adolescents

MDPI

Review

Variables Associated with Ultra-Processed Foods Consumption among Brazilian Adolescents: A Systematic Review

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Abstract: Background: Considering its deleterious effects on health, as well as the importance of information to support actions, strategies, and public policies, the present study was developed, aiming at identifying and classifying the main variables associated with ultra-processed foods consumption in Brazilian adolescents. Data sources: Targeting observational studies involving samples of Brazilian adolescents (11 to 19 years old), which evaluated possible associations between the consumption of ultra-processed foods and individual, interpersonal, environmental, and public policy variables, in October 2022, a systematic review was conducted, consulting electronic databases (Lilacs, Pubmed, Scielo, Scopus, and Web of Science), Google Scholar, and the reference lists of included articles. Data synthesis: The descriptive synthesis consisted of 11 papers, representing nine original studies. The main variables identified were: sedentary behavior (specially screen time), studying at a private school, having a higher body mass index, and being female. Conclusions: Based on this evidence, it is important to direct actions, strategies, and public policies aimed at confronting the consumption of ultra-processed foods for these groups.

Keywords: industrialized foods; epidemiologic factors; adolescent; Brazil; review

Citation: Guerra, P.H.; Ribeiro, E.H.C.; Lopes, R.F.; Nunes, L.M.B.; Viali, I.C.; da Penha Ferraz, B.; de Almeida, I.A.; Garzella, M.H.; da Silveira, J.A.C Variables Associated with Ultra-Processed Foods Consumption among Brazilian Adolescents: A Systematic Review. *Adolescents* **2023**, *3*, 467–477. https://doi.org/10.3390/adolescents3030033

Academic Editor: Christiane Stock

Received: 16 May 2023
Revised: 22 July 2023
Accepted: 26 July 2023
Published: 31 July 2023

1. Introduction

Ultra-processed foods are defined as industrial formulations obtained from substances extracted or derived from natural foods, but which, in fact, have little or none of them in their composition, such as snacks, ice cream, soft drinks, and frozen and ready-to-eat products (e.g., pasta, pizza, hamburgers, nuggets, sausages) [1]. In addition, they are characterized by low availability of fibers and bioactive compounds [1,2].

Their effects on the dietary pattern of individuals are well described in the literature. Epidemiological studies, carried out with different samples, suggest that the greater presence of ultra-processed foods in the dietary pattern leads to a higher energy density in the diet and the concentration of critical nutrients for the development of different diseases in different life cycles [3–6]. Furthermore, there is evidence that the consumption of ultra-processed foods has been inversely associated with the adoption of healthy patterns [7]. Among adolescents, specifically, there is a growing body of evidence indicating that the consumption of ultra-processed foods is a risk factor for increased body fat [8], as well as the development of obesity [4], metabolic diseases [4], asthma [9], and sleep disorders [10].

In the Brazilian context, nearly 30% of the total energy consumption among adolescents and adults comes from ultra-processed foods [11], which makes it an emerging issue on the national public health agenda. Recognizing its deleterious effects on health, there is a continuum of institutional strategies/or policies aimed to face it [12,13] within a broader perspective, understanding the problem beyond an individual option, involving, for example, interpersonal, environmental, and political barriers [14].

Thus, recognizing the potential of broad and detailed reviews to support decision making, especially within a scenario of coping with diseases associated with the consumption of ultra-processed foods, the present study was developed, aiming to identify and classify the main variables associated with ultra-processed foods consumption in Brazilian adolescents.

2. Materials and Methods

This systematic review was based on the PRISMA checklist [15]. Its registration was previously made on PROSPERO (CRD42019116609). Throughout the process of developing the study, no modifications were made from the original idea reported in the protocol.

The inclusion criteria were elaborated considering the following structure:

- Participants: Brazilian adolescents aged 11 to 19 years.
- Exposures: individual, interpersonal, environmental, and policy factors, with no restriction.
- Outcome: consumption of ultra-processed foods, measured by instruments that used the NOVA classification [1].
- Study design: scientific papers published in peer-review journals, which reported results from observational studies (e.g., case-controls, cohorts, or cross-sectional studies).

On the other hand, we defined as exclusion criteria studies with specific clinical populations (e.g., with chronic diseases, disabilities); those that did not evaluate ultra-processed foods as a group (e.g., studies that investigated variables associated with consumption of snacks or soft drinks); and other forms of scientific publication, such as abstracts of conference proceedings, dissertations, and theses.

Searches were carried out in the electronic databases Lilacs, Pubmed, Scielo, Scopus, and Web of Science, and were conducted on 7 October 2022, considering the syntax developed for Pubmed: (((processed[Text Word] OR (ultraprocessed[Text Word]) OR (ultra-processed[Text Word]))) AND (((adolesc*[Text Word]) OR (teen*[Text Word])) OR (youth*[Text Word]))) AND (Brazil*[Text Word]). In Lilacs and Scielo databases, searches were also performed in Portuguese. The full description of systematic searches is available in Appendix A.

In order to avoid losing relevant information, complementary searches were carried out in Google Scholar, by reading the initial 200 records, organized by their relevance, and in the reference lists of the studies assessed by their full texts.

The records identified in the databases were exported to Rayyan [16] and the duplicates were initially identified and removed. Trained pairs of researchers screened titles and abstracts (B.F. and I.V.; I.A. and M.G.; L.N. and R.L.), independently, with the support of another reviewer to resolve any doubts and establish consensus (P.G.). This same logic was adopted in the full-text assessment, data extraction, and elaboration of the descriptive synthesis.

Data extraction was organized in an electronic spreadsheet divided into three tabs: descriptive information (e.g., study location, age group, follow-up process, sample size), methodological information (e.g., study design, instruments used for evaluating food consumption, statistical protocol), and results (e.g., measures of effect, measures of variability, and p value). This procedure was also conducted by pairs (B.F. and I.V.; I.A. and M.G.; L.N. and R.L.), with the support of a third researcher (P.G.).

Regarding the extraction of results, it is important to highlight that, for articles which presented a different analysis (e.g., univariate and multivariate analyses), the most adjusted result was extracted, presenting or not presenting statistical associations. This was adopted to control confounders in the synthesis. The results were classified as: (i) no statistically

significant association ($p > 0.05$); or positive (ii) or negative (iii) statistically significant association ($p < 0.05$).

At the end of the data extraction, variables were classified by their nature (individual, interpersonal, environmental, or public policy), according to the socioecological model [17]. We chose this model because it considered other domains—not just individual ones—that may be related to the consumption of ultra-processed foods: interpersonal, environmental, and political.

The descriptive synthesis was elaborated from the refinement of the data in the extraction spreadsheet. Due to the high number of variables identified among the included studies, it was stipulated that only the variables analyzed by at least three studies would be presented in the synthesis.

Due to the variability in the instruments used to assess food consumption and the models of the analysis (i.e., type of regression, adjustment factors for confounding, effect measures), it was not possible to conduct the meta-analysis. Therefore, due to the first steps of the review process, the organization and presentation of a descriptive synthesis were stipulated in order to provide more robust information for decision making.

The risk of bias in the included studies was assessed by the adapted version of the quality assessment tool for quantitative studies of the Effective Public Health Practice Project (EPHPP) [18]. Adaptations were made considering the inclusion criteria of this research, covering six domains: sample profile; selection bias; report of representativeness; instrument used to assess food consumption; losses and dropouts; and statistical analysis.

3. Results

Searches in electronic databases resulted in the identification of 1444 potential studies (Figure 1). Removing the duplicates, 1350 were assessed by their titles and abstracts. A total of 68 remained for full-text assessment, among which 57 were excluded. The main reasons for exclusion were: not grouping ultra-processed foods in the analysis ($n = 15$); age group ($n = 8$); and not using ultra-processed terminology ($n = 8$). Eleven original articles met the eligibility criteria and had their data extracted for the descriptive synthesis [19–29]. However, three articles used data from the same survey (the 2015 National School Health Survey) [27–29] and, therefore, the present synthesis was developed through data of nine original cross-sectional studies.

Table 1 presents the descriptive and methodological data of the included studies. Regarding the location/scope of the research, the synthesis gathered data from two national studies [26–29] and seven studies conducted in different Brazilian states [19–25]. All of them were conducted in urban settings. Data collection of the included studies took place between 2008 [20] and 2019 [25]. The samples ranged from 238 [20] to 102,072 [27,28] participants. Samples in seven studies were composed mostly of females (77.8%) [19–21,23,25–29].

Analyzing the study design, all of them were cross-sectional, with most of the samples being composed by probabilistic methods [19,21,24–29] (Table 2). More specifically, two cross-sectional analyses were based on birth cohorts, one that occurred in Pelotas [22] and the other in São Luís [23]. Even with the high variability between the instruments used to assess food consumption, as well as the periods of observation of the instruments, applications of the Food Frequency Questionnaire [20,22,23] and food recalls [21,24–29] were more frequent (Table 1).

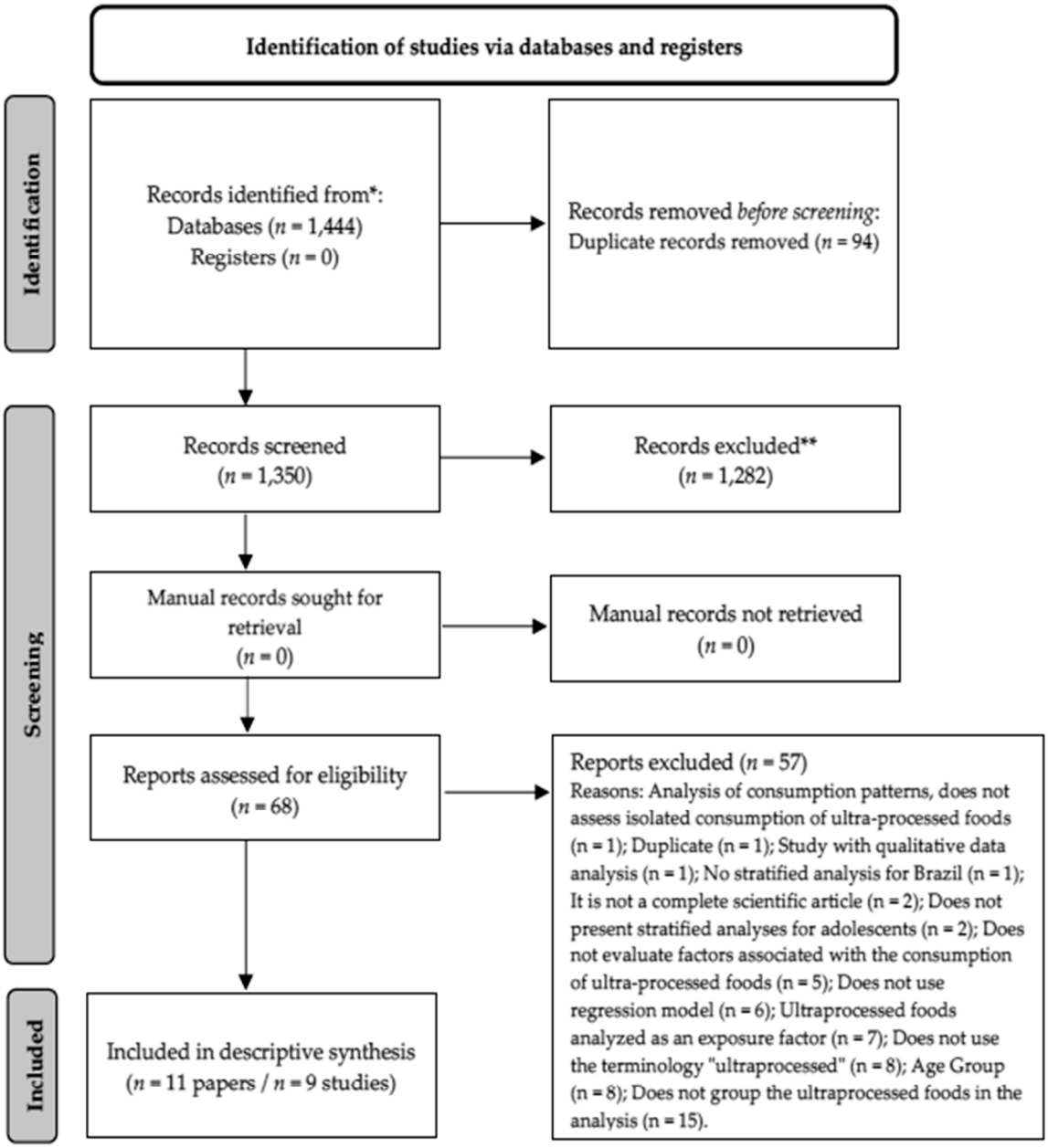

Figure 1. Systematic review flow diagram.

Table 1. Descriptive and methodological characteristics of the included studies.

Reference	Place (Data Collection)	Sample Size (%F)	Age Range (Mean)	Sampling	Instrument Used to Assess Food Intake	Point Prevalence
Correa et al. [19]	Florianópolis-SC (2012–13)	888 (52) [a]	11–14 (nd)	P	QUADA-3	Previous Day
Gadelha et al. [20]	Recife-PE (2008–13)	238 (61)	10–16 (11; 15)	nd	FFQ	Previous Month
Monteles et al. [21]	Teresina-PI (nd)	617 (57)	14–19 (17)	P	Food recall	Previous Day
Costa et al. [22]	Pelotas-RS (2015)	3.514 (48)	11 (11)	Birth Cohort [b]	IDS and FFQ	Previous Year
Viola et al., 2020 [23]	São Luís-MA (2016)	1.525 (53)	18–19 (nd)	Birth Cohort [c]	FFQ	Previous Year
Leite et al. [24]	São Paulo-SP (2017)	2.680 (47)	14–15 (15)	P	Food recall [d]	Previous Week
Melo et al. [25]	Juiz de Fora-MG (2018–19)	804 (58)	14–19 (16)	P	Food recall	Previous Week
Rocha et al. [26]	Country (2013–14)	71.553 (56)	12–17 (15)	P	Food recall	Previous Day
Costa et al. [27] Noll et al. [28] Silva et al. [29]	Country (2015) [e]	16.324 [f] (nd); 102.072 (53)	14–15 (nd)	P	Food recall	Previous Week

Legends: [a]: Considers the percentage of girls in the total sample (7–14 years old); [b]: All children born in Pelotas (2004); [c]: All children born in 10 maternity hospitals in São Luís (March 1997–February 1998); [d]: Adapted from the National School Health Survey, 2015; [e]: Articles generated from data of the National School Health Survey 2015; [f]: Sample 2 of the National School Health Survey, 2015: %F: Percentage of females; FFQ: Food frequency questionnaire; IDS: Instrument developed for the study; MA: Maranhão; nd: Not described; MG: Minas Gerais; P: Sample composed by probabilistic method; PE: Pernambuco; PI: Piaui; QUADA-3: Previous Day Food Questionnaire; RS: Rio Grande do Sul; SC: Santa Catarina; SP: São Paulo.

Table 2. Risk of bias assessment of included studies.

Reference	Sample Profile	Study Design	Representativeness (Level)	Instruments Used to Assess Food Intake	Losses and/or Withdrawals	Statistical Analysis
Correa et al. [19]	Low	CS	Low (city)	Low	Low	Low
Gadelha et al. [20]	Moderate	CS-CO	nd	Low	nd	Low
Monteles et al. [21]	Low	CS	nd	Low	nd	Low
Costa et al. [22]	Low	CS-CO	Low (city)	Low	Low	Low
Viola et al., 2020 [23]	Low	CS-CO	Low (city)	Low	Low	Low
Leite et al. [24]	Low	CS	Low (city)	Low	Low	Low
Melo et al. [25]	Moderate	CS	Low (city)	Low	Low	Low
Rocha et al. [26]	Low	CS	Low (country)	Low	Moderate	Low
Costa et al. [27] Noll et al. [28] Silva et al. [29]	Low	CS	Low (country)	Low	Low	Low

Legends: CS: cross-sectional study; CS-CO: cross-sectional analysis based on cohort study; nd: not described.

In a general perspective, there was a predominance of low risk of bias (Table 2). The moderate risk of bias assessments, observed in the sample profile and losses and/or withdrawals domains, were caused by the specific involvement of adolescents enrolled in public schools (heterogeneous samples were established as low risk of bias) [20,25] and the analysis involving 71% of the initially approached sample (80% was established as the minimum cut-off point for low risk of bias) [26], respectively.

While extracting the original data, 95 analyzes were identified, involving 51 different variables (e.g., using univariate and multivariate models). In general, there was a predominance of variables in the individual domain (n = 38; 74.5%), followed by variables in the environmental domain (n = 7; 13.7%), interpersonal (n = 5; 9, 8%), and public policy (n = 1; 2.0%). The full extraction spreadsheet can be requested from the corresponding author.

However, applying the inclusion criteria related to the determining variables for at least three studies, eight variables remained for the composition of the synthesis. They are

presented in Table 3, with their respective effect measures and variability. Regarding the assessment in relation to the domains of the socioecological model, five were classified as individual domain (sedentary behavior; body mass index; age; waist circumference; and sex), two as interpersonal domain (maternal education and socioeconomic level), and one as environmental domain (studying at a private school).

Table 3. Descriptive synthesis of the results.

Variable/Domain (Number of Studies)	Reference	Additional Information of the Variable	Analysis	Measure Effect
Sedentary behavior—Individual domain (n = 5)	Costa et al. [27]	Sitting and screen time	+	Linear trend, with dose-response effect
	Melo et al. [25]	Screen time	+	β = 0.38 (95%CI = 0.13; 0.62)
	Rocha et al. [26]	Eating in front of screens	+	β = 4.2 (95%CI = −3.1; 5.3)
	Rocha et al. [26]	Screen time	+	β = 4.2 (95%CI = 1.2; 4.3)
	Silva et al. [29]	Sitting time	+	PR = 1.13 (95%CI = 1.11; 1.16)
	Silva et al. [29]	Eating in front of television	+	PR = 1.09 (95%CI = 1.07; 1.10)
	Gadelha et al. [20]	Screen time 2008–2009	ns	OR = 0.75 (95%CI = 0.22; 2.75)
	Gadelha et al. [20]	Screen time 2012–2013	ns	OR = 1.40 (95%CI = 0.66; 2.95)
Administrative dependence of the school—Environmental domain (n = 4)	Noll et al. [28]	Private school	+	PR = 1.29 (95%CI = 1.23; 1.35)
	Rocha et al. [26]	Private school	+	β = 1.9 (95%CI = 0.8; 2.9)
	Silva et al. [29]	Private school	+	β = 1.11 (95%CI = 1.02; 1.09)
	Monteles et al. [21]	Private school	ns	β = −0.06 (95%CI = −3.50; 0.40)
Body mass index—Individual domain (n = 4)	Melo et al. [25]	–	+	β = 0.03 (95%CI = −0.05; −0.00)
	Monteles et al. [21]	≥25.0 kg/m^2	+	β * = 0.11 (95%CI = 10.9; 3.94)
	Viola et al. [23]	–	+	β = 0.01 (95%CI = −0.03; −0.01)
	Gadelha et al. [20]	2008–2009	ns	OR = 0.70 (95%CI = 0.16; 3.10)
	Gadelha et al. [20]	2012–2013	ns	OR = 1.04 (95%CI = 0.25; 4.34)
Maternal schooling—Interpersonal domain (n = 4)	Costa et al. [27]	Lack of maternal education 2008–209	+	p = 0.003
	Silva et al. [29]		+	PR = 0.88 (95%CI = 0.83; 0.94)
	Gadelha et al. [20]		ns	OR = 0.68 (95%CI = 0.04; 13.19)
	Melo et al. [25]		ns	β = 0.16 (95%CI = −0.07; 0.39)
Age—Individual domain (n = 4)	Noll et al. [28]	16–19 years old	ns	PR = 0.89 (95%CI = 0.85; 0.93)
	Silva et al. [29]	<15 years old	+	PR = 1.08 (95%CI = 1.06; 1.11)
	Gadelha et al. [20]	2008–2009		β = 0.34 (SE = 0.02)
	Gadelha et al. [20]	2012–2013		β = 0.15 (SE = 0.06)
Waist circumference—Individual domain (n = 4)	Melo et al. [25]		ns	β = −0.31 (95%CI = −0.34–0.96)
	Gadelha et al. [20]	2012–2013	ns	OR = 1.44 (95%CI = 0.02; 0.94)
	Gadelha et al. [20]	2008–2009	ns	RR = 0.37 (95%CI = 0.06; 2.31)
	Viola et al. [21]	–	ns	β = −0.02 (95%CI = −0.05; 0.01)
	Melo et al. [25]	–	ns	β = −0.04 (95%CI = −0.10; 0.02)
Gender—Individual domain (n = 3)	Monteles et al. [21]	Females	+	β = 0.39 (95%CI = 7.3; 12.4)
	Noll et al. [28]	Females	+	PR = 1.12 (95%CI = 1.10; 1.15)
	Costa et al. [27]	–	ns	(p = 0.47)
Socioeconomic level—Individual domain (n = 3)	Melo et al. [25]	–	ns	β = 0.12 (95%CI = 0.03; 0.21)
	Monteles et al. [21]	≥2 minimum wages	ns	β = −0.01 (95%CI = −2.60; 2.10)
	Costa et al. [27]		ns	p = 0,93

Legends: +: risk association; *: compared with adolescents who had body mass index up to 24.9 kg/m^2; 95%CI: 95% confidence interval; ns: non-significant; OR: odds ratio; PR: prevalence ratio; SE: standard error.

Sedentary behavior was the most frequently assessed variable. In five papers [20,25–27,29], eight analyses were identified, which mostly represent measures of screen time. In six of these

analyses [25–27,29], risk associations of screen time and higher consumption of ultra-processed foods were observed (75%) (Table 3).

Subsequently, other variables could also be highlighted: studying in a private school (n = 4 articles; n = 4 analyses; 3 associations; 75%) [21,26,28,29], having higher scores of body mass index (n = 4 articles; n = 5 analyses; 3 associations; 60%) [20,21,23,25], and female sex (n = 3 articles; n = 3 analyses; 2 associations; 66%) [21,27,28]. The variable maternal schooling showed discrepant associations, observing risks in relation to the highest [29] and lowest [27] levels of schooling. Complementarily, the variables age [20,25,28,29], waist circumference [20,21,25], and socioeconomic level [21,25,27] presented higher frequencies of statistically null results.

4. Discussion

Based on eleven papers, which represent data from nine different studies conducted in Brazil, the synthesis of this review highlights and classifies the main variables related to the consumption of ultra-processed foods among adolescents.

Sedentary behavior, especially screen time (e.g., computer, television, and/or videogame), was the variable most frequently analyzed and associated with the higher consumption of ultra-processed foods [25–27,29]. It is worth mentioning that sedentary behavior is also an emerging theme in the scientific literature [30] due to its—often unavoidable—high frequency in the contemporary modus of life and deleterious effects on health in different stages of life [31–33].

Exposure and convenience justify the relationship between screen time and the higher consumption of ultra-processed foods. Regarding the exposure, there is the premise that the longer the screens are used, the greater the adolescent's exposure to the advertising strategies of the food industries, which, in some way, can increase interest in certain products.

The food industry has specific lines and products aimed at this age group, using a strong visual appeal and a persuasive communication strategy [34]. Considering the high television advertising of ultra-processed foods in the country (≅60%) [35] and the habit of buying food products advertised on television increases the consumption of ultra-processed foods [36], regulation of their advertising and insertion of warning messages about the degree of processing (e.g., labeling of products) [37] are configured as necessary strategies.

However, it should be noted that these strategies are not simple or quick to implement, since the food industry—which is based on agribusiness and large transnational conglomerates—is highly representative in the Brazilian economy [38]. The interests of the industry often have repercussions on the weakening of governance structures aimed at preventing or controlling obesity and other non-transmissible chronic diseases in children and adolescents, limiting the implementation of actions, strategies, and/or public policies, such as regulating and reducing access and/or availability of these products.

Anyway, confrontation actions also permeate the family environment, where the regulation of food, sharing meals with parents, and television time could occur [39,40], and schools, which could support the training, debate, and implementation of health promotion actions among children and adolescents. Thus, the effects of school-based educational interventions conducted in Latin American countries on the reduction of screen time during leisure time among adolescents are relevant [41].

Regarding the convenience factor, it is important to highlight that, generally, due to their ready-made or pre-ready condition, ultra-processed foods tend not to require so much attention, or even to break the pleasure related to the use of screens. This is an advantage in relation to fresh or minimally processed foods, which, as a rule, require more time to prepare.

The available evidence reinforces the understanding that the consumption of ultra-processed foods among Brazilian adolescents is not only related to individual issues. About the second main result of the review, which indicates the risk of studying in a private school and presenting a higher consumption of ultra-processed foods [26,28,29], some reflections are also necessary. This finding converges with previous research [42], where it is

suggested that the environment of private schools is more obesogenic in terms of the access, offer, sale, and advertising of industrialized products compared with the environment of public schools.

In addition to socioeconomic rhetoric, the Brazilian political perspective may exert influence on such evidence, since public schools are directly impacted by the actions of the (I) National School Feeding Program (in Portuguese: Programa Nacional de Alimentação Escolar, PNAE) [43], which advocates school feeding and education actions food and nutrition aligned with the principles of adequate and healthy food indicated by the "Food Guide for the Brazilian population" [14] to all students throughout basic education, and (II) of the School Health Program, a intersectoral policy that aims at strengthening knowledge and health practices among children and adolescents in the public school system [44].

Concerning the body mass index, the observed associations may represent reverse causality; this means that the consumption of ultra-processed foods is probably associated with overweight and obesity. This can be justified by the most common attributes of ultra-processed foods, such as high fat content and low fiber content [1]. In any case, by recognizing the interactions of the obesogenic potential of interactions between screen time and the consumption of ultra-processed foods, as well as the complexity of the relationships between these and other variables [45,46], the importance of multicomponent actions, strategies, and public policies is reinforced, which, somehow, can also involve the family and the environment.

Regarding the relationships between female gender and the consumption of ultra-processed foods, found in two studies [21,28], two points can be reflected: (1) it can be justified by the lack of knowledge about ultra-processed foods, ranging from their composition to the effects of consumption; (2) the possibility of a greater impact of marketing strategies among adolescents, indicating that actions that educate the public regarding ultra-processed foods is highly necessary. Considering that the consumption of ultra-processed foods among Brazilian adult women was associated with increased waist circumference and lower levels of HDL-c [47], gender-specific strategies should be developed.

For a better interpretation and generalization of this synthesis' findings, its necessary to share some considerations. Given the characteristics of the studies, the available evidence is more related to the reality of adolescents living in the urban contexts of Brazilian state capitals. Only two studies were concluded in cities that are not state capitals (Pelotas and Juiz de Fora), but they are urbanized and have more than 300 thousand inhabitants.

Complementarily, as the synthesis was elaborated from data available among the studies developed in the country, it is suggested that future studies investigating the possible associations between interpersonal, environmental, and political variables and the consumption of ultra-processed foods among Brazilian adolescents, understanding the multidimensional effects of behavior, are conducted. For example, international research suggests associations between the consumption of ultra-processed foods and mental health problems [48], cardiovascular health [49], and lower quality of diet [50].

Furthermore, it should be noted that this summary offers a more general approach to the group of ultra-processed foods, based on the NOVA classification—to the detriment of specific types, such as snacks and sugary drinks, which may have more specific associated/determinant factors. Somehow, given the reinforcement of care with the standardization of the term and selection of studies, the knowledge synthesized in this review can support actions, strategies, and public policies aimed at confronting the consumption of ultra-processed foods among Brazilian adolescents.

5. Conclusions

Finally, based on the available literature, the variables of sedentary behavior (with emphasis on screen time), studying at a private school, having a higher body mass index, and being female presented more frequent risk associations with the consumption of ultra-processed foods in Brazilian adolescents. It is important to plan actions, strategies,

and public policies aimed at confronting the consumption of ultra-processed foods for these groups.

Author Contributions: All authors truly contributed to the development of this study. Development of original idea: P.H.G.; data assessment and extraction: B.d.P.F., I.A.d.A., I.C.V., L.M.B.N., M.H.G., P.H.G. and R.F.L.; synthesis development: B.d.P.F., I.A.d.A., I.C.V., L.M.B.N., M.H.G., P.H.G. and R.F.L.; writing of the first version of the text: P.H.G.; analysis of results and intellectual content for report: B.d.P.F., E.H.C.R., I.A.d.A., I.C.V., J.A.C.d.S., L.M.B.N., M.H.G., P.H.G. and R.F.L. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: All other data that are of interest can be requested from the corresponding author.

Conflicts of Interest: The authors declare no conflict of interest.

Registration: This systematic review was previously registered in PROSPERO (CRD42019116609).

Appendix A

The full description of systematic searches used in electronic databases (7 October 2022).

Database	Search syntax
Pubmed	(((processed[Text Word] OR (ultraprocessed[Text Word]) OR (ultra-processed[Text Word]))) AND (((adolesc*[Text Word]) OR (teen*[Text Word])) OR (youth*[Text Word]))) AND (Brazil*[Text Word])
Scielo	English: ((processed) OR (ultraprocessed) OR (ultra-processed)) AND ((adolesc*) OR (teen*)) AND (Brazil)
	Portuguese: ((processados) OR (ultraprocessados) OR (ultra-processados)) AND ((adolesce*) OR (jovem)) AND (brasil)
Lilacs	English: ((processed) OR (ultraprocessed) OR (ultra-processed)) AND (brazil) AND ((adolesc*) OR (teen*) OR (youth))
	Portuguese: ((processados) OR (ultraprocessados) OR (ultra-processados)) AND ((adolesce*) OR (jovem)) AND (brasil)
Web of science	(TS=(processed OR ultraprocessed OR ultra-processed AND adolesc* OR teen* OR youth* AND Brazil*)) AND TIPOS DE DOCUMENTO: (Article) Índices=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Tempo estipulado=Todos os anos
Scopus	(TITLE-ABS-KEY ((processed) OR (ultraprocessed) OR (ultra-processed)) AND TITLE-ABS-KEY ((adolesc*) OR (teen*)) AND TITLE-ABS-KEY (brazil*))

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