

Food Literacy among Adolescents from public schools in Montes Claros, MG, Brazil, 2019/2020

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Abstract — Objective: To evaluate adolescents' food literacy. Methods: The estimated samples were 496 and 497 schoolchildren aged 12 and 15 years old, according to the following parameters: universes 4458 and 4524 respectively; prevalence 50%; confidence level 95% ($Z=1.96$); sampling error 5%; non response rate 10%, and $d_{eff}=1.4$. By simple random drawing, public schools where there were adolescents of the recommended index ages were included. To assess food literacy, questions that addressed access to information, understanding, evaluation, and application of the information about food were considered. The data were collected by trained academics, who used software developed for this

Health Literacy, Health Promotion.

purpose. The descriptive analyses were made using the Statistical Package for the Social Sciences - SPSS, version 25.0. Results: 734 students participated, being 236 aged 12 and 498 aged 15, with response rates of 47.58% and 100%, respectively. It could be observed that, regarding the variable access, 9.3% (n=68) of the schoolchildren reported they had never had access to any information about proper nutrition. The main person / professional who had provided those teenagers with this information was the nurse (91.6% / n= 663), and the radio was the main means (90.2% / n=654). 80.0% of the respondents (n= 585) reported they had had access to the topic "Healthy and unhealthy eating". Most respondents reported difficulties in understanding, evaluation, and application of healthy eating information. Conclusion: Those teenagers' food literacy was adequate in the access dimension, but there were difficulties in the understanding, evaluation and application of information dimensions. Thus, the need to perform health care in a broader way is confirmed, with interventions that provide effective food literacy for adolescents, culminating in better health outcomes.

I. INTRODUCTION

Adolescence is a period of life in which there is food/nutrition consolidation and, therefore, it is considered a very suitable time for active and participatory nutritional guidance, involving both individual and social factors [1]. Among the viable spaces for the development of food education actions aimed at adolescents, the school environment stands out, being a privileged place to carry out actions to promote health and healthy eating practices, where the school community spends an important part of their time [2,3]. In addition to this, schools can implement environmental changes that enable the availability of healthy foods, the practice of physical education and proper eating behavior [4]. The importance of preventing inappropriate eating behaviors during adolescence has been recognized due to its long-term impact on health, such as the development of obesity and other non-communicable diseases [5].

In this context, "food literacy" is fundamental. It is within the field of health literacy, which concerns the personal, cognitive, and social skills that determine people's ability to access, understand, evaluate and apply the necessary information for health promotion, disease prevention and/or good health maintenance [6]. Thus, food literacy corresponds to the skills of reading, understanding and judging information; to seek and exchange knowledge related to the themes of food and nutrition; to buy and prepare food; to critically reflect on factors that influence personal food choices and to understand the impact of those choices on society. There is a difference between food and nutrition literacy, although they are often approached as synonymous. Hence, nutritional literacy is part of food literacy and corresponds only to the skills to understand nutritional information [7].

Policy makers and public health professionals suggest that food and nutrition education inadequacy is one of the main reasons for the ineffective results in adolescents' health [8]. The term "health literacy" is relatively new in the context of health promotion and the term food literacy is even more recent. High levels of "health literacy" and food literacy are desirable when proposing health promotion/health education. Literacy is not just about ensuring that people who have access to information can read and understand, evaluate and apply health-related information. It is a person's inherent state, making them more or less able to access, evaluate and use health-related information [9].

Food literacy emerged as a proposal to link knowledge, skills and capacity related to food [10], which focuses on the person's ability to acquire knowledge related to food and use this knowledge to achieve better food outcomes [11]. It is related to public health, diet and environmental sustainability. Its central concepts revolve around the needed skills to be inserted in the food environment, that is, planning, managing, selecting, preparing and eating healthy foods [12].

In the conceptual line of food literacy, it has the potential to influence eating patterns and promote the population better health [8,10,12]. Thus, our objective was to evaluate the food literacy of adolescents from public schools in Montes Claros – MG, according to the theoretical models of Sørensen et al. (2012) [6] and by Krause et al. (2018) [7], regarding access to information, understanding, evaluation and application of the information about food.

II. METHODS

This is an excerpt from the project “Epidemiological survey on oral health conditions and quality of dental care among schoolchildren in Montes Claros, Minas Gerais, Brazil, 2019/2020” (SBMoc Project). This is a cross-sectional, field study, with a quantitative approach. Public schools with adolescents aged 12 and 15 years old, enrolled in 2019, were selected through a simple random drawing of conglomerates. The estimated samples were 496 and 497 students aged 12 and 15, respectively. The sample size calculation was carried out as proposed by Triolla [13]. The following parameters were considered: universe with 4458 12-year-olds and 4524 15-year-olds; a prevalence of health-related events or states of 50%; a 95% confidence level ($Z=1.96$); a sampling error of 5%; a drawing effect or deff of 1.4 and a non-response rate of 10%. To assess food literacy, questions that addressed access to information, understanding, evaluation and application of the information about food were considered.

Students of both sexes were invited to participate in the research, with the necessary index ages for the study (12 and 15 years old), duly enrolled and attending the selected schools, located in Montes Claros, Minas Gerais. Participants who did not accept to participate in the research or who did not completely fill out the questionnaire, as well as those students who showed some cognitive impairment were excluded. After the Municipal Department of Education (Secretaria Municipal de Educação - SME) and the State Department of Education (Secretaria Estadual de Educação - SEE) approval and authorization to carry out the study, the direction of the selected schools was sensitized through meetings, in which the objectives and methodology of the project were presented.

The field team was trained to carry out their functions, ensuring an acceptable degree of uniformity in procedures. Data collection was carried out by doctoral students, master's students, dentist surgeons and dentistry students. Survey participants were informed about the objectives, relevance and methodology. After making them clear, a Free and Informed Consent Term (Termo de Consentimento Livre e Esclarecido - TCLE) was requested, in which the participant voluntarily accepted to participate in the research with the right to withdraw, without any personal or professional harm.

The application of the questionnaires was carried out individually, in a room reserved for this purpose, with the presence of the team in the room. For data collection, the questionnaire was developed based on the theoretical model that proposes to investigate the access to information, understanding, evaluation and application [7]

of the information related to food. Data were collected through interviews, using a valid and reliable instrument, consisting of 59 items, with answers on a Likert-type scale [14].

To assess food literacy, the following questions about food and nutrition were considered: if they had already had access about food and nutrition, the information provider, access time, understanding, ease of access and information application, since only the application can corroborate to maintain and/or improve people's health. Additionally, other sources of information were investigated, as well as the subject of that information.

Access to information included the options: always, often, sometimes, rarely, and never. The assessment regarding the provider was made by asking the participants about who had provided information about food and nutrition (no provider, parents, family members, teachers, nutritionist, dentist, physician, nurse, community health worker, others). The options for access time were: in the last month, in the last six months, in the last year, in the last two years, more than two years ago. To assess comprehension, the adolescents could choose: I understood everything, I understood almost everything, I understood more or less, I understood little, I did not understand or I did not have access to any information about food and nutrition. As for the ease of access, the options were: I can easily, I can with little difficulty, I can more or less, I can with difficulty, I can not or I did not have access to any information about food and nutrition. To assess whether the teenager could put the received information into practice, they could choose among always, often, sometimes, rarely or never.

As for other sources of information, participants were asked about the means of obtaining them: no source, prescriptions/medical prescriptions, medication inserts, food labels, posters, newspapers, magazines, pamphlets/folders/booklets, school supplies - such as books, internet/mobile/computer (social networks such as Facebook®, Instagram®, Twitter®, WhatsApp®, YouTube®), educational video (including social networks), radio, television, lecture, film/cinema, class, others.

Regarding the theme, the adolescents chose between: no theme; What is food/nutrition?; Healthy and unhealthy eating; Processed foods; Relationship between physical activity and food/nutrition; Relationship of weight gain with consumption of unhealthy foods; Difficulties in following a diet; Health x food/nutrition; Fad diets; Food labels; Concern of eating unhealthy foods with body image; Obesity; Malnutrition; Eating disorders; Fresh

food; Ultra-processed products; Processed products; Food supplements and others.

The results obtained were entered into the software developed during the research for data collection, a software from the SBMoc Project 2019/2020, Research Management System (Sistema de Gerenciamento de Pesquisas - SGP). After collection, those were tabulated and gathered in a single database, for descriptive statistical analysis, presenting absolute and relative frequencies, in the Statistical Package for Social Sciences – SPSS, version 25.0 software. The study was submitted and approved by the National Research Ethics Commission (Comissão Nacional de Ética em Pesquisa) of the State University of Montes Claros (Universidade Estadual de Montes Claros) – Unimontes, under opinion n° 2,483,638.

III. RESULTS

A total of 734 students participated in the study, 236 aged 12 and 498 aged 15, with response rates of

47.58% and 100%, respectively. According to Table 1, it was observed that in relation to the variable access, 9.3% (n=68) of the students reported that they had never had access to any information about food/nutrition. The main person / professional who had provided the information to the adolescent was the nurse (91.6% / n= 663). Regarding the access time, it appeared that the participant had access in the last month by this professional (50.3% / 361). Regarding the adolescent's understanding of the information they had had access to through that person(s), 50.3% (n=362) of respondents reported that they had understood everything that was passed on. As for the ease of accessing the information to which the teenager had access through that person(s), 51.7% (n=373) said they could easily get it. Regarding the application of the offered information, 37.1% (n=267) said they sometimes put it into practice.

Table 1 - Evaluation of access to information, understanding, evaluation and application of information on food and nutrition among adolescents in Montes Claros - MG, regarding access, information provider and time of access, 2021. (All n= 734 / 12 years old n= 236 / 15 years old n = 498).

Variable	All		12		15	
	n	%	n	%	n	%
Have you ever had access to any information about food/nutrition?*						
Always	179	24,4	59	25,0	120	24,1
Often	161	21,9	47	19,9	114	22,9
Sometimes	242	33,0	77	32,6	165	33,1
Rarely	84	11,4	24	10,2	60	12,0
Never	68	9,3	29	12,3	39	7,8
Who provided you with any information about food and nutrition?						
Parents *						
Yes	550	75,5	171	73,1	379	76,7
No	178	24,5	63	26,9	115	23,3
Other family members*						
Yes	469	64,3	147	62,3	322	65,3
No	260	35,7	89	37,7	171	34,7
Teacher*						
Yes	518	71,3	166	70,6	352	71,5
No	209	28,7	69	29,4	140	28,5
Nutritionist*						
Yes	551	75,9	180	76,6	371	75,6
No	175	24,1	55	23,4	120	24,4
Dentist*						
Yes	459	63,3	147	62,6	312	63,7
No	266	36,7	88	37,4	178	36,3
Physician *						
Yes	531	73,2	174	74,4	357	72,7
No	194	26,8	60	25,6	134	27,3
Nurse *						
Yes	663	91,6	217	92,7	446	91,0

No	61	8,4	17	7,3	44	9,0
Community health worker *						
Yes	598	82,7	202	86,3	396	81,0
No	125	17,3	32	13,7	93	19,0
Other(s) *						
Yes	13	1,8	3	98,7	10	2,0
No	710	98,2	231	1,3	479	98,0
When was the last time you had access to any information about food/nutrition through that person/those people? *						
In the last month	361	50,3	115	50,7	246	50,2
In the last six months	170	23,7	38	16,7	132	26,9
In the last year	73	10,2	30	13,2	43	8,8
In the last two years	23	3,2	6	2,8	17	3,4
More than two years ago	21	2,9	6	2,8	15	3,0
I did not have access to any information about food/nutrition	69	9,7	31	13,8	38	7,7
Did you understand the information about food/nutrition you had access to through that person/those people? *						
I understood everything	362	50,3	109	47,6	253	51,5
I understood almost everything	185	25,7	50	21,8	135	27,5
I understood more or less	89	12,4	36	15,7	53	10,8
I understood little	15	2,1	5	2,2	10	2,0
I did not understand	7	1,0	4	1,7	3	0,6
I did not have access to any information about food/nutrition	62	8,6	25	10,9	37	7,5
Can you assess the quality of information about food/nutrition that you had access to through that person/those people? *						
I can easily assess it	373	51,7	113	49,3	260	52,8
I can assess it with little difficulty	92	12,8	29	12,7	63	12,8
I can more or less	118	16,4	36	15,7	82	16,7
I can assess it with difficulty	33	4,6	10	4,4	23	4,7
I can not	41	5,7	16	7,0	25	5,1
I did not have access to any information about food/nutrition	64	8,9	25	10,9	39	7,9
Do you put into practice the information about food/nutrition that you had access to through that person/those people? *						
Always	154	21,4	54	23,6	100	20,4
Often	136	18,9	31	13,5	105	21,4
Sometimes	267	37,1	90	39,3	177	36,1
Rarely	73	10,2	20	8,7	53	10,8
Never	26	3,6	8	3,5	18	3,7
I did not have access to any information about food/nutrition	63	8,8	26	11,4	37	7,6

* Number of respondents less than the number of participants.

Table 2 represents the information regarding the source of the information, that is, the students were asked about the means of obtaining them. The radio was the main one by which adolescents had already heard information about food and nutrition (90.2% / n=654). 49.6% (n=355) of the participants stated that the last time they had viewed, read, listened to or watched such information in printed or electronic materials was in the

last six months. Regarding the understanding of that information using those sources, it was observed that 64.2% (n= 459) reported that they had not understood the information, as well as 50.8% (n= 363) stated that they could assess the quality of the information with difficulty. 39.2% (280) of students rarely put them into practice.

Table 2 – Means of information and aspects related to time, understanding, evaluation and practice of information in Food Literacy among adolescents from Montes Claros – MG, 2021. (All n= 734 / 12 years old n= 236 / 15 years old n = 498).

Variable	All		12		15	
	n	%	n	%	n	%

In which of the media(s) below have you viewed, read, listened to or watched information about food/nutrition?

Prescriptions/medical prescriptions *

Yes	484	66,8	167	71,1	317	64,7
No	241	33,2	68	28,9	173	35,3
Medicine Package Inserts *						
Yes	602	83,3	185	78,7	417	85,5
No	121	16,7	50	21,3	71	14,5
Food Labels *						
Yes	483	66,3	164	69,5	319	64,7
No	246	33,7	72	30,5	174	35,3
Posters *						
Yes	415	57,1	136	57,9	279	56,7
No	312	42,9	99	42,1	213	43,3
Newspapers *						
Yes	542	74,6	177	75,3	365	74,2
No	185	25,4	58	24,7	127	25,8
Magazine*						
Yes	543	74,8	188	80,0	355	72,3
No	183	25,2	47	20,0	136	27,7
Pamphlets/Folders/Booklets *						
Yes	410	56,5	141	60,3	269	54,7
No	316	43,5	93	39,7	223	45,3
School supplies (such as books) *						
Yes	443	60,7	144	61,0	299	60,5
No	287	39,3	92	39,0	195	39,5
Internet/mobile/computer (social networks such as Facebook®, Instagram®, Twitter®, WhatsApp®, YouTube®)*						
Yes	521	71,7	149	63,7	372	75,5
No	206	28,3	85	36,3	121	24,5
Educational video (including social networks) *						
Yes	456	63,0	141	60,3	315	64,3
No	268	37,0	93	39,7	175	35,7
Radio *						
Yes	654	90,2	209	88,9	445	90,8
No	71	9,8	26	11,1	45	9,2
Television *						
Yes	452	61,8	142	60,2	310	62,6
No	279	38,2	94	39,8	185	37,4
Lecture*						
Yes	394	54,3	139	59,4	255	51,9
No	331	45,7	95	40,6	236	48,1
Film/cinema *						
Yes	634	87,7	198	84,6	436	89,2
No	89	12,3	36	15,4	53	10,8
Class *						
Yes	500	68,8	150	64,1	350	71,0
No	227	31,2	84	35,9	143	29,0
Other *						
Yes	11	1,5	2	0,9	9	1,8
No	711	98,5	232	99,1	479	98,2
When was the last time you viewed, read, listened to or watched information about food/nutrition in the printed or electronic materials you mentioned? *						
In the last month	1	0,1	1	0,4	0	0,0
In the last six months	355	49,6	107	46,7	248	50,9
In the last year	166	23,2	46	20,1	120	24,6

In the last two years	80	11,2	29	12,7	51	10,5
More than two years ago	49	6,9	27	11,8	22	4,5
I did not have access to any information about food/nutrition	65	9,0	19	8,3	46	9,5

Did you understand the information about food/nutrition that you viewed, read, listened to or watched in the printed or electronic materials you mentioned? *

I understood almost everything	8	1,1	2	0,9	6	1,2
I understood more or less	26	3,6	11	4,8	15	3,1
I understood little	157	22,0	54	23,7	103	21,1
I did not understand	459	64,2	134	58,8	325	66,7
I did not have access to any information about food/nutrition	65	9,1	27	11,8	38	7,8

Can you assess the quality of information about food/nutrition that you viewed, read, listened to or watched in the printed or electronic materials you mentioned? *

I can easily assess it	60	8,4	18	7,9	42	8,6
I can assess it with little difficulty	116	16,2	42	18,4	74	15,2
I can more or less	113	15,8	35	15,4	78	16,0
I can assess it with difficulty	363	50,8	107	46,9	256	52,6
I did not have access to any information about food/nutrition	63	8,8	26	11,4	37	7,6

Do you put into practice the information about food/nutrition that you viewed, read, listened to or watched in the printed or electronic materials you mentioned? *

Often	132	18,5	50	21,9	82	16,8
Sometimes	148	20,7	33	14,5	115	23,6
Rarely	280	39,2	95	41,7	185	38,0
Never	93	13,0	24	10,5	69	14,2
I did not have access to any information about food/nutrition	62	8,7	26	11,4	36	7,4

*Number of respondents less than the number of participants.

Table 3 shows the topics on food and nutrition mentioned by the participants. 80.0% (n= 585) of them reported that they had had access to the topic “Healthy and unhealthy food”. 47.4% (n=340) stated that they had access to this information in the last six months. As for the themes addressed in this study, 43.4% (n=311) said they

could understand almost everything. 45.4% (n=323) were unable to assess information on food/nutrition and 39.2% (n=281) reported that they rarely put into practice the information obtained on those themes.

Table 3 – Themes/issues about Food Literacy among adolescents from Montes Claros – MG, 2021. (All n= 734 / 12 years n= 236 / 15 years n = 498).

Variable	All		12		15	
	n	%	n	%	n	%
Among the subjects listed below, which one(s) have you already had access to? None *						
Yes	13	1,8	4	1,7	9	1,8
No	706	98,2	228	98,3	478	98,2
What is food? *						
Yes	347	47,7	106	45,1	241	49,0
No	380	52,3	129	54,9	251	51,0
Healthy and unhealthy eating *						
Yes	585	80,0	191	80,9	394	79,6
No	146	20,0	45	19,1	101	20,4
Processed foods (They are ready-to-eat or semi-ready products. Ex.: cans, boxes, etc.). *						
Yes	257	35,2	102	43,2	155	31,3

No	474	64,8	134	56,8	340	68,7
Relationship between physical activity and food/nutrition *						
Yes	300	41,2	103	43,8	197	40,0
No	428	58,8	132	56,2	296	60,0
Relationship of weight gain with consumption of unhealthy foods *						
Yes	296	40,7	112	47,7	184	37,3
No	432	59,3	123	52,3	309	62,7
Difficulties in following a diet *						
Yes	368	50,4	124	52,8	244	49,3
No	362	49,6	111	47,2	251	50,7
Health x food/nutrition *						
Yes	346	47,5	123	52,3	223	45,1
No	383	52,5	112	47,7	271	54,9
Fad Diets (They are miracle diets, which guarantee rapid weight loss in a short time).*						
Yes	462	63,5	163	69,4	299	60,6
No	266	36,5	72	30,6	194	39,4
Food labels *						
Yes	446	61,3	142	60,4	304	61,8
No	281	38,7	93	39,6	188	38,2
Concern of eating unhealthy foods with body image *						
Yes	424	58,2	149	63,4	275	55,8
No	304	41,8	86	36,6	218	44,2
Obesity (overweight) *						
Yes	375	51,7	130	55,1	245	50,0
No	351	48,3	106	44,9	245	50,0
Malnutrition (underweight) *						
Yes	386	52,9	129	54,7	257	52,0
No	344	47,1	107	45,3	237	48,0
Eating disorders (Measures used for weight loss. Eg bulimia, anorexia, etc.)*						
Yes	473	65,0	172	73,2	301	61,1
No	255	35,0	63	26,8	192	38,9
Fresh foods (Foods consumed in their natural state). *						
Yes	444	61,0	158	67,5	286	57,9
No	284	39,0	76	32,5	208	42,1
Ultra-processed products (They are created by industries with various synthetic products). *						
Yes	496	68,3	170	72,6	326	66,3
No	230	31,7	64	27,4	166	33,7
Processed products (These are ready-to-eat products. Ex.: canned products). *						
Yes	433	59,6	157	67,1	276	56,1
No	293	40,4	77	32,9	216	43,9
Food supplements (Used for sports or weight gain). *						
Yes	446	61,4	156	66,4	290	59,1
No	280	38,6	79	33,6	201	40,9
When was the last time you had access to this information about food/nutrition?*						
In the last month	9	1,3	4	1,7	5	1,0
In the last six months	340	47,4	96	41,4	244	50,2
In the last year	182	25,3	53	22,9	129	26,5
In the last two years	81	11,3	32	13,9	49	10,0
More than two years ago	40	5,5	20	9,0	20	4,0
I did not have access to any information about food/nutrition	66	9,2	25	11,1	41	8,3
Did you understand the information about food/nutrition you had access to? *						
I understood everything	3	0,4	2	0,9	1	0,2

I understood almost everything	311	43,4	92	39,7	219	45,2
I understood more or less	190	26,5	53	22,8	137	28,2
I understood little	115	16,0	47	20,3	68	14,0
I did not understand	32	4,5	11	4,7	21	4,3
I did not have access to any information about food/nutrition	66	9,2	27	11,6	39	8,0
*Can you assess the quality of information food/nutrition you have had access to? *						
I can easily assess it	113	15,8	42	18,1	71	14,7
I can assess it with little difficulty	140	19,5	41	17,7	99	20,5
I can more or less	47	6,5	18	7,8	29	6,0
I can assess it with difficulty	26	3,5	12	5,2	14	2,9
I can not	323	45,4	100	40,3	223	47,5
I did not have access to any information about food/nutrition	67	9,3	29	10,9	38	8,4
Do you put into practice the information about food/nutrition you had access to? *						
Often	118	16,5	47	19,3	71	14,6
Sometimes	138	19,2	34	13,6	104	22,4
Rarely	281	39,2	91	38,2	190	39,8
Never	114	15,9	40	16,5	74	15,6
I did not have access to any information about food/nutrition	66	9,2	30	12,4	36	7,6

* Number of respondents less than the number of participants.

IV. DISCUSSION

The stage of adolescence involves biological, psychosocial and physical changes. It is a period of great transformations, requires the need to listen to this public in their needs including significant knowledge about nutritional food health. Hence, there is a need to present an approach centered on the understanding of food literacy by teenagers, in order to enhance the integration of knowledge, attitudes and choices that will impact their health in this life cycle.

This study explored adolescents' perspectives on food literacy, that is, the abilities to read, understand and judge information. It was found that the study participants had had access to information, but when evaluated for understanding, evaluation and application, most respondents reported that they "understand almost everything" or "understand more or less", and "rarely put it into practice". From a life-course perspective, interventions aimed at food literacy early in life offer the greatest potential for impact throughout life [15].

Addressing food literacy among adolescents and young adults can be particularly impactful, as it is a period of development in which they experience food independence, establishing their own identity and building health-related habits throughout life [16]. Consequently, teenagers' participation in the construction of their own decisions is of paramount importance for them to be involved as well as the subject to this process.

Regarding the difficulty presented by the students concerning the understanding, assessment and application reported by them during the answers, it appeared that many adolescents had not applied dietary guidelines on a

daily basis due to lack of skills and/or beliefs that this is important for their adult age [17]. Worsley (2002) [18] indicated that food knowledge can play a small but fundamental role in the adoption of healthier eating behaviors, but indicated that eating skills are important so that it can allow knowledge to be put into practice.

The adolescents who took part of this research reported difficulties not only with access, but also with sources of information about eating habits. Some of them critically analyzed information related to nutrition, but according to Ronto et al. (2016) [19], most recognized that not all sources related to food and nutrition are reliable, and still stated that regarding nutritional information, they mainly trust their parents and only the teachers who teach subjects related to food and nutrition, thus diverging from the present study, as the main person/professional who provided the information regarding eating habits was the nurse, as well as the main means was the radio.

Therefore, schools can play a vital role in filling this gap through the adolescents' "skills improvement" [17,18]. Furthermore, this would allow teenagers to act as agents of change [20,21]. Participation in classes that address the theme "healthy eating" or similar topics has been associated with higher levels of dietary knowledge in adults, suggesting that this could bring learning and lasting application in food literacy [22].

This was the most reported theme by students, consequently confirming the importance of the school environment to work with different issues related to the students' health [23]. The National Guidelines for the Comprehensive Health Care of Adolescents and Youth in

the Promotion, Protection and Recovery of Health (As Diretrizes Nacionais para a Atenção Integral à Saúde de Adolescentes e Jovens na Promoção, Proteção e Recuperação da Saúde) [24] highlight the role of the school as one of the pillar structures in health education for adolescents, the need to promote intersectoral actions, articulating the co-responsibility of educators and health professionals to act in facing the demands of health education, taking into account sociocultural issues.

Furthermore, the study found a significant relationship, even with descriptive parameters of the relationship between food literacy and health promotion behavior. This is supported by the study by Chahardan-Cherik et al. (2018) [25] who found that there is a significant relationship between health literacy and all dimensions of the health promotion scale, and nutrition falls under those themes. Limited health literacy is associated with less participation in health promotion and disease detection activities, riskier health choices, poor medication adherence, increased hospitalization and re-hospitalization, increased morbidity and premature death [23].

It is important to pay more attention to teenagers in the health literacy area and health promotion behavior so that they can have a better quality of life, especially regarding eating habits. This way, food literacy has become a differential for adolescents, as it highlights their vulnerability to healthy lifestyle choices and habits, choices and attitudes that may remain throughout life, thus stimulating their empowerment in relation to decisions about their bodies and health.

However, some limitations were observed, and the main one was the Coronavirus pandemic (Covid-19) which made it impossible to carry out the field research properly, suspending classes. Therefore, private and rural schools were not evaluated, and there was a need to carry out a new sample calculation, in which only municipal and state public schools in the urban area were included. Another factor is the recent issue theme regarding food literacy, especially for adolescents, whose studies on the skills of reading, understanding and judging information for this audience are still scarce. In this context, producing health with teenagers and young people having food literacy as one of the pillars is to bring them to the center of the process as subjects of rights.

V. CONCLUSION

The adolescents who took part of this study have had access to information regarding food literacy. However, they had difficulties in understanding, evaluating and applying information about food. Thus, it confirms the need to provide health care in a broader way,

promoting interventions that have an effect on the factors that determine people's health conditions, especially teenagers. Health education remains a fundamental tool in health promotion, disease prevention and people's autonomy. Nutritional education activities can help in those educational practices for adolescents, as well as considering the school environment with a potential transforming role to work on issues related to health issues, therefore promoting educational campaigns and strategies regarding eating behavior.

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