

**Disentangling the Influence of Body-Envy, Neuroticism and Upward Body
Comparison Tendency on Dieting in a Sample of College Women: A Moderated
Mediation Analysis**

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Abstract

This study aimed to analyse the relationships between upward social comparison tendency (USCT), body envy tendency (BET), weight-loss dieting (WLD) and neuroticism (N). We hypothesised that BET would mediate the relationship between USCT and WLD: women higher in USCT would be associated with more WLD through more episodes of body envy. We also hypothesised that N would moderate the mediation pathway, which means the mediation pathway would be stronger for women higher in N. An online questionnaire was conducted on a convenience sample of 206 college women. PROCESS (Hayes, 2022) was used to test the moderated mediation model. The results showed no support for the moderated mediation model, but two exploratory mediation models were supported. The results showed that higher USCT was associated with more WLD through BET, and higher N was associated with more WLD through BET. The results provided insights into reducing the incidence of toxic upward social comparisons through media literacy programmes and self-compassion.

Keywords: upward social comparison, body envy tendency, weight-loss dieting, neuroticism

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A significant portion of college women perceive themselves as overweight or obese, and about 43% of college women actively engage in dieting, despite 81.5% of them having a BMI considered healthy (Fayet & Samman, 2012). Given the challenging, often unattainable thin ideal, it's not surprising to find widespread weight-loss dieting (WLD) among women, which is a strong predictor of eating pathology (Stice & Shaw, 2002). In studies of body image, the sociocultural model is a widely used and empirically supported model (Cafri et al., 2005). The model suggests that women perceive their own body by comparing it with the thin-idealised others, which leads to upward comparison and feelings of falling short and dissatisfaction (Tiggemann & Zaccardo, 2015). Despite the prominence of this model in the body image literature, there is a lack of research on emotional mediation of such upward comparison (Nabi & Keblusek, 2014). Therefore, the first aim of this research is to investigate whether body envy tendency (BET) mediates the relationship between upward social comparison tendency (USCT) and WLD: a higher level of USCT will lead to more episodes of body envy, resulting in increased engagement of WLD. Additionally, the second aim of this research is to assess whether neuroticism (N), a personality trait positively related to weight-loss dieting in young women (Davis et al., 1993), moderates the mediation pathway, which means the effect of the mediation pathway will be stronger for women with higher levels of N.

The sociocultural model argues that the image of the thin ideal, and the focus on weight-loss dieting have contributed to eating pathology in women (Stice & Shaw, 2002). In societies influenced by western culture, the thin ideal has been accepted as a standard of attractiveness since the early 1900s (Bonafini & Pozzilli, 2011). Since the thin ideal is often promoted by media and has become a part of the social culture, women are preoccupied with pursuing a thin-idealised body figure as portrayed in the media, although the thin ideal is often unrealistic and unattainable (Tiggemann, 2012). It is therefore important to know why women compare themselves to the thin-idealised others. As a central mechanism of sociocultural theory, the social comparison theory (Festinger, 1954) indicates that people inherently feel compelled to evaluate their own abilities and qualities by comparing themselves with others. They utilise others as a reference point to understand themselves and the world around them (Buunk & Gibbons, 2000). Upward social comparisons can create a perceived discrepancy between one's current situation and their desired state. Therefore, the unrealistic and unattainable thin ideal promoted by culture and media poses great pressure on young women to reduce the discrepancy between themselves and the thin ideal (Stice, 1994). Moreover, women who have absorbed the belief that being thin is essential are more prone to make upward social comparisons and to conform to the thin ideal (Fitzsimmons-Craft et al., 2014). Since upward social comparison and exposure to the thin ideal can motivate women to engage in weight-loss actions such as WLD (Polivy & Pliner, 2015), it is not surprising to find that upward social comparison is also associated with eating pathology. For example, women diagnosed with Bulimia Nervosa (BN) exhibited prolonged fixation durations when viewing comparison bodies with lower BMIs (Blechert et al., 2009). Based on the negative effects on women's perception of body image, it is not surprising to see that upward social comparisons are often linked with negative emotional consequences (Festinger, 1954). However, most of the research within the body image domain focused on general body

dissatisfaction instead of specific emotions, and little research has examined the emotional consequences of upward social comparisons. In this study, we are specifically looking into body envy, which is closely associated with upward social comparisons (Smith, 2008).

Envy is described as an unpleasant and often painful emotion arises in situations where individuals perceive others as having achieved greater success or possessing desirable attributes (Smith & Kim, 2007). The pain theory of envy argues that envy has three components: frustration, unfairness, and inferiority (Tai & McAllister, 2012). When women try but fail to achieve the unattainable thin ideal and consider it as important to them, the feelings of unfulfillment and inadequacy can lead to frustration (van de Ven, 2017). Since envy enables women to monitor their maintenance of a favourable relative position (Hill & Buss, 2008), it also emerges when women perceive a threat to their relative status, which is related to inferiority (Smith & Kim, 2007). When women engage in upward social comparisons such as being exposed to magazine images (Jung, 2006), the aspiration for a thin ideal can provoke feelings of inferiority (Smith, 2000), because the thin ideal is being valued but also out of reach for most women. Moreover, since the thin-idealised others are also perceived as more attractive and desirable by society and culture (Garner et al., 1980), a feeling of unfairness may emerge especially when women perceive the status and advantages of the envied target as undeserved (van de Ven, 2017). According to van de Pligt and colleagues (2009), the motivational goal of envy is to bridge the gap with the thin-idealised others of upward social comparison. For example, for women with restrictive-type anorexia nervosa, body envy is associated with low body mass index (Grynberg et al., 2020), because it motivates toward the thin-ideal and leads to more engagement in WLD. Therefore, envy may serve as a motivation for women to acquire what others possess and avoid falling short in comparison. Deriving from the previous research, we predict that body envy mediates the association between the upward social comparison and WLD, which means a higher tendency

of upwards social comparison will lead to more episodes of body envy and resulting in more motivations for WLD.

Since envy can function as a motivation for action taking (Nabi & Keblusek, 2014), we predict it is a mediator in the relationship between USCT and WLD. According to Keltner & Haidt (1999), emotions serve as a crucial role on both social and individual levels. On the social level, the values and norms of a society are adopted by individuals, and envy can reinforce these values and norms (Keltner & Haidt, 1999). The idealized female shape has shifted from the voluptuous, curved figure to thinness a few decades ago, which is exemplified by the widespread of WLD in women (Garner et al., 1980). Moreover, Arnocky and his team (2016) found that envy can motivate women to take appearance-enhancing actions including WLD, because men prioritize physical attractiveness across cultures. On the individual level, the experience of envy may evoke a negative combination of feelings can increase women's motivation to improve their physical appearance (Parrott & Smith, 1993). Nabi & Keblusek (2014) found that when women engage in comparison with thin-idealised media figures, envy mediated the relationship between upward social comparison and behavioural motivation. A higher intolerance of body envy also predicts the increased actions of restrictive eating such as WLD (Solomon-Krakus et al., 2022). Therefore, we predict that more episodes of body envy will lead to more motivations for WLD.

Based on the theories of upward social comparison and body envy, we predict that body envy tendency (BET) will moderate the effect of upward social comparison tendency (USCT) on WLD, which means higher levels of USCT will lead to increased BET, resulting in more engagement in WLD. Apart from the mediation model, we also predict that neuroticism (N) moderates the mediation pathway, which means the mediation pathway will have a stronger effect on women with higher levels of N. N is characterised by fearfulness,

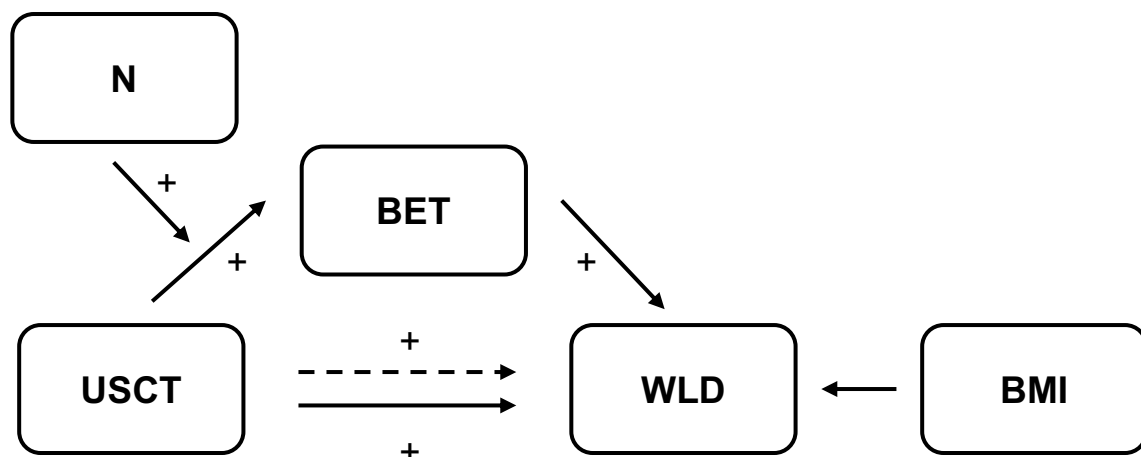
low self-esteem, feelings of helplessness and more sensitivity to negative emotions (Costa & McCrae, 1987). Women high in N often set unreasonably high goals for themselves and undervalue their own achievements (Eysenck, 1947), which leads to a feeling of inferiority and makes it more difficult to achieve their goals (van der Zee et al., 1998). Evidence indicates that these women tend to have easier access to memories for negative self-information (Bradley et al., 1993) since the negative self-information is in line with their negative self-perception (Reed & Derryberry, 1995). Thus, individuals with high levels of N will react more negatively when faced with upward social comparisons compared to those with low levels of N (Buunk et al., 2001). Women with higher levels of N are also generally predisposed to experiencing negative feelings. For example, the effect of the thin ideal promoted by the media may be limited to women with higher levels of N (Ferguson, 2013). N is also related to sociocultural factors. Rymarczyk (2021) found that N is correlated with thin-ideal internalization and body dissatisfaction, which indicates women high in N will have more anorexia readiness syndromes including WLD. Conversely, women with low levels of N are characterised by their calmness, reduced aggression, and a lower susceptibility to negative emotions (Duffy et al., 2006), which eventually leads to less negative emotions in response to upward social comparison. Although N is associated with WLD and eating pathology, few research has focused on whether N can moderate the effects of upward social comparison and body envy on WLD. Therefore, we predict that N can moderate the indirect effect of USCT on WLD through BET.

The primary goal of this study is to examine whether BET would mediate the relationship between USCT and WLD. Additionally, a second goal is to explore whether the effect of the mediation pathway will be stronger for women with higher levels of N (see figure 1). The moderated mediation pathway will be tested in a sample of college women. Since changes in BMI are also associated with changes in WLD (Neumark-Sztainer, 2012),

BMI is the control variable in the moderated mediation analysis. By controlling for BMI, we can make sure that the effect of our model exists in different body sizes among college women, which means the effect of the model essentially occurs over and above body size.

Figure 1

The Moderated Mediation Model of Upward Social Comparison Tendency, Body Envy Tendency, Neuroticism and Weight-loss Dieting



Note. Positive relationships of the interactions are presented with “+”.

USCT: Upward Social Comparison Tendency; N: Neuroticism; BET: Body Envy Tendency;

WLD: Weight Loss Dieting; BMI: Body Mass Index

The indirect effect is displayed by the dashed line.

Methods

Participants

A convenience sample of 206 female students from a university or other higher education institution volunteered to participate in the study. One participant was removed from the sample because of the incomplete questionnaire, thus a total sample of 206 female students was analysed. The ages of the participants ranged from 18 to 50, with a mean of $M = 21.35$, $SD = 2.69$. The participants had a mean BMI of $M = 22.17$ with a standard deviation of $SD = 3.29$. From the acquired sample, 44.7% of participants were Dutch, 19.9% were

German and 35.4% indicated having another nationality. Regarding the ethnicities, 4.9% of the sample were Asian, 0.5% were Black or African American, 2.9% were Hispanic, 85% were White, 3.9% were Mixed, and 2.9% indicated “other” without specification.

Measures

Upward Social Comparison Tendency

Upward social comparison tendency (USCT) of the body was operationalized using the Upward Physical Appearance Comparisons Scale (UPACS) which consisted of ten items. Two item examples were: “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.” Items were rated on a five-point Likert scale from 1 (never) to 5 (always). The mean scores of the scale were used in the analyses, with higher scores indicating a higher frequency of upward physical appearance comparisons. In a previous study, Cronbach's alpha for the female sample was $\alpha = .94$ (O'Brien et al, 2009). The Cronbach alpha in our study was .95, indicating good internal consistency.

Body Envy Tendency

The body envy tendency was operationalized with the envy scale consisting of 8 items that measure the number of episodes of envy the participant experiences. This is a self-constructed scale based on contemporary theories by Smith and colleagues (1999) and Crusius (2019). Two item examples were: “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.” Items were rated on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). The mean scores of the scale were used in the

analyses, with higher scores indicating a higher tendency for experiencing body envy. The Cronbach's alpha of the scale in our study was .90, indicating good internal consistency.

Weight-Loss Dieting

Weight-loss dieting (WLD) was operationalized using the Diet Intent Scale (DIT) constructed by Stice (1998) which consisted of 9 items that measure dietary restraint. Two item examples were: "I take small portions (of food) in an effort to control my weight" and "I count calories to try to prevent weight gain." Items were rated on a five-point Likert scale from 1 (never) to 5 (always). The mean scores of the scale were used in the analyses, with higher scores indicating a higher frequency for WLD. In a previous study, the Cronbach's alpha of this scale was .94 and temporal reliability was .92 (Stice, 1998). The Cronbach's alpha of this scale in our study was .93, indicating good internal consistency.

Neuroticism

Neuroticism was operationalized using a subscale from Big Five Inventory-10 (BFI-10) constructed by Rammstedt & John (2007), which was a shortened version of BFI-44. Other subscales from BFI-10 are extraversion, agreeableness, conscientiousness, and openness. Only the subscale for neuroticism was used in our study. It consisted of 2 items: "I see myself as someone who is relaxed, handles stress well" and "I see myself as someone who gets nervous easily", with the first item being a reversed item. Items were rated on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). The mean scores of the scale were used in the analyses, with higher scores indicating a higher level of neuroticism. In a previous study, the Cronbach's alpha of the subscale neuroticism was .75 (Rammstedt & John, 2007). The Cronbach's alpha of the subscale neuroticism in our study was $\alpha = 0.66$, indicating almost sufficient internal consistency.

Body Mass Index

Body size was operationalized by calculating body mass index (BMI). The participants' BMIs were calculated using self-reported height and weight.

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 carried out with a sample of six participants who were acquaintances of the researchers. The pilot study was carried out to assess typographical errors and process errors of the online questionnaire. No process errors were identified. 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)”. After the questionnaire was revised it was published through SONA (i.e., online pool of Bachelor students at University of Groningen participating for course credit) and the researchers shared the link to the survey through their own social networks. The online questionnaire was provided via Qualtrics and took approximately 15 minutes to complete (Qualtrics, Provo, UT). The data collection period started on the 19th of April 2024 and ended on 14th of May 2024. Informed consent was given by the participant before participation. The online questionnaire contained demographic information (e.g., gender, age, height, weight, nationality and ethnicity), measures of upward social comparison, body-envy, and neuroticism. To avoid any invalid data, all the responses from non-female respondents, from participants that did not have at least a 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. At the end of the survey participants were provided with a list of ten steps that advised them how to turn negative body thoughts into positive body image.

Statistical Analysis

The hypothesised mediated moderation model (see Figure 1) was determined through testing the significance of the direct and indirect effects of the moderator through a

bootstrapping procedure (n=5000) of PROCESS macro, model 7 (Hayes, 2022) in SPSS (version 28). Bootstrapping was used because it is robust in normality and can be used for small sample sizes (Igartua & Hayes, 2021). The moderated mediation analysis tests the effect of a moderating variable (i.e. neuroticism) on the relationship between a predictor variable (i.e. upward social comparison tendency) and an outcome variable (i.e. weight loss dieting) through a mediator variable (i.e. body envy tendency). Body Mass index was the control variable. The index of the moderated mediation pathway was the difference of the indirect effect across the level of the moderator variable neuroticism (Igartua & Hayes, 2021). The significance of the moderated mediation is supported by the bootstrapping 95% confidence interval not containing a zero (Hayes, 2015).

Results

Preliminary analysis

A casewise diagnostic ($> \pm 3 SD$) was carried out and one outlier was identified. The Cooks distance was below 1 and therefore the outlier was not removed from the dataset (Cook & Weisberg, 1982). Thus, the final dataset for statistical analysis included $N = 206$ participants. The normality assumption check was carried out by constructing a P-P plot (see Appendix Figure 1). Since all the residuals fall closely to the line, the assumption of normality was not violated (Cook & Weisberg, 1982). An assumption check of homoscedasticity was carried out and a residual plot (see Appendix Figure 2) was constructed which showed no serious violations of homoscedasticity since all the residuals spread almost evenly across the predicted values (Cook & Weisberg, 1982). The assumption independence of errors was checked by running a Durbin-Watson test, since the value of Durbin-Watson test ($d = 2.04$) is very close to 2, the assumption of independence of errors was not violated (Durbin & Watson, 1971). The multicollinearity assumption was checked by looking at VIF

values which are all below 10, indicating no violation of multicollinearity assumption (Hair, 2006). Descriptive statistics and correlations between the variables are presented in Table 1.

Table 1

Pearson Correlations, Means, and Standard Deviations

	1	2	3	4	5
1. USCT	-				
2. WLD	.51**	-			
3. BET	.69**	.56**	-		
4. N	.36**	.21	.27**	-	
5. BMI	-.10	.09	-.01	-.15*	-
Mean	3.05	2.23	2.35	3.34	22.39
SD	.98	.95	.96	1.04	4.51

Note. USCT: Upward Social Comparison Tendency; WLD: Weight Loss Dieting; BET: Body Envy Tendency; N: Neuroticism; BMI: Body Mass Index; SD: Standard Deviation

* . Correlation is significant at the 0.05 level (2-tailed)

** . Correlation is significant at the 0.01 level (2-tailed)

Moderated Mediation Analysis

A moderated mediation was carried out using model 7 according to Hayes (2022). The index of the moderated mediation showed no significant results ($B = 0.01$, $SE = 0.02$, $CI [-$

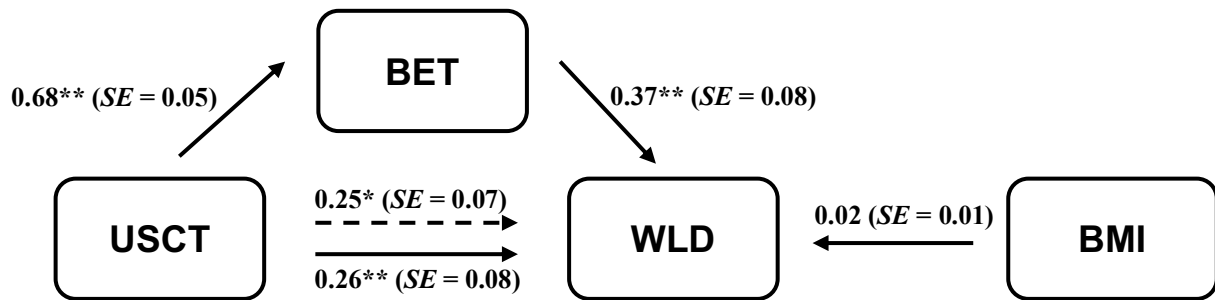
0.02, 0.04]). Therefore, our model was not supported. The hypothesis that neuroticism will moderate the indirect effect of USCT on WLD through BET is therefore rejected. However, the correlation analysis (see Table 1) showed significant positive correlations between USCT, N and WLD, suggesting that USCT and N may independently affect WLD through BET. Therefore, two exploratory mediation pathways according to Hayes (2022) model 4 were examined. The first pathway is USCT has an indirect effect on WLD through BET, the second pathway is N has an indirect effect on WLD through BET.

Two Exploratory Mediation Analyses

The first exploratory mediation analysis assessed whether USCT has an indirect effect on WLD through BET. The whole model appeared to be significant ($F(3, 202) = 37.02, p < .01$) and 35.48% of the variance in WLD was explained by predictors. The effects of USCT on BET ($B = .68, SE = .05, CI [0.58, 0.78], p < .01$) and BET on WLD ($B = .37, SE = .08, CI [0.21, 0.52], p < .01$) were shown to be significant. The direct effect of USCT on WLD was shown to be significant ($B = .26, SE = .08, CI [0.11, 0.41], p < .01$). The indirect effect of USCT on WLD through BET was also significant ($B = .25, SE = .07, CI [0.12, 0.39], p < .05$). BMI is the control variable in this analysis. The results showed that higher levels of USCT will lead to higher levels of BET, and eventually increasing WLD. Therefore, we conclude that the results were in line with our expectation, which means the mediation pathway between USCT and WLD through BET is supported. See Figure 2 for the mediation model of the relationship between USCT and WLD through BET.

Figure 2

Mediation Model of the Indirect Effect of USCT on WLD through BET



Note. Coefficients and SEs of the interactions are presented.

USCT: Upward Social Comparison; BET: Body Envy Tendency; WLD: Weight Loss

Dieting; BMI: Body Mass Index

The indirect effect is displayed by the dashed line.

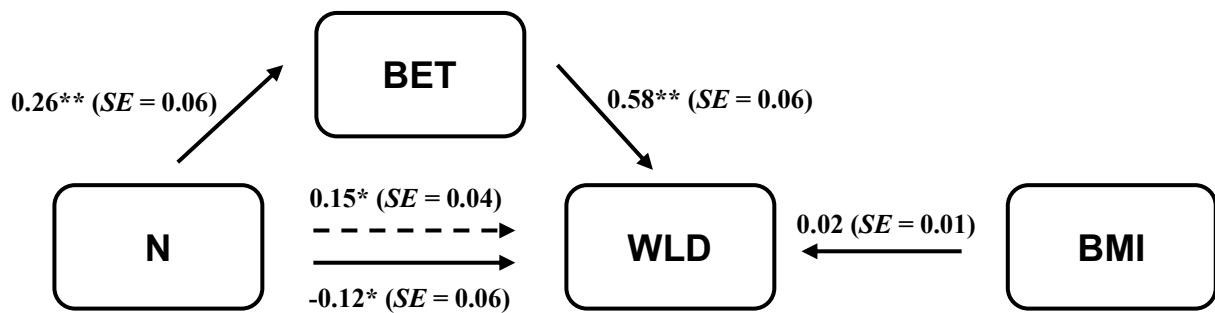
** $p < .01$

* $p < .05$

The second exploratory mediation analysis assessed whether N has an indirect effect on WLD through BET. The whole model appeared to be significant ($F(3, 202) = 33.51, p < .01$) and 33.23% of the variance in WLD was explained by predictors. N had a significant effect on BET ($B = 0.26, SE = 0.06, CI [0.13, 0.38], p < .01$) and BET had a significant effect on WLD ($B = 0.58, SE = 0.06, CI [0.47, 0.70], p < .01$). The direct effect of N on WLD was significant ($B = -0.12, SE = 0.06, CI [-0.23, -0.01], p < .05$). The indirect effect of N on WLD was also significant ($B = 0.15, SE = 0.04, CI [0.07, 0.23], p < .05$). BMI is the control variable in this analysis. The reason that N has a negative direct effect and a positive indirect effect on WLD might be a suppression effect (Jose, 2013). Further exploration of the data is required to confirm whether the suppression effect really exists, or the direct relationship is spurious. The results showed that higher levels of N will lead to higher levels of BET, and eventually increasing WLD. Therefore, we conclude that the mediation pathway between N and WLD through BET is supported. See Figure 3 for the mediation model of the indirect effect of N on WLD through BET.

Figure 3

Mediation Model of the Indirect Effect of N on WLD through BET



Note. Coefficients and SEs of the interactions are presented.

N: Neuroticism; BET: Body Envy Tendency; WLD: Weight Loss Dieting; BMI: Body Mass Index

The indirect effect is displayed by the dashed line.

$**p < .01$

$*p < .05$

Discussion

The primary goal of this study is to examine whether BET acts as a mediation in the relationship between USCT and WLD, and whether N acts as a moderator in this mediation pathway. Unfortunately, the entire model was not supported. Therefore, we carried out two exploratory mediation analyses. As anticipated in the first mediation analysis, BET significantly mediated the relationship between USCT and WLD. The results showed that college women with a higher tendency for upward social comparison experienced more episodes of body envy, leading to increased engagement of WLD. The second mediation analysis of the indirect effect of N on WLD through BET was also found to be significant. The results showed that college women with higher levels of N also experienced more episodes of body envy, leading to increased engagement of WLD.

The lack of a significant moderated mediation pathway may be due to several factors. One of the reasons is that the sample used in this study may not be able to reflect the effect of neuroticism. In other words, levels of neuroticism may not have been high enough to exert an effect that is strong enough to be identified by the moderated mediation model. In support of this reasoning, clinical populations such as people with anorexia nervosa often exhibit higher levels of neuroticism (Bollen & Wojciechowski, 2004), which could make the moderated mediation pathway more pronounced. Another reason is that the scale used to measure neuroticism consisted of only two items, possibly limiting the comprehensiveness of the trait assessment (Rammstedt & Beierlein, 2014). A longer, more detailed scale might yield more accurate measurements and potentially alter the findings related to the moderated mediation pathway (Hayes, 2022). Further research should test the proposed moderated mediation model in a clinical sample as well as use a longer neuroticism scale with more reliability and validity.

Despite these limitations, two exploratory mediation pathways were supported, emphasising the antecedents and consequences of body envy. The first mediation pathway showed that BET mediates the relationship between USCT and WLD. This is in line with previous research. Women who are more prone to upward social comparison usually measure themselves against the thin ideal more often (O'Brien, 2009), since they have absorbed the belief that being thin is essential and conforming to the thin ideal is important (Fitzsimmons-Craft et al., 2014). Body envy typically emerges from making upward social comparisons, the aspiration for a thin ideal can provoke comparisons that lead to experiences of frustration, unfairness, and inferiority (Tai & McAllister, 2012). To reduce these aversive experiences, envy also serves as a source of motivations to reduce the discrepancy between the self and the thin-idealised others (Stice, 1994). In essence, women with high levels of USCT tend to

experience more episodes of BET, which acts as a motivation for action taking, thus leading to the increased engagement of WLD (Nabi & Keblusek, 2014).

The second mediation pathway showed that BET mediates the relationship between N and WLD. According to the sociocultural model, the values and norms are affected by cultures (Keltner & Haidt, 1999), which is why women make upward social comparisons and conform to the thin-ideal promoted by culture and society. According to previous research, N is a significant risk factor for eating pathology (Miller et al., 2006), and women with eating pathology also tend to have higher levels of N (Wagner & Vitousek, 2019). Since women higher in N will be more sensitive to negative emotions (Costa & McCrae, 1987), N exacerbates the negative emotions induced by upward social comparison (Claridge & Davis, 2001). Therefore, the effect of BET can also be exacerbated due to the effect of N. In essence, women with high levels of N tend to experience more episodes of BET, which leads to the increased engagement of WLD.

Body Mass Index (BMI) was controlled in the analyses to account for baseline differences in body size, ensuring that the effects of body envy is significant regardless of the body size. The thin ideal is also adopted by women in all body sizes. The significant results obtained after controlling for BMI indicate that the effect occurs above and beyond one's body size, underscoring the impact of USCT and BET on WLD (Fayet et al., 2012). This shows the power of contemporary thin-ideal in western culture (Bonafini & Pozzilli, 2011), even women with normal body sizes are affected.

Several practical implications should be identified. The harmful effects of the thin ideal promoted by media literacy often leads to upward social comparison and negative emotions such as envy, thus promoting unhealthy WLD. These emotions can significantly impact individuals' mental health, fostering feelings of inadequacy and dissatisfaction with

their own bodies (Grabe et al., 2008). Moreover, the harmful effects of the thin ideal also contribute to the growing number of eating pathologies, including anorexia nervosa, bulimia nervosa, and binge eating disorder (Stice, 2002). Therefore, it is crucial to educate and manage these negative emotions through media literacy programmes and self-compassion. By encouraging media literacy programs that emphasise body diversity and the unrealistic nature of the thin ideal, the incidence of toxic upward social comparisons can be reduced (McLean et al., 2016). For example, an externally oriented media literacy programme which educates women to critically think about the social values and norms of the thin-ideal can significantly improve women's body image (Irving & Berel, 2001). By promoting self-compassion interventions, women can develop a healthier relationship with themselves, reducing the harmful impact of upward social comparison and envy, leading to a positive self-image and well-being (Neff, 2011). For example, appearance-related self-compassion has a significant correlation with a better outcome of body image (Thøgersen-Ntoumani et al., 2017).

Several limitations of this study should be noted. This study employed a cross-sectional design, precluding causal inferences and limiting our ability to determine the directionality of the relationships (Fayet et al., 2012). Future research should utilise longitudinal designs to establish causality and examine the temporal dynamics of these pathways. Additionally, WLD was measured through self-report questionnaires, which may not accurately represent actual dietary behaviours compared to objective measures such as food diaries or observational methods. While we used a convenience sample which did not include many participants from diverse ethnic backgrounds, generalizability of our study might be limited. Future studies should replicate the research in different groups and consider the role of cultural and ethnic differences in UCST, BET, and WLD to provide a more nuanced understanding of these relationships (Morrison et al., 2004). The scale used in our

research is self-constructed, which may lack established psychometric properties, such as validity and reliability. Furthermore, our study mainly focused on benign envy, which leads to actions of self-improvement such as WLD and increased effort to achieve similar success (van de Ven, 2016). Another form of envy, namely malicious envy, arises when an individual feels resentment and hostility towards superior others (Van de Ven, 2016). These types of envy differ in terms of the behaviour responses to the feeling of envy. Future research can benefit from focusing on different types of envy to develop targeted interventions and strategies such as mindfulness (Dong et al., 2020).

This study contributes to the understanding of the moderated mediation model, in which BET mediates the relationship between USCT and WLD, and N moderates the mediation pathway. The findings offer implications for future research and interventions aimed at addressing eating pathologies, negative influence of upward social comparison and negative body image. Future research should focus on effective interventions targeted at upward social comparison and envy, such as media literacy programmes and self-compassion interventions. Combining personality factors such as neuroticism with emotional factors like envy may enhance the understanding of eating pathology and the effectiveness of treatments for women struggling with body image and dieting issues (Smith & Kim, 2007).

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Appendix

Figure 1

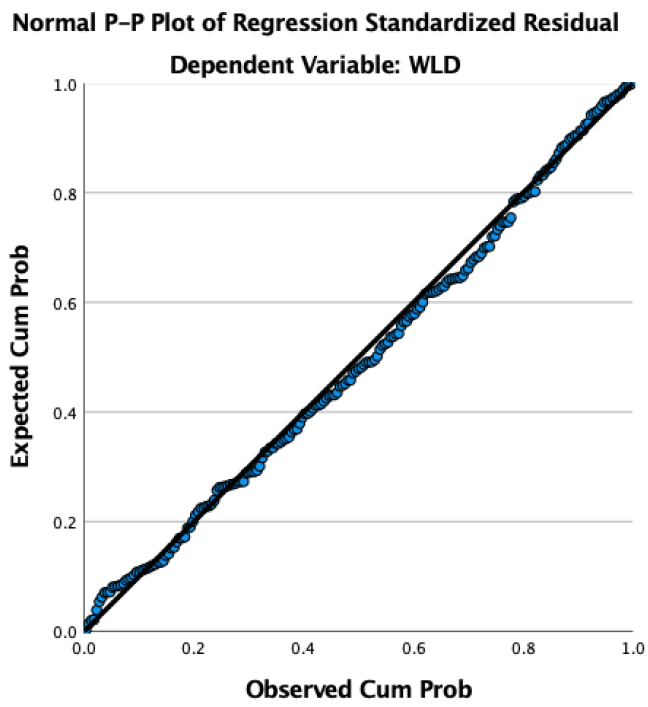
P-P Plot for Normality Assumption Check

Figure 2

Residual Plot for Homoscedasticity Assumption Check