

Social media and screen time and the relationship with childhood obesity

Mídias sociais e tempo de tela e a relação com a obesidade infantil

Las redes sociales y el tiempo frente a la pantalla y la relación con la obesidad infantil

RESUMO

Objetivo: mapear estudos recentes que apontam evidências científicas no contexto das mídias sociais e ao tempo de tela como fatores de risco para a obesidade infantil. Métodos: Caracteriza-se como uma Scoping Review, baseada no protocolo proposto pelo Joanna Briggs Institute e organizada pelo Preferred Reporting Items for Systematic Review and Meta-Analyses extension for Scoping Reviews. Resultados: Foram identificados 211 artigos. Após o processo de seleção por título, resumo, disponibilidade na íntegra, restaram 21 estudos, que foram analisados de forma criteriosa. Foram excluídos 9 artigos após a leitura na íntegra por indissociabilidade com o tema abordado, totalizando 12 artigos incluídos. Conclusões: Conclui-se que o tempo de tela e as mídias sociais, quando usadas excessivamente, apresentam resultados negativos para a saúde infantil, bem como atraso no desenvolvimento e comportamento, inatividade física ou tempo menor de atividades que estão ligadas à parte motora, sobrepeso, obesidade, sono irregular, dentre outros.

DESCRITORES: Tempo de Tela; Obesidade Infantil; Mídias Sociais.

ABSTRACT

Objective: To map recent studies that point to scientific evidence in the context of social media and screen time as risk factors for childhood obesity. Methods: This is a Scoping Review, based on the protocol proposed by the Joanna Briggs Institute and organized by the Preferred Reporting Items for Systematic Review and Meta-Analyses extension for Scoping Reviews. Results: 211 articles were identified. After selection by title, abstract and availability in full, 21 studies remained, which were analyzed carefully. After reading the full text, 9 articles were excluded due to their inseparability from the topic, making a total of 12 articles included. Conclusions: It can be concluded that screen time and social media, when used excessively, have negative results for children's health, such as delays in development and behavior, physical inactivity or less time spent on activities linked to motor skills, overweight, obesity, irregular sleep, among others.

DESCRIPTORS: Screen Time; Childhood Obesity; Social Media.

RESUMEN

Objetivo: Mapear los estudios recientes que apuntan a la evidencia científica en el contexto de los medios sociales y el tiempo frente a la pantalla como factores de riesgo para la obesidad infantil. Métodos: Se trata de una Scoping Review, basada en el protocolo propuesto por el Instituto Joanna Briggs y organizada por la extensión Preferred Reporting Items for Systematic Review and Meta-Analyses for Scoping Reviews. Resultados: Se identificaron 211 artículos. Tras la selección por título, resumen y disponibilidad en su totalidad, quedaron 21 estudios, que se analizaron detenidamente. Tras la lectura del texto completo, se excluyeron 9 artículos por ser inseparables del tema tratado, totalizando 12 artículos incluidos. Conclusiones: Se puede concluir que el tiempo de pantalla y los medios sociales, cuando son utilizados en exceso, tienen efectos negativos en la salud de los niños, como retrasos en el desarrollo y en el comportamiento, inactividad física o menor tiempo dedicado a actividades motoras, sobrepeso, obesidad, sueño irregular, entre otros.

PALABRAS CLAVE: Tiempo de Pantalla; Obesidad Infantil; Medios Sociales.

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INTRODUCTION

Obesity can be considered a disease, and it is a health risk factor for all age groups, with an increase among school-age children. In recent decades, its prevalence has increased, especially in developed countries, and among children and adolescents this indicator has quadrupled in the last 30 years. 1

According to the Ministry of Health 2, It is estimated that 6.4 million children are overweight in Brazil and 3.1 million have already developed obesity. The disease affects 13.2% of children between the ages of 5 and 9 who are monitored by the Unified Health System (SUS) and the consequences ex-

tend throughout their lives.

In view of this reality, obesity has been the target of government interventions in Brazil, since the first National Food and Nutrition Policy in 1999, when it emerged as a public health problem, due to advances in its prevalence. 3

The increase in disease rates is related to health determinants, such as socioeconomic, biological, environmental, psychosocial and cultural factors. However, the predominant risk factor is the environment, where processed and ultra-processed foods are often available, favoring excessive consumption when compared to the supply of natural foods. The environment can also discourage the practice of physical

activities. 4

It is clear that eating behavior begins in childhood, in the first months of life. Caregivers should encourage children to eat in moderation, leading them to associate the beginning of a meal with the feeling of hunger and the end of a meal with the feeling of fullness. In conjunction with the guidelines, it is possible to base educational practices based on the child's regional and cultural knowledge, communicating that correct attitudes should be praised and incorrect ones should be corrected. 5

Still on the subject of risk factors that can interfere with children's eating and physical behavior, it is important to mention the new profile of occupational activities that they have, which

is the use of technological equipment, such as smartphones, computers, tablets, television and others. Children spend a significant part of their time playing sedentary games and accessing social networks, increasing the time spent using screens. 1

The current family reality is that most families do not have enough time to monitor their children and their use of media resources outside of the school environment. Social media has started to fill children's time and has become their favorite companion, acting as a socializing role and interfering in social and health issues, including eating habits and physical activities.

In addition to all the risk factors presented, it is clear that the food industry finds room to attract more users through television and social media advertisements. The fact is that the issue of food advertising for children presents a delicate scenario, since children are characterized by civil law as underprivileged and children are the most frequent viewers of such advertisements. The problem contributes to the worsening of issues such as childhood obesity and less playtime, followed by developmental delays. 6

According to Rodrigues 8, between 2017 and 2020, the average number of children who had the habit of eating meals while watching television was over 60% in Brazil, and in the Northeast, in 2020, it was 64%. This information highlights the need to strengthen discussions in health services and edu-

cational spaces about regulating screen time and social media use for children and its relationship with obesity. Given the above, the question is: what scientific evidence is available to determine the adoption of child health care strategies, considering the context of social media and screen time as a risk factor for childhood obesity?

In this sense, this study is justified by the need to identify research that addresses the issue of the use of media resources – through social networks, electronic games and screen time – related to childhood obesity. Therefore, the aim is to map recent studies that point to scientific evidence in the context of social media and screen time as a risk factor for childhood obesity.

METHOD

This study is characterized as a Scoping Review, based on the recommendations proposed by the Joanna Briggs Institute and organized by the Preferred Reporting Items for Systematic Review and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR).

The research question-problem was constructed using the PCC strategy, which recommends, as essential components, the mnemonic: P- Population, C- Concept, C- Context. The following elements were defined: P (Children); C (Risk Factors for Obesity); C (Social Media and Screen Time). Based on this, the following question was formulated: what scientific evidence is available to determine the adoption of

child health care strategies, considering the context of social media and screen time as a risk factor for childhood obesity?

After formulating this question, we moved on to the stage of identifying relevant studies in the Medical Literature Analysis and Retrieval System Online (MEDLINE) and Cumulative Index to Nursing and Allied (CINAHL) databases. The search was also carried out in the Virtual Health Library (BVS), Scientific Electronic Library Online (SCIELO) and CAPES Periodical Portal.

The search strategy included three stages: in the first, the search was limited to Health Descriptors (DeCS), Medical Subject Headings (MeSH) and Cumulative Index to Nursing and Allied (CINAHL), followed by an analysis of the most frequent words about the central theme. In the second stage, searches were carried out in all databases using the keywords identified in the previous stage, developing search strategies with descriptors and Boolean operators.

In the third stage, the inclusion criteria were defined: full articles, with the participation of children; research whose central theme addressed childhood obesity, social media and screen time, in English, Spanish and Portuguese, published between 2017 and 2022. Publications that did not answer the research question and duplicate articles were excluded. With the organization of the sample selection criteria, the result was Table 1.

Table 1 – Search strategy in databases and journal portals. Brazil, 2022

DATABASES/ JOURNAL PORTAL	SEARCH STRATEGY	SAMPLE
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VHL	(obesidade pediátrica) AND (manejo da obesidade) AND (fatores de risco) AND (saúde da criança) AND (tempo de tela) OR (mídias sociais) AND (fulltext:("1" OR "1") AND mj: ("Obesidade Pediátrica" OR "Comportamento de Redução do Risco" OR "Comportamento Infantil") AND la:("en" OR "es" OR "pt")) AND (year_cluster:[2017 TO 2022])	100 results
Pubmed/ Medline	(((Pediatic Obesity) AND (Obesity Management)) AND (Risk Factors)) AND (social media) OR (screen time)) AND (Child Health) Filtros: 2017 - 2022; Inglês; Português; Espanhol; Texto completo gratuito; livros, documentos, metanálise, revisão sistemática.	22 results
Scielo	((obesidade infantil) AND (mídias sociais) OR (tempo de tela)) AND (saúde da criança) Filtros: 2017 - 2022; Inglês; Português; Espanhol; Texto completo.	23 results
CINAHL	(pediatric obesity prevention) AND (risk factors) AND (FM T)) OR ((social media children) AND (FM T)) OR ((screen time and children) AND (FM T)) AND ((obesity management) AND (FM T)) Filtros: 2017 - 2022; Inglês; Português; Espanhol; Texto completo com tradução; Texto completo em PDF; Idade = todas as crianças.	12 results
Capes Portal	((obesidade pediátrica) AND (fatores de risco) AND (mídias sociais) OR (tempo de tela) Filtros: 2017 - 2022; Inglês; Português; Espanhol; Acesso aberto; crianças, fatores de risco.	54 results

Source: Medical Literature Analysis and Retrieval System Online (MEDLINE), Virtual Health Library (VHL), Scientific Electronic Library Online (SCIELO), Cumulative Index to Nursing and Allied (CINAHL) and the CAPES Journal Portal, (2022).

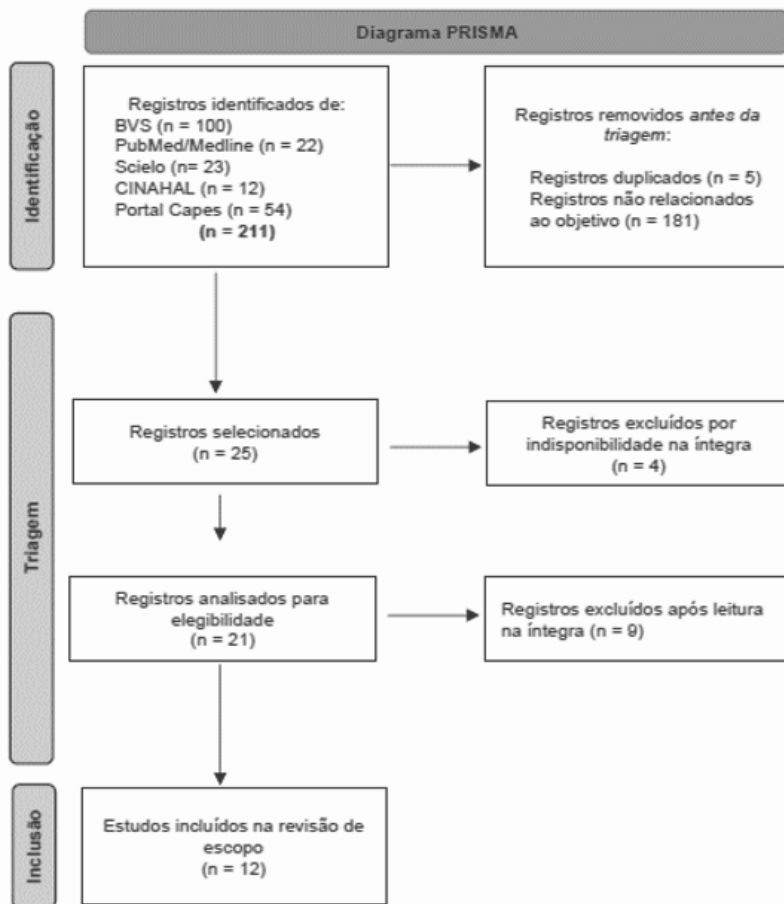
To systematize the review of articles and literature, this stage was undertaken independently by two reviewers. The articles resulting from the selection stage were entered into the Rayyan Web application (Ouzzani et al., 2016) and were evaluated using a double-blind function. After completing the evaluation of the titles and abstracts, according to the review question, the evaluation was opened to discuss the selection of each reviewer. There were no disagreements between the reviewers.

Data regarding recommendations on screen use in childhood as a means of preventing or addressing childhood obesity were extracted and formatted into a textual corpus that was processed using the software Interface de R pour les Analyses Multidimensionnelles de Textes et le Questionnaires (IRaMuTeQ). The presentation of the results was constructed by identifying information related to the descriptive variables and will be presented in the results section.

RESULTS

According to the presentation in figure 1, 12 (twelve) articles were selected.

Figura 1 - PRISMA diagram of studies included in the scoping review.



Source: Medical Literature Analysis and Retrieval System Online (MEDLINE), Virtual Health Library (VHL), Scientific Electronic Library Online (SCIELO), Cumulative Index to Nursing and Allied (CINAHL) and the CAPES Journal Portal, (2022).

During the research carried out in the aforementioned databases, 211 (two hundred and eleven) articles were identified, of which, after the selection process by title and abstract, 25 (twenty-five) studies remained. After applying the filters, as shown in Figure 1, 4 (four) articles were excluded because they were not available in full. The 21 (twenty-one) studies resulting from the selection were carefully analyzed, but 9 (nine) articles were excluded after reading them in full because they were inseparable from the topic addressed, totaling 12 (twelve) articles included for the construction of

the scoping review.

Among the findings, it is observed that the majority of studies were carried out in Australia (33.3%), corresponding to 4 (four) studies. Brazil and the United States represented 16.7% of the sample with two studies carried out in each country; and Portugal, China, Canada and Denmark produced 1 (one) article in each country.

In the methodological design, there was a predominance of systematic reviews with 83.3% (10). Among the selected articles, one randomized clinical trial and one descriptive methodological study were identi-

fied. The population and sample of the studies of 10 (83.3%) articles were composed of children and adolescents. One of the studies was conducted with parents and one with educational technology professionals.

The main results identified in the review reported on the negative influences of mobile devices on cognitive development, healthy eating, rest and sleep. The studies discussed and agreed on using interventions to limit the use of devices and reduce the child's exposure to mobile screens.

The recommendations identified from IRaMuTeQ emphasize keywords related to the use of media devices, such as screens, the need for assessment of children's health and behavior, studies and research on the subject, and the impact of interventions on children's health. Next, see Figure 2:

Figure 2 - Recommendations on screen use in childhood in word cloud.



Source: Survey data (2022)

Based on the selected studies, social media and screen time have shown that, when used for an unlimited period of time, they can compromise a child's health in several ways, such as cognitive, nutritional and physical changes. 9 The research analyzed showed that excessive use and exposure have consequences that can interfere with children's behavior and development.

However, there are already interventions that can be applied to ensure a healthy coexistence between screens, media and children, actively mediated by parents and guided by health professionals.

From this scoping review, studies have identified that, specifically, the American Academy of Pediatrics recommends universal assessment of obesity risk for all children through BMI screening, encouraging them to eat the recommended amounts of fruits and vegetables, limiting the consumption of sugar-sweetened beverages, limiting screen time to less than 2 (two) hours per day, and promoting exercise, which, according to the World Health Organization (WHO), should be at least 180 minutes of weekly activity for children aged 1 to 4 years. 10

For the same reason, the preliminary evidence presented here shows a negative association between sedentary behavior and screen time for children and adolescents. Therefore, from the perspective of children's physical health and cognitive development, families, schools, and policymakers should consider using interventions to reduce and limit screen-based sedentary behavior in childhood. 11

The epidemiological and nutritional situation of the population studied is explained, in most cases, by changes in dietary patterns, resulting in increasingly common obesogenic diets. Added to this is the reduction in physical activity and the increase in sedentary activities, such as watching television. 12

Regarding sedentary behavior, this has been taking hold in children's lives from an early age. One of these factors is previous exposure to screens, which has increasingly altered their eating patterns due to excessive consumption of ultra-processed products, in addition to physical inactivity, which is related to these factors. This context triggers consequences throughout life, leading to unfavorable results, such as chronic diseases.

From this perspective, the prevalence of excessive screen time – used by children in early childhood – is high, as shown in the study by Rocha and Nunes 9, demonstra-

ting the urgency of interventions in family habits regarding the use of screens, with the aim of a healthy coexistence with technology. Parents are facilitating their children's access to smartphones, tablets, etc., in order to keep them occupied. It was found that children who have free access to screens had a higher BMI. 13

Thus, sedentary behavior is based on the frequency of time children spend in front of screens. According to Poitras et al. 14, sedentary behaviors related to total screen time were notably unfavorable and suggest potential harm to children's health in the first years of life. Health indicators provide information on the ideal duration for each age group, seeking to prevent and reduce diseases.

The study by Shqair et al. 15 presented data on children's screen time and eating patterns. The results showed that higher rates of TV viewing and/or screen time were associated with higher intake of cariogenic foods, such as high-energy snacks and sugary drinks, showing that screen time or the use of technological resources affect the oral health of this population, which is another cause for concern for health professionals and families.

According to Jones et al. 16, as children grow older, screen time guidelines are adjusted to recommend no more than 2 (two) hours per day of recreational screen time for children and adolescents (ages 5–17). Independent of physical activity and sedentary behavior, excessive screen time (2 hours per day) is associated with childhood overweight and obesity. Excess screen time is also associated with unfavorable obesogenic behaviors, such as physical inactivity, increased sedentary time, unfavorable eating behaviors, and disrupted sleep.

Furthermore, technology is constantly evolving and this is seen in the daily lives of the population, where more and more children and adolescents have focused their attention on virtual games, YouTube, television and social networks in general. According to Lund et al. 17, the use of media by children aged six to twelve results in short sleep duration and nighttime awakenings, causing several problems in the child's le-

arning and, consequently, in other areas of their health.

It has been noted that the rate of publications on the impacts of screen time on children's health has increased between 2009 and 2019, due to the need to advance studies on the subject to seek possible harm caused by excessive exposure to electronic devices. Although electronic devices can offer benefits, their excessive use has shown that children's exposure to screens should be monitored and measured so that future studies can better identify harms and benefits between the use and excess of this time. 18

Among the articles considered in this study, interventions that could be applied to reduce screen time and sedentary behavior in children were analyzed, such as including daily goals, self-monitoring, and social support. The effectiveness of the interventions observed was consistent, and it was noted that smaller, short-term studies obtained significant results. Goal setting, family social support, and self-monitoring were effective in reducing screen time. 16

Family support and participation have been shown to be effective in reducing screen time and changing children's inactive behavior through daily interventions such as measuring screen time, encouraging physical activities accompanied by parents, and setting daily goals. These actions can bring effective changes in habits for the family, since they eliminate unhealthy habits and highlight the importance of parental involvement in this process.

Family changes are essential, since in childhood, the individual, being dependent, has limited autonomy and possibilities of choice; thus, life habits are shaped under the influence of their parents or caregivers. A study carried out with children aged 24 to 42 months and 15 days, enrolled in daycare centers, states that parents who are aware of the magnitude of the problem, that is, the damage that excessive screen use causes to their child, tend to limit this type of activity, which is a very important decision for the child's health. 19

In the study by Ekambareshwar et al. 20, the results obtained showed that there were

improvements in behaviors related to childhood obesity when there was a reduction in the consumption of industrialized beverages, an increase in the duration of outdoor activities, a decrease in TV/screen time and an increase in sleep duration.

The negative results related to sedentary behaviors in early childhood suggest targeted interventions led by parents. Strategies to reduce sedentary time are needed, focusing on reducing screen time, providing guidance on family physical activities, educational activities in the school environment, parental involvement in creating healthy snacks, interactivity and the development of new skills. 21

Consolidating the recommendations, it is essential that health professionals know about the importance of limiting children's screen time, so that they can provide quality care and keep parents informed. 15

In short, the health professional has the role of educating and mediating parental participation in health education, providing guidance on the harm and risks of exposing children to screens at an early age; paying attention to changes in behavior and development, through child care consultations and always talking about interventions that can be applied in the daily lives of parents with children to control this exposure.

CONCLUSION

The results of this study show that screen time and social media, when used outside of the appropriate context, have a negative impact on children's health, as well as causing delays in development and behavior, generating physical inactivity or less time for activities related to motor skills, as

well as overweight, obesity, irregular sleep, among others.

The limitation found in this review study was the small number of studies focusing on the main topic addressed. Most of the articles discussed the factor of screen time in child development, associating it with other factors as a key element of the discussion.

In addition, it was observed that the field of study is little discussed by national researchers, reflecting a large gap to be filled with future research. Therefore, it is suggested that these studies seek to address – as the main topic – overweight and obesity related to screen time and social media and the effects both have on children's health in more depth.

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