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Eating disorders in pediatric population, analysis of some of the most common risk factors

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Abstract**Introduction:**

This article reviews a number of studies that have sought to determine what are risk factors that may cause eating disorders in the pediatric population, taking into account the age and gender of the subjects. This study focuses on issues related to purging, bulimic behaviors, and psychological orthorexia and what impact the most common risk factors for these behaviors have in the pediatric population.

Aim of study:

The aim of the study is to present a comprehensive review of some of the most common risk factors predisposing to the development of eating disorders in the pediatric population, and how these factors have a direct impact on each other and are intertwined, by using available knowledge, paying particular attention to a new potential risk factor - social media.

Materials and methods:

Materials used in this study were found in the PubMed database, using the following keywords: „Social media”, „Mass media”, „Peers”, „Family”, „Orthorexia nervosa”, „Social media”, „Children”, „Adolescence”.

Conclusion:

Eating disorders are a growing problem. Our research focuses on potential risk factors, with the greatest emphasis on a relatively new risk factor: social media and screen time, and how these two factors influence young minds, what impact they have on the eating habits of

children and adolescents, and what can be done to prevent eating disorders in the pediatric population.

Key words: social media, pediatric population, adolescents, peers, family environment, intuitive eating, mindful eating.

Introduction:

1. Disordered eating:

Patients with disordered eating are balancing on a fine line between an eating disorder and normal eating habits. Their symptoms are mainly these which we can observe while having classic eating disorder such as: binge eating in Bulimia nervosa or restrictive energy intake in Anorexia nervosa, however, these symptoms occur with lower levels of severity. One of the most common forms of disordered eating is dieting, however, there are other behaviors and habits that patient may present while having a disordered eating. First of all: fasting, its popularity has recently increased significantly, it is mostly promoted via social media as it is the most healthy and harmonic way of weight loss. Another example of disordered eating is avoiding a type of food or a food group, it is hard to acknowledge, since giving up on specific dishes or foods such as meat or a highly processed food, or food with a high level of sugar isn't something concerning, nevertheless giving up on too many groups of food can lead straight to anorexia nervosa therefore complications connected with it. Next example of a symptom that accompanies disordered eating is using diet pills, these methods of weight loss or „healthier” lifestyle are usually promoted by social media, it shown as advertisements on sites connected to health or sports. These methods promise fast weight loss, an easier way of maintaining a perfect body, and more effective workouts, however, these products can also lead to heart problems such as arrhythmia.

2. Potential risk factors:

The risk factors with the strongest support include (1) influence of the family environment (14-15), age (adolescence and early adulthood being the periods of highest risk) (2), female sex, frequent dieting (3,4), preoccupation with thinness (5,6), teasing about body shape or weight (7,8), body dissatisfaction and weight concerns(9,10) and perceived peer and media pressure to be thin (11,12,13).

2.1. Family environment

To begin with, the family environment has an enormous influence on the process of children's maturation, therefore, it includes learning the basics of good nutrition. Nevertheless, children and adolescents attaches great importance to weight and body shape (16). The connection between these two factors was depicted in a European multicenter study involving 1,664 children and adolescents. This study found a negative association between maintaining a healthy diet and the later development of eating disorders, and a positive association between excessive control, adherence to strict dietary rules, and individualization of food and the onset of eating disorders(17). Subsequent research supports the thesis that family environment is considered as the risk factor of disorder eating among the pediatric population. It is proved by depicting the connection between the individualization of meals by family members and the consumption of different foods at different times and places with eating disorders in the family (15). These findings are consistent with those observed in research including 10 540 pre-schooled age girls. In that study, the habit of eating with the family most days was negatively associated with the first use of purging methods, overeating disorder, and dieting (19).

2.2 Age and sex

The next two confirmed risk factors which have a strong impact on eating disorder in the pediatric population are age and sex. These two issues were widely studied in a prospective cohort study based on Growing Up Today Study - GUTS, the largest study of disordered eating, which included 7 - years follow up during which more than 12 500 male and female

aged 9 to 15 years participated. The main purpose of this study was to assess if various risk factors are independently associated with binge eating, purging (vomiting or using laxatives to control weight), or both binge eat and purge during (20). Results of this investigation have shown a greater predisposition for females to have eating disorders. 10.3% of the females and 3.0% of the males started to binge eat or purge (vomiting or using laxatives) at least weekly to control their weight. Among the females, the cumulative incidence of binge eating (4.3%) was slightly lower than the incidence of purging (5.3%), whereas among the males, binge eating (2.1%) was more common than purging (0.8%) (20).

The main conclusions of this study are unfavorable for females. As a result of girls's greater exposure to adverse media, there should be education and other approaches so that young people are less susceptible to what the mass media are trying to show them. The next concerning aspect raised in the discourse is the desire to look like a representative of one's gender in the media, which was a greater risk of bulimic behaviors in females than in males. Another argument found in the study, unfortunately speaking against females, was the observation that among female participants of the study, dieting, preoccupation with weight, and the desire to look like one from social media were predictors of a higher risk of regular overeating and subsequently provoking vomiting. This study also showed that prevention of eating disorders such as bulimic behaviors, binge eating, and purging, should be age and gender specific.

2.3 Social media

The least known risk factor for eating disorders is social media; currently, there is no hard evidence that 100% of the media contributes to the occurrence of eating disorders in the pediatric population. This is mainly due to the fact that Facebook or Instagram have been on the market for a relatively short period of time. However, new research is emerging more and more often, which clearly shows that the influence of social media on young people may have a negative impact on their eating habits. One of the online platforms frequently visited by adolescents, which content may contribute to the development of eating disorders, is Instagram. In the U.S., 63% of participants aged 15–25 years reported using Instagram in 2020 (29). Some claims that social media can have a positive influence in terms of educational health for young people (31, 32), however, other data show opposite effects such as increased body dissatisfaction and disordered eating (33, 34). Despite that, there is a major

growth in non-dieting approaches, including mindful and intuitive eating, which aim is to improve general health without a focus on weight loss (35-39). Mindful eating promotes attentive and purposeful eating experiences focusing on the moment without judgment (40) whereas intuitive eating focuses on the development of internal awareness in terms of hunger and satiety sensations while engaging, trusting, and acting upon the body's signals related to eating (30,29).

Despite the fact that mindful and intuitive eating has the potential to enhance health outcomes, collected data from previous analyses of Instagram raised great concerns about the lack of diversity and promotion of a thin body idea (41,42). It is pointed out in one study which results shows a lack of demographic and body diversity in the imagery, shown on Instagram under the #intuitiveeating and #mindfuleating. Under hashtag intritiveating only two of 495 images were perceived to depict larger bodies, whereas under the #mindfuleating such images couldn't be found (18). Findings demonstrated in this study have shown that the overall depiction of mindful and intuitive eating imagery on Instagram appears to emphasize average-bodied White young female adults' healthy lifestyles without a focus on weight. The representation of males, diverse body types, and what's important, ages, was modest, and this lack of information may reduce the acceptability of mindful and intuitive eating in broader populations. Nevertheless, this study also claims that Instagram holds the potential for health professionals to promote evidence-based health and nutrition information to young people, due to the fact that the influence of peers, nutritionists, and celebrities active on Instagram has an enormous impact on modeling young minds (18). Most literature focuses on the impact of social media on adolescents or adults (21), however, the problem begins at a younger age (22). This issue was studied in a prospective cohort study based on the Adolescent Brain Cognitive Development (ABCD) Study, a longitudinal study of brain development and health across adolescence consisting of 11,875 children recruited from 21 sites around the U.S. aged 9-10 years. (23). Recent research has found that excessive screen time not only has a huge impact on eating habits, but also it affects children's health, including depression, anxiety, inattention, poor sleep, and physical inactivity (24,25). Previous research has shown a dependence between screen time and snacking (26,27), as opposite to it, fewer studies that have shown a connection between screen time and binge eating. However, binge eating was found to be connected with passive screen time. A hypothesis was put forward that screen time, especially in a passive form, during which the feeling of hunger is silenced (26,27) and screen time, which includes forms of communication that may promote negative perception of one's body

(28), are associated with binge eating. On average, at baseline, children reported 4.0 ± 3.2 hours (mean \pm SD) of screen time per day, with the most time spent watching/streaming television shows/movies (1.3 ± 1.3 hours), playing video games (1.1 ± 1.1 hours), and watching/streaming videos (1.1 ± 1.2 hours). At one-year follow-up, 1.1% of participants met the criteria for binge-eating disorder. Research has shown that there are specific types of screen time that were strongly associated with binge-eating disorder, starting with social networking, texting, and ending at television/movie viewing. What is surprising, there was no correlation between specific screen time and sex, except for video games, which has a stronger influence on binge-eating disorder in females (25).

Conclusion:

Our findings prove that it is not possible to clearly state that social media has a negative impact on the behavior and eating habits of children and adolescents. The impact on the perception of body image in the pediatric population is dictated by many factors that have a direct impact on each other and are intertwined. The family environment, relationships between family members and peers, as well as the proper education of children and adolescents, and exposing the absurdities of the world of social media, as well as the involvement of specialists, are inherent elements that influence the eating habits in the pediatric population.

Supplementary materials:

Not applicable.

Author's contribution:

Conceptualization, Marta Skorupska, Magdalena Joanna Czczotka; methodology, Justyna Śliz, Aleksandra Natalia Popławska and Krzysztof Woźniak; software, Marta Skorupska and Krzysztof Woźniak; check, Natalia Aleksandra Popławska, Justyna Śliz and Magdalena Joanna Czczotka; formal analysis, Marta Skorupska, Natalia Aleksandra Popławska and Krzysztof Woźniak; investigation, Justyna Śliz and Magdalena Joanna Czczotka; resources Justyna Śliz, Marta Skorupska; data curation, Magdalena Joanna Czczotka, Krzysztof

Woźniak and Natalia Joanna Popławska; writing- rough preparation, Marta Skorupska and Krzysztof Woźniak; writing- review and editing Justyna Śliz, Natalia Aleksandra Popławska and Magdalena Joanna Czeczotka; visualization, Natalia Aleksandra Popławska, Krzysztof Woźniak and Justyna Śliz; supervision, Marta Skorupska, Magdalena Joanna Czeczotka; project administration Justyna Śliz, Marta Skorupska, Magdalena Joanna Czeczotka and Natalia Aleksandra Popławska; All authors read and agrees with the published version of the manuscript.

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The authors of the paper report no conflicts of interest.

Data Availability Statement

The data presented in this study are available upon request from the correspondent author.

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