

# Family and media influences on children's eating behavior (Note I)

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## Abstract

**Background.** Over the past few years, the field of pediatric nutrition has made great progress, with increasing emphasis on the role of home environment and social media in the development of children and adolescents.

**Aims.** The study aims to examine the extent to which exposure to social media and family meal dynamics influence the eating habits of children and young adults. **Methods.** A cross-sectional study was conducted between July 2024 and March 2025, on a sample of 195 children aged between 3 and 18 years. Data collection focused on caloric intake and environmental influences.

**Results.** The outcomes suggest that children are strongly influenced by both social media and a family environment, while the reported caloric intake scored lower than recommended nutrient requirements.

**Conclusions.** Children who consume meals alongside at least one family member tend to have healthier eating habits and a higher food intake. The longer children are in front of screens, the worse their diet becomes, as they tend to consume unhealthy snacks during that time.

**Keywords:** pediatric nutrition, family, children, media consumption, dietary behavior.

## Introduction

Adequate nourishment plays an essential role in the sound physical and mental development of children and young people. However, in our modern digitalized world, a number of environmental causes, familial patterns, and social media in particular, shape children's eating habits in ever more complex ways (McCarthy et al., 2022).

Among various trends, the increasing susceptibility of young people and teenagers to social media, video games and television programs. A link has been observed between this type of exposure and the growing preference for highly processed, highly caloric foods and sweetened drinks frequently marketed through product placement and advertising. In association with the sedentary pattern implicitly connected to excessive screen time, these factors provide a major contribution to the increased risk of obesity and overweight among pediatric populations. This is especially concerning considering the fact that childhood obesity usually lasts through adulthood, increasing the chances of developing chronic diseases such as type 2 diabetes, cardiovascular disease, and dyslipidemia (De Jans et al., 2021).

Besides digital influences, the home environment has a

crucial bearing in determining food patterns. A number of studies have suggested that consistent family mealtimes, a pleasant eating experience, and engagement in the preparation of food contribute to healthier eating habits, improved emotional health, and better-balanced weight profiles among children and young people (Knobl et al., 2022)

In this context, our study aims to examine to what extent exposure to social media and family meal dynamics influence the eating habits of children and young adults aged 3-18 years. We analyzed whether more frequent family meals might be associated with a higher consumption of fruits and vegetables, smaller BMI values, and reduced consumption of highly processed foods and sweetened drinks. Additionally, we examined whether well-regulated, inclusive, screen-free meals have a positive impact on children's emotional well-being and eating habits.

## Materials and methods

### Research protocol

#### a) Time and location of the research

The study was completed over an eight-month period, between July 1, 2024, and March 2, 2025. A survey

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questionnaire was used to collect data from parents of pre-school and school-age children in two Romanian cities: Suceava and Târgu Mureş.

#### b) Subjects and group

The study sample consisted of 195 children and teenagers aged 3-18 years. The main criterion for inclusion was belonging to this age group. Other inclusion criteria included regular attendance at a public educational institution and access to electronic devices (e.g. smartphone, tablet, or TV), regardless of whether they were personally owned or belonging to their parents. Participants were required to spend at least one hour per day on said devices. Criteria for exclusion were: incomplete responses to the questionnaire, age under three years or over 18 years, presence of chronic diseases, and long-term medication use. As participants in the study were underage, an informed consent was acquired from the parents for inclusion of their children in the study and for the processing and analysis of their personal data.

#### c) Applied tests

Data were collected on age, gender, anthropometric measurements of both parents and their children, frequency of food intake, a 24-hour dietary recall, dietary supplement use, family meal-time frequency, type and duration of social media use.

Anthropometric measurements included the heights and weights of child, mother, and father. The 24-hour dietary recall aimed at analyzing the number of principal meals consumed by the child, food type, serving size, food combining, and usual snack preferences.

Information regarding time spent eating and the presence of a family member during meal-time was also deemed significant in this study.

With regard to social media use, the gathered data included: screen time, social platform types used, nature of advertised content. Other aspects explored in the study were the presence of adult supervision during the children's screen exposure and whether dietary choices changed according to the content viewed.

For the analysis of caloric intake and daily energy requirements, the food journals were individually assessed by using data from the United States Department of Agriculture (USDA) Food and Nutrition Database (1). Results were compared to four standard nutritional reference values: kilocalories, proteins, fats, and carbohydrates, using the USDA's professional nutrition calculator (2).

Percentiles were used to estimate the growth status of pre-school and school-age children, individually calculated for each child according to age, gender, height, and weight using PediTools (Chou et al., 2020). Three percentile values were calculated: height-for-age, weight-for-age, and weight-for-height/body mass index (BMI)-for-height.

Genetic growth potential was also estimated using the EBMcalc, a Medical Reference Calculator, by introducing the child's gender as well as the heights of both father and mother. (EBMcalc: Medical Reference Calculator).

#### d) Statistical processing

Statistical analysis was performed on data with the help of GraphPad Prism software version 6.0. Descriptive statistical measures comprised of: minimum and maximum values, means or medians, and standard deviations.

Inferential analyses were conducted using nonparametric tests at a confidence level of 95%. Associations were examined using Spearman's rank correlation, whereas group differences were evaluated using the Mann-Whitney U test for independent samples and the Wilcoxon signed-rank test for paired samples.

## Results

Of the 195 subjects participating in the study, 53.33% were female. Only 6.67% of the children and teenagers reported recent changes in height, while 20.82% reported changes in weight in the last 3 to 6 months (Table I).

**Table I**  
Stature and weight development.

Parameter	Min	Median	Max	CV%
Weight-for-age percentile	0	56	100	62.48 %
Height-for-age percentile	0	52	100	66.74 %
Weight/BMI-for-height	0	63.45	100	64.40 %

The majority of the subjects participating in the study – 51.80% – have a screen exposure of 2-4 hours per day. Another 38.46% have a screen exposure of only 1 hour per day, while 9.23% spend between 4 and 8 hours per day on screen time.

On completion of the final analysis of all subjects participating in the study, the presence of preference for daily consumption of sweets such as candy, biscuits, chocolate, and similar products, as well as dairy products was observed. Consumption of fruits and vegetables was relatively frequent; however, salad greens, fish, and nuts were only sporadically included in the diets of pre-school and school-age children. The table below summarizes the minimum, maximum, and average intakes in relation to the recommended daily requirements (Table II).

**Table II**  
Caloric intake and daily requirements.

	Median	CV%	Differences from dietary requirement	
			P value	R value
Proteins	52.5	43.79 %	<0.0001	0.3135
Lipids	36.5	59.29 %	<0.0001	0.4153
Carbohydrates	118	45.09 %	<0.0001	0.7378
Kcal	1079	42.11 %	<0.0001	0.6307

There is a positive correlation between the child's age and screen time ( $r = 0.3629$ ,  $p < 0.0001$ ), as well as between age and the weight-for-age percentile, with older children showing higher weight-for-age values ( $r = 0.2861$ ,  $p < 0.0001$ ). Older children tend to spend more time on TikTok, Instagram, Facebook ( $r = 0.4923$ ,  $p < 0.0001$ ), as well as watching movies and series ( $r = 0.3567$ ,  $p < 0.0001$ ).

Moreover, age is significantly correlated with eating meals in front of screens, with older children more frequently engaging in this behavior ( $p = 0.001$ ). As age increases, a decline in preference for nuts and seeds ( $r = -0.1458$ ,  $p = 0.0419$ ) and a higher attention to sweet consumption ( $r = 0.1534$ ,  $p = 0.0323$ ) can be observed.

According to weight-for-age percentiles, children and teenagers who watch movies and series more frequently tend to present higher body weight ( $r = 0.1536$ ,  $p = 0.0321$ ), many of them spending between 4–8 hours per day in front of screens ( $r = 1.1495$ ,  $p = 0.037$ ).

Skipping dinner ( $r = 0.186$ ,  $p = 0.0092$ ) or breakfast ( $r = 0.1787$ ,  $p = 0.0132$ ) was significantly associated with higher body weight in participants.

A higher maternal age was negatively correlated with supervised screen time, indicating that children of older mothers are more likely to watch TV or use social media unsupervised ( $r = -0.3832$ ,  $p < 0.0001$ ). Meanwhile, mothers with higher BMIs tend to more closely monitor their children’s sweet consumption ( $r = -0.1535$ ,  $p = 0.035$ ). In contrast, fathers with higher BMIs showed a positive association with children’s consumption of fast-foods ( $r = 0.1449$ ,  $p = 0.0444$ ), sweets ( $r = 0.1956$ ,  $p = 0.0064$ ), snacks/soft drinks ( $r = 0.202$ ,  $p = 0.0049$ ).

A statistically significant inverse relationship was observed between the weight-for-age percentile and caloric intake, indicating that participants with higher percentiles tended to report lower energy consumption ( $r = 0.2898$ ,  $p = 0.0042$ ).

Regarding the influence of family environment on eating behaviors in children and teenagers, there was a positive correlation between eating meals with at least one family member present and increased caloric intake ( $r = 0.2115$ ,  $p = 0.0386$ ). Family meals were also associated with a higher fat intake ( $r = 0.2064$ ,  $p = 0.0437$ ).

Both children who spend more time studying ( $r = 0.2825$ ,  $p = 0.0053$ ) and those who tend to skip meals ( $r = 0.2312$ ,  $p = 0.0234$ ) showed a higher protein intake relative to carbohydrate and fat intake.

A statistically significant difference between reported caloric intake and the estimated daily requirement was identified and is visually represented in the graph below (Figure 1) and in Table II above.

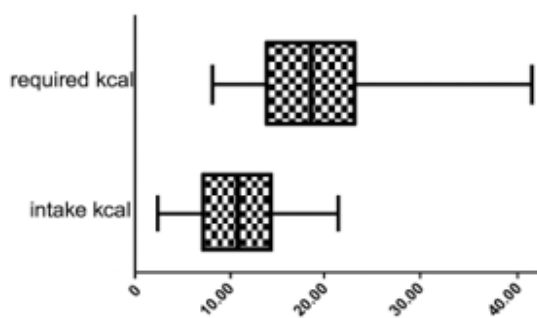


Fig. 1– Caloric requirements and intake.

Additionally, fat intake (Figure 2) and carbohydrate intake (Figure 3) were statistically significantly lower than the recommended requirements for children and adolescents, based on age, gender, weight, and level of physical activity.

Proteins were consumed in quantities exceeding the recommended requirements (Figure 4).

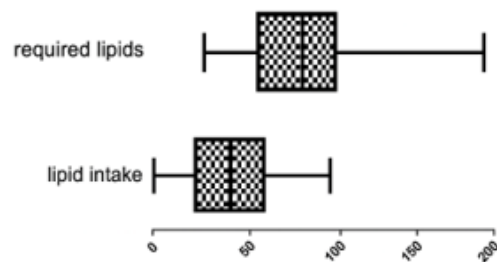


Fig. 2 – Lipid requirements and intake.

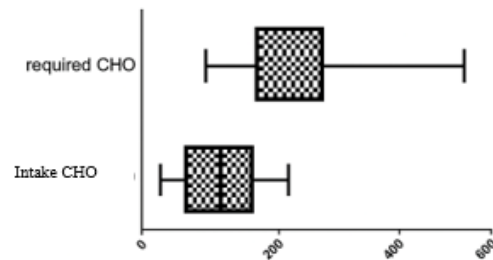


Fig. 3 – Carbohydrate requirements and intake.

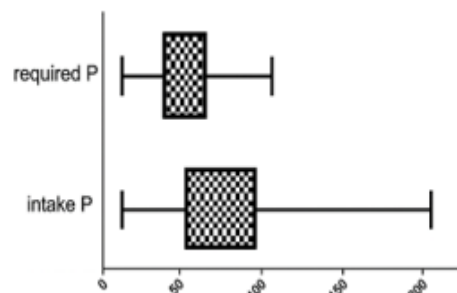


Fig. 4 – Protein requirements and intake.

## Discussion

Our study along with other studies conducted on pre-school and school-age children on the topic discussed show the significant influence of family, peers/friends, and social media on children’s eating habits (Mc Carthy et al., 2022; Dallacker et al., 2018).

During our study a positive association was observed between frequent social media exposure and an increased consumption of sweets, snacks, soft drinks and other highly processed, unhealthy foods. In their study, Mc Carthy et al. highlighted the fact that children who spend more time in front of screens tend to skip breakfast and consume fast foods, supporting the findings in our study (Sina et al., 2022).

We consider that the advertising and marketing of unhealthy products drive children and teenagers towards unhealthy eating behaviors. Our study reveals that dietary choices are influenced by advertisements viewed while using social platforms and by eating habits established at home. It is therefore necessary to adopt public policies designed to regulate digital marketing in order to reduce the purchase and consumption of unhealthy food products among children and adolescents. For instance, unhealthy products could

strategically be placed away from checkout areas, reducing the probability of impulsive purchases. Meanwhile, healthy snack alternatives could be made more visible and appealing through targeted promotional campaigns to encourage healthier choices. Fast-food outlets could be located further away from schools, limiting access for students during school hours. Finally, certain commercials targeting children – especially those on TV channels frequently viewed by young audiences – could be restricted or banned so as to minimize exposure to persuasive advertising of unhealthy foods.

In a similar study as the present research, Knobl et al. (2022) have shown that people who share meals with their family, or at least one family member, tend to have a more adequate caloric intake and eat healthier foods. Furthermore, it is equally important to provide a peaceful and welcoming family atmosphere during mealtimes, free from the background noise of TV or smartphone use. Home-cooked meals are generally healthier than meals eaten out. Meals served in restaurants are frequently fried, high in fat and strongly seasoned to enhance their taste and appeal.

Snuggs & Harvey (2023) also found in their study that other factors influence the frequency of family mealtimes, such as family structure (two-parent or single-parent), economic status, ethnicity, socio-demographic characteristics, and children's age. The younger the children, the more often they tend to eat together with their families.

Such meals, especially during the pre-school years, are crucial as they play a very important role in shaping children's long-term eating patterns. Our study suggests that frequent family meals are protective against obesity, although some studies argue to the contrary, stating that such meals can sometimes lead to increased caloric intake (Snuggs & Harvey, 2023).

However, eating fresh, home-cooked food with a lower caloric and sugar load is related to a reduced risk of being overweight. As they grow older, children tend to prefer tasty, more visually appealing foods served in restaurants or fast-foods outlets, and may become reluctant to eat healthier home-cooked meals. When at school, they will often resort to more convenient alternatives, such as ordering fast-foods or buying sweets and snacks, instead of bringing a packed lunch from home.

Pressure to eat exerted on children by their parents has been shown to lead them to make unhealthy food choices, causing them to avoid eating meals at home, as found by Mahmood et al. (2021). Snacks are generally processed foods such as chips and sweets, while fruits, nuts, seeds and yogurts are chosen less often – a trend also observable in our study. Changing unhealthy eating patterns should start with parents, being the role models children will likely imitate (Mahmood et al., 2021).

The more often children share meals with family, the higher their consumption of fresh fruits, vegetables, and nuts. Dairy products were seen to follow a similar pattern, being more commonly consumed during family meals.

Bassul et al. (2021) state that people consuming meals in front of screens or snacking while watching TV show longer meal durations compared to those eating in the kitchen with no distractions. These behaviors may subsequently be associated with an increased risk of cardiovascular disease,

diabetes, and obesity (Bassul et al., 2021). It is therefore recommended that children eat their meals in the kitchen in order to potentially reduce the likelihood of developing unhealthy food preferences when older.

Unexpectedly, parents reported that only 57 children developed food preferences following exposure to advertisements, while the remaining 138 children negated any such influence.

There is currently no established optimal requirement for achieving harmonious child development other than the recommendations for protein intake in deficient states (Garcia-Iborra et al., 2023). Regarding our study, children and teenagers with older parents showed an increase in protein intake. Physiologically it is natural to expect protein intake to increase proportionally to the growth of individuals. In our study it was observed that parents, particularly mothers, who were aware of their child having a higher weight-for-age and height ratio tend to impose caloric restrictions on their child as to prevent or halt the child's weight gaining process.

Based on our results, children and adolescents consume mainly fats and carbohydrates. Higher levels of these two macronutrients were found in the highly processed foods preferred by our subjects. The findings of Papadaki et al. (2020) and Zou et al. (2023) agree with this observation. Excess body weight mainly follows increased carbohydrate and fat consumption rather than an overall increase in caloric intake. Children and teenagers are more likely to consume foods rich in simple carbohydrates, unsaturated fats and low in fiber. Higher lipid intake would not represent an issue if this lipids were of higher quality (Papadaki et al., 2020; Zou et al., 2023). Notwithstanding, preference for healthy fats is increasingly uncommon as observed in the general population.

As also shown in our study, child development, BMI, and food preferences are significantly influenced by parental traits, weighed equally with family socioeconomic resources. If the mother presents a higher BMI, the child is more likely to exhibit a higher BMI. This association is moderated by physical activity level and parental education. Nutritional intake is significantly associated with monthly income, family dietary habits, and parental education levels (Al Yazeedi et al., 2020).

Parent's chaotic lifestyle and food choices contribute to maladaptive eating habits and inappropriate behaviors in children and teenagers (Mazurkiewicz & Raczkowska., 2024; Melo et al., 2017). While both parents play a role in shaping children's behaviors, it has been observed that mothers do tend to emphasize dietary health for themselves and their family members, often imposing more restrictive practices, while fathers are more likely to favor fast food and demonstrate less regard for the quality of their diet and that of their children. (Fielding-Singh et al., 2017; Litchford et al., 2019). Similarly, in our study, mothers with higher BMIs were found to restrict sweet and processed foods in their children's diets, presumably to prevent themselves from gaining weight too.

A teenager spends on average more than two hours per day on social media, in front of a TV, tablet, or smartphone screen. It has been determined that the time spent on social media increases proportionally with age (Reid Chassiakos

et al., 2016; Lissak, 2018). Teenagers participating in this study reported having spent more time watching TV shows, series, and movies – approximately 52%, meaning 101 participants. Younger children spend on average 5 hours per week in front of a TV, tablet, or on their parents' phone (Zimmer et al., 2019). The study also showed that 38% of preschoolers spend approximately one hour per day in front of screens, mainly watching cartoons.

## Conclusions

1. Children who consume meals alongside at least one family member tend to have healthier eating habits and a higher food intake.

2. Children whose parents are of advanced age spend more time in front of screens or on social media.

3. School-aged children and preschoolers tend to prefer sweet, calorie-dense, and processed foods, at the expense of vegetables and fruits as a consequence of digital marketing exposure.

4. The longer children are in front of screens, the worse their diet becomes, as they tend to consume unhealthy snacks during that time.

## Conflict of interests

The authors declare no conflicts of interest.

## Acknowledgment

The first author's bachelor's thesis includes some of the paper's preliminary findings.

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