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RESEARCH ARTICLE

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PROTECTIVE FACTORS FOR OBESITY IN ADOLESCENCE: A REVIEW SYSTEMATIC

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ABSTRACT

Objective: To identify and analyze the scientific literature on the evidence on protective factors for obesity in adolescents. **Method:** Systematic literature review based on the PECO strategy and PRISMA. A search was carried out in the following databases: Virtual Library on Adolescent Health; Cumulative Index to Nursing and Allied Health Literature; Latin American and Caribbean Literature in Health Sciences; National Library of Medicine and National Institutes of Health; Scopus and Web of Science. **Results:** 3459 studies were identified, of which five were included. Protective factors for obesity found include reduced screen time, behavioral changes with healthy eating practices, meal planning and activity, physical, having high self-esteem, adequate sleep quality and having been breastfed. **Conclusion:** The study reinforces the importance of actions and policies aimed at adolescent health, focusing on a healthy lifestyle and food education.

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INTRODUCTION

Obesity in adolescents is a global public health problem with increasing prevalence. Worldwide, more than 340 million children and adolescents aged five to 19 years were overweight or obese in 2016, despite being a preventable condition (<http://www.qualityindicators.ahrq.gov>). Adolescence is an age group that increases the problem of obesity. As it is a period of biopsychosocial transformations, there is greater vulnerability to the adoption of risky health behaviors, such as increased consumption of ultra-processed foods, physical inactivity, excessive use of screens, following the group's pattern and favoring the occurrence of obesity and of other chronic diseases (Baldoni, 2019; Chequer, 2020). Adolescents who are overweight or obese are at greater risk of developing serious health problems such as diabetes, heart, liver, respiratory and psychological diseases. In the short term, this scenario represents high treatment costs for the health system, and in the medium and long term, it is related to the decrease in economic productivity of this generation of future adults with overweight, obesity and associated diseases⁴. Relevant investigations and literature reviews have been carried out about obesity in adolescence, especially with regard to

prevalence and treatment⁵⁻⁷. However, with regard to protective factors for obesity in adolescents, it is not known by the authors of the existence of systematic reviews on the topic. The aim of this present study was to investigate and analyze the scientific literature on the evidence on protective factors for obesity in adolescents.

MATERIALS AND METHODS

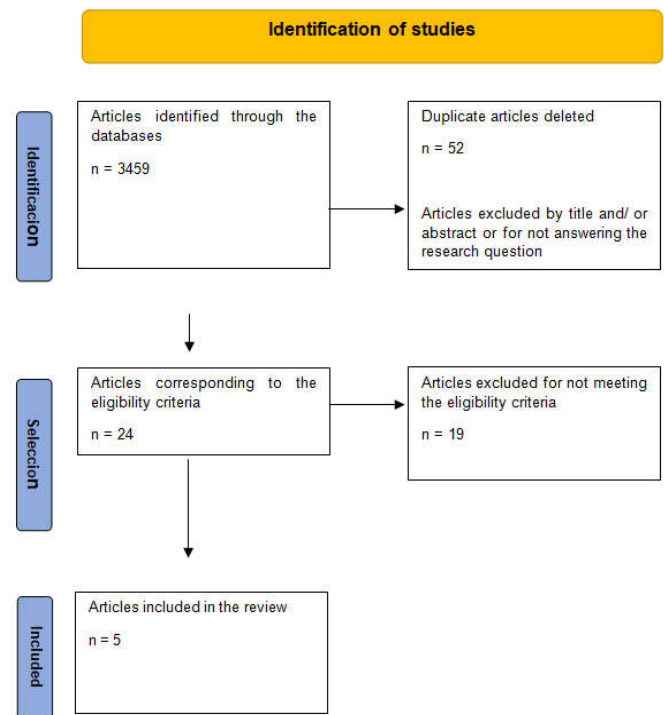
This is a systematic review of the literature, composed of studies with observational design and the methodological procedures followed the recommendations of the Protocol Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Page, 2021; Galvão, 2012). The research question was designed according to the acronym PECO (Ministério da Saúde, 2014), where P (population of interest) = adolescents; E (exposure) = protective factors; C (comparator) = obesity; it's the (outcome) = ideal body weight (Chart 1). A search of the Cochrane Library on the issue found no systematic reviews that answer this research question. The inclusion criteria defined were: articles with observational studies, being of the cohort, cross-sectional, longitudinal and case-control type, which addressed a sample aged between 10 and 19 years; published in full, in English,

Portuguese and Spanish, without a chronological cut and that dealt with protective factors for obesity in adolescents. Editorial-type documents, letters, author opinions, and qualitative studies were excluded. Search was performed in the electronic databases: Virtual Library in Adolescent Health (ADOLEC); Nursing Database (BDENF); Cumulative Index to Nursing and Allied Health Literature (CINAHL); Latin American and Caribbean Literature in Health Sciences (LILACS); National Library of Medicine and National Institutes of Health (Medline/PubMed); Scopus and Web of Science (WoS). To search for studies in electronic databases, descriptors were selected that are part of the list of Health Sciences Descriptors (DeCs) - Adolescent; Protection factors; Obesity; Ideal body weight - and from Medical Subject Headings (MeSH) - Adolescent; protective factors; Obesity; Ideal bodyweight. THE general strategy adopted was the search for studies using the Boolean operators “and” and “or”, with “and” between the MeSH terms and “or” between the terms and the search strategies were adapted according to each database (Supplementary Material). After searching for the studies, the results were exported to the Rayyan Software, in order to be evaluated, in a double-blind format, by reading their title and abstracts, in addition to verifying their eligibility, through which two researchers, ARGO and MVR independently selected the articles. The inconsistencies were resolved in plenary, with the participation of the third and fourth researchers, AA and MCCR.

Furthermore, duplicate studies were excluded: The selected studies underwent a quality analysis performed by two evaluators using the Downs and Black method,⁵ where the studies received analyzes that aim to identify the methodological quality by evaluating the internal validity, external validity and statistical power of the study. The methodological quality of the works that presented an evaluation corresponding to 70% (16 points) or more of score considering 22 of the 27 items, since five questions applied to experimental studies, which were not included in the present review.⁵ This evaluation was performed by two researchers independent (LAM and MVR). The differences were discussed in plenary with the participation of three more researchers (AA, MCCR and ARGO). Journals whose articles were published were analyzed and classified according to the impact factor obtained from the Journal Citation Reports (JCR). To classify the level of evidence of the articles, the Agency for Health care Research and Quality (AHRQ) categorization was used, and cohort, case-control and quasi-experimental studies, such as non-randomized studies, are classified as level 3. For the stage of extracting the data relevant to the question of the study and summarizing these, a spreadsheet was prepared in Microsoft Excel 2019 with the following data: title; authors; year of publication; population (n sample); objective; place; kind of study; outcomes (protective factors); and reason for study inclusion/exclusion. Descriptive statistics were used for data analysis, through absolute and relative frequency calculations.

RESULTS

The search for descriptors, according to the aforementioned combinations, resulted in the initial identification of 3,459 articles. In the selection, twenty-eight duplicate articles were removed. After reading the titles and abstracts, 3,407 papers were excluded and, after reading the titles and abstracts, 24 eligible articles remained. A thorough and complete reading of 24 eligible articles was performed, of which 19 were excluded for not answering the research question. Thus, the sample of this study consisted of five publications (Figure 1). This systematic review allowed us to identify the following protective factors for obesity in adolescence: reduced screen time,¹⁶ behavioral changes (healthy eating practices, meal planning, physical activity) and having high self-esteem, better sleep quality¹⁰ and having been breastfed (Mardani, 2020; Ministério da Saúde, 2014; Mourad Ouzzani, 2016; Narla, 2019; Oellingrath, 2017; Page, 2021; Rocha, 2017; Rodrigues, 2020; Rousseaux, 2014) (Table 2).



Source: Prepared by the authors, 2021

Figure 1. Study flowchart: identification, selection, eligibility and inclusion of studies in the systematic review, according to the PRISMA guideline

DISCUSSION

This investigation showed that reduced screen time, high self-esteem, having prepared meals at home, breastfeeding history and good sleep quality constitute, in the studied literature, protective factors for obesity in adolescents. In fact, the reduction of screen time with the implementation of physical activity can contribute to the general well-being of adolescents and, with that, to the improvement of global health.¹⁶ The practice of physical activity in adolescence is related to a series of factors. Positive factors in health, such as the treatment of mobility, control of blood pressure and obesity; as well as the prevention of chronic diseases; adherence to active behavior in adulthood, psychological benefits, including increased self-esteem, and ultimately, reduced anxiety and stress (Lisboa, 2018; Ludy, 2018; Mahan, 2018; Mardani, 2020; Ministério da Saúde, 2014; Mourad Ouzzani, 2016; Narla, 2019; Oellingrath, 2017; Page, 2020; Pelegrini Andreia, 2021; Rocha, 2017; Rodrigues, 2020; Rousseaux, 2014; Silva, 2018).

Another relevant result of this review is the importance of having meals prepared at home for the prevention of obesity. Family meals are a great opportunity for healthier eating, with more natural preparations, bringing parents and children together.¹⁵ Sharing meal preparation with parents influences the development of nutritional preferences.²³⁻³ Additionally, the association between the habit of having meals with the family and the lower occurrence of eating disorders, alcohol and drug use, depressive symptoms and risk factors for suicide among adolescents (Mahan, 2018; Mardani, 2020; Ministério da Saúde, 2014; Mourad Ouzzani, 2016; Narla, 2019; Oellingrath, 2017; Page, 2021; Pelegrini Andreia, 2021; Rocha, 2017; Rodrigues, 2020; Rousseaux, 2014; Silva, 2018; Silva, 2020; Tosatti, 2017). Two publications that make up the present review study pointed out the importance of breastfeeding in the prevention of obesity in adolescence. The act of breastfeeding, in addition to being related to biological processes, with nutritional benefits, is also linked to advantages in terms of development.

Table 1. Study question according to the PECO strategy

What are the protective factors for obesity in adolescents?			
Acronym		Definition	MESH Terms
P	Population of interest	Adolescents (10 to 19 years)	Adolescent
E	Exposure	Protection factors	Protective factors
C	Comparator	Obesity	Obesity
O	Outcome	Ideal body weight	Ideal body weight

Source: Prepared by authors, 2021.

Quadro 2 - Characterization of the studies included in the systematic review

Author Year of publication	Place	N/Years	Kind of study	Level of evidence	JCR	Downs Black	Results
Rousseaux et al. (2014) ¹⁰	Europe (10 cities)	3.528 young	Transversal	Level 3	3,514	17	It showed, in a non-significant way, lower percentiles of abdominal adiposity in male adolescents who were breastfed in infancy.
Oellingrath et al. (2017) ¹	Norway - Europe	393 (12-13 years)	Cohort	Level 3	4,022	15	Reducing screen time is beneficial for weight maintenance in teenagers.
Ludy et al. (2018) ¹⁵	USA	60 (18 Years)	Cohort	Level 3	2,945	15	Better quality and longer duration of sleep time were beneficial in preventing weight gain, especially in the presence of adequate dietary behaviors.
Narla et al. (2019) ¹⁶	USA	2.379 girls (9 to 19 years)	Cohort	Level 3	2,037	21	High self-esteem, having meals prepared at home and practicing physical activity.
Mardani et al. (2020) ²¹	Iran - Asia	832 (13 to 18 years)	Transversal	Nível 3	1,278	18	The prevalence of obesity with breastfeeding was 7.4% and without breastfeeding was 16.4%, showing that adolescents with a previous history of breastfeeding were less prone to obesity.

Source: Prepared by the authors, 2021.

And the child's behavior, as it strengthens the mother-child bond, which positively contributes to the transition to peaceful complementary feeding and healthier future nutrition habits. The importance of good sleep quality in preventing obesity in adolescents is emphasized. Sleep is essential for a good quality of life. It is during sleep that the body recovers from the activities it has performed and prepares for new ones. It has a fundamental role in the process of physical and psychomotor development, health and quality of life. Life, as the reorganization of all functions takes place in it, with cell renewal, production of hormones, antibodies, protein synthesis and metabolic regulation, allowing physical and psychological recovery.⁶ It is through sleep that immune processes are stabilized, that is, the increase in immune defenses and resistance to infections. In addition, many cognitive processes are favored, especially those related to memory. One of the main functions of sleep is to keep us awake and refreshed, so that we are able to face and carry out day-to-day work, which certainly contributes to the body's physiology and the consequent reduction of inflammation and the potential for inflammation. obesity. The results of the present investigation reinforce the importance of primary health care in promoting health and preventing obesity in adolescence. The Family Health Strategy is an essential resource for the implementation of educational processes with adolescents, through groups and even through consultations to monitor growth and development. The actions of the Family Health Strategy aim to promote health and prevent diseases, as well as the treatment and rehabilitation of health problems. Such opportunities need to be expanded for greater access of this public to qualified health care. This review has limitations, since it did not search all available databases, and there may be publications that answer the study question, but they were not included in this research. However, this research contributes to the literature in the field of adolescent health care and provides indicators for the elaboration of care protocols and improvement of conducts for the prevention of obesity in this age group. It is concluded that the reduction of screen time, having high self-esteem, having meals prepared at home and the history of breastfeeding are protective factors for obesity in adolescents.

The relevance of public actions and policies aimed at adolescent health is highlighted, with a focus on healthy lifestyle, mental health and food education.

REFERENCES

- Agency for Health Care Research and Quality (AHRQ). Quality indicators. Available from: <http://www.qualityindicators.ahrq.gov>
- Baldoni NR, Aquino JA, Alves GCS, Sartorelli DS, Franco LJ, Madeira SP, et al. Prevalence of overweight and obesity in the adult indigenous population in Brazil: A systematic review with meta-analysis. *Diabetes Metab Syndr Clin Res*. 2019. Disponível em: 10.1016/j.dsx.2019.03.024
- Chequer LBN, Mello LV de, Seyfarth MSC, Silveira GRR da. O papel do aleitamento materno na prevenção da obesidade infantil. In: Anais do Seminário Científico do UNIFACIG. Manhuaçu; 2020. Disponível em: <http://www.pensaracademico.unifacig.edu.br/index.php/seminariocientifico/article/view/>
- D'Avila Helen Freitas, Kirsten Vanessa Ramos. Consumo energético proveniente de alimentos ultraprocessados por adolescentes. *Rev. paul. pediatr.* 2017. Available from: http://old.scielo.br/scielo.php?script=sci_arttext&pid=S0103-05822017000100054&lng=en. <https://doi.org/10.1590/1984-0462/2017;35;1;00001>.
- Downs S, Black N. The feasibility of creating a checklist for the assessment of the methodological quality both of randomised and non-randomised studies of health care interventions. *J Epidemiol Community Health* 1998. Available from: 10.1136/jech.52.6.377
- Ferreira R, Duarte E, Figueiredo MC. Sono e repouso na adolescência [Internet]. In: Sousa PML de, (ed). *TEENPOWER: tecnologia & inovação na promoção de comportamentos saudáveis em adolescentes*. 1ª ed. Leira: Grácio Editor; 2019. Available from: https://teenpower.ipleiria.pt/files/2019/05/TeenPower-Livro-12_4_2019_FINAL.pdf#page=49
- Galvão TF, Pansani T de SA, Harrad D. Principais itens para relatar Revisões sistemáticas e Meta-análises: A recomendação PRISMA. *Epidemiol Serv Saúde*. 2015. Available from: <http://dx.doi.org/10.5123/S1679-49742015000200017>

- Gasparetto Aline dos Santos, Bonfim Tassia de Arruda, Teston Elen Ferraz, Marcheti Priscila Maria, Galera Sueli Aparecida Frari, Giacon-Arruda Bianca Cristina Ciccone. Contexts of vulnerabilities experienced by adolescents: challenges to public policies. *Rev. Bras. Enferm.* 2020 Available from: http://old.scielo.br/scielo.php?script=sci_arttext&pid=S0034-71672020001600172&lng=en. Epub Sep 21, 2020. <https://doi.org/10.1590/0034-7167-2019-0224>
- Lisboa T, Silva WR da, Alexandre JM, Beltrame TS. Suporte social da família e amigos para a prática de atividade física de adolescentes: uma revisão sistemática. *Cad Saúde Coletiva* . 2018 [Available from: <https://doi.org/10.1590/1414-462X201800040463>
- Ludy MJ, Tan SY, Leone RJ, Morgan AL, Tucker RM. Weight gain in first-semester university students: Positive sleep and diet practices associated with protective effects. *Physiol Behav*. 2018 Available from: <https://doi.org/10.1016/j.physbeh.2018.05.009>
- Mahan LK, Raymond JL. Krause - Alimentos, Nutrição e Dietoterapia. 14aed. Rio de Janeiro: Elsevier; 2018.
- Mardani M, Rezapour S, Hajipour F. Relationship between breastfeeding and obesity in high school girls. *J Pediatr Endocrinol Metab.* 2020. Available from: <https://doi.org/10.1515/jpem-2020-0113>
- Ministério da Saúde (BR). Diretrizes metodológicas: elaboração de revisão sistemática e metanálise de estudos observacionais comparativos sobre fatores de risco e prognóstico [Internet]. Brasília: Ministério da Saúde; 2014 .116 p. Available from: https://bvsms.saude.gov.br/bvs/publicacoes/diretrizes_metodologicas_fatores_risco_prognostico.pdf
- Mourad Ouzzani, Hossam Hammady, Zbys Fedorowicz, and Ahmed Elmagarmid. Rayyan — a web and mobile app for systematic reviews. *Systematic Reviews* (2016) 5:210, DOI: 10.1186/s13643-016-0384-4.
- Narla A, Rehkopf DH. Novel ranking of protective and risk factors for adolescent adiposity in US females. *Obes Sci Pract.* 2019. Available from: <https://doi.org/10.1002/osp4.323>
- Oellingrath IM, Svendsen M V. BMI-specific associations between health-related behaviours and overweight – a longitudinal study among Norwegian adolescents. *Public Health Nutr* . 2017 Available from: 10.1017/S1368980016002536
- Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi: 10.1136/bmj.n71
- Pelegrini Andreia, Bim Mateus Augusto, Souza Fernanda Ulsula de, Kilim Karoline Sisnandes da Silva, Pinto André de Araújo. Prevalence of overweight and obesity in Brazilian children and adolescents: a systematic review. *Rev. bras. cineantropom. desempenho hum.* 2021. Available from: http://old.scielo.br/scielo.php?script=sci_arttext&pid=S1980-00372021000100501&lng=en.
- Rocha PF da, Neumann KR da S, Pieve JE da, Amaral NF. Obesidade x Sono. *Rev Multidiscip do Nord Min.* 2017 Available from: https://revistas.unipacto.com.br/storage/publicacoes/2017/obesidade_x_sono_102.pdf
- Rodrigues CSS, Costa A da S, Queiroz MG, Galdino SAM, Medeiros CCM. Prevalência de sobrepeso e obesidade em adolescentes de escolas públicas Municipais em Campina Grande-PB. *Brazilian J Heal Rev* .2020. Available from: http://editorarealize.com.br/editora/anais/conbracs/2018/TRABALHO_EV108_MD1_SA4_ID981_21052018194209.pdf
- Rousseaux J, Duhamel A, Turck D, Molnar D, Salleron J, Artero EG, et al. Breastfeeding Shows a Protective Trend toward Adolescents with Higher Abdominal Adiposity. *Obes Facts* .2014. Available from: <http://dx.doi.org/10.1159/000368583>
- Silva J da, Andrade A, Capistrano R, Lisboa T, Andrade RD, Felden ÉPG, et al. Níveis insuficientes de atividade física de adolescentes associados a fatores sociodemográficos, ambientais e escolares. *Cien Saude Colet.* 2018. Available from: <https://doi.org/10.1590/1413-812320182312.30712016>
- Silva JI da, Andrade AC de S, Bloch KV, Brunken GS. Associação entre realização de refeições com os pais ou responsáveis e obesidade em adolescentes brasileiros. *Cad Saude Publica* [Internet]. 2020 Available from: <https://doi.org/10.1590/0102-311X00104419>
- Tosatti AM, Ribeiro LW, Machado RHV, Maximino P, Bozzini AB, Ramos C de C, et al. Does family mealtime have a protective effect on obesity and good eating habits in young people? A 2000-2016 review. *Rev Bras Saúde Matern Infant* 2017. Available from: <https://doi.org/10.1590/1806-93042017000300002>
- Vieira CENK, Dantas DNA, Miranda LSMV de, Araújo AKC, Monteiro AI, Enders BC. School Health Nursing Program: prevention and control of overweight/obesity in adolescents. *Rev da Esc Enferm da USP.* 2018 52:e03339. Available from: <https://doi.org/10.1590/S1980-220X201702540339>
- Voltolini, Bruna Carla; Andrade, Selma Regina de; Piccoli, Talita; Pedebôs, Lucas Alexandre; Andrade, Vanessa. Reuniones de la estrategia saúde da familia: un dispositivo indispensable para la planificación local. *Texto & Contexto.* 2019; 28: 1-4. Available from: <http://ciberindex.com/c/tc/28020p> [acceso: 10/10/2021]
- Wolf Vaneza Lira Waldow, Samur-San-Martin Juan Eduardo, Sousa Suzy Ferreira de, Santos Hemerson Dinis Oliveira, Folmann Augusto Gerhart, Ribeiro Roberto Régis et al . Efetividade de programas de intervenção para obesidade com base em orientações para escolares adolescentes: revisão sistemática. *Rev. paul. pediatr.* . 2019 Jan Available from: http://old.scielo.br/scielo.php?script=sci_arttext&pid=S0103-05822019000100110&lng=en. Epub Aug 09, 2018. <https://doi.org/10.1590/1984-0462/2019;37;1;00015>.
- World Health Organization. Health topics: obesity. 2021 Disponível em: <https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight>
