrepancies, depressive affect, and dietary restraint.

Our study suggests mothers' psychological control plays a unique role in influencing daughters by contributing to situations that trigger binge eating. Mothers' psychological control does not appear redundant with daughters' socially prescribed perfectionism when it comes to understanding daughters' discrepancies, depressive affect, and dietary restraint. Consistent with hypotheses, mothers' psychological control contributed to daughters' depressive affect and daughters' dietary restraint through daughters' discrepancies and to daughters' binge eating through all three binge triggers. Psychologically controlling mothers exert pressure on their daughters by holding excessive and rigid expectations for them, showing that failure is unacceptable, and withholding love and acceptance unless high standards are met (Barber & Harmon, 2002). This parenting style makes it hard for daughters to develop a healthy and realistic view of themselves (Barber, 1996). Our results suggest daughters evaluate themselves based on how they are measuring up to their mothers' expectations. It is possible daughters have not developed, or do not pursue, their own expectations because they are

too busy trying to live up to their mothers' expectations. Perceiving a discrepancy between how they are and how their mothers expect them to be, daughters feel sad, attempt to restrict their diet, and binge eat.

Overall, our findings suggest both perceiving pressure from their mothers to be perfect (i.e., daughters' socially prescribed perfectionism) and experiencing demanding and controlling behavior from their mothers (i.e., mothers' psychological control) leaves daughters feeling they have let their mothers down (i.e., daughters' discrepancies). Similar to past tests of the perfectionism model of binge eating (Mackinnon et al., 2011; Sherry & Hall, 2009), and as predicted, we found that daughters' discrepancies are directly related to daughters' depressive affect and dietary restraint, and indirectly related to daughters' binge eating. Feeling unable to meet their mothers' expectations is upsetting for daughters who often believe (accurately or not) that approval and acceptance from their mothers is contingent on meeting their mothers' expectations. As such, daughters are prone to periods of depressive affect arising from their perceptions of not living up to their mothers' expectations. Perceiving pressure to be perfect from one's mother and participating in a psychologically controlling mother–daughter relationship may lead to attempts at dietary restraint. Daughters may believe that by achieving and presenting an image of perfectionism (i.e., an idealized, socially sanctioned thin body), they will receive the acceptance and approval from their mothers that they desire. Lastly, our results suggest viewing oneself as falling short of one's mother's expectations leads to episodes of binge eating, which may be used in an attempt to cope with or escape from negative feelings or to counteract the effects of caloric restriction (Mackinnon et al., 2011). Unfortunately, binge eating is unlikely to result in lasting positive effects and may result in further feelings of having let others down (Mushquash & Sherry, 2012).

A caveat to our generally supportive results was the nonsignificant path between Wave 2 depressive affect and Wave 3 binge eating. This was somewhat unexpected as our correlational analyses, and past research (Haedt-Matt & Keel, 2011), links depressive affect to binge eating. Nonetheless, Sherry and Hall (2009) also failed to find support for the depressive affect–binge eating path in the perfectionism model of binge eating. Thus, in the context of our model (i.e., a multivariate model with five putative contributors to binge eating), depressive affect may not predict binge eating. That said, it is premature to rule out depressive affect as an antecedent of binge eating. For example, the null path between Wave 2 depressive affect and Wave 3 binge eating may have occurred because too much time (i.e., 1 week) elapsed between these measurement occasions.

#### 4.2. Limitations and future directions

Though our study addresses notable conceptual and methodological gaps in the research literature, we acknowledge several limitations. The 1-week temporal spacing between Waves 1, 2, and 3 and the twice-a-day daily diary reporting schedule used in our study may have impacted results. Future studies should use different temporal spacing between waves (e.g., 6 months) and different reporting schedules (e.g., event contingent reporting) to test the perfectionism model of binge eating. In addition, our socially prescribed perfectionism and discrepancies measures were modified to be mother-specific. Although evidence from our study suggests that these modified measures are reliable and valid, ultimately, less is known about their psychometric properties.

The perfectionism model of binge eating predicted, and our results supported, a unidirectional pattern of influence wherein mothers impacted daughters. Nonetheless, bidirectional patterns of influence, where daughters behave in ways that evoke certain responses or behaviors from their mothers may also be present and require empirical testing. Assessing maternal psychological control from the mothers' perspective is an advantage of our study. However, we acknowledge that mothers' reports of psychological control could be biased or distorted due to underreporting, responding defensively, or limited insight.

Our study involved female undergraduates who were mostly young, advantaged, and Caucasian. It remains to be seen if our results generalize to other populations. Future research should test the perfectionism model of binge eating with daughters at other developmental stages (e.g., adolescence), with participants who exhibit more severe perfectionism and binge eating (e.g., clinical samples), or with other cultural groups (e.g., Asians). In the present study, we also used a dimensional model of binge eating, focusing mainly on mild to moderate levels. While these levels are associated with significant impairment in young women (Keel et al., 2007), additional research focusing on more severe binge eating levels is needed. Future investigations might also consider categorical models of binge eating in which participants are asked to record only discrete episodes of binge eating that meet a specific, operational definition.

#### 4.3. Conclusions

Fundamental to ending patterns of binge eating is understanding how interpersonal and characterological variables work in concert to generate binge eating. The present study brings researchers and clinicians closer to achieving this important goal.

#### Role of funding source

Funding for this study was provided by a Capital Health Research Fund grant provided by the Capital District Health Authority awarded to Aislin R. Mushquash, Dayna L. Sherry, and Simon B. Sherry. This funding source had no involvement in the study design, data collection, analysis, or interpretation of data, writing the manuscript, and the decision to submit the manuscript for publication.

#### Contributors

In consultation with Simon B. Sherry, Aislin R. Mushquash designed the study, wrote the study protocol, conducted literature searches, conducted statistical analyses, and wrote the draft of the manuscript. Simon B. Sherry provided feedback on the manuscript. All authors approved the final manuscript.

#### Conflict of interest

All authors declare that they have no conflicts of interest.

#### Acknowledgments

We thank Stephanie Allen, Zachary Bordman, Bryanne Harris, Renee Kinden, Margaret Lapp, Katie Stevens, and Minzhou Sun for their research assistance.

#### References

- Bagby, R. M., Parker, J. D., Joffe, R. T., & Buis, T. (1994). Reconstruction and validation of the Depressive Experiences Questionnaire. *Assessment*, 1, 59–68. <http://dx.doi.org/10.1177/1073191194001001009>.
- Barber, B. K. (1996). Parental psychological control: Revisiting a neglected construct. *Child Development*, 67, 3296–3319. <http://dx.doi.org/10.2307/1131780>.
- Barber, B. K., & Harmon, E. L. (2002). Violating the self: Parental psychological control of children and adolescents. In B. K. Barber (Ed.), *Intrusive parenting* (pp. 15–52). Washington, DC: American Psychological Association.
- Barber, B. K., Stolz, E., & Olsen, J. A. (2005). Parental support, psychological control, and behavioral control: Assessing relevance across time: U.S. analyses and results. *Monographs of the Society for Research in Child Development*, 70, 26–57.
- Bardone-Cone, A. M., Abramson, L. Y., Vohs, K. D., Heatherton, T. F., & Joiner, T. (2006). Predicting bulimic symptoms: An interactive model of self-efficacy, perfectionism, and perceived weight status. *Behaviour Research and Therapy*, 44, 27–42. <http://dx.doi.org/10.1016/j.brat.2004.09.009>.
- Boone, L., Soenens, B., & Braet, C. (2011). Perfectionism, body dissatisfaction, and bulimic symptoms. *Journal of Social and Clinical Psychology*, 30, 1043–1068. <http://dx.doi.org/10.1521/jscp.2011.30.10.1043>.
- Boone, L., Soenens, B., Mouratidis, A., Vansteenkiste, M., Verstuyf, J., & Braet, C. (2012). Daily fluctuations in perfectionism dimensions and their relation to eating disorder symptoms. *Journal of Research in Personality*, 46, 678–687.
- Bruch, H. (1979). *The golden cage*. Cambridge, MA: Harvard University.
- Cole, D., & Maxwell, S. (2003). Testing mediational models with longitudinal data. *Journal of Abnormal Psychology*, 112, 558–577. <http://dx.doi.org/10.1037/0021-843X.112.4.558>.
- DeCarlo, L. T. (1997). On the meaning and use of kurtosis. *Psychological Methods*, 2, 292–307. <http://dx.doi.org/10.1037/1082-989X.2.3.292>.
- Fitzgibbon, M. L., Sanchez-Johnsen, L. P., & Martinovich, Z. (2003). A test of the continuity perspective across bulimic and binge eating pathology. *International Journal of Eating Disorders*, 34, 83–97.
- Fletcher, K. L., Shim, S., & Wang, C. (2012). Perfectionistic concerns mediate the relationship between psychologically controlling parenting and achievement goal orientations. *Personality and Individual Differences*, 52, 876–881. <http://dx.doi.org/10.1016/j.paid.2012.02.001>.
- Flett, G. L., Hewitt, P. L., Oliver, J. M., & Macdonald, S. (2002). Perfectionism in children and their parents: A developmental analysis. In G. L. Flett, & P. L. Hewitt (Eds.), *Perfectionism: Theory, research, and treatment* (pp. 89–132). Washington, DC: American Psychological Association.
- Garner, D. M., Olmstead, M. P., & Polivy, J. (1983). Development and validation of a multidimensional eating disorder inventory for anorexia nervosa and bulimia. *International Journal of Eating Disorders*, 2, 15–34. [http://dx.doi.org/10.1002/1098-108X\(198321\)2<2<15](http://dx.doi.org/10.1002/1098-108X(198321)2<2<15).
- Haedt-Matt, A. A., & Keel, P. K. (2011). Revisiting the affect regulation model of binge eating: A meta-analysis of studies using ecological momentary assessment. *Psychological Bulletin*, 137, 660–681. <http://dx.doi.org/10.1037/a0023660>.
- Heatherton, T. F., & Baumeister, R. F. (1991). Binge eating as escape from self-awareness. *Psychological Bulletin*, 110, 86–108. <http://dx.doi.org/10.1037/0033-2909.110.1.86>.
- Herman, C. P., & Polivy, J. (2004). The self-regulation of eating. In R. F. Baumeister, & K. D. Vohs (Eds.), *Handbook of self-regulation* (pp. 492–508). New York, NY: Guilford.
- Hewitt, P. L., & Flett, G. L. (1991). Perfectionism in the self and social contexts: Conceptualization, assessment, and association with psychopathology. *Journal of Personality and Social Psychology*, 60, 456–470. <http://dx.doi.org/10.1037/0022-3514.60.3.456>.
- Hewitt, P. L., Flett, G. L., Sherry, S. B., & Caelian, C. F. (2006). Trait perfectionism dimensions and suicide behavior. In T. E. Ellis (Ed.), *Cognition and suicide: Theory, research, and practice* (pp. 215–235). Washington, DC: American Psychological Association.
- Hewitt, P. L., Habke, A. M., Lee-Bagley, D. L., Sherry, S. B., & Flett, G. L. (2008). The impact of perfectionistic self-presentation on the cognitive, affective, and physiological experience of a clinical interview. *Psychiatry: Interpersonal and Biological Processes*, 71, 93–122. <http://dx.doi.org/10.1521/psyc.2008.71.2.93>.
- Keel, P. K., Baxter, M. G., Heatherton, T. F., & Joiner, T. (2007). A 20-year longitudinal study of body weight, dieting, and eating disorder symptoms. *Journal of Abnormal Psychology*, 116, 422–432. <http://dx.doi.org/10.1037/0021-843X.116.2.422>.
- Kline, R. (2005). *Principles and practice of structural equation modeling*. New York, NY: Guilford.
- Laurenceau, J., & Bolger, N. (2005). Using diary methods to study marital and family processes. *Journal of Family Psychology*, 19, 86–97. <http://dx.doi.org/10.1037/0893-3200.19.1.86>.
- Little, R. J. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association*, 83, 1198–1202. <http://dx.doi.org/10.2307/2290157>.
- Mackinnon, S. P., Sherry, S. B., Antony, M. M., Stewart, S. H., Sherry, D. L., & Hartling, N. (2012). Caught in a bad romance: Perfectionism, conflict and depression in romantic relationships. *Journal of Family Psychology*, 26, 215–225. <http://dx.doi.org/10.1037/a0027402>.
- Mackinnon, S. P., Sherry, S. B., Graham, A. R., Stewart, S. H., Sherry, D. L., Allen, S. L., et al. (2011). Reformulating and testing the perfectionism model of binge eating. *Journal of Counseling Psychology*, 58, 630–646. <http://dx.doi.org/10.1037/a0025068>.
- Mallinckrodt, B., Abraham, W. T., Wei, M., & Russell, D. W. (2006). Advances in testing the statistical significance of mediation effects. *Journal of Counseling Psychology*, 53, 372–378. <http://dx.doi.org/10.1037/0022-0167.53.3.372>.
- McCabe, M. P., & Ricciardelli, L. A. (2005). A prospective study of pressures from parents, peers, and the media on extreme weight change behaviors among adolescent

- boys and girls. *Behaviour Research and Therapy*, 43, 653–668. <http://dx.doi.org/10.1016/j.brat.2004.05.004>.
- McNair, D. M., Lorr, M., & Droppleman, L. F. (1992). *Profile of Mood States manual*. San Diego, CA: Educational and Industrial Testing Service.
- Mushquash, A. R., & Sherry, S. B. (2012). Understanding the socially prescribed perfectionist's cycle of self-defeat: A 7-day, 14-occasion daily diary study. *Journal of Research in Personality*, 46, 700–709. <http://dx.doi.org/10.1016/j.jrp.2012.08.006>.
- Polivy, J., & Herman, C. P. (2002). Causes of eating disorders. *Annual Review of Psychology*, 53, 187–213. <http://dx.doi.org/10.1146/annurev.psych.53.100901.135103>.
- Pratt, E. M., Telch, C. F., Labouvie, E. W., Wilson, G., & Agras, W. (2001). Perfectionism in women with binge eating disorder. *International Journal of Eating Disorders*, 29, 177–186. [http://dx.doi.org/10.1002/1098-108X\(200103\)29:2<177::AID-EAT1007>3.0.CO;2-X](http://dx.doi.org/10.1002/1098-108X(200103)29:2<177::AID-EAT1007>3.0.CO;2-X).
- Rieger, E., Van Buren, D. J., Bishop, M., Tanofsky-Kraff, M., Welch, R., & Wilfley, D. E. (2010). An eating disorder-specific model of interpersonal psychotherapy (IPT-ED). *Clinical Psychology Review*, 30, 400–410. <http://dx.doi.org/10.1016/j.cpr.2010.02.001>.
- Salafia, E., Gondoli, D. M., Corning, A. F., Bucchianeri, M. M., & Godinez, N. M. (2009). Longitudinal examination of maternal psychological control and adolescents' self-competence as predictors of bulimic symptoms among boys and girls. *International Journal of Eating Disorders*, 42, 422–428. <http://dx.doi.org/10.1002/eat.v42:510.1002/eat.20626>.
- Sherry, S. B., & Hall, P. A. (2009). The perfectionism model of binge eating: Tests of an integrative model. *Journal of Personality and Social Psychology*, 96, 690–709. <http://dx.doi.org/10.1037/a0014528>.
- Soenens, B., Elliot, A. J., Goossens, L., Vansteenkiste, M., Luyten, P., & Duriez, B. (2005). The intergenerational transmission of perfectionism: Parents' psychological control as an intervening variable. *Journal of Family Psychology*, 19, 358–366. <http://dx.doi.org/10.1037/0893-3200.19.3.358>.
- Soenens, B., Luyckx, K., Vansteenkiste, M., Luyten, P., Duriez, B., & Goossens, L. (2008a). Maladaptive perfectionism as an intervening variable between psychological control and adolescent depressive symptoms: A three-wave longitudinal study. *Journal of Family Psychology*, 22, 465–474. <http://dx.doi.org/10.1037/0893-3200.22.3.465>.
- Soenens, B., Vansteenkiste, M., Vandereycken, W., Luyten, P., Sierens, E., & Goossens, L. (2008b). Perceived parental psychological control and eating-disordered symptoms: Maladaptive perfectionism as a possible intervening variable. *The Journal of Nervous and Mental Disease*, 196, 144–152. <http://dx.doi.org/10.1097/NMD.0b013e318162aabf>.
- Striegel-Moore, R. H., Fairburn, C. G., Wilfley, D. E., Pike, K. M., Dohm, F., & Kraemer, H. C. (2005). Toward an understanding of risk factors for binge-eating disorder in Black and White women. *Psychological Medicine: A Journal of Research in Psychiatry and the Allied Sciences*, 35, 907–917. <http://dx.doi.org/10.1017/S0033291704003435>.
- van Strien, T., Frijters, J. E., Bergers, G. P., & Defares, P. B. (1986). The Dutch Eating Behavior Questionnaire (DEBQ) for assessment of restrained, emotional, and external eating behavior. *International Journal of Eating Disorders*, 5, 295–315. <http://dx.doi.org/10.1002/1098-108X>.
- Wonderlich, S. A., Gordon, K. H., Mitchell, J. E., Crosby, R. D., & Engel, S. G. (2009). The validity and clinical utility of binge eating disorder. *International Journal of Eating Disorders*, 42, 687–705. <http://dx.doi.org/10.1002/eat.2071>.