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Impact of screen time on early childhood eating behavior: A review

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Abstract

Background: The excessive of screen time use among early childhood has become a phenomenon. In Indonesia, early childhood that used screen time is around 68.01% for watching television, 33.44% using cellphones, and 24.96% have accessed the internet. The use of screen time among early childhood should be reduced because it can affect children to have lower nutrition that can lead to malnutrition and other metabolic disease.
Method: This research method uses literature review with a PRISMA flow chart. The reference article was conducted on databases in Google Scholar and PubMed.
Results: The impact of excessive screen time use on early childhood eating behavior can cause the unhealthy food consumption and picky eating. This behavior will affect children to have unhealthy food consumption, picky eating, and obesity.
Conclusion: The excessive screen time on early child can impact the childhood eating behavior.

Keywords: Screen time, Children, Eating Behavior, Picky Eating.

INTRODUCTION

Various studies show that the use of screen time in early childhood has reached the threshold and is considered high (1). Globally, the prevalence of screen time used in children under 2 years of age who have followed these guidelines is 24.7%, and the other 75.3% do not follow the established guidelines. In children aged 2-5 years, about 35.6% have followed the guidelines and the other 64.4% still use screen time for more than 1 hour (2). The use of screen time in early childhood which is more than 1 hour is around 54.3% in China (3), and 50.9% in Turkey (4). Screen time of more than 2 hours was about 25.9% in New Zealand (5), 63.3% in Brazil (1), and 73% in India (6). In Indonesia alone, according to Badan Pusat Statistik (2022), early childhood that has used screen time is around 68.01% for watching television, 33.44% using cellphones, and 24.96% have accessed the internet (7). WHO has set guidelines regarding the use of screen time in children aged 2-5 years of no more than 60 minutes, while screen time is not recommended in children under 2 years of age (8).

The trend of giving screen time to early childhood is keep on rising. The use of screen time in early childhood that is not in accordance with the guidelines will have an impact on various early childhood developmental problems such as the maturity of gross motor, fine, cognitive, and socioemotional skills (6,9). Screen exposure time also seen as a risk factor for sedentary behavior, cardiovascular disease and metabolic disease in adults. In children, this can lead to overweight, increased blood pressure, mental health, unhealthy dietary habits, eating disorders, and other health-related problems (10).

According to Tambalis et al. (2020), the excessive use of screen time in children shows the greater tendency of children to have unhealthy eating habits such as skipping

breakfast, high consumption of fast food, and eating sweets. These habits will decrease children's habit of consuming healthy food such as fruits and vegetables (11). Jensen et al. (2023) found that children with longer TV viewing duration have a tendency to consume more sweets and desserts (12). Screen time exposure also become the factor that influence children's behavior while eating to be more picky (13).

Food fussiness or picky eating behavior can negatively impact their diet, food quality, and consumption of diverse foods to meet their nutritional needs. This behavior adversely affects the child's health condition (14). Higher screen time in children, show correlation with increased habit of higher ultra-processed foods consumption (15). Ultra processed food consumption increases the risk of obesity in children. Screen time can affect body weight that reduced opportunities for physical activity and increased food intake, which can lead to obesity (11).

Although the phenomenon of excessive screen time use in early childhood is increasing, there is little literature that examines the negative impact of screen time, especially on early childhood eating behavior. Therefore, the purpose of this literature review is to analyze the impact of screen time use on early childhood eating behavior that can lead to various health problems such as undernutrition or obesity. The results of this review are expected to raise awareness about the negative impact of too early screen time exposure or excessive screen time on early childhood health, so that children's quality of life can be improved.

METHOD

This research method uses literature review with a PRISMA flow chart. Article searched was conducted on databases in Google Scholar and PubMed. The reference articles used in this study are significantly related to the negative impact of screen time use on early childhood eating behavior.

The article search selected based on some inclusion criteria, including articles published in the last 5 years (2020-2025), where the research subjects were children aged 0-7 years old or parents who had children of that age range, on quantitative research designs using primary or secondary data, and the manuscript was available in full text. Articles were selected focusing on quantitative research designs using primary or secondary data. Articles that were excluded were literature review articles, qualitative research, and the age of the research subjects were children over 7 years old.

We identified articles with the keywords "screen time" AND "children" OR "child" OR "childhood" AND "eating behavior" OR "food fussiness". There were 2,197 articles found through the database, PubMed (567) and Google Scholar (1,630). The collected articles were then screened based on the inclusion criteria and obtained 934 articles, PubMed (167) and Google Scholar (767). Furthermore, 772 articles were excluded because they were included in the exclusion criteria so that the remaining articles were 162, PubMed (74) and Google Scholar (88). Then based on eligibility screening, articles that did not discuss the impact of screen time on early childhood eating behavior were excluded so that the total articles to be reviewed were 10 articles, PubMed (7) and Google Scholar (3).

RESULTS

The literature search identified 2,197 studies, of which 10 met the inclusion criteria. The screening diagram created using PRISMA (Preferred Reporting Items for Systematic Review and Meta Analysis) guidelines with four stages: identification, screening, eligibility, and finally included. The literature search selection process is illustrated in figure 1. The characteristics of the articles discussing "The Impact of Screen Time Use on Early Childhood Eating Behavior" are shown in Table1.

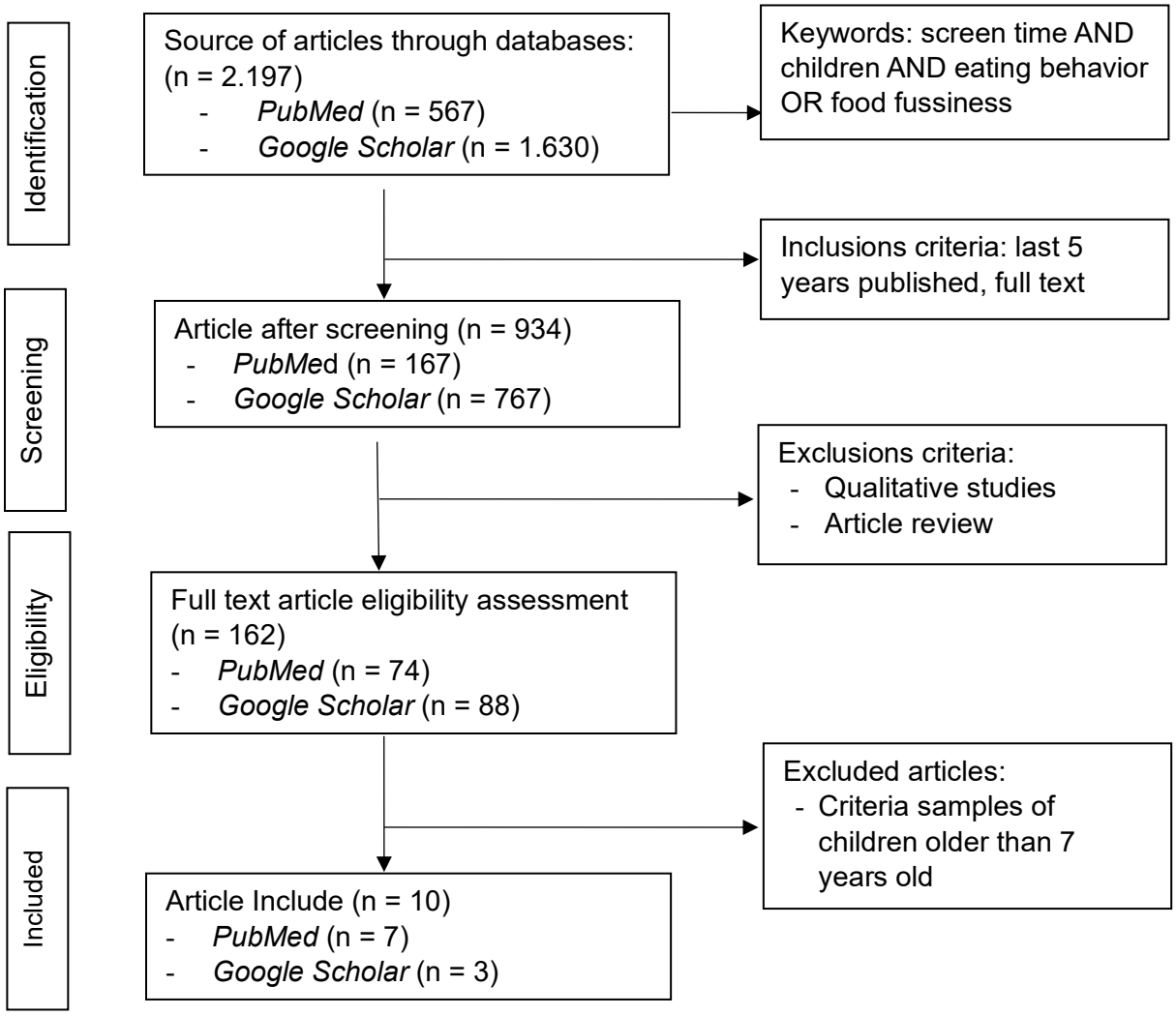

Figure 1. PRISMA Flowchart

DISCUSSION

1. Unhealthy Food Consumption

Research conducted by Gomes et al. (2024) showed that higher screen time in early childhood decreases the consumption of healthy foods and increases the consumption of high calorie foods (15). Li et al. (2022) found that higher screen time exposure show correlation to a higher sugar intake food and sugar sweetened beverage (16). It can cause a higher consumption of ultra-processed food and lower real food, including vegetable and fruits (3,17,18). Screen time habits are associated with eating while using a screen. Screen time such as television during mealtime associated with a higher frequency of daily snack intake (19). Children with longer screen time tends to have lower nutrition that indicates a less healthy diet (4).

Table 1. Impact of Screen Time on Early Childhood Eating Behavior

No	Author & Year	Title	Method	Primary Outcome
1	**Li et al. (2022)**	Consumption of Added Sugar among Chinese Toddlers and Its Association with Picky Eating and Daily Screen Time	**Design:** Cross-sectional **Sample:** 879 children	Screen time and picky eating behavior are correlated with the frequency of consumption of sugary foods / beverages in toddlers.
2	**Neshteruk et al. (2021)**	Screen Time Parenting Practices and Associations with Preschool Children's TV Viewing and Weight-Related Outcomes	**Design**: Longitudinal study **Sample**: 252 parent-child pairs	Restriction of screen time use found to be associated with lower child BMI scores and smaller waist circumference.
3	**Han et al. (2023)**	Screen time, mealtime media use, and dietary behaviors in Korean preschoolers: a cross-sectional study	**Design**: Cross-sectional **Sample:** 261 children	a. Children with screen time above 2 hours/day ate less kimchi but more snacks and sugary drinks. b. Higher screen and media use during meals were more likely to be picky eaters, refused to eat, and dependence.
4	**Gomez et al. (2024)**	Screen Exposure in 4-Year-Old Children: Association with Development, Daily Habits, and Ultra-Processed Food Consumption	**Design**: Cross-sectional **Sample:** 362 parent-child pairs	Children with higher screen time use eat more frequently in front of screen media and consume more ultra-processed foods.
5	**Huo et al. (2022)**	Screen Time and Its Association with Vegetables, Fruits, Snacks and Sugary Sweetened Beverages Intake among Chinese Preschool Children in Changsha, Hunan Province: A Cross-Sectional Study	**Design**: Cross-sectional **Sample**: 1,567 preschool children	Longer screen time is correlated with an unhealthy diet, such as lower consumption of vegetables and fruits and higher consumption of snacks and sweetened drinks.
6	**Kristo et al. (2021)**	Technological Devices and Their Effect on Preschool Children's Eating Habits in Communities of Mixed Socioeconomic Status in Istanbul; a Pilot Cross-Sectional Study	**Design**: Cross-sectional **Sample**: 104 children	a. Children who watch TV or use smartphones more often eat while using screen devices. b. The higher the screen time, the worse the child's diet, especially the increased consumption of snacks and sugary drinks.
7	**Lopez-Gil et al. (2024)**	Meeting the 24-h movement recommendations and its relationship with Mediterranean dietary patterns in early childhood: the SENDO project	**Design**: Cross-sectional **Sample**: 822 children	a. Children with a higher MedDiet consumed fruits, vegetables, and nuts more often than children who did not follow the recommendations. b. Meeting the physical activity, screen time and sleep recommendations was associated with a healthier diet.
8	**Villodres et al. (2024)**	Lifestyle Behaviours in Pre-Schoolers from Southern Spain—A Structural Equation Model According to Sex and Body Mass Index	**Design**: Cross-sectional **Sample**: 653 children	a. Eating behaviors of high-calorie foods (pro-intake behaviors) were positively associated with BMI. b. High screen time associated with poor eating habits, less sleep, and lower physical fitness.
9	**Viola et al. (2022)**	Socioeconomic Status, Screen Time, And Time Spent at School, And Children's Food Consumption	**Design**: Cross-sectional **Sample**: 403 children	a. Children with higher screen time consumed fewer fruits and vegetables and higher consumption of ultra-processed foods. b. Children from lower income families had healthier diets than children from higher income families.
10	**Delahunt et al. (2022)**	Ecological factors and childhood eating behaviours at 5 years of age: findings from the ROLO longitudinal birth cohort study	**Design**: Cross-sectional **Sample**: 306 children	a. Children of lower SES mothers had higher Desire to Drink especially sugary drinks and Slowness to Eat scores indicating eating problems. b. Higher screen time is associated with higher levels of picky eating (food fussiness).

Lopez-Gil et al. (2024), observed children and adolescents who engage in higher physical activity, have better physical fitness, and are less likely to adopt a sedentary lifestyle (20). Villodres et al. (2021) stated that reducing screen use and increasing physically activity among children will require more energy (21) which leads to an increased need for essential and non-essential nutrients. Increased physical activity will lead to a balanced and nutritious diet (20).

2. Picky Eating

Parents' behavior who facilitates early childhood screen time show correlation with the pickiness in childhood eating behavior. Picky eating or food fussiness behavior can appear in the complementary feeding phase, and in the second year of life that reflecting parental feeding practices (22). Han et al. (2024) shows that excessive screen time in early childhood will build a behavior of having screen time while eating (17). This research is in line with Rocka et al (2022) that also found the vast majority of children having meals while using electronic devices (23). Delahunt et al. (2022) shows that screen time exposure has a positive relationship with children's eating behavior in terms of 'Food Fussiness' (13).

Food fussiness can affect a child's food intake. Li et al. (2022) shows that picky eating behavior and daily screen time increase the frequency of children's consumption of added sugars such as sugary foods and sugar-sweetened beverages (16). Children with picky eating behavior exhibit limited food selection and a limited variety of foods, which can increase the risk of malnutrition (14). Children with picky eating behavior who only consumed high energy and fat foods without balanced vegetables and fruits consumption can cause overweight. This explains how children with picky eating beside having underweight also can have an overweight or obese nutritional status (24).

Picky eaters whose behaviors persist in childhood will be at risk of becoming underweight in adolescence and may present later as eating disorders or as adult's picky eaters (22). Prolonged picky eating behavior should be prevented to avoid picky eating behavior in adulthood. Parents who are picky eaters also increase the risk of children to be picky eaters (25).

3. Obesity

Children's habit in consuming ultra-processed foods should be concerned to reduce the incidence of obesity in early childhood (21,26,27). According to Neshteruk et al. (2021), the average amount of ultra-processed food consumption in children aged 3 and 4 years was associated with BMI scores (27). Kristo et al. (2021) found that although the children in the study were in normal weight, the use of screen time will increase the risk of obesity and other health problems in children if continued for long period of time (4).

Some studies show that the dominant foods consumed during screen exposure are foods with high calories (3,15–18). Increased UPF consumption due to high screen time use will lead to more disturbances and imbalances in the hormonal regulation of hunger and satiety. Excessive screen time use also contributes to a sedentary lifestyle, which increases the risk of childhood obesity (15).

Negative families' attitude towards screen use may prevent obesity and other metabolic diseases which are considered as social and public health problems (28). Parents, teachers and the environment play an important role in shaping the dietary habits of early childhood. Food preferences in childhood will determine whether it's a positive or negative eating

behavior in adulthood (29). It is important to remember that lifelong habits are shaped during childhood, including eating behaviors (15).

CONCLUSIONS

The excessive screen time use among early childhood can cause the unhealthy food consumption and picky eating. This behavior will increase the risk of obesity in early childhood. Screen time exposure show positive correlation with childhood eating behavior. Higher screen time exposure among children will build a habit of having screen time during meals. This behavior will increase the child to have unhealthy food consumption such as ultra-processed food. Higher screen time also increase the risk of children become picky eater. Higher ultra-processed food and lower nutrition food can lead to malnutrition or obesity. The intervention to reduce screen time exposure among early childhood is needed to improve children's quality of life.

REFERENCE

1. Nobre JNP, Santos JN, Santos LR, Guedes S da C, Pereira L, Costa JM, et al. Determining factors in children's screen time in early childhood. Cienc e Saude Coletiva. 2021;26(3):1127–36.
2. McArthur BA, Volkova V, Tomopoulos S, Madigan S. Global Prevalence of Meeting Screen Time Guidelines among Children 5 Years and Younger: A Systematic Review and Meta-analysis. JAMA Pediatr. 2022;176(4):373–83.
3. Huo J, Kuang X, Xi Y, Xiang C, Yong C, Liang J, et al. Screen Time and Its Association with Vegetables, Fruits, Snacks and Sugary Sweetened Beverages Intake among Chinese Preschool Children in Changsha, Hunan Province: A Cross-Sectional Study. Nutrients. 2022;14(19).
4. Kristo AS, Çinar N, Kucuknil SL, Sikalidis AK. Technological devices and their effect on preschool children's eating habits in communities of mixed socioeconomic status in istanbul; a pilot cross-sectional study. Behav Sci (Basel). 2021;11(11).
5. Corkin MT, Peterson ER, Henderson AME, Bird AL, Waldie KE, Reese E, et al. The Predictors of Screen Time at Two Years in a Large Nationally Diverse Cohort. J Child Fam Stud [Internet]. 2021;30(8):2076–96.
6. Varadarajan S, Venguidesvarane, Akila Govindarajan Ramaswamy KN, Rajamohan M, Krupa M, Christadoss SBW. Prevalence of excessive screen time and its association with developmental delay in children aged <5 years: A population-based cross-sectional study in India. PLoS One [Internet]. 2021;16(7 July):1–13.
7. BPS. Profil Anak Usia Dini 2022. 2022;83.
8. World Health Organization. Excessive screen use and gaming considerations during #COVID19. World Heal Organ. 2021;1.
9. Kerai S, Almas A, Guhn M, Forer B, Oberle E. Screen time and developmental health: results from an early childhood study in Canada. BMC Public Health [Internet]. 2022;22(1):1–9.
10. Priftis N, Panagiotakos D. Screen Time and Its Health Consequences in Children and Adolescents. Children. 2023;10(10):1–17.
11. Tambalis KD, Panagiotakos DB, Psarra G, Sidossis LS. Screen time and its effect on dietary habits and lifestyle among schoolchildren. Cent Eur J Public Health [Internet]. 2020;28(4):260–6.
12. Jensen ML, Dillman Carpentier FR, Corvalán C, Popkin BM, Evenson KR, Adair L, et al. Television viewing and using screens while eating: Associations with dietary intake in children and adolescents. Appetite. 2022;168:1–25.
13. Delahunt A, Conway MC, O'Brien EC, Geraghty AA, O'Keeffe LM, O'Reilly SL, et al. Ecological factors and childhood eating behaviours at 5 years of age: findings from the ROLO

longitudinal birth cohort study. BMC Pediatr [Internet]. 2022;22(1):1–13.
14. Ahmad Nazri N, Jaafar NH, Zakaria S, Mohd Abu Bakar WA, Azahari N, Izhar Hisham S, et al. Childhood Picky Eating Behaviour and Its Impact on the Growth of Young Children: a Scoping Review. Int J Allied Heal Sci. 2024;8(1):2953–61.
15. Gomes GMD, Souza RCV, Santos TN, Santos LC. Screen Exposure in 4-Year-Old Children: Association with Development, Daily Habits, and Ultra-Processed Food Consumption. Int J Environ Res Public Health. 2024;21(11).
16. Li P, Ren Z, Zhang J, Zhao A, Zhang Y, Lan H, et al. Consumption of Added Sugar among Chinese Toddlers and Its Association with Picky Eating and Daily Screen Time. Nutrients. 2022;14(9):1–12.
17. Han YH, Shin S, Woo EY, Park HK, Hyun T. Screen time, mealtime media use, and dietary behaviors in Korean preschoolers: a cross-sectional study. Korean J Community Nutr. 2023;28(3):206–19.
18. Viola PC de AF, Ribeiro SAV, de Carvalho RRS, Andreoli CS, de Novaes JF, Priore SE, et al. Socioeconomic status, screen time, and time spent at school, and children's food consumption. Cienc e Saude Coletiva. 2023;28(1):257–67.
19. Litterbach EK, Zheng M, Campbell KJ, Laws R, Spence AC. Mealtime TV Use Is Associated with Higher Discretionary Food Intakes in Young Australian Children: A Two-Year Prospective Study. Nutrients. 2022;14(13).
20. López-Gil JF, Fabios E, Martín-Calvo N. Meeting the 24-h movement recommendations and its relationship with Mediterranean dietary patterns in early childhood: the SENDO project. Eur J Pediatr [Internet]. 2024;183(5):2365–73.
21. Villodres GC, Padial-Ruz R, Salas-Montoro JA, Muros JJ. Lifestyle Behaviours in Pre-Schoolers from Southern Spain—A Structural Equation Model According to Sex and Body Mass Index. Nutr . 2024;16(21).
22. Taylor CM, Emmett PM. Picky eating in children: Causes and consequences. Proc Nutr Soc. 2019;78(2):161–9.
23. Rocka A, Jasielska F, Madras D, Krawiec P, Pac-Kożuchowska E. The Impact of Digital Screen Time on Dietary Habits and Physical Activity in Children and Adolescents. Nutrients. 2022;14(14):1–13.
24. Antoniou EE, Roefs A, Kremers SPJ, Jansen A, Gubbels JS, Sleddens EFC, et al. Picky eating and child weight status development: A longitudinal study. J Hum Nutr Diet. 2016;29(3):298–307.
25. Yalcin S, Oflu A, Akturfan M, Yalcin SS. Characteristics of picky eater children in Turkey: a cross-sectional study. BMC Pediatr. 2022;22(1):1–13.
26. Heerman WJ, Sneed NM, Sommer EC, Truesdale KP, Matheson D, Noerper TE, et al. at Risk for Obesity from Low-Income Households. 2024;18(8):1–14.
27. Neshteruk CD, Tripicchio GL, Lobaugh S, Vaughn AE, Luecking CT, Mazzucca S, et al. Screen time parenting practices and associations with preschool children's tv viewing and weight-related outcomes. Int J Environ Res Public Health. 2021;18(14).
28. Masztalerz-Kozubek D, Zielinska-Pukos MA, Hamulka J. Early Feeding Factors and Eating Behaviors among Children Aged 1–3: A Cross-Sectional Study. Nutrients. 2022;14(11).
29. Haschke F, Binder C, Huber-Dangl M, Haiden N. Early-Life Nutrition, Growth Trajectories, and Long-Term Outcome. Nestle Nutr Inst Workshop Ser. 2019;90:107–20.