

University of Groningen

## Disentangling relations between the desirability of the thin-ideal, body checking, and worry on college women's weight-loss dieting

Dalley, Simon E.; Vidal, Jose; Buunk, Abraham P.; Schmitt, Silvia; Haugwitz, Ann-Christin von ; Kinds, Nicole A.; Vlasma, Anita

*Published in:*  
Eating Behaviors

*DOI:*  
[10.1016/j.eatbeh.2019.101312](https://doi.org/10.1016/j.eatbeh.2019.101312)

**IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.**

*Document Version*  
Publisher's PDF, also known as Version of record

*Publication date:*  
2019

[Link to publication in University of Groningen/UMCG research database](#)

### *Citation for published version (APA):*

Dalley, S. E., Vidal, J., Buunk, A. P., Schmitt, S., Haugwitz, A-C., Kinds, N. A., & Vlasma, A. (2019). Disentangling relations between the desirability of the thin-ideal, body checking, and worry on college women's weight-loss dieting: A self-regulation perspective. *Eating Behaviors*, 34, [101312]. <https://doi.org/10.1016/j.eatbeh.2019.101312>

### **Copyright**

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

### **Take-down policy**

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.



## Disentangling relations between the desirability of the thin-ideal, body checking, and worry on college women's weight-loss dieting: A self-regulation perspective

Simon E. Dalley<sup>a</sup>, Jose Vidal<sup>b,\*</sup>, Abraham P. Buunk<sup>a</sup>, Silvia Schmitt<sup>a</sup>, Ann-Christin von Haugwitz<sup>a</sup>, Nicole A. Kinds<sup>a</sup>, Anita Vlasma<sup>a</sup>

<sup>a</sup> University of Groningen, Faculty of Behavioural and Social Sciences, Grote Kruisstraat 2/1, 9712, TS, Groningen, Netherlands

<sup>b</sup> University of Valencia, Department of Research Methods and Diagnosis in Education

### ARTICLE INFO

#### Keywords:

Body checking  
Desirability  
Thin-ideal  
Worry  
Weight-loss dieting

### ABSTRACT

The study used self-regulation theory to elucidate the relationships between the desirability of the thin-ideal goal, dispositional worry, body checking and weight-loss dieting (WLD) in college women. We hypothesized that body checking would mediate the relationship between the desirability of the thin-ideal goal and WLD: the desire to be thin would be associated with more WLD through more frequent body checking. We also hypothesized that dispositional worry would moderate this mediation pathway, such that the mediation pathway would be stronger for those higher in worry. Finally, all effects were expected to occur when controlling for self-reported body size. A paper and pencil survey was conducted on a convenience sample of 237 college women who completed measures of: thin-ideal desirability, dispositional worry, body checking, WLD, as well as providing height and weight. A bootstrap analysis using PROCESS (Hayes, 2013) supported the hypothesized moderated mediation model. Findings add to current knowledge by elucidating the nature and function of body checking, and by so doing may provide insight into the prevention and treatment of disordered eating.

### 1. Introduction

Body checking refers to the repeated scrutiny of one's body size, shape and weight (Shafran, Lee, Payne, & Fairburn, 2007), and is associated with body dissatisfaction and eating disorder symptoms in women (Nikodijevic, Buck, Fuller-Tyszkiewicz, & de Paoloi, 2018). Moreover, in a recent network analysis (i.e., where the characteristics of eating pathology are represented as networks of interacting, self-reinforcing symptoms) body checking emerged as the most important single symptom of eating disorder psychopathology (Forbush, Siew, & Vitevitch, 2016). Despite these findings empirical examination about the nature and function of body checking is limited (Lavender et al., 2013). With this in mind, we place body checking within a self-regulation framework (Carver & Scheier, 1998). Specifically we propose that body checking serves to not only monitor progress toward a thin-ideal goal but, in so doing, also motivates weight-loss dieting (WLD). We further propose that the disposition to worry in general exacerbates this goal monitoring and thus further increases WLD (i.e., behavior directed at weight-loss or weight maintenance purposes).

Self-regulation, broadly speaking, refers to the processes by which

individuals go about pursuing and accomplishing their goals (Carver & Scheier, 1998). A goal is a cognitive representation of a desired future state that a person wants to achieve (Moskowitz & Grant, 2009). Within the body image domain, a central goal for many women in contemporary western society is the desire to achieve an extreme level of thinness (Schaefer et al., 2015; Thompson & Stice, 2001). This goal representation is thought to be manifested in the form of a thin-ideal body shape, which is itself established and maintained by family members, peers and the media that individually, or together, communicate the benefits of thinness (Thompson & Stice, 2001). The thin-ideal goal, its social reinforcement and the resulting behaviors targeted at achieving the thin-ideal goal are, together, often referred to as internalization in the body image literature (Schaefer et al., 2015). Our aim in this paper is to use self-regulation theory to elucidate the process by which the thin-ideal goal influences WLD behaviour.

A significant body of research suggests that the thin-ideal goal is associated with body dissatisfaction and eating pathology (Cafri, Yamamiya, Brannick, & Thompson, 2005; Stice, 2002). Although these findings are consistent with the idea that goals function to provide the impetus for their attainment, relatively little attention has been paid to

\* Corresponding author.

E-mail address: [jovimo2@uv.es](mailto:jovimo2@uv.es) (J. Vidal).

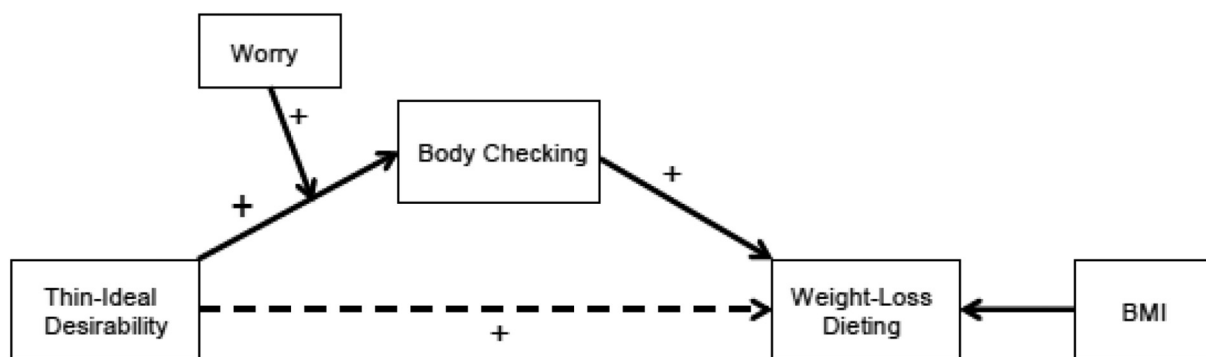


Fig. 1. Proposed moderated mediation model; controlling for body mass index (BMI).

identifying the mechanisms by which the thin-ideal actually influences thinness promoting behaviors. According to contemporary models of self-regulation, these behaviors should be energized and directed by a monitoring process that serves to provide comparative information about distance from a valued or desired goal state (Harkin et al., 2016). In this theoretical framework such a goal serves as a standard of comparison and the more desirable a goal is perceived to be the more frequently it is monitored (Moskowitz, 2012). We reason that the various manifestations of body checking (e.g., frequent weighing, looking in the mirror, and pinching or wrapping hand around stomach, waist, thighs, arms) are ultimately part of a monitoring process that provides comparative information about distance from the thin-ideal goal. In support of this reasoning researchers have reported that body checking is more frequent in those women with higher levels of shape and weight concerns (Leahey, Crowther, & Ciesla, 2011). We therefore hypothesize that the more a woman desires the thin-ideal goal (i.e., the more they want to be thin), the greater is the frequency of body checking because she increasingly needs to monitor distance from the personally important goal state (Bargh, 1990).

Although desirable and valued goal states are monitored closely, behaviors directed at achieving such states are only put into motion when a discrepancy is detected (Moskowitz, 2012). That is to say, where a difference between one's desired goal state and one's current state of being is made salient. It is thought that this form of comparative information energizes behaviour because it enables an individual to recognize when additional effort or self-control is needed in order to reduce the distance from the desired goal (Harkin et al., 2016). Given the extreme thinness of the contemporary female beauty standard, a comparison with the thin-ideal goal should evoke a significant discrepancy and by so doing motivate WLD. Indeed, with increasing levels of body checking the discrepancy from the thin-ideal goal state should become particularly salient and, as a result, promote even higher levels of WLD (Fairburn, Cooper, & Shafran, 2003). In support of this reasoning Bailey and Waller (2017) reported that a body checking manipulation lead to a significant increase in a cognition hypothesized to be relevant to eating pathology: fear of uncontrollable weight gain. Furthermore, recent longitudinal research also lends support to the idea of a causal relationship between body checking and clinical levels of food restriction (Calugi, El Ghoch, & Dalle Grave, 2017). Accordingly, we therefore hypothesize a mediation pathway whereby the more desirable the thin-ideal, the greater will be the frequency of body checking and, following on from this, the greater is the motivation to engage in WLD.

Although we expect body checking will mediate the relationship between the desirability of the thin-ideal goal and WLD, we also expect that this mediation pathway will be stronger for women higher in the disposition to worry (in this paper the use of the term worry refers to the propensity to worry about life in general). Worry has been described as a “chain of thoughts and images, negatively affect laden and relatively uncontrollable” (Borkovec, Robinson, Pruzinsky, & DePree, 1983,

p.10). It is a key cognitive component in the maintenance of anxiety, and typically reflects concerns about potential threatening events (Watkins, 2008). Although research indicates that higher levels of worry are associated with eating disorder symptoms (Sassaroli et al., 2005) few studies have examined how worry is related to disordered eating.

Recently, Sala and Levinson (2016) reported that worry prospectively predicted drive for thinness – a construct implicated in the development and maintenance of eating pathology. Sala and Levinson speculated that if those women predisposed to worry in general, directed this tendency toward worrying about not being thin such women will be more at risk of disordered eating. We propose that these women may be described as being higher in both their desire to achieve the thin-ideal and their disposition to worry, and as such be overly concerned about the potential consequences of failure to acquire their highly desired goal. As a consequence, they should engage in even more body checking so that goal striving can be increased (Watkins, 2008). Consistent with this reasoning worry has been found to promote checking behavior across a variety of domains and is also associated with clinical levels of disordered eating (Nikodijevic et al., 2018; Schut, Castonguay, & Borkovec, 2001). We therefore hypothesize that with increasing desirability of the thin-ideal goal, higher levels of worry will further increase body checking. Following on from this, and because of the increased body checking, there should also be a greater motivation to engage in WLD.

To summarize, we hypothesize that body checking will mediate the relationship between the desirability of the thin-ideal goal and WLD. We also hypothesize that this mediation pathway will be stronger for those women higher in dispositional worry (see Fig. 1). These hypotheses are tested in a population in which WLD and disordered eating are prevalent: college women (Wardle, Haase, & Steptoe, 2006). Finally, we expect our hypotheses to occur over and above self-reported body size. This is because previous research suggests that many women experience body dissatisfaction, WLD and disordered eating despite being within a normal range of body size (Tiggemann, 2011).

## 2. Method

### 2.1. Participants

Two hundred and sixty-two female students originally volunteered to take part in the study. The participants were recruited as a convenience sample from the central university library. Twenty-five participants were excluded from the study because of incomplete questionnaires, leaving a total of 237 students for statistical analysis. Ages ranged from 17 to 36 years, with a mean age of 21.68 ( $SD = 2.58$ ).

## 2.2. Materials

### 2.2.1. Desirability of the thin-ideal

The 5 item Thin/Low Body fat subscale of the Sociocultural Attitude Toward Appearance-4 scale (SATAQ-4; Schaefer et al., 2015) was used to operationalize the thin-ideal goal because it measures essential features of a desirable goal: wanting and cognitive salience [Bargh, 1990; Moskowitz & Grant, 2009] (e.g., “I want my body to look very thin”, “I think a lot about having very little body fat”). The subscale consists of a 5-point Likert scale ranging from 1 (*definitely disagree*) to 5 (*definitely agree*). Higher scores reflect a greater desire to achieve the thin-ideal. The summed items have previously been reported to have an internal reliability of  $\alpha = 0.75$  (Schaefer et al., 2015). In the current sample the Cronbach's alpha was 0.70.

### 2.2.2. Dispositional worry

The Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990) was used to operationalize dispositional worry. This 16-item scale utilizes a 5-point Likert scale ranging from 1 (*Not at all typical of me*) to 5 (*Very typical of me*) and includes items such as: “My worries overwhelm me”. The total score was calculated by reversing items 1, 3, 8, 10, and 11 and adding them to the regular items. Scores ranged from 16 to 80. Meyer et al. (1990) reported an internal reliability in a clinical sample of  $\alpha = 0.87$ , and  $\alpha = 0.95$  in a nonclinical sample. In the current sample the Cronbach's alpha was 0.92.

### 2.2.3. Body checking

The 23-item Body Checking Questionnaire (BCQ; Reas, Whisenhunt, Netemeyer, & Williamson, 2002) was used to operationalize body checking. The BCQ was measured on a 5-point Likert scale ranging from 1 (*never*) to 5 (*very often*) (e.g., “I pinch my stomach to measure fatness”). In previous studies the BCQ has demonstrated a Cronbach's alpha of 0.90, in the current study the Cronbach's alpha was 0.91.

### 2.2.4. Weight-loss dieting (WLD)

The Dietary Intent Scale (DIS; Stice, 1998) was used to operationalize WLD. The DIS assesses dietary restriction over the past six months and has 9 items describing concrete weight-loss or weight-maintenance behaviors (e.g., “I take small helpings in an effort to control my weight,” “I skip meals in an effort to control my weight,” “I sometimes avoid eating in an attempt to control my weight,” “I count calories to try to prevent weight gain”). Responses were scored on a scale ranging from 1 (*never*) to 5 (*always*) and were summed. In Stice's sample of college women the scores on the DIS were found to be internally consistent ( $\alpha = 0.94$ ); in the current study, the Cronbach's alpha was 0.89.

### 2.2.5. Body size

To calculate Body Mass Index (BMI), participant's approximate height and weight was assessed through self-report revealing a mean of 22.07 ( $SD = 2.70$ ). Previous studies have shown a variation of 1% - 3.5% between actual height and weight and subjectively reported values (Bowman & DeLucia, 1992).

## 2.3. Procedure

Ethical approval was sought and obtained from the Faculty ethics committee. Female students were then approached in the university libraries at the University of Groningen. They were informed verbally, as well as in writing, that this was a study about the antecedent and consequences of body checking. After providing signed informed consent the students were asked to complete a pencil and paper questionnaire containing demographic information (i.e., height, weight, and age) and measures of thin-ideal desirability, dispositional worry, body checking behavior, and WLD. Participants then submitted the completed questionnaires into a sealed box that was monitored by a

research assistant. Participants were not compensated for taking part in the study and no information was collected concerning ethnicity. Completed questionnaires were excluded from the statistical analysis if they contained any missing items.

## 2.4. Statistical analysis

The hypothesized moderated-mediation model was examined using the PROCESS macro for SPSS (version 23) which utilizes a bootstrap approach to model testing. Following Hayes (2013), the hypothesized indirect effect and the moderation effect were first examined independently. A moderated-mediation analysis that estimated all parameters simultaneously was then carried out. This analysis provided an index of the moderated-mediation (i.e., the slope of the line reflecting the association between the moderator effect and the indirect effect), as well as estimates of the indirect effect and associated confidence intervals on specified levels of the moderator (i.e., -1SD, Mean, +1SD). Each analysis utilized 5000 bootstrap re-samples, and significance was determined based on 95% bias corrected confidence intervals. The models tested, included thin-ideal desirability as the predictor variable, worry as a moderator, body checking as a mediator, and WLD as the criterion variable. BMI was included as covariate.

## 3. Results

Descriptive and correlation analyses of the measured variables are presented in Table 1 below.

### 3.1. Mediation analysis

Following Hayes (2013) a simple mediation analysis examined the indirect effect of the desirability of the thin-ideal on WLD through body checking. An overall significant model was found ( $F(3, 232) = 65.678$ ,  $p < .001$ ), with 46% of the variance in WLD explained by the predictor variables. There were also significant effects for desirability of the thin-ideal on body checking ( $B = 2.539$ ,  $SE = 0.184$ , 95% CI [2.177, 2.902],  $p < .001$ ), for BMI on body checking ( $B = 0.681$ ,  $SE = 0.249$ , 95% CI [0.190, 1.172],  $p < .001$ ), for the desirability of the thin-ideal on WLD ( $B = 0.444$ ,  $SE = 0.118$ , 95% CI [0.211, 0.676],  $p < .001$ ), for body checking on WLD ( $B = 0.200$ ,  $SE = 0.031$ , 95% CI [0.138, 0.261],  $p < .001$ ) and for BMI on WLD ( $B = 0.561$ ,  $SE = 0.121$ , 95% CI [0.324, 0.799],  $p < .001$ ). The total effect of desirability of the thin-ideal on WLD was also significant ( $B = 0.951$ ,  $SE = 0.095$ , 95% CI [0.764, 1.138],  $p < .001$ ). Both the indirect effect ( $B = 0.507$ ,  $SE = 0.101$ , 95% CI [0.313, 0.705],  $p < .001$ ), and the direct effect of desirability of the thin-ideal on WLD ( $B = 0.444$ ,  $SE = 0.118$ , 95% CI [0.211, 0.676],  $p = .002$ ) were also significant. A Normal Theory test for the indirect effect ( $B = 0.507$ ,  $SE = 0.088$ ,  $z = 5.797$ ,  $p < .001$ ) supported the hypothesis that body checking mediated the relationship between

**Table 1**

Pearson correlations, means and standard deviations of the measured variables.

	1	2	3	4	5
1. WLD	–				
2. Thin-ideal	0.532**	–			
3. Body checking	0.619**	0.667**	–		
4. Worry	0.150*	0.292**	0.298**	–	
5. BMI	0.298**	0.028	0.150*	–0.066	–
Mean	18.495	14.589	47.665	53.076	22.036
SD	6.629	3.655	13.989	11.872	2.685

Note. The unstandardized Pearson correlation coefficients are reported for each variable. Thin-Ideal: Desirability of the Thin-Ideal; WLD: Weight-Loss Dieting; BMI: Body Mass Index.

\*\*  $p < .01$ .

\*  $p < .05$ .

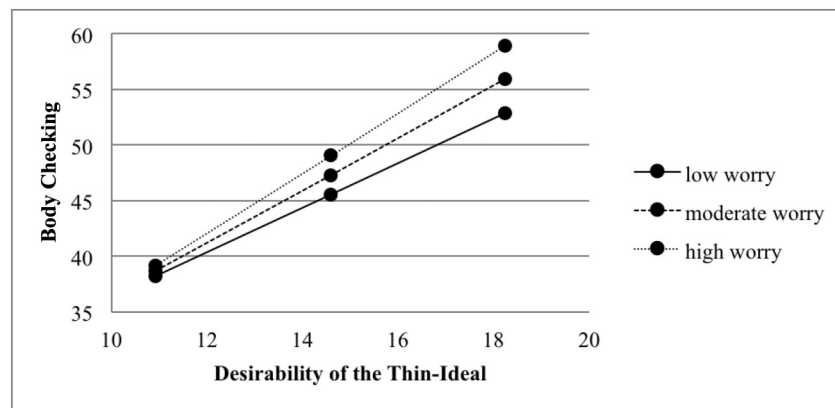


Fig. 2. Interaction between desirability of the thin-ideal and low, average and high levels of dispositional worry on their relationship with body checking. The values are presented using unstandardized data. BMI was a control variable.

thin-ideal desirability and WLD.

### 3.2. Moderation analysis

The second analysis examined the moderating influence of dispositional worry on the relationship between desirability of the thin-ideal and body checking. The overall model was significant, ( $F(4, 231) = 54.702, p < .001$ ), with 49% of the variance explained. There was a single significant main effect of BMI ( $B = 0.731, SE = 0.245, t(235) = 2.982, p = .003$ ). However, there was also a significant interaction effect ( $B = 0.029, SE = 0.014, t(235) = 2.134, p = .034$ ). Specifically, and as shown in Fig. 2, the relationship between desirability of the thin-ideal and body checking significantly increased in magnitude from low- ( $-1SD; B = 2.007, SE = 0.264, p < .001$ ) to moderate- ( $Mean; B = 2.356, SE = 0.190, p < .001$ ) to high- ( $+1SD; B = 2.706, SE = 0.237, p < .001$ ) at increasing levels of dispositional worry.

### 3.3. Moderated mediation analysis

The index of moderated mediation (Hayes, 2015), which reflects the slope of the line representing the association between the moderating variable, dispositional worry, and the indirect effect, was significant ( $B = 0.029, SE = 0.014, 95\% CI [0.002, 0.057], p = .034$ ). Body checking therefore mediated the relationship between desirability of the thin-ideal and WLD across increasing levels of worry: the conditional indirect effect of desirability of the thin-ideal on WLD, through body checking, was significant at low ( $-1SD; B = 0.401, SE = 0.093, 95\% CI [0.233, 0.597]$ ), moderate ( $Mean; B = 0.471, SE = 0.093, 95\% CI [0.291, 0.659]$ ) and high ( $+1SD; B = 0.541, SE = 0.108, 95\% CI [0.341, 0.769]$ ) levels of dispositional worry.

## 4. Discussion

Building on contemporary self-regulation theory we hypothesized that body checking would mediate the relationship between the desirability of the thin-ideal goal and WLD in a sample of college women (Carver & Scheier, 1998). We also hypothesized that the disposition to worry would moderate this mediation pathway. Results were in line with our hypotheses.

The significant mediation pathway is consistent with research and theory indicating that highly desired or valuable goals are monitored more closely than less valuable goals (Moskowitz, 2012). It also converges with the idea that body checking motivates food restriction (Bailey & Waller, 2017; Fairburn et al., 2003; Mountford, Haase, & Waller, 2006). However, the significant mediation pathway could be said to build on this research because it suggests that the motivational

impact of body checking functions in the service of a desirable thin-ideal goal. Thus WLD arising from body checking can be said to be a result of a comparison-based discrepancy which functions to move a woman closer to, or at least maintain distance with, the cultural aesthetic body standard (Harkin et al., 2016). With this in mind, the application of self-regulation theory to body checking makes salient the theme of relativity that is central to many domains of psychology (e.g., social comparison theory): the idea that our experiences and judgements are all made with reference to some standard or frame of reference (Biernat, 2005; Festinger, 1954).

In a recent study Sala and Levinson (2016) speculated that those who directed their general disposition for worry toward worrying about not being thin may be more likely to engage in unhealthy food restriction. Given that some research indicates that WLD is an important predictor of eating pathology (Johnson & Wardle, 2005; Neumark-Sztainer et al., 2006), the findings of this study converge with Sala and Levinson's speculation. Such being the case the findings of this study can, therefore, also be said to provide further insight into how dispositional worry may impact on the development maintenance of disordered eating. Firstly, in this regard, it appears that women who are higher in the disposition to worry and who also greatly desire to achieve contemporary western culture's female thin-ideal are the most likely to worry about not being thin. For these women thinness is presumably a central goal and thus a central focus of worry is about not achieving this goal. Secondly, and following on from this, this study suggests these women are particularly likely to monitor their distance from their thinness goal through body checking. Unfortunately, such checking serves to make their distance from the unrealistic thin-ideal goal particularly salient and, in so doing, energise more extreme levels of WLD which potentially facilitates the development of eating pathology (Fairburn et al., 2003; Harkin et al., 2016). It is important to note here that some research has found WLD to be unrelated to disordered eating (Stice & Burger, 2015) and, indeed, may actually increase body weight (Lowe, Doshi, Katterman, & Feig, 2013). In light of these findings it would seem necessary therefore to replicate this study in a clinical sample and/or utilize a clinical measure of eating pathology as the criterion variable on any predicted moderated mediation model.

In this paper body checking is conceptualized as a means through which women monitor their progress toward the thin-ideal. However, body checking, and thus how women assess their progress toward the thin-ideal goal, may be expressed in a variety of ways. For example, there is a significant body of research arising from the Tripartite Influence Model (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999) demonstrating the importance of social comparison in monitoring distance from the thin-ideal goal (Fitzsimmons-Craft et al., 2012). In this social comparison process women may compare themselves with

various external manifestations of the thin-ideal (e.g., images in magazines, peers, music videos) to assess their goal progress. Alternatively, women may also choose to compare themselves directly (e.g. they compare their body-shape, body-size, or a body part) with the internal goal representation of the thin-ideal. Such being the case, future researchers could examine which particular frames of reference are predominant generally and, perhaps more importantly, identify which of these frames of reference are predominant in a clinical population.

Consistent with previous research self-reported BMI was independently related to both body checking and WLD (Haase, Mountford, & Waller, 2011; Hajtaker, Laake, & Lund, 2001). These relationships suggest that knowledge of one's body size could also play an important role in motivating successful WLD through body checking. Clearly further research is needed examine this mediation pathway. Indeed, an interesting direction of research would be to examine if the reported mediation pathway exists amongst those characterized as obese and overweight. It could be that in this group an avoidance process may predominate over goal monitoring and in so doing reduce the motivation to engage in WLD.

According to self-regulation theory a central focus of intervention should be the perceived desirability of an unachievable thin-ideal because it is this goal state that establishes and maintains the unhealthy regulatory cycle of body checking and WLD. Recent research would therefore indicate that individuals need to first disengage from this form of goal pursuit and then reengage with other personally meaningful health goals (Wrosch, Scheier, Carver, & Schulz, 2003). With regard to disengagement, research by Stice, Shaw, and Marti (2007) indicates that dissonance induction techniques are particularly effective in reducing the adoption or internalization of the thin-ideal goal. With regard to reengagement, research suggests that appearance-focused goals (such as wanting to be thinner) should be replaced with goals focused on the benefits of improving health [e.g., reduce blood pressure, increase cardiovascular fitness]. For example, Putterman and Linden (2004) reported that health goals were much less associated with unhealthy dieting practices and body dissatisfaction than appearance goals. Following on from this the influence of worry could be addressed through compassion-focused therapy (Gilbert, 2009). Such training would not only reduce the need to engage in body checking but would also help in dealing effectively with the consequences of comparing with the various manifestations of the unachievable thin-ideal.

Several limitations of this research should be acknowledged. This study was cross-sectional in nature and thus any associations between the variables should not be interpreted as causal. Indeed, experimental studies (e.g., Bailey & Waller, 2017) as well as longitudinal studies are warranted to help determine the causal links proposed in this paper. For example, since eating pathology is thought to peak in adolescence amongst females (Stice, Marti, & Rhode, 2013), one potential avenue of future research would be to test whether the strength of the mediation pathway found in this paper follows a similar pattern from pre through to post-adolescence. We also did not take account of ethnicity in this study. Since there is evidence that ethnicity can buffer the effects of the thin-ideal goal (Warren, Gleaves, Cepeda-Benito, Fernandez, & Rodriguez-Ruiz, 2005) future studies should take account of how ethnicity could influence the reported moderated mediation model. Finally, the significant moderated mediation model reported in this study was characterized by some relatively small relationships between some of the key variables. This would further underpin the need to replicate the study in a clinical sample where it would be expected that such effects would be larger.

In this study we sought to utilize self-regulation theory to elucidate the combined influence of the desirability of the thin-ideal goal, body checking and worry on WLD. From this perspective body checking is conceptualized as monitoring system that provides comparative information about distance from an unachievable thin-ideal goal, and by so doing motivates WLD. Our findings suggest that women higher in both desirability of the thin-ideal goal and dispositional worry monitor

their distance from the thin-ideal goal very closely. Presumably such active monitoring makes the discrepancy from their thinness goal especially salient and thus motivates increased WLD, which could then put them at risk of eating pathology (Bailey & Waller, 2017; Fairburn et al., 2003; Mountford et al., 2006). With this in mind the use of a self-regulation framework to clarify the nature and function of body checking offers not only new directions for research but also potential pathways of intervention. For example, researchers could examine the role of particular characteristic differences that could theoretically exacerbate monitoring in the form of body checking (e.g., neuroticism, perfectionism). Moreover, practitioners could then design preventative programmes aimed at reducing body checking amongst women higher in those dispositions found to exacerbate body checking.

## References

- Bailey, N., & Waller, G. (2017). Body checking in nonclinical women: Experimental evidence of a specific impact on fear of uncontrollable weight gain. *International Journal of Eating Disorders*, 50, 693–697.
- Bargh, J. A. (1990). Auto-motives: Preconscious determinants of social interaction. In E. T. Higgins, & R. M. Sorrentino (Vol. Eds.), *Handbook of motivation and cognition: Foundations of social behavior. Vol. 2. Handbook of motivation and cognition: Foundations of social behavior* (pp. 93–130). New York, NY: Guilford Press.
- Biernat, M. (2005). *Standards and expectancies*. New York, NY: Psychology Press.
- Borkovec, T. D., Robinson, E., Pruzinsky, T., & DePree, J. A. (1983). Preliminary exploration of worry: Some characteristics and processes. *Behaviour Research and Therapy*, 21(1), 9–16.
- Bowman, R. L., & DeLucia, J. L. (1992). Accuracy of self-reported weight: A meta-analysis. *Behavior Therapy*, 23(4), 637–655.
- Cafri, G., Yamamiya, Y., Brannick, M., & Thompson, J. K. (2005). The influence of sociocultural factors on body image: A meta-analysis. *Clinical Psychology: Science and Practice*, 12(4), 421–433.
- Calugi, S., El Ghoch, M., & Dalle Grave, R. (2017). Body checking behaviors in anorexia nervosa. *International Journal of Eating Disorders*, 50(4), 437–441.
- Carver, C. S., & Scheier, M. F. (1998). *On the self-regulation of behavior*. New York, NY: Cambridge University Press.
- Fairburn, C. G., Cooper, Z., & Shafran, R. (2003). Cognitive behavior therapy for eating disorders: A “transdiagnostic” theory and treatment. *Behaviour Research and Therapy*, 41(5), 509–528.
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, 7(2), 117–140.
- Fitzsimmons-Craft, E. E., Harney, M. B., Koehler, L. G., Danzi, L. E., Riddell, M. K., & Bardone-Cone, A. M. (2012). Explaining the relation between thin ideal internalization and body dissatisfaction among college women: The roles of social comparison and body surveillance. *Body Image*, 9(1), 43–49.
- Forbush, K. T., Siew, C. S. Q., & Vitevitch, M. S. (2016). Application of network analysis to identify interactive systems of eating disorder psychopathology. *Psychological Medicine*, 46, 2667–2677.
- Gilbert, P. (2009). Introducing compassion-focused therapy. *Advances in Psychiatric Treatment*, 15(3), 199–208.
- Haase, A. M., Mountford, V., & Waller, G. (2011). Associations between body checking and disordered eating behaviors in nonclinical women. *International Journal of Eating Disorders*, 44(5), 465–468.
- Hajtaker, A., Laake, P., & Lund, E. (2001). Body mass index and weight change attempts among adult women the Norwegian women and Cancer study. *The European Journal of Public Health*, 11(2), 141–146.
- Harkin, B., Webb, T. L., Chang, B. P., Prestwich, A., Conner, M., Kellar, I., ... Sheeran, P. (2016). Does monitoring goal progress promote goal attainment? A meta-analysis of the experimental evidence. *Psychological Bulletin*, 142(2), 198.
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: Guilford Press.
- Hayes, A. F. (2015). An index and test of linear moderated mediation. *Multivariate Behavioral Research*, 50(1), 1–22.
- Johnson, F., & Wardle, J. (2005). Dietary restraint, body dissatisfaction, and psychological distress: A prospective analysis. *Journal of Abnormal Psychology*, 114(1), 119.
- Lavender, J. M., Wonderlich, S. A., Crosby, R. D., Engel, S. G., Mitchell, J. E., Crow, S., & le Grange, D. (2013). A naturalistic examination of body checking and dietary restriction in women with anorexia nervosa. *Behaviour Research and Therapy*, 51(8), 507–511.
- Leahey, T. M., Crowther, J. H., & Ciesla, J. A. (2011). An ecological momentary assessment of the effects of weight and shape social comparisons on women with eating pathology, high body dissatisfaction, and low body dissatisfaction. *Behavior Therapy*, 42(2), 197–210.
- Lowe, M. R., Doshi, S. D., Katterman, S. N., & Feig, E. H. (2013). Dieting and restrained eating as prospective predictors of weight gain. *Frontiers in Psychology*, 4, 577.
- Meyer, T. J., Miller, M. L., Metzger, R. L., & Borkovec, T. D. (1990). Development and validation of the Penn state worry questionnaire. *Behaviour Research and Therapy*, 28(6), 487–495.
- Moskowitz, G. B. (2012). The representation and regulation of goals. In H. Aarts, & A. J. Elliot (Eds.), *Goal-directed behavior* (pp. 1–47). New York, NY: Psychology Press.
- Moskowitz, G. B., & Grant, H. (2009). *The psychology of goals*. New York, NY: Guilford

- press.
- Mountford, V., Haase, A., & Waller, G. (2006). Body checking in the eating disorders: Associations between cognitions and behaviors. *International Journal of Eating Disorders*, 39(8), 708–715.
- Neumark-Sztainer, D., Wall, M., Guo, J., Story, M., Haines, J., & Eisenberg, M. (2006). Obesity, disordered eating, and eating disorders in a longitudinal study of adolescents: How do dieters fare 5 years later? *Journal of the American Dietetic Association*, 106(4), 559–568.
- Nikodijevic, A., Buck, K., Fuller-Tyszkiewicz, & de Paoloi, T. (2018). Body checking and body avoidance in eating disorders: Systematic review and meta-analysis. *European Eating Disorders Review*, 26, 159–185.
- Putterman, E., & Linden, W. (2004). Appearance versus health: Does the reason for dieting affect dieting behavior? *Journal of Behavioral Medicine*, 27(2), 185–204.
- Reas, D. L., Whisenhunt, B. L., Netemeyer, R., & Williamson, D. A. (2002). Development of the body checking questionnaire: A self-report measure of body checking behaviors. *International Journal of Eating Disorders*, 31(3), 324–333.
- Sala, M., & Levinson, C. A. (2016). The longitudinal relationship between worry and disordered eating: Is worry a precursor or consequence of disordered eating? *Eating Behaviors*, 23, 28–32.
- Sassaroli, S., Bertelli, S., Decoppi, M., Crosina, M., Milos, G., & Ruggiero, G. M. (2005). Worry and eating disorders: A psychopathological association. *Eating Behaviors*, 6(4), 301–307.
- Schaefer, L. M., Burke, N. L., Thompson, J. K., Dedrick, R. F., Heinberg, L. J., Calogero, R. M., & Kelly, M. (2015). Development and validation of the sociocultural attitudes towards appearance questionnaire-4 (SATAQ-4). *Psychological Assessment*, 27(1), 54.
- Schut, A. J., Castonguay, L. G., & Borkovec, T. D. (2001). Compulsive checking behaviors in generalized anxiety disorder. *Journal of Clinical Psychology*, 57(6), 705–715.
- Shafran, R., Lee, M., Payne, E., & Fairburn, C. G. (2007). An experimental analysis of body checking. *Behaviour Research and Therapy*, 45(1), 113–121.
- Stice, E. (1998). Prospective relation of dieting behaviors to weight change in a community sample of adolescents. *Behavior Therapy*, 29(2), 277–297.
- Stice, E. (2002). Risk and maintenance factors for eating pathology: A meta-analytic review. *Psychological Bulletin*, 128(5), 825.
- Stice, E., & Burger, K. (2015). Dieting as a risk factor for eating disorders. In L. Smolak, & M. P. Levine (Eds.). *The Wiley handbook of eating disorders* (pp. 312–323). United Kingdom, UK: Wiley-Blackwell.
- Stice, E., Shaw, H., & Marti, C. N. (2007). A meta-analytic review of eating disorder prevention programs: Encouraging findings. *Annual Review of Clinical Psychology*, 3, 207–231.
- Stice, E., Marti, C. N., & Rhode, P. (2013). Prevalence, incidence, impairment, and course of the proposed DSM-5 eating disorder diagnoses in an 8-year prospective community study of young women. *Journal of Abnormal Psychology*, 122, 445–457.
- Thompson, J. K., Heinberg, L. J., Altabe, M., & Tantleff-Dunn, S. (1999). *Exacting beauty: Theory, assessment, and treatment of body image disturbance*. Washington, DC, US: American Psychological Association.
- Thompson, J. K., & Stice, E. (2001). Thin-ideal internalization: Mounting evidence for a new risk factor for body-image disturbance and eating pathology. *Current Directions in Psychological Science*, 10(5), 181–183.
- Tiggemann, M. (2011). Body image: A handbook of science, practice, and prevention. In T. F. Cash, & L. Smolak (Eds.). *Sociocultural perspectives on human appearance and body image* (pp. 12–19). New York, NY, US: Guilford Press.
- Wardle, J., Haase, A. M., & Steptoe, A. (2006). Body image and weight control in young adults: International comparisons in university students from 22 countries. *International Journal of Obesity*, 30(4), 644–651.
- Warren, C. S., Gleaves, D. H., Cepeda-Benito, A., Fernandez, M. D. C., & Rodriguez-Ruiz, S. (2005). Ethnicity as a protective factor against internalization of a thin ideal and body dissatisfaction. *International Journal of Eating Disorders*, 37(3), 241–249.
- Watkins, E. R. (2008). Constructive and unconstructive repetitive thought. *Psychological Bulletin*, 134(2), 163.
- Wrosch, C., Scheier, M. F., Carver, C. S., & Schulz, R. (2003). The importance of goal disengagement in adaptive self-regulation: When giving up is beneficial. *Self and Identity*, 2, 1–20.