

**Disentangling Upward Social Comparison Tendency, Hypercompetitiveness, and Body
Envy Tendency on Weight-Loss Dieting in a Sample of College Women: A Moderated
Mediation Analysis**

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Abstract

Dieting represents one of the main risk factors for eating pathology. In our study, we utilized the sociocultural theory on body image to clarify the combined influence of upward social comparison tendency (USCT), hypercompetitiveness, and body envy tendency on weight-loss dieting (WLD) among college women. Our hypothesis was that body envy tendency would mediate the relationship between USCT and WLD, such that higher USCT would be associated with more WLD through greater body envy tendency. We also predicted that hypercompetitiveness would act as a moderator, such that the proposed mediation pathway would be strengthened by higher levels of hypercompetitiveness. All effects were expected to occur over and above self-reported body dissatisfaction. We conducted a cross-sectional online survey provided via Qualtrics. A convenience sample of 206 college women completed measures of USCT, body envy tendency, hypercompetitiveness, WLD and body dissatisfaction. Data analysis using a bootstrap procedure in PROCESS (Hayes, 2013) showed that our predicted moderated mediation model was not significant. Further exploratory analyses tested two separate mediation models stating that both USCT and hypercompetitiveness are independently associated with WLD through body envy tendency, which were supported by our findings. The current study adds to the previous literature and research by elucidating the nature and function of envy in the context of body image and WLD. As such, it suggests possible preventative measures and emotion-management interventions aimed at decreasing body envy tendency, and in turn reducing WLD and potential eating disorder symptoms.

Keywords: upward social comparison tendency, body envy tendency, hypercompetitiveness, weight-loss dieting, moderated mediation

Disentangling Upward Social Comparison Tendency, Hypercompetitiveness, and Body Envy Tendency on Weight-Loss Dieting in a Sample of College Women: A Moderated Mediation Analysis

A recent longitudinal study reported that from 2010 to 2017, the proportion of female university students attempting to lose weight increased from 44% to 48% (Kriaucioniene et al., 2021). This trend is concerning as individuals of younger age and female gender, e.g., college women, are more predisposed to use dieting as a weight-loss strategy (Santana et al., 2023; Santos et al., 2017). Dieting can be dangerous because it is a major risk factor for developing an eating disorder (Brown et al., 2020). Therefore, it is important to investigate why (college) women engage in weight-loss dieting (WLD). The strongest empirically supported model of eating pathology is the sociocultural model, where upward social comparisons, i.e., comparisons against superior targets (thinner and thus more attractive women), play a crucial role (Pila et al., 2014; Tiggemann, 2012). Whereas the link between exposure to upward social comparisons and disordered eating behaviors has strong empirical support (Arigo et al., 2014; Rancourt et al., 2016), examination of the mediating role of specific upward-social-comparison-based emotions, such as envy, has been relatively neglected (Nabi & Keblusek, 2014). Considering this, the first aim of the current study is to investigate whether tendency to experience envy regarding physical appearance (i.e., body envy tendency) mediates the relationship between upward social comparison tendency (USCT) and WLD. Our second aim is to explore whether hypercompetitiveness, a personality trait theoretically and empirically linked to WLD, moderates the proposed mediation pathway (Burckle et al., 1999; Schleien & Bardone-Cone, 2016).

To better understand the motivation behind WLD, it is important to consider the impact of the social context. As the sociocultural model suggests, in modern society attractiveness (i.e., thinness) is a measure of a woman's worth (Warren & Akoury, 2020). The

thin ideal is heavily advertised with images of unrealistically skinny models and further reinforced through family members and peers (Tiggemann, 2012). Furthermore, thinness is often linked to rewards, such as status, desirability and happiness, motivating women to assess their own level of thinness through social comparison, a universal process defined as “using information about other people to learn about the self” (Smith, 2000, p. 177). Upward social comparisons with thinner and more attractive others are a central component of the sociocultural model informing women about the desirable life situation (i.e., being thin), how far they are from it, and how it can be achieved, e.g., through WLD (Arigo et al., 2014; Nabi & Keblusek, 2014; Smith, 2000; Tiggemann, 2012). Since the thin ideal requires both thinness and sufficient curves (e.g., small waist, narrow hips, medium-sized breasts) it is unattainable for most women (Tiggemann, 2012). Hence, comparisons with this ideal inevitably emphasize women’s lack of attractive features and associated rewards, and might result in various negative outcomes (Leahey et al., 2011; Smith et al., 1996). Previous research consistently links upward social comparisons to dieting and eating disorders (Arigo et al., 2014; Rancourt et al., 2016; Troop et al., 2003). Similarly, women high in USCT actively seek superior comparison targets, which makes them more susceptible to the thin ideal and subsequent eating pathology (O'Brien et al., 2009). One explanation is that upward social comparisons with the unattainable thin ideal result in increased body dissatisfaction, which motivates unhealthy dieting or exercise (Leahey et al., 2011). Whereas most previous research focused on body dissatisfaction encouraging unhealthy eating behaviors, it has also been shown that upward social comparison evokes negative emotions that drive action, yet these have not been extensively studied in the context of WLD (Nabi & Keblusek, 2014).

One common negative emotion resulting from upward social comparison is envy (Smith, 2000; van de Ven, 2016). It is defined as an unpleasant emotion arising due to the lack of a desired attribute, object or achievement owned by another person, coupled with the

wish to acquire what the other person has (Parrot & Smith, 1993). Additionally, envy involves feelings of frustration and inferiority (Crusius et al., 2020; van de Ven et al., 2009), and unfairness (Smith et al., 1994). Within the body image domain, many women are preoccupied with pursuing thinness (Spear, 2006). However, upward social comparisons elucidate their distance from the thin ideal, and as such emphasize the failure to obtain attractive features and benefits that other thinner women possess (van de Ven, 2017). This failure to achieve the thin ideal can promote feelings of frustration and inferiority (Rentzsch & Gross, 2015; van de Ven, 2016). Women's perceived gap between them and thinner/more attractive others also encompasses pain due to feeling inadequate in an important domain like physical appearance (Crusius et al., 2020; Lange et al., 2018). Moreover, envy can arise when superior status of the other person is perceived as unfair (Smith et al., 1994). Since the thin ideal is advertised as achievable, but actually cannot be attained through means other than cosmetic surgery, the advantageous position of women embodying such an ideal might seem unfair (Tiggemann, 2012). In sum, upward social comparisons might evoke body envy tendency through promoting frustration, inferiority and unfairness. Hence, we predict that with increasing USCT, there will also be greater tendency to experience body envy.

Envy might therefore commonly occur in the context of appearance and body image, where it can motivate certain actions (Nabi & Keblusek, 2014). According to previous research, body-related envy increases motivation for exercise behavior (Pila et al., 2014), and plays a role in eating disorders (Isobe et al., 2018). For instance, individuals with restricting-type anorexia nervosa felt more benign envy than the control group, possibly increasing motivation for recovery when they envied patients with weaker symptoms (Grynberg et al., 2020). The motivational function of envy can be explained on a social and individual level. On the social level, emotions help individuals acquire knowledge about important cultural norms and values, including the beauty standard (Keltner & Haidt, 1999). Thus, body envy

could signal that a woman is not adhering to the thin ideal. Considering the individual level, the experience of envy is frustrating and indeed painful due to perceived inferiority in attractiveness (Crusius et al., 2020; Takahashi et al., 2009). Considering both levels of explanation, envy indicates a threat to self-view and motivates women to remove it by acquiring what the superior target has (van de Ven, 2016; van de Ven & Zeelenberg, 2020). This can be done by moving oneself closer to the level of the envied person through self-improvement (van de Ven et al., 2011). For example, dieting is often adopted to improve appearance (Santos et al., 2017). Engaging in WLD does not only bring women closer to the thin ideal and related benefits, but it also alleviates the pain caused by the gap between them and thinner/more attractive women (Crusius et al., 2020). In line with this, we predict that women with a higher body envy tendency will be more motivated to engage in WLD.

Therefore, we expect that body envy tendency will mediate the relationship between USCT and WLD, such that with increasing USCT, there will be greater tendency to experience body envy and thus greater WLD motivation. However, we also predict that this mediation pathway will be stronger for women higher in hypercompetitiveness. Hypercompetitiveness refers to a very strong need to win and outperform others at all costs to feel good about oneself, even if that requires manipulating counterparts in the process (Ryckman et al., 1994). Past research found that hypercompetitiveness is associated with an increased risk for eating pathology (Burckle et al., 1999), and that women with high thin-ideal-internalization and high general competitiveness tend to exhibit more dieting (Schleien & Bardone-Cone, 2016). While there appears to be a link between competitiveness and disordered eating behaviors (Osborn et al., 2023; Peden et al., 2008), few studies investigated how hypercompetitiveness could be related to WLD.

One possible explanation for the influence of hypercompetitiveness on eating behaviors is that physical appearance is a competitive domain for women, historically linked

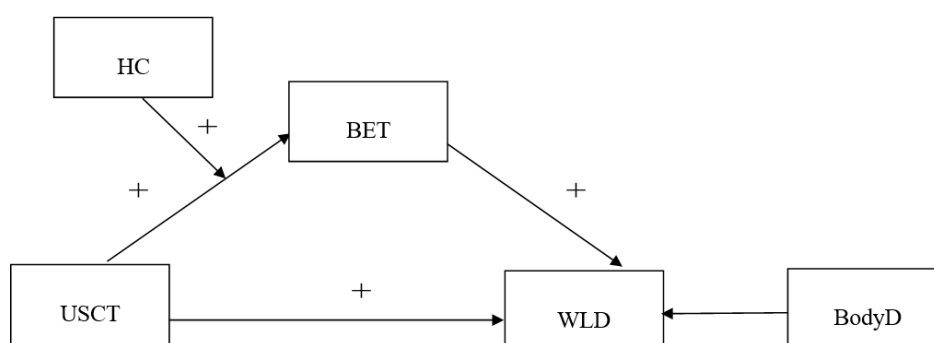
to attractiveness increasing survival chances (Morgan et al., 2022). Nowadays, attractiveness equals thinness and is continuously linked with success, desirability and status (Tiggemann, 2012). Coupled with frequent, often threatening, upward social comparisons with thin models, appearance is a suitable domain for female competition (Garcia et al., 2013).

Hypercompetitive women indeed strive to achieve in appearance, internalize the thin ideal, and use social comparison and competition to assess their distance from it (Burckle et al., 1999). Thereby, they are exposed to their appearance shortcomings and failure to obtain the thin body and associated benefits that other more attractive women have. Considering that body image domain can encourage competition and that hypercompetitive women regard thinness as a means of attaining social superiority, their failure to achieve the thin ideal could lead to more frustration and inferiority (Crusius et al., 2020; Ryckman et al., 1997; van de Ven, 2016). Furthermore, hypercompetitive women always strive to outperform others yet the unattainability of the thin ideal could foster feelings of unfairness about competing with such an unreachable beauty standard (Sturman et al., 2017). Therefore, hypercompetitiveness could promote more frustration, inferiority and unfairness, and facilitate greater body envy tendency. Envy commonly arises when encountering better competitors (Smith & Kim, 2007). It also prompts competitive behaviors aimed at bridging the gap with the superior other (Montal-Rosenberg & Moran, 2021), such as intrasexual gossip (Morgan et al., 2022), and appearance-enhancement, including weight-loss and use of diet pills (Arnocky et al., 2016). We would expect that heightened body envy tendency would more strongly motivate WLD, a commonly adopted strategy to outperform other women in attractiveness (Schleien & Bardone-Cone, 2016). Therefore, we predict that when making upward social comparisons, higher level of hypercompetitiveness will further increase the tendency to experience body envy. Due to enhanced body envy tendency, we also expect that there will be more WLD.

To summarize, we hypothesize that body envy tendency will mediate the relationship between USCT and WLD, and that this mediation pathway will be stronger for women higher in hypercompetitiveness (see Figure 1). Dieting is a common weight-loss strategy, especially salient and prevalent in the lives of college women (Santos et al., 2017; Wayment et al., 2020). For this reason, it is appropriate to test whether body envy tendency acts as a mediator for the relationship between USCT and WLD in a sample of college women. Since body dissatisfaction can also motivate dieting (Leahey et al., 2011), we included it as a control variable to investigate whether body envy tendency explains WLD beyond self-reported body dissatisfaction. Focusing on emotions and how they arise is crucial because it allows for better management of the emotional experience (Lazarus & Lazarus, 1995). Hence, if body envy tendency indeed exerts a unique influence on WLD, it could be suggested as a possible target of interventions aimed at preventing WLD and potential eating pathology.

Figure 1

The Model of Hypercompetitiveness as a Moderator for the Relationship Between USCT and WLD Through Body Envy Tendency



Note. USCT: Upward Social Comparison Tendency; BET: Body Envy Tendency; WLD: Weight-Loss Dieting; HC: Hypercompetitiveness; BodyD: Body Dissatisfaction.

The plus (+) sign indicates an expected positive correlation between the variables.

Methods

Participants

Two-hundred seven female students attending a university or higher education institution originally volunteered to participate in the study. One participant was removed because of the incomplete questionnaire, which left a total sample of 206 female students for the statistical analysis. The participants had a mean age of 21.33 ($SD = 2.70$), and a mean BMI of 22.39 ($SD = 4.51$). In the sample, 45% of the participants were Dutch, 20% were German and 35% had other nationality (e.g., American, Belgian, Brazilian, British, Bulgarian, Canadian, Chinese, Croatian, Colombian, Filipino, Finnish, French, Greek, Indian, Iraqi, Irish, Italian, Lithuanian, Polish, Romanian, Serbian, Slovak, Spanish, Slovenian, Turkish, Venezuelan or mixed). Regarding ethnicities, 5% of the sample were Asian, 1% were Black or African American, 3% were Hispanic, 85% were White, 4% were mixed, and 3% reported other ethnicity.

Measures

Upward Social Comparison Tendency

Upward Social Comparison Tendency (USCT) was operationalized using the Upward Physical Appearance Comparisons Scale (UPACS), which measured the frequency of upward physical appearance comparisons (O'Brien et al, 2009). The scale consisted of 10 items, such as "I find myself comparing my appearance with people who are better looking than me" and "At parties or other social events, I compare my physical appearance to the physical appearance of the very attractive people." The items were scored on a five-point Likert scale ranging from 1 (*never*) to 5 (*always*). The mean of the scale was computed with a higher score indicating a higher frequency of upward physical appearance comparisons. In previous studies, the scale exhibited a Cronbach's alpha of .94 (O'Brien et al, 2009). In the current study, UPACS demonstrated excellent internal consistency reflected by a Cronbach's alpha of .96.

Body Envy Tendency

Body envy tendency was operationalized with a self-constructed scale based on contemporary theories of envy by Smith et al. (1999) and Crusius et al. (2020). The scale consisted of eight items measuring the tendency to experience envy regarding physical appearance, such as “I am often bothered when I see women who are slimmer and more defined than me” and “I tend to think it’s unfair that some women are slimmer and more defined than me.” The items were rated on a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The mean of the scale was computed with higher scores indicating a higher tendency to experience body envy. The Cronbach’s alpha of the scale was .90, indicating good internal consistency.

Weight-Loss Dieting

Weight-loss dieting (WLD) was operationalized using the Dietary Intent Scale (DIT), which measured dietary restraint and weight-maintenance behaviors in the past six months (Stice, 1998). The scale consisted of nine items, such as “I take small helpings/portions (of food) in an effort to control my weight” and “I count calories to try to prevent weight gain.” The items were rated on a five-point Likert scale ranging from 1 (*never*) to 5 (*always*). The mean score of the scale was calculated with a higher score reflecting greater frequency of WLD. In previous studies, the scale exhibited a Cronbach’s alpha of .94 (Stice, 1998). In the current study, DIT demonstrated a Cronbach’s alpha of .93, reflecting good internal consistency.

Hypercompetitiveness

Hypercompetitiveness was operationalized with Hypercompetitive Attitude Scale (HCAS), which measured the participants’ degree of hypercompetitiveness (Dru, 2003). It consisted of nine items, such as “I find myself being competitive even in situations which do not call for competition” and “I compete with others even if they are not competing with me.” Responses were scored on a five-point Likert scale ranging from 1 (*strongly disagree*) to 5

(*strongly agree*). The mean of the scale was computed with higher scores reflecting a higher level of hypercompetitiveness. In previous studies, HCAS demonstrated a Cronbach's alpha of .78 (Dru et al., 2000), and in the current study, the scale exhibited a satisfactory Cronbach's alpha of .74.

Body Dissatisfaction

Body dissatisfaction was operationalized using the Body Parts Satisfaction Scale which measured the extent of satisfaction with seven body parts (Petrie et al., 2002). The scale consisted of seven items each indicating one body part, such as weight, arms, stomach, buttocks, hips, upper thighs, and general muscle tone. These seven body parts are the most salient in eating disorder research, and had a sufficient factor loading (i.e., greater than .45) to be considered under the factor Satisfaction with Body (Petrie et al., 2002). Participants rated the seven body parts on a six-point Likert scale ranging from 1 (*extremely dissatisfied*) to 6 (*extremely satisfied*). Items were reversed and the mean score was calculated such that higher scores reflected greater body dissatisfaction. The Cronbach's alpha in previous studies was .90 (Petrie et al., 2002). In the current study, the scale exhibited sufficient internal consistency, shown by a Cronbach's alpha of .84.

Procedure

The study was approved by the Ethics Committee of the psychology department at the University of Groningen. Before the formal data collection, a pilot study was done with a sample of six participants who were acquaintances of the researchers. The pilot study was done to assess process errors and typographical errors in the online questionnaire. There were no process errors found. Regarding typographical errors, the wording of one item was changed because it appeared to be confusing, such as changing the word "helpings (of food)" to "portions (of food)". We also made some changes in the punctuation like adding a period. The study was then published through SONA (i.e., online pool of Bachelor students at the

University of Groningen participating for course credit), and researchers shared the survey link through their social networks. The online questionnaire was provided via Qualtrics and took approximately 15 minutes to complete. The data collection started on the 19th of April 2024 and ended on the 14th of May 2024. The participants had to give informed consent in order to participate. The online questionnaire contained demographic information (e.g., gender, age, height, weight, nationality, and ethnicity), and to avoid any invalid data, all responses from non-female respondents, from participants without at least B2 level of English, and from those who were not students at the university or other higher education institution were immediately redirected to the end of the survey. Afterwards, we measured USCT, body envy tendency, WLD, hypercompetitiveness, and body dissatisfaction. At the end of the survey participants were provided with a list of 10 steps advising them how to turn negative body thoughts into positive body image.

Statistical Analysis

The hypothesized moderated mediation model (see Figure 1) was determined by testing the significance of the direct and indirect effects of the moderator through a bootstrapping procedure ($n = 5000$) in PROCESS, model 7 (Hayes, 2013). Bootstrapping was used because it is robust in normality and can be used for small sample sizes (Igartua & Hayes, 2021). The moderated mediation analysis tested the effect of the moderator (hypercompetitiveness) on the relationship between a predictor variable (USCT) and outcome variable (WLD) through a mediator (body envy tendency). Additionally, body dissatisfaction was controlled for. The index of moderated mediation pathway was the difference of the indirect effect across different levels of the moderator variable hypercompetitiveness (Igartua & Hayes, 2021). The significance of the moderated mediation was supported by the bootstrapping 95% confidence interval not including a zero (Hayes, 2015).

Results

Assumption Checks

Before the statistical analysis, several assumptions were inspected. Outliers were explored using casewise diagnostics to identify cases with residuals three or more standard deviations away from the mean. We found one outlier, but its Cook's distance was below 1, indicating that the observation was not influential (Field, 2018). Consequently, the observation was retained in the dataset, leaving a total of 206 observations. The independence of observations was inspected with a Durbin-Watson test ($d = 2.10$). Since the value of d fell between 1.5 and 2.5, the assumption of independence was met (Glen, 2022). There was no multicollinearity present in our model because the variance inflation factor (VIF) for all independent variables was below 10 (Miles, 2005): USCT ($VIF = 1.91$), body envy tendency ($VIF = 1.98$), and hypercompetitiveness ($VIF = 1.12$). Normality was checked with a P-P plot (see Figure A1), demonstrating that dots approximated a straight line, lending support for the normality assumption. Homoscedasticity and linearity were inspected with a residual plot (see Figure A2). The linearity assumption was met because the mean of residuals was zero at each predicted value. Visual inspection of the residual plot also showed that dots did not approach the funnel shape, indicating no serious violation of homoscedasticity (Field, 2018). Furthermore, when using the bootstrapping procedure in PROCESS (Hayes, 2013), we controlled for heteroscedasticity by using the robust standard error for heteroscedasticity (HC3), recommended for samples with less than 250 participants (Long & Ervin, 2000).

Descriptive Statistics

Descriptive statistics and correlations of the measured variables are presented in Table 1 below.

Table 1

Pearson Correlations, Means and Standard Deviations of the Measured Variables

	1	2	3	4	5
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1. USCT	-				
2. BET	.69*	-			
3. HC	.26*	.32*	-		
4. WLD	.51*	.56*	.11	-	
5. BodyD	.41*	.40*	.001	.46*	-
Mean	3.05	2.35	2.88	2.23	3.26
SD	0.98	0.96	0.67	0.95	0.84

Note. The unstandardized Pearson correlation coefficients are reported for each variable.

USCT: Upward Social Comparison Tendency; BET: Body Envy Tendency; HC:

Hypercompetitiveness; WLD: Weight-Loss Dieting; BodyD: Body Dissatisfaction.

* $p < .001$

Moderated Mediation Analysis

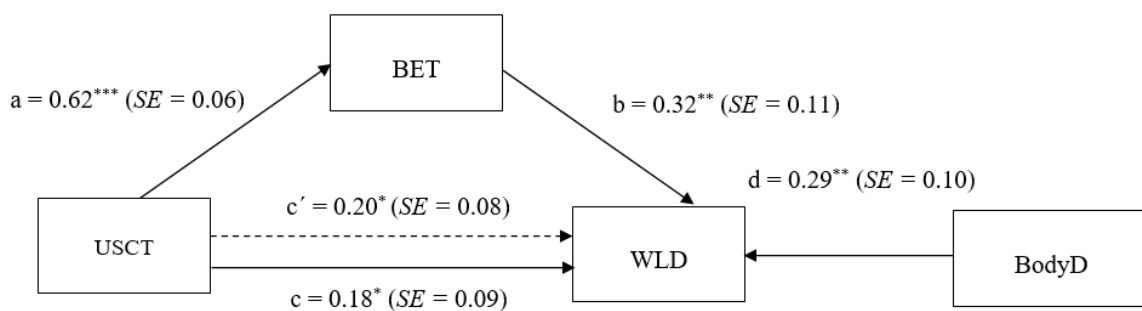
Firstly, we examined whether hypercompetitiveness moderated the indirect effect of USCT on WLD through body envy tendency, while controlling for body dissatisfaction. The moderated mediation analysis was performed by using PROCESS, model 7 (Hayes, 2013). The index of moderated mediation showed that our hypothesized model was not significant ($B = 0.02$, $SE = 0.03$, 95% $CI [-0.02, 0.09]$). Thus, hypercompetitiveness did not moderate the indirect effect of USCT on WLD via body envy tendency. However, both USCT and hypercompetitiveness were positively correlated with body envy tendency (see Table 1). Therefore, we explored whether USCT and hypercompetitiveness independently influence WLD through body envy tendency. We proposed two separate mediation models. The first mediation model predicted that with increasing USCT, there will be greater tendency to experience body envy, followed by more WLD. The second mediation model predicted that with higher levels of hypercompetitiveness, there will be greater tendency to experience body envy, followed by more WLD.

Exploratory Analyses

Two separate mediation analyses were carried out by using PROCESS, model 4 (Hayes, 2013). Firstly, we tested the indirect effect of USCT on WLD through body envy tendency while controlling for body dissatisfaction. The overall model was significant ($F(3, 202) = 54.05, p < .001$), and 40% of variance in WLD was explained by the predictor variables. The effects of USCT on body envy tendency ($B = 0.62, SE = 0.06, 95\% CI [0.50, 0.74], p < .001$), body envy tendency on WLD ($B = 0.32, SE = 0.11, 95\% CI [0.10, 0.54], p < .01$), and direct effect of USCT on WLD ($B = 0.18, SE = 0.09, 95\% CI [0.01, 0.35], p < .05$) were significant. Body dissatisfaction also showed a significant effect on WLD ($B = 0.29, SE = 0.10, 95\% CI [0.09, 0.49], p < .01$). The indirect effect of USCT on WLD via body envy tendency was significant ($B = 0.20, SE = 0.08, 95\% CI [0.07, 0.36]$). Therefore, body envy tendency mediated the relationship between USCT and WLD. This is consistent with our expectation that with increasing USCT, there will be greater tendency for body envy and thus more WLD. The summary of this mediation analysis is presented in Figure 2.

Figure 2

Mediation Model for the Relationship Between USCT and WLD through Body Envy Tendency, Controlling for Body Dissatisfaction



Note. Unstandardized coefficients and standard errors are reported for each path in the model.

The dashed line (path c') represents the indirect effect.

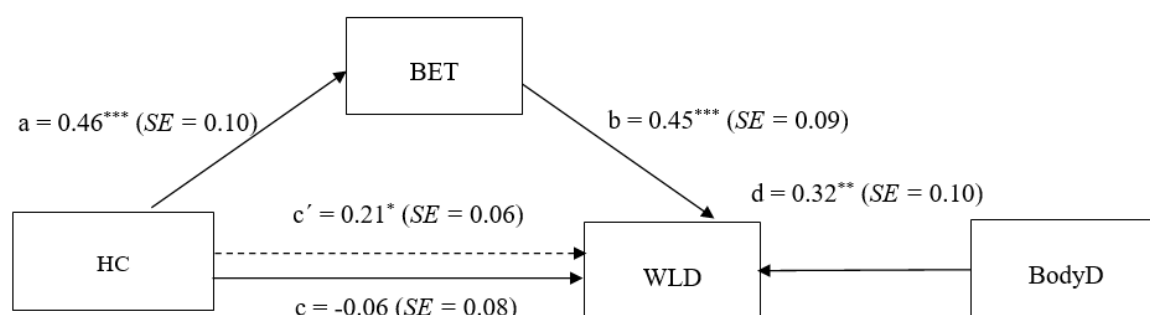
The solid line (path c) represents the direct effect.

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

Secondly, we tested the indirect effect of hypercompetitiveness on WLD through body envy tendency while controlling for body dissatisfaction. The overall model was significant ($F(3, 202) = 54.81, p < .001$), and 38% of variance in WLD was explained by the predictors. The effects of hypercompetitiveness on body envy tendency ($B = 0.46, SE = 0.10, 95\% CI [0.26, 0.66], p < .001$), and body envy tendency on WLD ($B = 0.45, SE = 0.09, 95\% CI [0.28, 0.62], p < .001$) were significant, while the direct effect of hypercompetitiveness on WLD was not significant ($B = -0.06, SE = 0.08, 95\% CI [-0.22, 0.09], p = .44$). Body dissatisfaction had a significant effect on WLD ($B = 0.32, SE = 0.10, 95\% CI [0.12, 0.51], p < .01$). The indirect effect of hypercompetitiveness on WLD via body envy tendency was significant ($B = 0.21, SE = 0.06, 95\% CI [0.10, 0.35]$). Therefore, body envy tendency mediated the relationship between hypercompetitiveness and WLD. This supports our prediction that with increasing hypercompetitiveness, there will be greater tendency to experience body envy, followed by more WLD. The summary of this mediation analysis is presented in Figure 3.

Figure 3

Mediation Model for the Relationship Between Hypercompetitiveness and WLD via Body Envy Tendency, Controlling for Body Dissatisfaction



Note. Unstandardized coefficients and standard errors are reported for each path in the model.

The dashed line (path c') represents the indirect effect.

The solid line (path c) represents the direct effect.

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

Discussion

Our study aimed to investigate the mechanism through which USCT might influence WLD. We hypothesized that body envy tendency would mediate the relationship between USCT and WLD, such that with increasing USCT there will be greater body envy tendency, followed by more WLD. We also expected this relationship to be strengthened by higher levels of hypercompetitiveness. The proposed moderated mediation model was not supported by our findings. Therefore, we carried out two exploratory analyses testing two separate mediation models. The first mediation model stated that body envy tendency mediates the relationship between USCT and WLD, such that with increasing USCT, the greater will be body envy tendency and thus more WLD. The second mediation model stated that body envy tendency mediates the relationship between hypercompetitiveness and WLD, meaning that with increasing hypercompetitiveness, the greater will be body envy tendency, and thus more WLD. Both mediation models were supported by our findings.

Since the predicted moderated mediation was not significant, we cannot argue that upon making upward social comparisons, higher levels of hypercompetitiveness will heighten body envy tendency and in turn motivate more WLD. A possible explanation for a non-significant finding might be that the level of hypercompetitiveness in a convenience sample of college women was too low to detect the moderating effect of hypercompetitiveness on the relationship between USCT and WLD via body envy tendency. Since previous studies suggested that individuals with disordered eating behaviors tend to be more competitive than the non-symptomatic group (Striegel-Moore et al., 1990), it would be appropriate to replicate our study in a clinical sample. Another explanation for the non-significant finding could be the use of a measure for general degree of hypercompetitiveness not specifically focusing on

hypercompetitiveness in appearance. Future research should construct and include a domain-specific hypercompetitiveness scale focusing on body image domain.

The mediation model proposing the indirect effect of USCT on WLD through body envy tendency was significant, meaning that to higher USCT corresponds greater body envy tendency followed in turn by more WLD. The first path of the mediation linking USCT and body envy tendency supports previous research suggesting that envy arises from upward social comparisons with better-off targets (Smith, 2000). In line with the sociocultural theory on body image (Tiggemann, 2012), women might experience frustration, inferiority, and unfairness following comparisons with thinner and more attractive others (Crusius et al., 2020; Smith et al., 1994; van de Ven et al., 2009). Furthermore, it appears that women higher in USCT more frequently expose themselves to the thin ideal, and in doing so might experience greater body envy tendency (O'Brien et al., 2009). The second path of the mediation linking body envy tendency to WLD, aligns with previous literature proposing that envy elucidates a threat to the self-view and drives behaviors to mitigate the threat (van de Ven, 2016). Considering the social function of emotions, envy is informing women that they are not adhering to the thin ideal (Keltner & Haidt, 1999). Furthermore, discrepancy from the thin ideal is frustrating and painful, feeding into unpleasantness of experiencing body envy tendency and motivating women to improve their appearance (van de Ven et al., 2009; van de Ven & Zeelenberg, 2020). Using thin models as an example, women adopt WLD as a means of approaching the thin ideal (Nabi & Keblusek, 2014). As such, women can obtain attributes and rewards that thinner/more attractive women possess and reduce inferiority-related pain accompanying body envy tendency (Crusius et al., 2020; Lange et al., 2018; van de Ven, 2017). The significant direct link between USCT and WLD suggests that USCT affects WLD through other mediation mechanisms, e.g., other emotions. Past research indeed found a link between social comparison and appearance improvement motivation through envy (Nabi &

Keblusek, 2014). However, upward social comparison also results in depressive feelings, shame, resentment, optimistic feelings, admiration, and inspiration (Smith, 2000). Future research could explore the potential mediating role of other upward-social-comparison-based emotions in the context of body image and WLD.

The indirect effect of hypercompetitiveness on WLD through body envy tendency was also significant, suggesting that to increasing hypercompetitiveness corresponds higher body envy tendency, followed in turn by more WLD. The first mediation path between hypercompetitiveness and body envy tendency converges with one previous study reporting a weak positive relationship between competitiveness and envy (Humayon & Shoaib, 2019). It also supports the postulation that envy is a typical reaction to superior counterparts in competition (Smith & Kim, 2007). Our findings highlight that for hypercompetitive women appearance domain might present an opportunity to compete for thinness-related benefits, such as desirability and status (Ryckman et al., 1994; Tiggemann, 2012). This is aligned with their desire for thinness, need for achievement and social superiority (Burckle et al., 1999; Ryckman et al., 1997). With this in mind, when hypercompetitive women encounter other thinner women (i.e., more successful in appearance domain), they might feel frustration, inferiority and unfairness, evoking the tendency to experience body envy (Smith & Kim, 2007). The second pathway from body envy tendency to WLD is consistent with previous findings that envy can motivate competitive behaviors employed to reduce the gap between oneself and the superior other (Montal-Rosenberg & Moran, 2021). Accordingly, envy motivates appearance-enhancement behaviors in female intrasexual competition, including weight-loss (Arnocky et al., 2016). Furthermore, WLD is a common method used to surpass other women in physical appearance (Schleien & Bardone-Cone, 2016). Therefore, WLD can serve several functions. It helps women increase attractiveness and close the unfavorable gap between them and thinner counterparts, thus reducing the pain associated with body envy

tendency (Crusius et al., 2020). Secondly, WLD can help satisfy hypercompetitive women's need to achieve in appearance and attain social superiority (Burckle et al., 1999; Ryckman et al., 1997). Although previous literature found that hypercompetitiveness is positively associated with disordered eating behaviors, in the current study the direct association between hypercompetitiveness and WLD was not significant. A possible explanation may reside in the measures employed: for instance, Burckle et al. (1999) used a 26-item HCAS and measured a wider range of disordered eating behaviors, while we used the abbreviated HCAS proposed by Dru (2003) and only focused on WLD. Thus, the discrepancy with previous findings regarding the hypercompetitiveness – WLD relationship further highlights the need for replication perhaps by using a clinical sample that is expected to exhibit stronger competitive tendencies (Gustafsson et al., 2008).

In the current study, body dissatisfaction showed a significant positive correlation with WLD, which is consistent with previous research where body dissatisfaction encouraged excessive dieting to acquire thinness (Leahey et al., 2011; Tiggemann, 2012). When controlling for body dissatisfaction, it was found that both predicted mediation models were significant over and above the effects of body dissatisfaction. This suggests that body envy tendency indeed exerts a unique influence on WLD, and can be an appropriate target of interventions. Another notable finding was that body dissatisfaction was unrelated to hypercompetitiveness, further supporting the unique effect of body envy tendency on WLD over body dissatisfaction levels. For women higher in hypercompetitiveness it is thus especially important that interventions target body envy tendency rather than body dissatisfaction.

The significant findings have a number of implications. Firstly, our findings suggest that both women with higher USCT and women with higher levels of hypercompetitiveness are more prone to experience body envy tendency and subsequent WLD. Therefore, these two

populations of women should be targeted for preventative interventions, such as media literacy programs educating women about heavily edited images of thin models, feeding into the unattainability of the thin ideal. Additionally, emphasizing the danger of such upward social comparisons potentially resulting in excessive dieting, exercise, and even eating disorders might help decrease USCT and subsequent body envy tendency (Leahy et al., 2011; O'Brien et al., 2009). Concerning hypercompetitive women's striving for unrealistic goals, such as the thin ideal, it might be beneficial to redefine their idea of beauty by including diverse body types. Perhaps a broader perspective on attractiveness might decrease susceptibility to body envy tendency when the thin ideal is not met (Burckle et al., 1999; Sturman et al., 2017). Secondly, our findings suggest intervening measures when body envy tendency is elicited, such as mindfulness (Xiang et al., 2021). Since mindfulness promotes self-awareness and acceptance of the present moment rather than acting on negative emotions, e.g., envy, it can enhance attention and help women redirect focus to their own attributes instead of comparing themselves to others (Xiang et al., 2021; Chambers et al., 2009). Consequently, this could mitigate feelings of inferiority intensified by upward social comparisons and potentially reduce body envy tendency (Nabi & Keblusek, 2014).

Several limitations also need to be taken into account. The study was cross-sectional, thus no causal conclusions can be derived. Future research should conduct an experiment with manipulation of USCT by exposing participants to images of extremely thin models, average-looking women, or women with a bigger body size. Participants would have to answer questions about how they compare to women depicted in the images. Following engagement with the images, body envy tendency would be measured, and afterwards dieting intentions would be assessed. Moreover, we used a convenience sample of college women, limiting generalizability of our findings. A recent longitudinal study found that frequency of dieting persistently affected drive for thinness from early to middle adulthood (Brown et al., 2020),

thus future research should include a sample with a wider age-range. Another limitation is that the majority of our sample reported a White European ethnicity. Although appreciation of thinness has become more globalized among non-Western cultures (Swami, 2015), ethnicities other than White might protect women from the influence of the thin ideal (Warren & Akoury, 2020). This raises the question of the nature of upward social comparisons and subsequent experience of body envy tendency in women of different ethnicities, emphasizing the need for future research to test our predictions in an ethnically more diverse sample. Finally, while we only focused on body envy tendency, some contemporary researchers distinguish between two types of envy: benign and malicious (van de Ven et al., 2009). Both types encompass pain due to the perceived inferiority following unfavorable social comparisons, but result in different action tendencies (Rentzsch & Gross, 2015). Benign envy is associated with increasing one's standing through self-improvement, while malicious envy encourages actions that undermine the other person (van de Ven et al., 2011). Engaging in WLD to improve appearance and approach the thin ideal reflects benign envy. However, future research could differentiate between the two types of envy to clarify which one is a dominant response in the context of WLD.

The current study utilized the sociocultural perspective on dieting behavior among college women, focusing on the influence of upward social comparisons with thinner/more attractive women, and subsequent experience of body envy tendency (Tiggemann, 2012). We predicted that the relationship between USCT and WLD through body envy tendency would be stronger for women higher in hypercompetitiveness, which was not supported by our findings. However, we found support that both USCT and hypercompetitiveness independently influence WLD through body envy tendency. As such, the study suggests potential preventative and intervening measures for women higher in USCT and women higher in hypercompetitiveness aimed at reducing body envy tendency and in turn weakening

WLD motivation. Body envy tendency appears to play a salient role in the body image domain where it might motivate behaviors with debilitating health consequences. We hope that future research will acknowledge current limitations and provide a more nuanced understanding of the mechanisms underlying WLD in college women.

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Appendix

Assumption Checks

Figure A1

P-P Plot for Normality Assumption Check

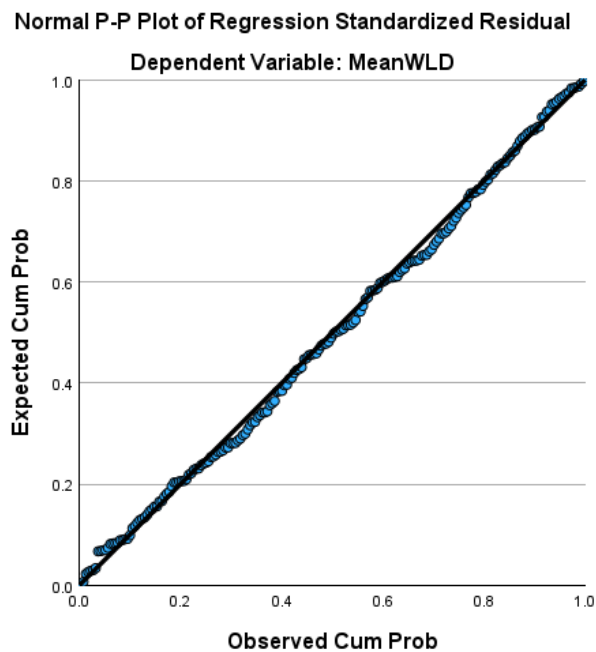


Figure A2

Residual Plot for Checking the Linearity and Homoscedasticity Assumption

