



“Be like me”: the role of parental modeling on sons’ body dissatisfaction and disordered eating

Silvia Cerea^{1,2} · Paolo Mancin¹ · Martina Scaltritti¹ · Gioia Bottesi¹ · Sofia Calonaci¹ · Marta Ghisi^{1,3}

Accepted: 19 August 2024
© The Author(s) 2024

Abstract

Parents can influence sons’ body image and eating behaviors both directly (e.g., through comments) and/or indirectly (i.e., through modeling). However, available studies still lack in addressing parents’ influence on their sons. This study aimed to explore parental indirect influence by investigating the associations between mothers’ and fathers’ body dissatisfaction, disordered eating, and corresponding dimensions in their sons. Moreover, we examined the relation between mothers’ and fathers’ social anxiety symptoms, low self-esteem, and perfectionistic traits, and their sons’ body dissatisfaction and disordered eating. Group differences (sons, mothers, and fathers) in the above-mentioned variables were also investigated. A hundred and twenty-eight Italian males ($M_{age}=23.88$ years \pm 3.13, range 18–31) from various regions of Italy and their parents completed questionnaires investigating the above-mentioned variables. Analyses of Covariances were conducted, controlling for participants’ age. Group differences emerged in relation to body dissatisfaction and disordered eating. Multiple regressions showed that sons’ drive for thinness and body dissatisfaction were associated with mothers’ body dissatisfaction, dysfunctional eating behaviors, and perfectionism, while bulimic symptoms were associated with fathers’ perfectionism and with the living condition of sons (i.e., living with their parents). The present findings underscore the significant role that mothers may play in shaping their sons’ body- and eating-related behaviors, as mothers’ behavioral and cognitive dimensions related to body dissatisfaction and disordered eating are shown to be more strongly associated with their sons’ body dissatisfaction and drive for thinness than fathers’ dimensions. Moreover, our findings highlighted that fathers’ influence might be limited to sons’ bulimic symptoms, as fathers’ perfectionism and the living condition of sons (i.e., sharing the house with parents) emerged as associated with sons’ bulimic symptoms. This study further supports the importance of considering the parental role when addressing men’s body image and eating behaviors.

Keywords Body dissatisfaction · Disordered eating · Modeling · Parental influence · Young males

Introduction

Body dissatisfaction and disordered eating have rapidly increased during the last decade, particularly following the COVID-19 pandemic (Sanzari et al., 2023). They are highly prevalent in women, supporting the idea that a

moderate degree of body dissatisfaction and disordered eating is normative among women (Wade et al., 2012); at the same time, body dissatisfaction and disordered eating have also been described among men (Silén & Keski-Rahkonen, 2022; Sparti et al., 2019), despite the majority of the studies on this topic have been conducted with female samples, oftentimes excluding males (Voges et al., 2019). Patterns of gender differences pertaining to body dissatisfaction and disordered eating exist, since women tend to report elevated levels of body dissatisfaction, a stronger drive for thinness, and a more pervasive experience of general disordered eating when compared to their male counterparts (Culbert et al., 2021; Fasoli & Constantinou, 2024; Karazsia et al., 2017; Quittkat et al., 2019). Notwithstanding these findings, some studies have indicated an equivalent severity of these symptoms in men (i.e., disordered eating), when

✉ Silvia Cerea
silvia.cerea@unipd.it

¹ Department of General Psychology, University of Padova, Via Venezia, 8, Padova 35131, Italy

² Department of Biomedical Sciences, University of Padova, Padova, Italy

³ Unità Operativa Complessa (U.O.C.) Hospital Psychology, University-Hospital of Padova, Padova, Italy

compared to women (Mitchison et al., 2013; Striegel et al., 2012). This underscores the significance of investigating these symptoms in the male population (Cerea et al., 2024), particularly given their rapid increase in this group (Mitchison et al., 2014; Silén & Keski-Rahkonen, 2022) and the consequent negative impact on men's physical and mental health, quality of life, and overall well-being (e.g., Bornioli et al., 2019).

To explain the development of body dissatisfaction and disordered eating among men, Tylka (2011) adapted the Tripartite Influence Model for the male population (Keery et al., 2004; Thompson et al., 1999), which guided the current study, along with Bandura's Social Learning Theory (Bandura, 1986). The Tripartite Influence Model outlines the ways in which sociocultural ideals for both males and females (i.e., cultural beauty standards) influence individuals' body image and eating behaviors. According to this model, sociocultural ideals can be transmitted through three primary agents: family, peers, and mass media (Thompson et al., 1999; Tiggemann, 2011). These agents may have a direct impact on individuals' body dissatisfaction and disordered eating, as well as an indirect impact through two variables: internalization of cultural standards of beauty and physical appearance comparisons (Schaefer et al., 2021; Tylka, 2011). The influence of these agents varies in shaping individuals' body image and eating behaviors. Particularly, parental influence may represent a distinct pathway in the development of offspring's body dissatisfaction and disordered eating, since their influence remains significant even after controlling for media and peer influence (Abraczinskas et al., 2012). In accordance, parents serve as primary targets for identification and gender-role models regarding body shape and eating attitudes for their offspring (Laboe et al., 2022; Rodgers & Chabrol, 2009; Tylka, 2011), acting as a powerful source of influence in shaping their offspring's representation of their own body and physical appearance (Schaefer et al., 2021; Tylka, 2011). Concerning young men, previous literature has identified the family as a crucial agent that can directly impact young men's eating habits (Schaefer et al., 2021), especially when sharing the same house (Deliens et al., 2014). Therefore, young adults living with their parents might be influenced by both mothers' and fathers' eating behaviors and body image attitudes (Chng & Fassnacht, 2016; Deliens et al., 2014).

Parental influences on body image and eating behaviors

Parents can influence their sons' body image and eating behaviors. However, most studies on this topic have been conducted with female samples (Abraczinskas et al., 2012; Fortesa & Ajete, 2014; Handford et al., 2018; Kluck, 2010).

Parental influence on sons' body image and eating behaviors can manifest in two ways: directly and indirectly (Abraczinskas et al., 2012; Damiano et al., 2019; Rodgers & Chabrol, 2009). Direct influence can be shown through direct and explicit messages, such as encouragement or pressure to lose weight, to practice physical exercise, or to engage in specific eating behaviors and by comments centered on sons' physical appearance and eating practices (Abraczinskas et al., 2012; Rodgers & Chabrol, 2009). In addition to direct and explicit messages, parents could impact on their sons' body image and eating behaviors indirectly, through parenting style and modeling (Abraczinskas et al., 2012; Rodgers & Chabrol, 2009). Modeling refers to a process that requires behaviors to be appraised by offspring through the observation of parents' actions and their consequences (Bandura, 1986). In the context of body image and eating behaviors, modeling can be represented by parents' behaviors, including dieting and other observable eating habits to maintain or reduce weight, a self-emphasis on physical appearance, and negative comments on their own body and physical appearance (Arroyo et al., 2017; Damiano et al., 2019; Fortesa & Ajete, 2014; Klein et al., 2017). By engaging in these behaviors, parents may indirectly transmit messages that emphasize the importance of physical appearance, potentially leading to offspring becoming dissatisfied with their bodies. The impact of parental modeling on offspring's eating behaviors is long-lasting, as demonstrated by a previous longitudinal study showing that maternal dieting significantly predicted drive for thinness in their daughters 20 years later (Klein et al., 2017).

Parental psychological features associated with body dissatisfaction and disordered eating (e.g., perfectionism tendencies, social anxiety symptoms, and low self-esteem) may also influence sons' body image and eating behaviors. In line with Bandura's Social Learning Theory (Bandura, 1986), parents' attitudes and behaviors may contribute to the development of perfectionism tendencies, social anxiety symptoms, and low self-esteem among their sons (Carmo et al., 2021; Garcia et al., 2021). In turn, these psychological features may elevate the risk of sons experiencing body dissatisfaction and engaging in disordered eating, as they represent individual risk and maintenance factors for dysfunctional eating and negative body-related behaviors (Fairburn et al., 2003). Concerning perfectionism, the Social Learning Model (Flett et al., 2002) posits that sons may develop perfectionistic traits by observing and imitating their parents' perfectionism. In line with this, studies have described similar levels of perfectionism among fathers and sons (Vieth & Trull, 1999). At the same time, high levels of parental perfectionism have been associated with negative outcomes in their offspring's well-being (Lilley et al., 2020), including body dissatisfaction and disordered eating

(Miller-Day & Marks, 2006). In accordance, Canals et al. (2009) found that paternal perfectionism, along with maternal drive for thinness and social insecurities, emerged as a risk factor for the development of eating disorders in adolescent boys and girls. Furthermore, Woodside et al. (2002) found that mothers (and, to a lesser extent, fathers) of individuals with anorexia nervosa reported higher levels of perfectionism than parents of non-clinical individuals. Therefore, authors have hypothesized that this trait might be acquired by the offspring through modeling (Woodside et al., 2002), given the frequent exposure to parental perfectionistic beliefs and behaviors. Regarding social anxiety symptoms, multiple studies have described the impact of mothers' and fathers' social anxiety symptoms on their sons' same dimension (for a review: Garcia et al., 2021). Research has also indicated that children of parents with anxiety disorders are at high risk of developing eating disorders (Bould et al., 2015). In terms of self-esteem, the intergenerational transmission of this feature from parents to sons has been evident in previous studies (e.g., Russell-Carroll & Tracey, 2011). Mothers' low self-esteem has also been associated with their daughters' disordered eating (Usmiani & Daniluk, 1997), underscoring the significance of investigating the impact of parents' self-esteem on sons' body dissatisfaction and disordered eating.

Although several studies have been conducted to investigate the impact of parental modeling on offspring's body dissatisfaction and disordered eating, most of these studies have been conducted with female samples (e.g., Abraczinskas et al., 2012; Fortesa & Ajete, 2014; Handford et al., 2018; Kluck, 2010). However, body dissatisfaction and disordered eating are increasing among men (O'Gorman et al., 2020), with detrimental effects on their physical and mental health, quality of life, and well-being (Bornioli et al., 2019; Purton et al., 2019), making this issue worth noting. Furthermore, most of the studies conducted so far have considered the influence of both parents (i.e., together) instead of distinguishing between mothers and fathers' influence (e.g., Abraczinskas et al., 2012; Kluck, 2010); however, mothers and fathers may provide different types of modeling, and the impact of the modeling may differ based on the sex of the child (Al Sabbah et al., 2009; May et al., 2006). Finally, most of the studies to date have investigated parental modeling through offspring's recall of parental body dissatisfaction and dysfunctional eating behaviors (i.e., retrospective reports of parental modeling; e.g., Abraczinskas et al., 2012; Kluck, 2010). However, this kind of investigation might be subject to participants' recall biases, and the offspring reports may not corroborate with parents' reports (i.e., no objective depiction of parental eating and body-image-related behaviors). Therefore, our study aimed to directly investigate mothers' and fathers' self-reported body

dissatisfaction and dysfunctional eating behaviors, avoiding the possible sons' overestimation of the association between their body dissatisfaction and disordered eating behaviors, and parental behaviors (Abraczinskas et al., 2012; Baker et al., 2000; Jansen et al., 2007; Rodgers & Chabrol, 2009), thus providing a more reliable investigation of parents' behaviors. Investigating the relation among parents' body dissatisfaction, dysfunctional eating behaviors, and their sons' same dimensions is crucial for expanding on previous studies and developing effective preventive interventions targeting males' body dissatisfaction and disordered eating, while also incorporating intervention components for parents.

The current study

The first aim of the current study was to compare body dissatisfaction, disordered eating, social anxiety symptoms, self-esteem, and perfectionism among a sample of young males, their mothers, and their fathers. We hypothesized that mothers would report higher levels of body dissatisfaction, drive for thinness, and bulimic behaviors compared to fathers and sons, reflecting the higher risk and rates of body dissatisfaction and disordered eating observed in the female population compared to the male one (Culbert et al., 2021; Fasoli & Constantinou, 2024; Karazsia et al., 2017; Quittkat et al., 2019). Similar levels of perfectionism between fathers and sons are expected, consistent with findings from previous studies (e.g., Vieth & Trull, 1999) and aligned with the same-sex caregiver hypothesis of the Social Learning Model of perfectionism (Flett et al., 2002). This hypothesis posits that children tend to acquire features from the same-sex parent, suggesting that sons are likely to develop perfectionism through interactions with their fathers. Comparable levels of self-esteem and social anxiety symptoms among the groups are expected, aligning with previous findings that highlight the predictive role of both mothers' and fathers' self-esteem and social anxiety symptoms on their offspring's same dimensions (Garcia et al., 2021; Russell-Carroll & Tracey, 2011).

The second aim of the study was to investigate the relation between mothers' and fathers' body dissatisfaction and dysfunctional eating behaviors and their sons' same dimensions. Consistent with existing evidence (Chng & Fassnacht, 2016; Damiano et al., 2019; Rodgers & Chabrol, 2009; Wertheim et al., 2002), we expected that greater maternal associations with sons' body image and eating behaviors would emerge compared to paternal associations. Mothers are often considered role models for body image and eating attitudes in their children (Damiano et al., 2019; Handford et al., 2018) and are typically more involved in their sons' lives than fathers (Fingerman et al., 2020). At

the same time, a same-sex effect could emerge, as found in mother-daughter dyads (Arroyo et al., 2017; Balantekin, 2019; Rodgers et al., 2009), potentially resulting in associations between fathers' variables and their sons' body image and eating behaviors. Moreover, we aimed to explore the relation between parental social anxiety symptoms, self-esteem, and perfectionistic traits with sons' body image and eating behaviors. These psychological features represent crucial maintaining mechanisms of body dissatisfaction and disordered eating (Fairburn et al., 2003; Fairburn, 2008). Once again, greater maternal than paternal associations with sons' body image and eating behaviors are expected, but a same-sex effect could also emerge (Arroyo et al., 2017; Balantekin, 2019; Rodgers et al., 2009).

To note, the living condition (i.e., living with parents or alone) of sons will be controlled, since sons still living with their parents could potentially be more exposed to parental modeling than sons who have left their original family unit (Chng & Fassnacht, 2016; Deliens et al., 2014). This is particularly relevant in Italy, where young adults (i.e., 18–30 years old) usually live with their parents due to the high rates of unemployment, a less comprehensive welfare structure, and difficulties in homeownership (Schwanitz et al., 2017). Additionally, the presence of siblings will be controlled to explore whether having siblings (or being an only child) could mitigate the associations between parental variables and sons' body image and eating behaviors (Ahrén et al., 2013).

Materials and methods

Participants

A hundred and twenty-eight young males and their parents (128 mothers and 128 fathers) entered the study. 44.5% of sons lived on their own, while 55.5% of them were currently living at their parents' house. 20.3% of sons reported to be an only child, while 79.7% of them had at least a brother/sister. Information related to marital and occupational status of the three groups are presented in [Supplementary Materials](#), while differences in education are presented in Table 1.

Measures

All participants completed a socio-demographic schedule, providing information on sex, age, education, marital status, and occupation. Additionally, participants answered specific questions about their family unit, including their current living arrangement (i.e., living condition) and whether they were only children or had siblings. Participants also reported any current or past medical or psychological disorders. Subsequently, self-report questionnaires were administered online to all participants.

The Eating Disorder Inventory-3 (EDI-3; Italian version by Giannini et al., 2008) is a 91-item self-report questionnaire assessing dysfunctional eating behaviors and related features. Participants are asked to use a 6-point Likert scale, ranging from A ("always") to F ("never"), to rate the extent to which each item describes his/her own behaviors, emotions, and attitudes toward food or themselves. The questionnaire contains three primary subscales measuring Drive for Thinness (DT; assessing an extreme desire to be thinner and an intense fear of weight gain), Bulimia (B; investigating concerns about overeating and eating in response to negative

Table 1 Mean, Standard Deviations, and ANCOVA statistics for education, body dissatisfaction, dysfunctional eating attitudes and behaviors, and associated psychological features

	Sons (S)		Mothers (M)		Fathers (F)		$F_{(2,380)}$	η^2_p	Post-hoc
	M	SD	M	SD	M	SD			
Education	15.06	2.33	13.70	3.33	13.45	3.51	10.06**	0.05	S > M = F
EDI-3									
Drive for Thinness (DT)	2.98	4.38	7.60	6.94	4.39	5.45	15.13**	0.07	M > S = F
Bulimia (B)	3.37	4.34	2.67	4.09	2.32	4.57	3.55*	0.02	S > M = F
Body Dissatisfaction (BD)	6.70	6.26	11.37	9.16	6.98	6.30	13.50**	0.07	S = M; S = F; M > F
Perfectionism (P)	7	4.56	6.16	4.50	6.92	4.27	1.05	0.006	-
RSES	32.46	5.16	33.59	4.43	34.32	4.15	0.62	0.003	-
SIAS	21.32	13.55	16.02	11.5	16.48	12.19	0.26	0.001	-

The findings reported pertains to differences of the grouping variable. Each comparison included age as a covariate, which was not significant in all comparisons ($p > 0.05$) except for the B subscale of the EDI-3 ($p = .001$). EDI-3 Eating Disorder Inventory – 3, RSES Rosenberg Self-Esteem Scale, SIAS Social Interaction Anxiety Scale

* $p < .05$; ** $p < .001$

emotions), and Body Dissatisfaction (BD; assessing discontentment with the overall shape of the body and with the size of the regions of the body of concern to those with eating disorders). The other nine additional scales include Low Self-Esteem, Personal Alienation, Interpersonal Insecurity, Interpersonal Alienation, Interoceptive Deficits, Emotional Dysregulation, Perfectionism, Asceticism, and Maturity Fears (Giannini et al., 2008). The Italian version of the EDI-3 showed internal consistency ranged from 0.55 to 0.92 in a non-clinic sample (Giannini et al., 2008). For the purposes of the current study, participants were asked to complete only the primary subscales of the EDI-3, measuring ED core features (DT, B, and BD), and the perfectionism subscale (P; evaluating the extent to which a person places a premium on achieving a high goals and standard of personal achievement). In the current sample, internal consistency coefficient emerged to be excellent for the scale DT (sons: $\alpha=0.86$; mothers: $\alpha=0.88$; fathers: $\alpha=0.84$), the scale B (sons: $\alpha=0.82$; mothers: $\alpha=0.83$; fathers: $\alpha=0.86$), the scale BD (sons: $\alpha=0.80$; mothers: $\alpha=0.86$; fathers: $\alpha=0.73$), while the scale P showed good internal consistency (sons: $\alpha=0.72$; mothers: $\alpha=0.69$; fathers: $\alpha=0.65$).

The Rosenberg Self-Esteem Scale (RSES; Italian version by Prezza et al., 1997) consists of 10 items measuring global self-esteem. Items are rated on a 4-point Likert scale, ranging from 1 (strongly disagree) to 4 (strongly agree), with higher scores representing positive self-esteem. The Italian version of the RSES showed good psychometric properties: its internal consistency was $\alpha=0.84$ and the 15-days test-retest reliability was $r=.76$ (Prezza et al., 1997). The internal consistency of the current sample emerged to be good (sons: $\alpha=0.84$; mothers: $\alpha=0.82$; fathers: $\alpha=0.75$).

The Social Interaction Anxiety Scale (SIAS; Italian version by Sica et al., 2007) is a 19-item self-report measure designed to assess social interaction anxiety on a 5-point Likert scale, ranging from 0 (“not at all characteristic or true of me”) to 4 (“extremely characteristic or true of me”); higher scores indicate higher levels of social interaction anxiety. The Italian version of the SIAS proved to be highly reliable ($\alpha=0.86$) and stable ($r=.93$) (Sica et al., 2007). In the current sample, the alpha coefficient of the SIAS was excellent in all groups (sons: $\alpha=0.93$; mothers: $\alpha=0.92$; fathers: $\alpha=0.91$).

Procedure

Sons were recruited through flyers posted on university buildings and advertisements on social media (e.g., Instagram, Facebook). Participants were invited to participate in a family study on “males’ body image and eating attitudes and behaviors”. To be eligible for the study, sons had to have lived at the family home until they were at least

18 years old; all participants were included if they were aged at least 18 years old; exclusion criteria, assessed for all participants (i.e., sons, mothers, and fathers) by means of the socio-demographic schedule, were: presence of a self-reported full-blown eating disorder, current or past psychotic disorders, and intellectual disability. The presence of a self-reported full-blown eating disorder was ascertained with the following questions: (1) Have you ever received a diagnosis of an eating disorder in your life? (2) Have you received a diagnosis of an eating disorder in the last year? (3) Do you think you have an eating disorder? Exclusion criteria have not been reported by any of the participants.

Participants were instructed to complete online self-report questionnaires that were administered via e-mail to the sons, who were then asked to share the link to the questionnaires with their parents. The Qualtrics platform was utilized for participants to complete the self-report questionnaires. To ensure that a complete family unit (a son and both parents) was recruited, a code system was utilized: each son was asked to create a personal code consisting of the first letters of his first and last names followed by his year of birth, which was then inserted by his parents. After being informed about the research purposes, participants gave their informed consent for participation and completed the socio-demographic schedule follow by the self-report questionnaires. Participants did not receive any compensation for their participation. The study was conducted in accordance with the Declaration of Helsinki and approved by the Ethical Committee of the School of Psychology, University of Padova.

Statistical analyses

There were no missing responses in the dataset, as participants were prompted to respond to all items.

Descriptive statistics were employed to report means, standard deviations, and frequencies of groups (sons, mothers, and fathers). To compare groups on age, an Analysis of Variance (ANOVA) was performed and a statistical difference emerged ($F_{(2,381)}=2516.44$; $p<.001$; $\eta_p^2=0.93$). Fathers ($M=57.91$; $SD=4.92$) were older than mothers ($M=54.91$; $SD=4.49$; $p<.001$) and sons ($M=23.88$; $SD=3.13$; $p<.001$), while mothers were older than sons ($p<.001$). Given that groups differed in terms of age, Analyses of Covariances (ANCOVAs) were performed to assess group differences on self-report questionnaires (i.e., DT, B, BD, P, RSES, and SIAS scores) taking age into account; Bonferroni post-hoc comparisons were performed when significant differences emerged. To estimate effect sizes, we computed Partial Eta Squared (η_p^2). According to Cohen (1988), $\eta_p^2=0.01$ corresponds to a small effect size,

$\eta_p^2=0.06$ to a medium effect size, and $\eta_p^2=0.14$ to a large effect size.

Pearson’s correlations were run to investigate associations between scores obtained by groups (i.e., sons, mothers, and fathers), using DT, B, and BD scores of sons, mothers, and fathers, and P, RSES, and SIAS scores of mothers and fathers (see Table 2). Guided by the Tripartite Influence Model and based on correlational findings, 3 three-steps multiple regression analyses were conducted, where sons’ DT, B, and BD scores were included in each model as dependent variables. Based on previous studies (Ahrén et al., 2013; Chng & Fassnacht, 2016; Deliens et al., 2014), the living condition (coded as 1 = “living on their own” and 2 = “living with parents”) and the presence of brothers/sisters (coded as 1 = “having at least a brother/sister” and 2 = “being an only child”) were included in the first block of each regression model as dichotomous variables to control for their influence. Mothers’ variables emerged as significantly correlated with sons’ scores were entered in the second block of each regression model, while fathers’ significant variables were always included in the third block of each regression model, to understand their distinct contribution. An *a priori* power analysis using G*Power (Faul et al., 2007) indicated a sample size of 109 would detect an effect of $f^2=0.15$ (medium) entering 8 variables in a regression model, using an alpha level of 0.05 and power of 0.80.

All statistical analyses were conducted using IBM SPSS statistics, version 28.0.

Results

Differences among groups (sons, mothers, and fathers) on body dissatisfaction, disordered eating, and associated features

As shown in Table 1, the ANCOVAs highlighted significant differences on the DT, B, and BD scores between groups (all $p<.05$). Mothers scored higher than fathers on the BD scale ($p<.001$), whereas no significant differences between mothers and sons ($p=.06$) and between fathers and sons ($p=.99$) emerged. Mothers scored significantly higher than both sons and fathers on the DT scale (respectively, $p=.003$ and $p<.001$), whereas no significant differences between sons and fathers emerged ($p=.18$). With respect to the B subscale, sons scored higher than both mothers and fathers (respectively, $p=.02$ and $p=.03$), whereas no differences between mothers and fathers emerged ($p=.99$). In this scale, the covariate age emerged as significant ($F_{(2,381)}=10.51$; $p=.001$). No group differences were found in P, RSES, and SIAS scores (all $ps > 0.05$).

Table 2 Correlation Matrix including the sons’ DT, B, and BD scores and parents’ DT, B, BD, P, RSES and SIAS scores

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. EDI-3: DT Score - Sons	1														
2. EDI-3: B Score - Sons	0.49**	1													
3. EDI-3: BD Score - Sons	0.61**	0.44**	1												
4. EDI-3: DT Score - Mothers	0.36**	0.23*	0.36**	1											
5. EDI-3: B Score - Mothers	0.32**	0.18*	0.25*	0.60**	1										
6. EDI-3: BD Score - Mothers	0.12	0.12	0.28*	0.60**	0.51**	1									
7. EDI-3: P Score - Mothers	0.27*	0.17	0.20*	0.34**	0.19*	0.06	1								
8. RSES Total Score - Mothers	-0.12	-0.02	-0.13	-0.25*	-0.24*	-0.28*	-0.01	1							
9. SIAS Total Score - Mothers	0.08	0.13	0.13	0.17	0.25*	0.18*	0.13	-0.37**	1						
10. EDI-3: DT Score - Fathers	0.23*	0.27*	0.17	0.12	0.10	0.08	0.12	-0.16	0.20*	1					
11. EDI-3: B Score - Fathers	0.14	0.29*	0.14	0.17	0.21*	0.11	-0.01	-0.16	0.24*	0.60**	1				
12. EDI-3: BD Score - Fathers	0.20*	0.25*	0.18*	0.17	0.15	0.04	0.13	-0.09	0.13	0.39**	0.37**	1			
13. EDI-3: P Score - Fathers	0.14	0.26*	-0.02	0.04	0.14	-0.04	0.13	0.02	0.10	0.22*	0.25*	-0.03	1		
14. RSES Total Score - Fathers	-0.02	-0.03	-0.13	-0.08	-0.03	-0.09	0.02	0.38**	-0.11	-0.02	-0.27*	-0.27*	0.11	1	
15. SIAS Total Score - Fathers	0.06	0.16	0.10	0.08	-0.001	0.12	-0.02	-0.14	0.11	0.14	0.25*	0.15	0.14	-0.47**	1

* $p < .05$; ** $p < .001$; EDI-3 Eating Disorder Inventory-3, DT Drive for Thinness, B Bulimia, BD Body Dissatisfaction, P Perfectionism, RSES Rosenberg Self-Esteem Scale, SIAS Social Interaction Anxiety Scale

Parents' variables associated with sons' body dissatisfaction and disordered eating

Based on correlation findings (Table 2), 3 three-steps multiple regression analyses were performed, including sons' DT, B, and BD scores as dependent variables.

Pertaining to sons' DT scores, mothers' DT, B, and P scores were included in the second step of the model, while fathers' DT and BD scores were included in the third step. The overall model explained 21.2% of the variance in sons' DT scores, with living condition and the presence of brothers/sisters in the first step accounting for a not significant 0.7% of the variance ($F_{(2,125)}=0.44$; $p=.65$). Entering mothers' DT, B, and P scores explained 17.3% of the variance in sons' DT scores (F change=8.61; $p<.001$). Finally, the inclusion of fathers' DT and BD scores did not explain an additional variation (3.2%) of the sons' DT (F change=2.42; $p=.09$). Considering all the blocks, none of the variables reached significance (see Table 3).

Concerning sons' B scores, mothers' DT and B scores were included in the second step of the model, while fathers' DT, B, BD, and P scores were included in the third step. The overall model explained 23.8% of the variance in sons' B scores, with living condition and the presence of brothers/sisters in the first step accounting for 5% of the variance in sons' B scores ($F_{(2,125)}=3.27$; $p=.04$). Entering mothers' DT and B scores in the second block of the regression

model explained 6.5% of the variance in sons' B scores (F change=4.55; $p=.01$). Finally, the inclusion of fathers' DT, B, BD, and P scores in the third step explained an additional 12.3% of the variance in sons' B scores (F change=4.82; $p=.001$). Results showed that living with parents and fathers' P scores were the only significant variables associated with sons' B scores (see Table 4).

Finally, pertaining to sons' BD scores, mothers' DT, B, BD, and P scores were included in the second step of the model, while fathers' DT and BD scores were included in the third step of the model. The overall model explained 18.5% of the variance in sons' BD scores. The first step (i.e., living condition and the presence of brothers/sisters) emerged as non-significant ($F_{(2,125)}=0.75$; $p=.48$). Entering mothers' DT, B, BD, and P scores explained 15.2% of the variance in sons' BD scores (F change=5.48; $p<.001$). Finally, the inclusion of fathers' DT and BD scores did not explain an additional variation (2.2%) of the sons' BD scores (F change=1.57; $p=.21$). Considering all the blocks, none of the variables reached significance (see Table 5).

Discussion

In relation to the first aim of the study, results are partially in accordance with our hypotheses. Regarding the drive for thinness, our expectations were met, as mothers showed

Table 3 Multiple regression results for sons' drive for thinness score

Variable	B	SE	β	R^2	ΔR^2
Step 1					
Constant	4.57*	1.74		0.007	0.007
Living condition ^a	-0.54	0.78	-0.06		
Brothers/sisters ^b	-0.62	0.97	-0.06		
Step 2					
Constant	2.09	1.76		0.180**	0.173**
Living condition ^a	-0.72	0.74	-0.08		
Brothers/sisters ^b	-0.36	0.89	-0.03		
EDI - 3: Drive for Thinness - Mothers	0.14	0.07	0.21		
EDI - 3: Bulimia - Mothers	0.18	0.11	0.17		
EDI - 3: Perfectionism - Mothers	0.15	0.09	0.15		
Step 3					
Constant	1.52	1.78		0.212**	0.032
Living condition ^a	-0.61	0.74	-0.07		
Brothers/sisters ^b	-0.52	0.89	-0.05		
EDI - 3: Drive for Thinness - Mothers	0.13	0.07	0.20		
EDI - 3: Bulimia - Mothers	0.16	0.11	0.15		
EDI - 3: Perfectionism - Mothers	0.13	0.09	0.13		
EDI - 3: Drive for Thinness - Fathers	0.12	0.07	0.15		
EDI - 3: Body Dissatisfaction - Fathers	0.04	0.06	0.06		

Dependent Variable: Sons' Drive for Thinness; EDI - 3 Eating Disorder Inventory - 3

^a Living on their own=1, living with parents=2

^b Having at least a brother/sister=1, being an only child=2

* $p<.05$; ** $p<.001$

Table 4 Multiple regression results for sons' Bulimia score

Variable	B	SE	β	R^2	ΔR^2
Step 1					
Constant	7.48**	1.69		0.050*	0.050*
Living condition ^a	-1.66*	0.76	-0.19*		
Brothers/sisters ^b	-1.27	0.94	-0.12		
Step 2					
Constant	6.56**	1.68		0.115**	0.065*
Living condition ^a	-1.92*	0.75	-0.22		
Brothers/sisters ^b	-1.14	0.91	-0.11		
EDI- 3: Drive for Thinness - Mothers	0.12	0.07	0.19		
EDI- 3: Bulimia - Mothers	0.09	0.11	0.09		
Step 3					
Constant	4.01*	1.72		0.238**	0.123*
Living condition ^a	-1.86*	0.71	-0.21		
Brothers/sisters ^b	-1.17	0.88	-0.11		
EDI- 3: Drive for Thinness - Mothers	0.11	0.06	0.18		
EDI- 3: Bulimia - Mothers	0.02	0.11	0.01		
EDI- 3: Drive for Thinness- Fathers	0.06	0.08	0.08		
EDI- 3: Bulimia- Fathers	0.09	0.10	0.09		
EDI- 3: Body Dissatisfaction- Fathers	0.10	0.06	0.15		
EDI- 3: Perfectionism - Fathers	0.23*	0.09	0.22		

Dependent Variable: Sons' Bulimia; *EDI- 3* Eating Disorder Inventory- 3

^a Living on their own = 1, living with parents = 2

^b Having at least a brother/sister = 1, being an only child = 2

* $p < .05$; ** $p < .001$

Table 5 Multiple regression results for sons' body dissatisfaction score

Variable	B	ES	β	R^2	ΔR^2
Step 1					
Constant	9.30**	2.48		0.012	0.012
Living condition ^a	-1.32	1.12	-0.11		
Brothers/sisters ^b	-0.46	1.38	-0.03		
Step 2					
Constant	6.05*	2.59		0.163*	0.152**
Living condition ^a	-1.60	1.08	-0.13		
Brothers/sisters ^b	-0.29	1.29	-0.02		
EDI- 3: Drive for Thinness- Mothers	0.23*	0.11	0.25		
EDI- 3: Bulimia- Mothers	0.06	0.16	0.04		
EDI- 3: Body Dissatisfaction- Mothers	0.08	0.07	0.11		
EDI- 3: Perfectionism - Mothers	0.11	0.13	0.08		
Step 3					
Constant	5.15	2.65		0.185*	0.022
Living condition ^a	-1.48	1.07	-0.12		
Brothers/sisters ^b	-0.40	1.30	-0.03		
EDI- 3: Drive for Thinness- Mothers	0.21	0.11	0.24		
EDI- 3: Bulimia- Mothers	0.03	0.16	0.02		
EDI- 3: Body Dissatisfaction- Mothers	0.08	0.07	0.12		
EDI- 3: Perfectionism - Mothers	0.09	0.13	0.07		
EDI- 3: Drive for Thinness- Fathers	0.09	0.10	0.08		
EDI- 3: Body Dissatisfaction - Fathers	0.10	0.09	0.10		

Dependent Variable: Sons' Body Dissatisfaction; *EDI- 3* Eating Disorder Inventory- 3

^a Living on their own = 1, living with parents = 2

^b Having at least a brother/sister = 1, being an only child = 2

* $p < .05$; ** $p < .001$

higher levels of desire to be thinner compared to both sons and fathers. This finding may be attributed to the different societal standards placed for male and female attractiveness, with the ideal body for women often emphasizing thinness and for men, muscularity (Grogan, 2021). Concerning body dissatisfaction, mothers scored higher only when compared to fathers, consistent with our hypothesis and previous studies. Notably, older age predicts a lower investment in physical appearance solely in men, remaining stable across all ages for women (Quittkat et al., 2019). The absence of differences in body dissatisfaction between mothers and sons might be explained by two factors: (1) the stability of body dissatisfaction across all ages for women (e.g., Quittkat et al., 2019); and (2) the age of sons, as males tend to report the greatest body dissatisfaction in young adulthood (Bucchianeri et al., 2013). Regarding bulimic symptoms, sons scored higher than both mothers and fathers, with age emerging as significant covariate. These findings align with a previous study showing that bulimic symptoms decrease between ages 14 and 16 in males but return to high levels in the early 20s (Abebe et al., 2012). Notably, this age range is very similar to the mean age of our sons' sample (i.e., $Mage = 23.88$). Therefore, age warrants careful consideration when delving into the examination of disordered eating within the male population. Understanding how disordered eating manifests and evolves across different age groups among males can provide valuable insights for more targeted and effective interventions and support strategies. Our results highlight the presence of body dissatisfaction and disordered eating symptoms (i.e., bulimic symptoms) in young males, underscoring the importance of investigating these symptoms in young males.

With respect to psychological features associated with body dissatisfaction and disordered eating (i.e., perfectionism, low self-esteem, and social anxiety symptoms), no differences among mothers, fathers, and sons emerged. The absence of differences in these features might be explained considering that parents serve as the foremost and primary influencers on their offspring's personality and behaviors, shaping a child's outlook during their early years and exerting lasting effects that can extend into adulthood. Indeed, children internalize behaviors, attitudes, relationship styles, and values through observational learning (Bandura, 1986). Concerning perfectionism, the Social Learning Model (Flett et al., 2002) posits that sons may develop perfectionistic traits by observing and imitating their parents' perfectionism; therefore, this trait might be acquired by the offspring through modeling (Woodside et al., 2002), due to the frequent exposure to parental perfectionistic behaviors. The same mechanism applies for self-esteem: a child's sense of self is the result of multiple values, attitudes, beliefs, and behaviors that they are exposed to. In accordance,

self-esteem emerged as a stable intergenerational construct transmitted from both parents to their sons (Russell-Carroll & Tracey, 2011). In relation to social anxiety symptoms, our results align with previous studies that demonstrated the predictive role of both mothers' and fathers' social anxiety symptoms on their sons' same dimension (Burke et al., 2013). This finding may be elucidated by the implementation of parenting behaviors associated with the development of social anxiety symptoms in offspring (Garcia et al., 2021). For instance, parents experiencing symptoms of social anxiety may inadvertently limit opportunities for their child to socialize with same-age peers, potentially contributing to the child's behavioral avoidance of social situations (Bögels & Brechman-Toussaint, 2006).

With respect to the second aim of the study, results are mixed. Indeed, different associations among mothers' and fathers' variables and their sons' body image and eating attitudes emerged. Therefore, results of our study are only partially in accordance with a sex-linked model (i.e., mothers being more influential for daughters and fathers for sons; Wertheim et al., 1999), and seem more in line with a cumulative sociocultural model (i.e., the combination of modeling from both parents is more strongly associated with offspring attitudes and behaviors than the influence of either parent alone; McCabe & Ricciardelli, 2003), since mothers and fathers showed unique associations with their sons' body dissatisfaction and disordered eating. Indeed, sons' drive for thinness and body dissatisfaction were associated with mothers' body dissatisfaction, dysfunctional eating behaviors, and perfectionism, while sons' binge eating and compensatory related behaviors (i.e., bulimic symptoms) were associated with fathers' perfectionism and co-habiting condition. It may be that these models of influence are not mutually exclusive, and that both contribute to body dissatisfaction and disordered eating in young males (Rodgers et al., 2009).

Results pertaining to sons' drive for thinness and body dissatisfaction are consistent with previous studies showing associations among maternal variables and offspring's body image and eating behaviors (Smolak et al., 1999; Vincent & McCabe, 2000; Wertheim et al., 2002). Indeed, only maternal variables (i.e., desire to be thinner, bulimic symptoms, body dissatisfaction, and perfectionism) were significantly associated with sons' desire to be thinner (17.3% of variance explained) and body dissatisfaction (15.2% of variance explained) in our study, despite none of the specific variables reached significance alone. The percentage of variance explained by maternal variables (over 15%) in our sample is interesting to note, considering the number of other factors involved in increasing the risk of developing body dissatisfaction and disordered eating in young adults (e.g., media and peers; Keery et al., 2004; Thompson et al.,

1999; Tylka, 2011). We therefore tentatively suggest that maternal variables all together (i.e., body-related attitudes, eating behaviors, and perfectionism) may somewhat affect sons' desire to be thin and their body dissatisfaction. In fact, nor living status neither fathers' body dissatisfaction and disordered eating were able to explain additional variance in sons' drive for thinness and body dissatisfaction, in accordance with previous studies showing no evidence of fathers' dieting or body dissatisfaction being associated with sons' eating- or body-related attitudes and behaviors (e.g., Arkenau et al., 2022; Lowes & Tiggemann, 2003; Smolak et al., 1999; Vincent & McCabe, 2000; Wertheim et al., 2002). These findings align with studies showing that mothers represent the role model for body image and eating attitudes in their offspring (Handford et al., 2018), regardless of child's sex. Furthermore, a possible reason why maternal variables were associated with sons' drive for thinness and body dissatisfaction is that they are more likely to diet than fathers, as emerged in our and in previous studies (Klein et al., 2017; Wertheim et al., 2002), since mothers showed higher levels of drive for thinness and body dissatisfaction than fathers in our study (but similar levels of binge eating and compensatory related behaviors).

Our findings regarding binge eating and compensatory related behaviors (i.e., bulimic symptoms) are somewhat surprising, since we expected greater maternal than paternal associations with sons' eating behaviors, as observed with sons' drive for thinness and body dissatisfaction. However, our findings on bulimic symptoms might be explained by considering the sex-linked model (Wertheim et al., 1997, 1999), in which fathers are shown to be more influential for sons than mothers. This aligns with a substantial body of research indicating that young adults exhibit greater emotional and behavioral involvement with their same-sex parent (e.g., Harris et al., 1998; Lasko et al., 1996), viewing them as a role model. Our findings therefore highlight an increased vulnerability to same-sex parent influence on bulimic symptoms, potentially adopted by sons as a dysfunctional coping mechanism in response to their fathers' expectations and standards. Indeed, sons' bulimic symptoms emerged as associated with fathers' perfectionistic traits, in accordance with previous studies showing the impact of fathers' cognitive styles (i.e., perfectionism) on sons' dysfunctional eating behaviors (Canals et al., 2009; Miller-Day & Marks, 2006; Vincent & McCabe, 2000). In line with our findings, the study by Canals et al. (2009) posited that fathers' perfectionism may represent a risk factor for eating disorder symptoms in their offspring. Furthermore, Miller-Day and Marks (2006) found that paternally prescribed perfectionism (i.e., perceptions of paternal expectations of perfection) predicted maladaptive eating in offspring, even when controlling for individual factors such as offspring's perfectionism and

perceived loss of personal control. Although direct causality cannot be ascertained from our study, a possibility in interpreting our findings is that excessive paternal expectations and harsh criticism are transmitted to sons, leading to the development of self-oriented perfectionism, thus placing sons at risk for maladaptive eating behaviors. Self-oriented perfectionism represents a risk factor for dysfunctional eating behaviors such as binge eating and compensatory related behaviors (Miller-Day & Marks, 2006): consistently, findings of our study showed similar perfectionism tendencies among fathers and sons. Therefore, in accordance with previous studies, father-child interactions that emphasize conformity to high paternal standards may increase sons' risk of developing maladaptive eating behaviors (Miller-Day & Marks, 2006), even more than specific dysfunctional body- and eating-related attitudes and behaviors performed by fathers. This is in line with a recent study that failed to find a relation between fathers' eating attitudes and behaviors and sons' same dimensions (Arkenau et al., 2022).

Not surprisingly, sons' binge eating and compensatory related behaviors were also associated with living and sharing the house with parents. This finding aligns with a study (Deliens et al., 2014) on determinants of eating behaviors, indicating that young adults living with their parents experience strong parental influences related to food intake. Therefore, it seems that parental modeling on eating behaviors may extend throughout adulthood, suggesting that parents may contribute to children's internalization of disordered eating attitudes, in accordance with a previous evidence (Klein et al., 2017).

The current study is characterized by several limitations. First, the present research is a cross-sectional study. This does not allow to establish any causality among the relationships examined, since questionnaires were administered on a single occasion. Longitudinal research designs would be needed to verify the direction of the relations in this study. Second, we employed self-report measures to investigate body dissatisfaction and disordered eating, although the use of more objective measures (e.g., structured clinical interviews) might have been more appropriate. In connection with the employment of self-report questionnaires, it is possible that some of the non-significant associations in the current study resulted from overlapping variance in some of the constructs we measured. This overlapping variance could have contributed to the observed associations not being strong enough to reach the threshold of statistical significance in the analysis. Futures studies should devote attention to employing measures that investigate various nuances of body dissatisfaction, disordered eating, and associated psychological features. Third, the age range of sons in our sample was relatively restricted (between 18 and 31 years); therefore, the question of whether the findings of our study

are equally applicable to adolescents below the age of 18 is currently unclear. Future studies may consider investigating parental modeling in adolescence, given the high-risk for body dissatisfaction and disordered eating in this stage of life. However, consistent with previous studies, the effect of parental modeling on eating behaviors and body image is also evident in adult populations (Arroyo et al., 2017; Klein et al., 2017), especially if offspring live with their parents (Deliens et al., 2014). Fourth, our study has not considered the role of parental influences via verbal messages and active encouragement, which emerged to have effects on offspring' body image and eating behaviors together with modeling (Abraczinskas et al., 2012; Rodgers & Chabrol, 2009); therefore, future studies would benefit from including both forms of parental influence (i.e., direct and indirect). Related to this point, we did not explore the presence of other family members (except for sibling) or non-relatives (except for flatmates/partners) who may have shared the house with sons, either in the past or present (e.g., grandparents). However, these individuals may exert an influence on sons' body image and eating behaviors, as indicated by findings from previous studies (e.g., Arroyo et al., 2017). Fifth, we did not investigate muscularity dissatisfaction and related behaviors among fathers and sons, and the potential associations between parental variables and sons' muscularity dissatisfaction. It may be beneficial for future studies the investigation of muscularity dissatisfaction and related behaviors, given their relevance in men (Baker et al., 2019). At the same time, we did not collect information on the sexual orientation of the participants. However, identifying as a sexual minority man has been shown to have a significant impact on body image (Basabas et al., 2019; He et al., 2020) and could potentially serve as a risk factor for body image disorders (Gonzales & Blashill, 2021). Thus, the absence of data on sexual minority men in our sample might account for some of our findings. Moreover, it is plausible that the role of parental influence differs between heterosexual sons and sons identifying as sexual minorities. In the latter group, sexual orientation could play a more prominent role in influencing body dissatisfaction and eating behaviors compared to parent attitudes. Future study should further address this issue. Finally, future studies would benefit from investigating established factors influencing body image and eating behaviors, including the type of activity performed (e.g., appearance-based comparisons) and the type of content consumed (e.g., weight loss content) on social media (Fardouly et al., 2015; Jerónimo & Carraça, 2022; Sanzari et al., 2023), as well as the evening chronotype (Plano et al., 2022; van der Merwe et al., 2022).

Conclusions

Despite the shortcomings of the current study, it provides further evidence for the association between parental influences and body dissatisfaction and disordered eating in young males that has been previously described (e.g., Rodgers et al., 2009). Our results therefore support and expand upon previous findings, showing that mothers' behavioral and cognitive dimensions related to body dissatisfaction and disordered eating are associated to a greater extent than fathers' dimensions with sons' body dissatisfaction and drive for thinness. However, fathers' cognitive dimensions related to body dissatisfaction and disordered eating (i.e., perfectionism) emerged as associated with binge eating and compensatory related behaviors in their sons, along with living with parents. These results provide insights for body image preventive interventions targeting young males and involving their parents.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s12144-024-06594-1>.

Authors' contribution Silvia Cerea: Conceptualization, Methodology, Data curation, Formal analysis, Investigation, Writing - original draft. Paolo Mancin: Data curation, Formal analysis, Writing - original draft. Martina Scaltritti: Data curation, Writing - review & editing. Gioia Bottesi: Writing - review & editing, Supervision. Sofia Calonaci: Data curation, Writing - review & editing; Marta Ghisi: Supervision.

Funding Open access funding provided by Università degli Studi di Padova within the CRUI-CARE Agreement. This work was supported by the Department of General Psychology, University of Padua, Italy, which had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

Data availability The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethical approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The study was approved by the Ethical Committee of the School of Psychology, University of Padova.

Informed consent Informed consent was obtained from all individual participants included in the study.

Conflict of interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the

source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

References

- Abebe, D. S., Lien, L., & von Soest, T. (2012). The development of bulimic symptoms from adolescence to young adulthood in females and males: A population-based longitudinal cohort study. *International Journal of Eating Disorders*, *45*(6), 737–745. <https://doi.org/10.1002/eat.20950>
- Abraczinskas, M., Fisak, B. Jr., & Barnes, R. D. (2012). The relation between parental influence, body image, and eating behaviors in a nonclinical female sample. *Body Image*, *9*(1), 93–100. <https://doi.org/10.1016/j.bodyim.2011.10.005>
- Ahrén, J. C., Chiesa, F., Koupil, I., Magnusson, C., Dalman, C., & Goodman, A. (2013). We are family—parents, siblings, and eating disorders in a prospective total-population study of 250,000 Swedish males and females. *International Journal of Eating Disorders*, *46*(7), 693–700. <https://doi.org/10.1002/eat.22146>
- Al Sabbah, H., Vereecken, C. A., Elgar, F. J., Nansel, T., Aasvee, K., Abdeen, Z., Ojala, K., Ahluwalia, N., & Maes, L. (2009). Body weight dissatisfaction and communication with parents among adolescents in 24 countries: International cross-sectional survey. *Bmc Public Health*, *9*, 52. <https://doi.org/10.1186/1471-2458-9-52>
- Arkenau, R., Bauer, A., Schneider, S., & Vocks, S. (2022). Familial transmission of attention allocation towards one's own and a peer's body: An eye-tracking study with male adolescents and their fathers. *Plos One*, *17*(1), e0263223. <https://doi.org/10.1371/journal.pone.0263223>
- Arroyo, A., Segrin, C., & Andersen, K. K. (2017). Intergenerational transmission of disordered eating: Direct and indirect maternal communication among grandmothers, mothers, and daughters. *Body Image*, *20*, 107–115. <https://doi.org/10.1016/j.bodyim.2017.01.001>
- Baker, C. W., Whisman, M. A., & Brownell, K. D. (2000). Studying intergenerational transmission of eating attitudes and behaviors: Methodological and conceptual questions. *Health Psychology*, *19*, 376–338. <https://doi.org/10.1037//0278-6133.19.4.376>
- Balantekin, K. N. (2019). The influence of parental dieting behavior on child dieting behavior and weight status. *Current Obesity Reports*, *8*(2), 137–144. <https://doi.org/10.1007/s13679-019-00338-0>
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice Hall.
- Basabas, M. C., Greaves, L., Barlow, F. K., & Sibley, C. G. (2019). Sexual orientation moderates the effect of gender on body satisfaction: Results from a national probability sample. *The Journal of Sex Research*, *56*(9), 1091–1100. <https://doi.org/10.1080/00224499.2019.1667947>
- Bögels, S. M., & Brechman-Toussaint, M. L. (2006). Family issues in child anxiety: Attachment, family functioning, parental rearing and beliefs. *Clinical Psychology Review*, *26*(7), 834–856. <https://doi.org/10.1016/j.cpr.2005.08.001>
- Bornioli, A., Lewis-Smith, H., Smith, A., Slater, A., & Bray, I. (2019). Adolescent body dissatisfaction and disordered eating: Predictors of later risky health behaviours. *Social Science & Medicine*, *238*, 112458. <https://doi.org/10.1016/j.socscimed.2019.112458>
- Bould, H., Koupil, I., Dalman, C., DeStavola, B., Lewis, G., & Magnusson, C. (2015). Parental mental illness and eating disorders in offspring. *International Journal of Eating Disorders*, *48*, 383–391. <https://doi.org/10.1002/eat.22325>
- Bucchianeri, M. M., Arikian, A. J., Hannan, P. J., Eisenberg, M. E., & Neumark-Sztainer, D. (2013). Body dissatisfaction from adolescence to young adulthood: Findings from a 10-year longitudinal study. *Body Image*, *10*(1), 1–7. <https://doi.org/10.1016/j.bodyim.2012.09.001>
- Burke, T. J., Woszidlo, A., & Segrin, C. (2013). The intergenerational transmission of social skills and psychosocial problems among parents and their young adult children. *Journal of Family Communication*, *13*(2), 77–91. <https://doi.org/10.1080/15267431.2013.768247>
- Canals, J., Sancho, C., & Arija, M. V. (2009). Influence of parent's eating attitudes on eating disorders in school adolescents. *European Child and Adolescent Psychiatry*, *18*, 353–359. <https://doi.org/10.1007/s00787-009-0737-9>
- Carmo, C., Oliveira, D., Brás, M., & Faisca, L. (2021). The influence of parental perfectionism and parenting styles on child perfectionism. *Children*, *8*(9), 777. <https://doi.org/10.3390/children8090777>
- Cerea, S., Iannatone, S., Mancin, P., Bottesi, G., & Marchetti, I. (2024). Eating disorder symptom dimensions and protective factors: A structural network analysis study. *Appetite*, *197*, 107326. <https://doi.org/10.1016/j.appet.2024.107326>
- Chng, S. C. W., & Fassnacht, D. B. (2016). Parental comments: Relationship with gender, body dissatisfaction, and disordered eating in Asian young adults. *Body Image*, *16*, 93–99. <https://doi.org/10.1016/j.bodyim.2015.12.001>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Erlbaum.
- Culbert, K. M., Sisk, C. L., & Klump, K. L. (2021). A narrative review of sex differences in eating disorders: Is there a biological basis? *Clinical Therapeutics*, *43*(1), 95–111. <https://doi.org/10.1016/j.clinthera.2020.12.003>
- Damiano, S. R., Yager, Z., Prichard, I., & Hart, L. M. (2019). Leading by example: Development of a maternal modelling of positive body image scale and relationships to body image attitudes. *Body Image*, *29*, 132–139. <https://doi.org/10.1016/j.bodyim.2019.03.006>
- Deliens, T., Clarys, P., De Bourdeaudhuij, I., & Deforche, B. (2014). Determinants of eating behaviour in university students: A qualitative study using focus group discussions. *Bmc Public Health*, *14*, 53. <https://doi.org/10.1186/1471-2458-14-53>
- Fairburn, C. G. (2008). Eating disorders: The transdiagnostic view and the cognitive behavioral theory. In C. G. Fairburn (Ed.), *Cognitive behavior therapy and eating disorders* (pp. 7–22). Guilford Press.
- Fairburn, C. G., Cooper, Z., & Shafran, R. (2003). Cognitive behaviour therapy for eating disorders: A transdiagnostic theory and treatment. *Behaviour Research and Therapy*, *41*(5), 509–528. [https://doi.org/10.1016/S0005-7967\(02\)00088-8](https://doi.org/10.1016/S0005-7967(02)00088-8)
- Fardouly, J., Diedrichs, P. C., Vartanian, L. R., & Halliwell, E. (2015). Social comparisons on social media: The impact of Facebook on young women's body image concerns and mood. *Body Image*, *13*, 38–45. <https://doi.org/10.1016/j.bodyim.2014.12.002>
- Fasoli, F., & Constantinou, D. (2024). Does body positivity work for men as it does for women? The impact of idealized body and body positive imagery on body satisfaction, drive for thinness, and drive for muscularity. *Acta Psychologica*, *243*, 104126. <https://doi.org/10.1016/j.actpsy.2024.104126>
- Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*, 175–191. <https://doi.org/10.3758/BF03193146>

- Fingerman, K. L., Huo, M., & Birditt, K. S. (2020). Mothers, fathers, daughters, and sons: Gender differences in adults' intergenerational ties. *Journal of Family Issues*, *41*(9), 1597–1625. <https://doi.org/10.1177/0192513X19894369>
- Flett, G. L., Hewitt, P. L., Oliver, J. M., & Macdonald, S. (2002). Perfectionism in children and their parents: A developmental analysis. In G. L. Flett, & P. L. Hewitt (Eds.), *Perfectionism: Theory, research, and treatment* (pp. 89–132). American Psychological Association. <https://doi.org/10.1037/10458-004>
- Fortesa, K., & Ajete, K. (2014). Family influence on disordered eating behaviour. *Procedia- Social and Behavioral Sciences*, *159*, 314–318. <https://doi.org/10.1016/j.sbspro.2014.12.379>
- Garcia, K. M., Carlton, C. N., & Richey, J. A. (2021). Parenting characteristics among adults with social anxiety and their influence on social anxiety development in children: A brief integrative review. *Frontiers in Psychiatry*, *12*, 614318. <https://doi.org/10.3389/fpsy.2021.614318>
- Giannini, M., Pannocchia, L., Dalle Grave, R., & Muratori, F. (2008). *Adattamento Italiano Dell'EDI-3. Eating disorder Inventory-3. Organizzazioni Speciali*.
- Gonzales, M., & Blashill, A. J. (2021). Ethnic/racial and gender differences in body image disorders among a diverse sample of sexual minority U.S. adults. *Body Image*, *36*, 64–73. <https://doi.org/10.1016/j.bodyim.2020.10.007>
- Grogan, S. (2021). *Body image: Understanding body dissatisfaction in men, women and children* (4th ed.). Routledge. <https://doi.org/10.4324/9781003100041>
- Handford, C. M., Rapee, R. M., & Fardouly, J. (2018). The influence of maternal modeling on body image concerns and eating disturbances in preadolescent girls. *Behaviour Research and Therapy*, *100*, 17–23. <https://doi.org/10.1016/j.brat.2017.11.001>
- Harris, K. M., Furstenberg, F. F., Jr, & Marmer, J. K. (1998). Paternal involvement with adolescents in intact families: The influence of fathers over the life course. *Demography*, *35*(2), 201–216.
- He, J., Sun, S., Lin, Z., & Fan, X. (2020). Body dissatisfaction and sexual orientations: A quantitative synthesis of 30 years research findings. *Clinical Psychology Review*, *81*, 101896. <https://doi.org/10.1016/j.cpr.2020.101896>
- Jansen, E., Mulkens, S., & Jansen, A. (2007). Do not eat the red food! Prohibition of snacks leads to their relatively higher consumption in children. *Appetite*, *49*(3), 572–577. <https://doi.org/10.1016/j.appet.2007.03.229>
- Jerónimo, F., & Carraça, E. V. (2022). Effects of fitspiration content on body image: A systematic review. *Eating and Weight Disorders-Studies on Anorexia Bulimia and Obesity*, *27*, 3017–3035. <https://doi.org/10.1007/s40519-022-01505-4>
- Karazsia, B. T., Murnen, S. K., & Tylka, T. L. (2017). Is body dissatisfaction changing across time? A cross-temporal meta-analysis. *Psychological Bulletin*, *143*(3), 293–320. <https://doi.org/10.1037/bul0000081>
- Keery, H., van den Berg, P., & Thompson, J. K. (2004). An evaluation of the tripartite influence model of body dissatisfaction and eating disturbance with adolescent girls. *Body Image*, *1*(3), 237–251. <https://doi.org/10.1016/j.bodyim.2004.03.001>
- Klein, K. M., Brown, T. A., Kennedy, G. A., & Keel, P. K. (2017). Examination of parental dieting and comments as risk factors for increased drive for thinness in men and women at 20-year follow-up. *International Journal of Eating Disorders*, *50*(5), 490–497. <https://doi.org/10.1002/eat.22599>
- Kluck, A. S. (2010). Family influence on disordered eating: The role of body image dissatisfaction. *Body Image*, *7*(1), 8–14. <https://doi.org/10.1016/j.bodyim.2009.09.009>
- Labeo, A. A., Hocking, J. E., & Gondoli, D. M. (2022). Body dissatisfaction and disordered eating within the mother-daughter dyad: An actor-partner interdependence approach. *Body Image*, *43*, 25–33. <https://doi.org/10.1016/j.bodyim.2022.08.004>
- Lasko, D. S., Field, T. M., Gonzalez, K. P., Harding, J., Yando, R., & Bendell, D. (1996). Adolescent depressed mood and parental unhappiness. *Adolescence*, *31*(121), 49–57.
- Lilley, C., Sirois, F., & Rowse, G. (2020). A meta-analysis of parental multidimensional perfectionism and child psychological outcomes. *Personality and Individual Differences*, *162*, 110015. <https://doi.org/10.1016/j.paid.2020.110015>
- Lowes, J., & Tiggemann, M. (2003). Body dissatisfaction, dieting awareness and the impact of parental influence in young children. *British Journal of Health Psychology*, *8*(2), 135–147. <https://doi.org/10.1348/135910703321649123>
- May, A. L., Kim, J. Y., McHale, S. M., & Crouter, A. C. (2006). Parent-adolescent relationships and the development of weight concerns from early to late adolescence. *International Journal of Eating Disorders*, *39*(8), 729–740. <https://doi.org/10.1002/eat.20285>
- McCabe, M. P., & Ricciardelli, L. A. (2003). Sociocultural influences on body image and body changes among adolescent boys and girls. *The Journal of Social Psychology*, *143*(1), 5–26. <https://doi.org/10.1080/00224540309598428>
- Miller-Day, M., & Marks, J. D. (2006). Perceptions of parental communication orientation, perfectionism, and disordered eating behaviors of sons and daughters. *Health Communication*, *19*(2), 153–163. https://doi.org/10.1207/s15327027hc1902_7
- Mitchison, D., Mond, J., Slewa-Younan, S., & Hay, P. (2013). Sex differences in health-related quality of life impairment associated with eating disorder features: A general population study. *International Journal of Eating Disorders*, *46*, 375–380. <https://doi.org/10.1002/eat.22097>
- Mitchison, D., Hay, P., Slewa-Younan, S., & Mond, J. (2014). The changing demographic profile of eating disorder behaviors in the community. *Bmc Public Health*, *14*, 943. <https://doi.org/10.1186/1471-2458-14-943>
- O'Gorman, B., Sheffield, J., Clarke, R., & Griffiths, S. (2020). Guys don't talk about their bodies: A qualitative investigation of male body dissatisfaction and sociocultural influences in a sample of 40 Australian males. *Clinical Psychologist*, *24*(2), 123–132. <https://doi.org/10.1111/cp.12198>
- Plano, S. A., Soneira, S., Tortello, C., & Golombek, D. A. (2022). Is the binge-eating disorder a circadian disorder? *Frontiers in Nutrition*, *9*, 964491. <https://doi.org/10.3389/fnut.2022.964491>
- Prezza, M., Trombaccia, F. R., & Armento, L. (1997). La scala dell'autostima di Rosenberg. Traduzione e validazione Italiana [Rosenberg Self-Esteem Scale. Italian translation and validation]. *Bollettino Di Psicologia Applicata*, *223*, 35–44.
- Purton, T., Mond, J., Cicero, D., Wagner, A., Stefano, E., Rand-Giovannetti, D., & Latner, J. (2019). Body dissatisfaction, internalized weight bias and quality of life in young men and women. *Quality of Life Research*, *28*, 1825–1833. <https://doi.org/10.1007/s11136-019-02140-w>
- Quittkat, H. L., Hartmann, A. S., Düsing, R., Buhlmann, U., & Vocks, S. (2019). Body dissatisfaction, importance of appearance, and body appreciation in men and women over the lifespan. *Frontiers in Psychiatry*, *10*, 864. <https://doi.org/10.3389/fpsy.2019.00864>
- Rodgers, R., & Chabrol, H. (2009). Parental attitudes, body image disturbance and disordered eating amongst adolescents and young adults: A review. *European Eating Disorders Review*, *17*(2), 137–151. <https://doi.org/10.1002/erv.907>
- Rodgers, R. F., Faure, K., & Chabrol, H. (2009). Gender differences in parental influences on adolescent body dissatisfaction and disordered eating. *Sex Roles*, *61*, 837–849. <https://doi.org/10.1007/s11199-009-9690-9>
- Russell-Carroll, J., & Tracey, A. (2011). Intergenerational transmission of reciprocal role procedures, personality integrity and self-esteem in fathers and sons. *The Irish Journal of Psychology*, *32*(3–4), 130–143. <https://doi.org/10.1080/03033910.2011.627064>

- Sanzari, C. M., Gorrell, S., Anderson, L. M., Reilly, E. E., Niemiec, M. A., Orloff, N. C., Anderson, D. A., & Holmes, J. M. (2023). The impact of social media use on body image and disordered eating behaviors: Content matters more than duration of exposure. *Eating Behaviors*, *49*, 101722. <https://doi.org/10.1016/j.eatbeh.2023.101722>
- Schaefer, L. M., Rodgers, R. F., Thompson, J. K., & Griffiths, S. (2021). A test of the tripartite influence model of disordered eating among men. *Body Image*, *36*, 172–179. <https://doi.org/10.1016/j.bodyim.2020.11.009>
- Schwanitz, K., Mulder, C. H., & Toulemon, L. (2017). Differences in leaving home by individual and parental education among young adults in Europe. *Demographic Research*, *37*, 1975–2010. <https://doi.org/10.4054/DemRes.2017.37.63>
- Sica, C., Musoni, I., Chiri, L., Bisi, B., Lolli, V., & Sighinolfi, C. (2007). Social Phobia Scale (SPS) and Social Interaction anxiety scale (SIAS): Italian translation and adaptation. [Social Phobia Scale (SPS) E Social Interaction anxiety scale (SIAS): Traduzione ed adattamento italiano]. *Bollettino di Psicologia Applicata*, *252*, 59–71.
- Silén, Y., & Keski-Rahkonen, A. (2022). Worldwide prevalence of DSM-5 eating disorders among young people. *Current Opinion in Psychiatry*, *35*(6), 362–371. <https://doi.org/10.1097/YCO.0000000000000818>
- Smolak, L., Levine, M. P., & Schermer, F. (1999). Parental input and weight concerns among elementary school children. *International Journal of Eating Disorders*, *25*(3), 263–271. [https://doi.org/10.1002/\(SICI\)1098-108X\(199904\)25:3<263::AID-EAT3>3.0.CO;2-V](https://doi.org/10.1002/(SICI)1098-108X(199904)25:3<263::AID-EAT3>3.0.CO;2-V)
- Sparto, C., Santomauro, D., Cruwys, T., Burgess, P., & Harris, M. (2019). Disordered eating among Australian adolescents: Prevalence, functioning, and help received. *International Journal of Eating Disorders*, *52*, 246–254. <https://doi.org/10.1002/eat.23032>
- Striegel, R. H., Bedrosian, R., Wang, C., & Schwartz, S. (2012). Why men should be included in research on binge eating: Results from a comparison of psychosocial impairment in men and women. *International Journal of Eating Disorders*, *45*, 233–240. <https://doi.org/10.1002/eat.20962>
- Thompson, J. K., Heinberg, L. J., Altabe, M., & Tantleff-Dunn, S. (1999). *Exacting beauty: Theory, assessment, and treatment of body image disturbance*. American Psychological Association.
- Tiggemann, M. (2011). Sociocultural perspectives on human appearance and body image. In T. F. Cash, & L. Smolak (Eds.), *Body image: A handbook of science, practice, and prevention* (2nd ed., pp. 12–19). The Guilford Press.
- Tylka, T. L. (2011). Refinement of the tripartite influence model for men: Dual body image pathways to body change behaviors. *Body Image*, *8*(3), 199–207. <https://doi.org/10.1016/j.bodyim.2011.04.008>
- Usmiani, S., & Daniluk, J. (1997). Mothers and their adolescent daughters: Relationship between self-esteem, gender role identity, body image. *Journal of Youth and Adolescence*, *26*, 45–62. <https://doi.org/10.1023/A:1024588112108>
- van der Merwe, C., Münch, M., & Kruger, R. (2022). Chronotype differences in body composition, dietary intake and eating behavior outcomes: A scoping systematic review. *Advances in Nutrition*, *13*(6), 2357–2405. <https://doi.org/10.1093/advances/nmac093>
- Vieth, A. Z., & Trull, T. J. (1999). Family patterns of perfectionism: An examination of college students and their parents. *Journal of Personality Assessment*, *72*(1), 49–67. https://doi.org/10.1207/s15327752jpa7201_3
- Vincent, M. A., & McCabe, M. P. (2000). Gender differences among adolescents in family, and peer influences on body dissatisfaction, weight loss, and binge eating behaviors. *Journal of Youth and Adolescence*, *29*, 205–221. <https://doi.org/10.1023/A:1005156616173>
- Voges, M. M., Giabbiconi, C. M., Schöne, B., Waldorf, M., Hartmann, A. S., & Vocks, S. (2019). Gender differences in body evaluation: Do men show more self-serving double standards Than women? *Frontiers in Psychology*, *10*, 544. <https://doi.org/10.3389/fpsyg.2019.00544>
- Wade, T. D., Wilksch, S. M., & Lee, C. (2012). A longitudinal investigation of the impact of disordered eating on young women's quality of life. *Health Psychology*, *31*(3), 352–359. <https://doi.org/10.1037/a0025956>
- Wertheim, E. H., Paxton, S. J., Schutz, H. K., & Muir, S. L. (1997). Why do adolescent girls watch their weight? An interview study examining sociocultural pressures to be thin. *Journal of Psychosomatic Research*, *42*(4), 345–355. [https://doi.org/10.1016/S0022-3999\(96\)00368-6](https://doi.org/10.1016/S0022-3999(96)00368-6)
- Wertheim, E. H., Mee, V., & Paxton, S. J. (1999). Relationships among adolescent girls' eating behaviours and their parents' weight related attitudes and behaviors. *Sex Roles*, *41*, 169–187. <https://doi.org/10.1023/A:1018850111450>
- Wertheim, E. H., Martin, G., Prior, M., Sanson, A., & Smart, D. (2002). Parent influences in the transmission of eating and weight related values and behaviors. *Eating Disorders*, *10*(4), 321–334. <https://doi.org/10.1080/10640260214507>
- Woodside, D. B., Bulik, C. M., Halmi, K. A., Fichter, M. M., Kaplan, A., Berrettini, W. H., Strober, M., Treasure, J., Lilienfeld, L., Klump, K., & Kaye, W. H. (2002). Personality, perfectionism, and attitudes toward eating in parents of individuals with eating disorders. *International Journal of Eating Disorders*, *31*, 290–299. <https://doi.org/10.1002/eat.10032>

Publisher's note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.