



Parental Dieting and Correlation with Disordered Eating Behaviours in Adolescents: A Narrative Review

Ioanna Kontele ^{1,2,*}, Stella Saripanagiotou ², Agni Maria Papadopoulou ², Evangelos Zoumbaneas ² and Tonia Vassilakou ¹

- Department of Public Health Policy, School of Public Health, University of West Attica, 196 Alexandras Avenue, 11521 Athens, Greece; tvasilakou@uniwa.gr
- ² Center for Education and Treatment of Eating Disorders, 14231 Athens, Greece;

stella.saripanagiotou@keadd.gr (S.S.); agni.papadopoulou@keadd.gr (A.M.P.); admin@keadd.gr (E.Z.)

Correspondence: ikontele@uniwa.gr

Abstract: Adolescent eating disorders and disordered eating behaviours appear to be a growing public health concern. The aetiology of these conditions is complex, as many different factors contribute to their development. Among them, family factors such as parenting styles and comments regarding weight coming from family members are considered critical and are extensively researched. However, the impact of parental dieting has received less attention. A literature review was conducted in order to examine the relationship between parental engagement in weight-reduction dieting and their adolescent offspring's disordered eating behaviours. The review was conducted in three databases (PubMed, Scopus and Google Scholar) regarding the period between January 2000 and May 2023. The initial search retrieved 339 abstracts, and 113 full reports were evaluated for eligibility. Six studies fulfilled the inclusion criteria and were included in the final literature review. A number of studies indicated that adolescents whose parents were engaged in dieting in order to lose weight are more likely to showcase disordered eating behaviours. However, research regarding this relationship is very scarce. More studies on the link between parental eating and dieting habits and the risk of disordered eating in adolescents are required. Moreover, parents should be informed regarding the possible risks when they choose to follow weight-loss diets and the importance of adopting healthy eating and weight-control habits for the whole family.

Keywords: eating disorders; weight loss; diet; mother; father; adolescence

1. Introduction

According to the recent literature, a significant proportion of young females and males worldwide suffer from eating disorders (EDs), with trends increasing over time [1–3]. EDs that meet DSM-5 diagnostic criteria [4], such as anorexia nervosa, bulimia nervosa and binge eating disorder, are only a part of a broader spectrum of eating disturbances [5]. Disordered eating behaviours (DEBs) refer to abnormal eating behaviours that do not meet the criteria for diagnosis of ED, such as restrictive dieting and other extreme weight-control methods [6]. The prevalence of DEBs is higher than the prevalence of EDs according to studies in different countries and in different populations [3,7–9].

Adolescence is considered a high-risk period for the development of EDs and DEBs [10]. A recent systematic review of 32 studies including 63,181 participants indicated that 22% of children and adolescents present with DEBs, with elevated prevalence among girls, older adolescents and those with a higher body mass index [11]. The consequences of these behaviours are serious, as adolescence is marked by major changes in body composition, metabolic and hormonal function, organ maturation and nutritional deposit formation, all of which may have an impact on future health [12]. Moreover, many of the dietary habits that are acquired during adolescence persist throughout adult life, thus, it is very



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Copyright: © 2023 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https:// creativecommons.org/licenses/by/ 4.0/). likely for an adolescent with DEBs to continue suffering from DEBs or even progress in the development of EDs in his/her adulthood [13].

Risk factors for the development of EDs and DEBs during adolescence are multiple and include genetics, physiology, developmental issues, social influences, family characteristics and personality traits [14]. It has been indicated that the family may play a role in the development and maintenance of eating disorders; however family factors should not be considered as the exclusive or even the primary mechanisms that underlie risk, as EDs are multifactorial diseases [15]. The recent research has revealed an association between parenting styles and DEBs of adolescents. Adverse parenting styles, characterised by high demandingness, low responsiveness and high levels of control are directly and indirectly linked with greater risk of DEB development in adolescents [16].

Another family factor that was recently studied is parental comments regarding the adolescents' weight and body shape. The percentage of adolescents reporting parental comments regarding their weight or eating behaviours seems to be high, ranging from 12% to 76% [17]. A recent Australian study found that perceived negative comments from parents are linked to poorer adolescent mental health and disordered eating behaviours [18].

Associations have also been found between young adults' DEBs and parental encouragement to diet in order to be thin [19–21]. Dieting, defined as caloric restriction aimed at losing weight, has become very common among adults and adolescents. According to the National Health and Nutrition Examination Survey in USA, 56.4% of women and 41.7% of men tried to lose weight during the year prior to the study, with 62.9% of them reporting eating less than usual as the chosen method [22]. Accordingly, 26% of adolescent girls and 11% of adolescent boys were found to engage in weight-reduction behaviours in the Health Behaviours in School-Aged Children Survey [23]. It could be assumed that dieting is considered by individuals as an unharmful practice for weight control. Nevertheless, being on a diet is considered a risk factor for the development of EDs in adolescents [24,25], and the American Academy of Pediatrics suggests that adolescents should be discouraged from dieting [24]. At the same time, parents are advised to avoid discussions about weight and dieting, not only regarding their children but also themselves, as it has been shown that these behaviours may be associated with the use of unhealthy weight-control behaviours by their offspring [26,27].

Moreover, a significant number of studies have examined the correlation between parental present or past eating disorder and adolescents' DEBs [28–33]. A study of a cohort of 3649 girls in the USA found that girls with mothers with ED history were nearly twice as likely to report symptoms of any ED [33]. A recent systematic review showed that parents with ED show higher levels of parenting stress, have problematic mealtime interactions with their children and experience increased concern about their children's weight, suggesting that these factors may contribute to the intergenerational transmission of ED [34].

The majority of the studies that have examined the link between parental EDs and adolescents' DEBs have used either parent self-reported ED diagnosis or questionnaires especially designed to screen EDs. The results of these studies are often presented regarding the total score or the final diagnosis of parental EDs, and they do not examine the individual impact of more specific disordered eating behaviours (such as purging, bingeing, overexercising or the use of dieting as a method of weight control). For example, frequent dieting is a common characteristic of people with EDs [4] and items regarding dieting are included in ED screening tools. However, a high score in dieting scales does not always result in a high ED score. Therefore, unlike parental ED, parental dieting has not been independently studied as a possible risk factor for ED development among their children. Nevertheless, according to the authors' everyday clinical experience with adolescents with EDs and DEBs, dieting is very common among parents of patients. Parents are rarely aware that their dieting behaviours may impact their children's eating behaviours. Furthermore, it is known that adolescents' dietary habits are influenced by their parents' attitudes and practices, even if the former seem to demand autonomy in their nutrition [35]. Parents act

as models of healthy or unhealthy dietary habits [36]. Children tend to copy their parents' eating behaviours, meaning that if parents engage in restrictive diets or other unhealthy weight-control methods, their offspring may mimic them feeling that this is the appropriate way to control their weight. Thus, parents may play a significant role in shaping their children's' disordered eating behaviours [37]. Observational studies have indicated that adolescents whose parents are dieting are more likely to diet too [38,39].

In view of the above, the present review attempts to address the gap in the literature regarding the possible correlation between dieting practiced by the parents as a method of weight control and the development of DEBs by adolescents. The specific objectives of the review are (a) to investigate if the association between parental dieting and adolescents' DEBs was thoroughly studied during the last two decades; (b) to explore the positive or negative association between these two factors, i.e., to explore if parental engagement in dieting increases or decreases the risk of development of DEBs by adolescents; and (c) to identify existing gaps in the research that could be studied further in the future. It was hypothesised that (a) the research regarding the association between parental dieting and adolescents' DEBs would be very scarce; (b) some of the studies would have found a positive relationship, while others would have found no associations, and (c) many different aspects would have to be studied further.

2. Materials and Methods

For the current review, we decided to follow the methodology of a narrative review in order to present a summary of the published work regarding the subject and to identify the need for potential additional research. The review was performed in accordance with the 2020 PRISMA guidelines [40]. The inclusion and exclusion criteria were defined and a search of the literature was performed in three databases, using specific search terms. After a thorough screening of the retrieved articles and the exclusion of those not meeting the eligibility criteria, selected reports were reviewed in order to collect data regarding study characteristics, population characteristics, the tools that were used and the main findings of each study. The process is described in detail in the next sections.

2.1. Literature Search Strategy

Three different databases: PubMeD/MEDLINE[®] (US National Library of Medicine, Bethesda, MD, USA), Scopus (Elsevier, Netherlands) and Google Scholar (Google, Mountain View, CA, USA), were used for the electronic search of the international literature, in order to track studies published from January 2000 until May 2023. In order to search for studies relevant to the topic of the review, the terms shown in Table 1 were combined.

Table 1. Keywords for the PubMed database.

Search String

("eating disorders" OR "disordered eating" OR "anorexia" OR "bulimia" OR "binge eating") AND (adolescents OR adolescent OR adolescence OR youth) AND ("parental dieting" OR "parental eating" OR "maternal dieting" OR "maternal eating" OR "paternal dieting" OR "paternal eating" OR "parental eating disorder" OR "parental disordered eating" OR "maternal eating disorder" OR "maternal disordered eating" OR "paternal eating disorder" OR "paternal disordered eating")

2.2. Eligibility Criteria

In order to be included in the current review, the articles should meet the criteria shown in Table 2, while articles meeting the exclusion criteria were excluded from the review. All the article abstracts were screened by three authors (I.K., S.S. and A.M.P.) working in a blinded fashion. The articles that did not comply with the inclusion criteria were excluded. Any controversies were dealt with consensus in a meeting in which the abstracts were reviewed.

Table 2. Inclusion and exclusion criteria.

Inclusion Criteria

- 1. Primary studies (prospective cohorts, cross-sectional, case-control and interventional).
- 2. Studies published between January 2000 and May 2023.
- 3. Participants must be adolescents (between 11 and 18 years old) and/or their parents.
- 4. Diagnosis of the adolescents' eating disorder or disordered eating behaviours was performed either by clinical examination or by questionnaires designed for this purpose.
- 5. Data regarding parental dieting habits are self-reported by the parents themselves or reported as perceived by the offspring.
- 6. Data about the correlation between parental dieting habits and adolescents' disordered eating should be provided.
- 7. The articles must be written in the English or Greek language.

Exclusion Criteria

- 1. Not primary studies (review articles).
- 2. Studies of children (less than 11 years old) or adults (more than 18 years) or not declaring the age.
- 3. Studies without data regarding adolescents' disordered eating behaviours.
- 4. Studies without data regarding parental dieting habits. Studies that include data regarding eating disorder diagnosis or eating disorder total score or other eating disorder characteristics but do not present separate data regarding dieting were also excluded.
- 5. Studies without correlations between parental and adolescents' habits.
- 6. Studies not published in the English or Greek language.
- 7. Studies published before January 2000.

3. Results

3.1. Eligible Studies

The initial database search retrieved 339 abstracts, of which 113 were retrieved from Pubmed, 190 from Google Scholar and 28 from Scopus, while 8 abstracts were found from other sources. After removing 42 duplicated articles, those remaining were screened, and 177 articles were rejected based on their title and abstract, while 7 articles were not retrieved in full text. Subsequently, 113 full articles were evaluated for eligibility according to the inclusion criteria. One hundred and seven articles were excluded for various reasons according to the exclusion criteria. Therefore, six articles were selected for inclusion in the current review. The flow chart describing the sequential steps for selecting studies is presented in Figure 1.

3.2. Characteristics of Eligible Studies and Population

Four of the eligible studies were conducted in the USA [41–44], one in Argentina [45] and one in Greece [46]. Three of the studies were cross-sectional [42,43,46], while one study had case-control design [45] and two had prospective cohort design [41,44]. The sample size of the studies ranged from 45 participants to 810 participants. In three studies, the participants were the adolescents that also provided data regarding their parents [42,44,46]. In two studies, only parents answered the questionnaires, and the data regarding adolescents' DEBs were obtained from clinicians [41,45]. In one study, the data were obtained by both the adolescents and their parents [43]. In the majority of the studies, both boys and girls took part; however, the percentage of girls was higher, and two studies included only teenage girls [42,45]. Accordingly, in three studies, only mothers were included [43–45], while in three other studies, both mothers and fathers took part [41,42,46]. Regarding the adolescents' DEBs, they were reported by psychiatric evaluation in two studies [41,45], by the EAT-26 screening tool in one study [46] and by a questionnaire specifically designed for the studies in three of them [42–44]. Finally, regarding parental dieting, two studies collected the data using questionnaires answered by the parents themselves [41,45]; in three studies, parental dieting was reported as perceived by the adolescents [42,44,46]; and in

one study, the data regarding parental dieting was obtained by both the adolescents and their parents [43].



Figure 1. Flow diagram of the study selection process.

3.3. Correlations between Parental Dieting and Adolescents' Disordered Eating Behaviours

The main characteristics and findings of the six eligible studies are presented in Table 3. The majority of the studies found a positive correlation between parental dieting and adolescent DEBs, but with many different aspects being examined. Bilali et al. (2010), in a cross-sectional study on a sample of 540 adolescent students, found an association between adolescent eating disorder and the perceived dieting of their parents. In this study 52% of adolescent boys and girls reported parental dieting, while DEBs were found in 16.7% of the participants. According to the findings, teenagers who had a family member who was dieting were more likely to have disordered eating attitudes than those who did not. It was hypothesised that the presence of a dieting family member may signal greater concerns about eating, dieting and body image in adolescents [46].

Study	Country	Population	Study Design	Instruments	Main Findings
Bilali et al. (2010) [46]	Greece	540 adolescent boys and girls	cross-sectional	EAT 26 questionnaire, question on existence of a family member on a diet	Adolescents who reported having a family member who was dieting were more likely to have DEBs than those who did not
Neumark-Sztainer et al. (2010) [42]	USA	356 adolescent girls	cross-sectional	Project EAT questionnaire	Positive association of maternal dieting to unhealthy and extreme weight control behaviours by adolescents. No association of paternal dieting to adverse effects in adolescent dietary habits
Keery et al. (2006) [43]	USA	810 adolescent boys and girls and their mothers	cross-sectional	Project EAT questionnaire	Significant associations between adolescents' weight concerns and weight control behaviours and adolescents' perception of maternal dieting. Not significant associations with maternal self- reported dieting
Garcia de Amusquibar et al. (2003) [45]	Argentina	50 mothers of adolescent girls with ED and 30 control- group mothers	case-control	EAT 26 questionnaire	Mothers' frequent dieting was a common characteristic in both groups. No significant differences between ED mothers and controls
Duck et al. (2023) [41]	USA	45 adolescent boys and girls diagnosed with a restrictive ED admitted to an inpatient-partial hospitalisation program and their parents	prospective cohort	Questionnaire about parental eating and exercise behaviours answered by the parents. Data on adolescents were abstracted from the electronic medical record	Adolescents whose parents reported current dieting gained weight at a slower rate, compared to adolescents whose parents did not report current dieting
Haynos et al. (2016) [44]	USA	243 adolescent boys and girls who were dieting	prospective cohort	Project EAT questionnaire (EAT II)	Maternal dieting is a predictor for the development of disordered restrictive dieting in adolescents

Table 3. Characteristics of Eligible Studies.

Similar results were found by Neumark-Sztainer et al. (2010), where 75% of the adolescent girls reported maternal and approximately 40% paternal dieting. It was found that maternal dieting was related to unhealthy or extreme weight control behaviours on behalf of the adolescent, while paternal dieting was unrelated. When maternal and paternal contributions to teen problematic dietary behaviour were examined in combination, the paternal influence was found to be irrelevant when the maternal influence was also taken into consideration. It is worth mentioning that parents talking about their own weight were also found to have negative effects on the adolescents' dietary behaviour [42].

Accordingly, Keery et al. (2006), on a sample of 810 adolescent boys and girls and their mothers, found that there is a positive association between maternal and child dietary concerns. This study evaluated maternal dieting as it was perceived by adolescents and also as it was reported by the mothers. An interesting finding was that the aforementioned positive association was significant only when maternal dieting, as perceived by the adolescents, was taken into account. On the other hand, self-reported maternal dieting revealed no significant correlation with either boys' or girls' reports of weight concerns or weight control behaviours. The results could indicate that the difference of perception between child and mother needs to be taken into consideration. The importance of proper communication between mothers and adolescents regarding the latter's dietary choices and practices also emerges [43].

Interesting findings were reported by two studies that examined dieting as a characteristic of parents whose adolescents were admitted to ED clinics. Garcia de Amusquibar et al. (2003) examined specific features among the mothers of adolescent patients who underwent ED consultation and those of a control group of mothers of healthy adolescents. One of the characteristics that was studied was dieting reported during the interview of the mother and also assessed by the mother's score on the dieting scale of the EAT-26 questionnaire. Similar maternal dieting rates were found in the two groups, as 68% of the first group and 70% of the second one reported dieting at some point. Accordingly, 16% of the mothers of ED adolescents and 13.3% of the control group mothers had a high score in the EAT-26 dieting scale. The aforementioned differences were not statistically significant [45].

In a recent study, Duck et al. (2023) examined the link between the outcomes of inpatient treatment for 45 adolescents with restrictive eating disorders and their parents' dieting attitudes. One-third of parents reported that they were dieting at that time, while it was found that adolescents whose parents reported dieting gained weight at a slower rate and had lower median body mass index percentiles at discharge, compared to adolescents whose parents were not dieting. Additionally, teens whose parents stated that their spouse was currently dieting had lower median body mass index percentiles at discharge. According to the researchers one explanation for the slower weight gain in those children is that dieting parents may have imparted on to them ideas about how important being slim is and anxieties about being overweight [41].

Finally, Haynos et al. (2016) prospectively evaluated the factors that contribute to the development of DEBs in a cohort of 243 adolescents that had reported dieting but not disordered restrictive eating in the initiation of the study. The mother's dieting was one of the factors that predicted adolescent engagement in disordered eating 5 years later, indicating a positive correlation between child-reported maternal dieting and the initiation of DEBs by the adolescent [44].

4. Discussion

The scope of the present review is to present the available literature regarding the association between parental dieting and adolescents' engagement in disordered eating behaviours. The first objective of the review was to investigate if the association between parental dieting and adolescents' DEBs has been thoroughly studied during the last two decades. As it was expected, the current review indicated that the study of this association is very scarce. Only six studies met the criteria of inclusion in the review, as the majority

of the studies among adolescents with DEBs have not examined dieting as a specific parental behaviour.

The second objective was to explore the positive or negative association between parental engagement to dieting and the risk of development of DEBs by adolescents. All but one of the included studies indicated a positive, but not strong, association between parental dieting and adolescents' DEBs, although many details regarding this association should be discussed further. First of all, it seems that there is a difference regarding the perspective of dieting as it is perceived by the adolescents and as it is reported by the parents, as indicated by Keery et al. (2006) [43]. Moreover, three more studies that found positive correlations used child-reported parental dieting as a factor [42,44,46]. Therefore, it seems that the different perceptions should be taken into account in future studies, while the communication between parents and adolescents on dieting practices and the ideal of being thin should be further examined.

Another significant finding of the review is that mothers' dieting behaviours have a significant influence on those of their adolescent children, but fathers' behaviours are less studied. One study that examined both maternal and paternal dieting found that only mothers' habits influenced adolescents' DEBs, while no association was found with the respective paternal habits [42]. Furthermore, two more studies found a positive link with maternal dieting [43,44]. Even in the studies where both mothers and fathers participated, the percentage of mothers was significantly higher [41,42]. Dixon et al. (1996), almost 30 years ago, indicated that paternal dieting predicted adolescent daughters' DEBs [38]. Dixon et al. (2010), in a later study, also found associations between fathers' perception of the importance of women being slim and keeping control of their food intake and their adolescent daughters' DEBs [47]. Moreover, paternal dissatisfaction about his own weight, as well as paternal comments on daughter's weight are associated with daughters' weight dissatisfaction [48]. Finally, fathers' influence in the developments of DEBs was also studied regarding the relationship with their daughters. Paternal rejection and overprotection were found to predict aspects of eating psychopathology in their daughters [49].

It is worth mentioning that one study showed that parental dieting is a factor that may negatively influence inpatient treatment outcomes for EDs, as it was linked to a slower rate of weight gain [41]. Even though there are not enough studies explaining how parental dieting may influence ED treatment outcomes, it is advised that parents whose children are treated for EDs should follow a balanced diet and avoid any weight loss methods [50]. Moreover, this finding stresses the necessity of including parents in the ED treatment protocols. ED health professionals should evaluate and advise parents regarding their own nutrition, as this may affect their children's response to treatment.

Additionally, it should be discussed that, during the articles' selection process, it was revealed that a significant number of studies have examined the association of parental eating disorders that occurred in the past or currently exist and the development of adolescents' DEBs. Many studies revealed that co-occurring eating disorder behaviours in parents are associated with greater rates of adolescent eating disorder behaviours [30,32,51–53]. Even the history of parental EDs acts as a risk factor for the development of DEBs in adolescents, especially when maternal past disordered eating is taken into account [28,29,31].

The third objective of the current review was to identify the existing gaps in the research that could be studied in the future. As is further discussed in the next section, the research regarding parental dieting as an individual behaviour that may act as a risk factor for the development of DEBs in adolescents is urgently needed. The very small number of studies that included parental dieting among the factors examined used very different instruments, as there is no validated questionnaire for its assessment. Moreover, studies have used very different methodologies, with some collecting data from the parents themselves and others collecting data reported by the adolescents.

The main limitations of the current review emerge from the small number of included studies. The research regarding family risk factors for adolescents' ED in the last two decades has focused on the direct influence of parents, such as the encouragement of children to diet and the comments on children's weight and body shape. The indirect influence has been studied but mainly regarding the total disordered eating behaviours of the parents, such as their current or past eating disorder, by using questionnaires that do not evaluate dieting separately [37]. Moreover, a significant limitation is that there was no common method to obtain information regarding parental dieting. Some studies retrieved this information directly from the parents, while others included the perception of adolescents regarding their parent's dieting behaviour. Additionally, the studies that examined parental dieting used only simple questions such as "Are you dieting currently?" and no validated questionnaires were used. Finally, as was previously discussed, parents that participate in these studies are mainly mothers; therefore, more studies regarding the fathers' role are needed.

5. Conclusions

In conclusion, specific behaviours, such as the frequent engagement of parents in weight-loss diets, have not been thoroughly examined. According to the authors' everyday clinical experience with adolescents with EDs and DEBs, many parents act as models of disordered eating behaviours for their children, and even if this is not the main risk factor for developing an ED, it could be considered an important one. Therefore, we suggest the design of future studies regarding the association of specific parental dietary behaviours, such as dieting, and the development of DEBs in their children. In future studies, parental dieting should be studied as a specific individual factor. Moreover, researchers should separately examine parental dieting as perceived by the parents themselves and by their children. Additionally, specific tools that would be able to evaluate dieting and distinguish healthy eating habits from unhealthy restrictive methods should be developed. Finally, the paternal influence should also be examined.

The mothers and fathers of adolescents should be informed and educated on the importance of avoiding unhealthy weight-control practices, including restrictive diets, in order to prevent the development of DEBs among their children. At the same time, they should be informed regarding all the types of communication and influences that may increase the risk of their children developing DEBs. For example, it was indicated that weight-related conversations in the household are associated with unhealthy weight control behaviours by the adolescents, whereas when parents engage in healthful eating conversations, adolescents are less likely to practice unhealthy dietary behaviours [26]. Moreover, NHS UK and the National Institute for Health and Care Excellence (NICE), in their guidelines regarding treatment of ED patients, suggest including family members in any diet-related education and advise them to avoid conversations regarding dieting, as well as to avoid eating diet foods in front of their children [50,54]. Education regarding the impact of dieting behaviours on the development and maintenance of disordered eating could also be included in seminars addressed to health professionals, as many paediatricians, dieticians and other health experts often give incorrect guidelines regarding dieting in parents and adolescents.

Parents who wish to prevent their children from developing disordered eating habits should focus on their own modelling of healthy behaviours, i.e., abstaining from dieting and trying to follow a healthy balanced nutritional plan providing a variety of healthy food options, without restrictions and weight-related conversations. As the American Academy of Paediatrics indicates, in order to prevent weight-related problems in adolescence, dieting should be discouraged, a positive body image should be promoted, families should be encouraged to implement healthy eating and physical activity behaviours, families should have frequent meals together and parents should avoid talking about weight but instead talk about healthy eating and being active to stay healthy [24].

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