# Promotion of Adequate and Healthy Eating within the scope of the School Health Program: implementation and contribution of the Healthy Growth Program

## *Promoção da Alimentação Adequada e Saudável no âmbito do Programa Saúde na Escola: implementação e contribuição do Programa Crescer Saudável*

Ariene Silva do Carmo[1], Milena Serenini[1], Ana Carolina Lucena Pires[1], Jéssica Pedroso[1], Ana Maria Cavalcante de Lima[1], Sara Araújo da Silva[1], Gisele Ane Bortolini[1]

DOI: 10.1590/0103-11042022E309I

**ABSTRACT** The study aims to show the evolution of the percentage of schools adhering to the School Health Program (PSE) that carried out a collective activity on the Promotion of Adequate and Healthy Eating (PAAS) over the last five years and verify if there is a difference in this indicator according to adhesion to the Healthy Growth Program (PCS). Ecological study, developed with data registered in the Health Information System for Primary Care (SISAB). The performance of collective actions on PAAS from 2017 to 2019 increased. In 2020, there was a reduction in the actions carried out; and in 2021 there was an increase in actions carried out compared to 2020. The municipalities that received additional funds from the PCS had the highest percentages of schools carrying out collective activities on PAAS. The implementation of PAAS actions did not occur homogeneously according to the Brazilian macro-regions. It is concluded that there has been a strengthening of PAAS actions within the scope of the PSE, with a significant reduction of this action in the context of the COVID-19 pandemic. Getting additional resources from the PCS favored the development of actions on PAAS, which reinforces the importance of regular financial transfers.

**KEYWORDS** Diet, healthy. Health promotion. School health services.

**RESUMO** *O objetivo do presente estudo foi mostrar a evolução do percentual de escolas aderidas ao Programa Saúde na Escola (PSE) que realizaram atividade coletiva sobre Promoção da Alimentação Adequada e Saudável (Paas) ao longo dos últimos cinco anos e verificar se há diferença desse indicador segundo adesão ao Programa Crescer Saudável (PCS). Trata-se de um estudo de delineamento ecológico, desenvolvido com dados cadastrados no Sistema de Informação em Saúde para a Atenção Básica (Sisab). Houve incremento na realização de ações coletivas sobre Paas durante o período de 2017 a 2019. Em 2020, houve redução das ações realizadas; e em 2021, houve incremento de ações realizadas em comparação com 2020. Os municípios que receberam recurso financeiro adicional por terem aderido ao PCS apresentaram os maiores percentuais de escolas que realizaram atividades coletivas sobre Paas. A realização das ações de Paas não ocorreu de forma homogênea segundo as macrorregiões brasileiras. Conclui-se que, nos últimos anos, houve o fortalecimento das ações de Paas no âmbito do PSE, com significativa redução dessa ação no contexto da pandemia da Covid-19. O recebimento do recurso adicional do PCS favoreceu o desenvolvimento das ações sobre Paas, o que reforça a importância do repasse financeiro regular.*

**PALAVRAS-CHAVE** *Dieta saudável. Promoção da saúde. Serviços de saúde escolar.*

[1] Ministério da Saúde (MS), Secretaria de Atenção Primária à Saúde (Saps), Departamento de Promoção da Saúde (Depros), Coordenação Geral de Alimentação e Nutrição (CGAN) – Brasília (DF), Brasil.
*gisele.bortolini@saude.gov.br*

## Introduction

A poor diet is one of the main risk factors related to the global burden of disease[1]. In Brazil, in 2015, this was the risk factor that most contributed to the years of life lost, even higher than the use of alcohol, drugs, smoking and physical inactivity[2]. Furthermore, inadequate nutrition was the main risk factor for deaths in the world in 2017[3]. In the country, approximately three out of ten children are overweight, being one of the most prevalent conditions among this public[4]. Of children older than 2 years and adolescents followed by Primary Health Care (PHC), more than 80% consumed at least one ultra-processed food on the previous day[4].

In addition, it should be noted that, in Brazil, there is a persistent scenario of multiple malnutrition burdens, in which there is the coexistence in the same population of different nutritional problems, such as obesity, malnutrition and specific nutritional deficiencies, configuring in simultaneous manifestations of food and nutrition insecurity[5-8]. The Household Budget Survey (POF), carried out in 2017-2018, showed a significant increase in all degrees associated with the situation of food insecurity in Brazil, which came in a scenario of reduction[9]. This scenario was worsened in the country with the COVID-19[10] pandemic.

In this sense, actions to promote adequate and healthy food (PAAS) are essential to improve the food and nutritional situation of the population. PAAS aims to improve the population's quality of life, through intersectoral actions, aimed at the collective, individuals and environments, contributing to the prevention and attention to diseases and disorders related to food and nutrition, including obesity[11]. PAAS, one of the guidelines of the National Food and Nutrition Policy (PNAN), is part of the strategic axis of the National Health Promotion Policy (PNPS)[11], with food and nutrition education actions being a field of knowledge and of practice, characterized by transdisciplinarity, intersectionality and multi professionality, that aims to promote the autonomous and voluntary practice of healthy eating habits[12].

PAAS actions in the school space have shown effectiveness in changing eating practices in children, with a consequent effect on the prevention and reversal of childhood obesity, and have been one of the actions widely recommended by international organizations[13-17]. Thus, considering the multiple determinants of food and the need to involve different sectors for the development of healthy food practices and choices, the school comprises a privileged space for health promotion and food and nutrition education[13].

As the Health at School Program (PSE) is a strategy to integrate the health and education sectors with the objective of developing health promotion actions in the school environment, it has the potential to contribute to the promotion of healthy eating and to the reversal of the scenario of childhood obesity, through the promotion of food and nutrition education actions[18]. The PSE has a wide national reach and, in 2022, has the adhesion of almost all Brazilian municipalities (97.3%), 97,389 schools, covering 23,426,003 students. Currently, the PSE is composed of 13 health promotion and disease prevention actions, among them, the action to promote healthy eating and obesity prevention[19], which is strengthened with additional transfer of resources to municipalities that also adhered to the Healthy Grow Program (PCS).

Considering the scenario of high prevalence of negative outcomes related to inadequate nutrition in children and the potential of PAAS actions to prevent this situation, in 2017, the PCS was established by the Ministry of Health, with the objective of contributing to prevention and attention of childhood obesity through actions, to be carried out within the scope of the PSE, for children enrolled in

Early Childhood Education (adhered daycare centers and preschools) and in the adhered elementary schools. In 2022, the PCS has the participation of 4,604 Brazilian municipalities, of 87,174 schools, covering 20,891,587 students[20]. The program, in the same way as the PSE, establishes a financial increase in the transfers, sent directly to the municipalities, through the National and Municipal Health Funds, to support the implementation of the program, which includes the development of actions, among them, carrying out collective activities on the promotion of adequate and healthy food in PSE schools[20].

Therefore, the objective of the present study was to analyze the evolution of the percentage of schools adhered to the PSE that carried out collective activity on the theme of healthy eating over the last five years (2017-2021) and to verify the contribution of the transfer of additional financial resources to the PCS in the implementation and in the increment of accomplishments of the actions of PAAS in the scope of the PSE. It is noteworthy that the results of the present study will contribute to the analysis of the implementation of actions by the Ministry of Health, such as PSE and PCS, in which both present collective activities of PAAS as actions promoted and monitored by these programs. Furthermore, analyzes such as this one are essential to provide opportunities for the reformulation of programs with the objective of improving their implementation if necessary.

## Material and methods

This is an epidemiological study of ecological design, developed with secondary data registered in the Health Information System for Primary Care (SISAB) of the Secretariat of Primary Health Care (SAPS) of the Ministry of Health, in the public domain and free of charge for electronic access (https://sisab.saude.gov.br/)[21].

Information was extracted from the actions carried out under the PSE, inserted through the Collective Activity Form of the e-SUS Primary Care (https://sisab.saude.gov.br/paginas/acessoRestrito/relatorio/federal/saude/RelSauAtivColetiva. xml). For data extraction, the option 'INEP (Schools/Nursery)' was selected in 'Report Line' and the option 'Qt collective activity/Number of Participants' in 'Report Column'. In 'Type of Information', the option 'Collective Activity' was selected, and in 'Themes for Health', the option 'Healthy Eating' was selected. In this way, information was extracted on the number of collective activities on the subject of healthy eating carried out by schools in each Brazilian municipality, for the years 2017 to 2021. Data were also obtained on the number of schools adhering to the PSE per municipality and the relation of the municipalities that received additional financial resources from the PCS for the 2017/2018, 2019/2020 and 2021/2022 cycles, from a database requested to the Health Promotion Department (DEPROS) of SAPS of the Ministry of Health.

The descriptive analysis included the calculation of the distribution of relative and absolute frequencies for the categorical and mean variables and a 95% Confidence Interval (CI) for the quantitative variables of the study. To compare the averages of the percentages of schools adhered to the PSE that performed at least one collective activity in the year between the periods of 2017 and 2021, analysis of variance (ANOVA) was used for repeated measures, followed by the *post-hoc* test of Bonferroni. In order to compare the averages according to the type of Brazilian region and if the additional financial resource was received for the implementation of actions within the scope of the PCS, the ANOVA One Way tests (followed by the *post-hoc* Games-Howell test) and the Simple Student's T test were performed respectively.

The data obtained were analyzed using the softwere Statistical Package for the Social Sciences for Windows Student Version (SPSS)

version 19.0. For all analyses, a significance value of 5% was adopted.

## Results

During the period from 2017 to 2022, there was an increase in the number of municipalities participating in the PCS, expanding its national reach (10.9% in the 2017/18 cycle; 77.8% in the 2019/20 cycle; and 84.9% in the 2021/22 cycle) (*table 1*). *Table 1* shows the number of municipalities that joined the PSE and the total number of municipalities participating in the PCS that received additional financial resources to support its implementation.

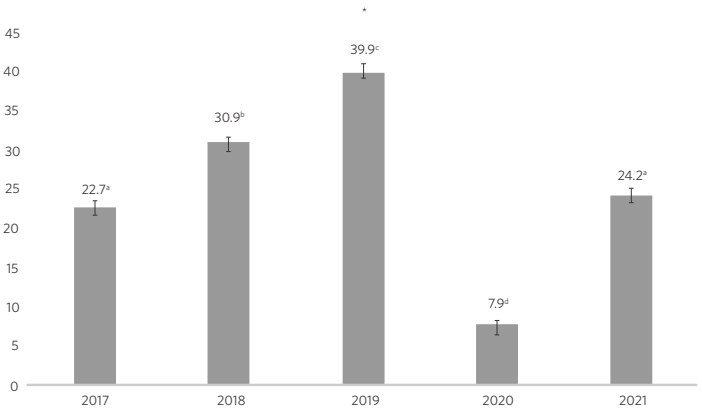
Table 1. Total of Brazilian municipalities adhering to the Health at School Program and percentage of those that received the additional resource to implement actions within the scope of the Healthy Grow Program, in the 2017/18, 2019/20 and 2021/22 cycles

| Cycle | Total municipalities adhered to the PSE | Percentage of municipalities adhering to the PSE in relation to the total number of Brazilian municipalities | Number of schools | Total municipalities that received the additional PCS resource | Percentage of municipalities that received the additional resource from the PCS to the total number of municipalities adhering to the PSE | Number of schools |
|---|---|---|---|---|---|---|
| 2017/2018 | 5,040 | 90.5% | 85,700 | 548 | 10.9% | 21,953 |
| 2019/2020 | 5,289 | 95.0% | 91,659 | 4,118 | 77.8% | 76,374 |
| 2021/2022 | 5,422 | 97.3% | 97,389 | 4,604 | 84.9% | 87,174 |

Source: Health Information System for Primary Care (SISAB)[21].

In *graph 1*, it is observed that there was an increase in the percentage of schools adhering to the PSE that carried out at least one collective activity, in the year, on the topic of healthy eating, considering the period from 2017 to 2019 ($p<0.05$). In 2020, there was the lowest percentage of collective actions carried out when compared to all evaluation years ($p<0.05$). In 2021, there was a significant increase in this percentage compared to 2020 ($p<0.05$), recording a statistically similar value when compared to 2017 ($p>0.05$).

Graph 1. Average (95% CI) of the percentage of schools adhering to the School Health Program that carried out at least one collective activity per year on the topic of healthy eating for the years 2017 to 2021




Source: Health Information System for Primary Care (SISAB)[21].

*p<0.001. Analysis of variance (ANOVA) for repeated measures. Means with at least one letter in common do not show statistically significant differences according to the *post-hoc* Bonferroni test.

When comparing the percentages of schools that carried out collective activities on the topic of healthy eating according to the Brazilian region (*table 2*), it was observed that, in 2017, the highest percentages were found in the Southeast region when compared to all Brazilian regions and that the percentage of the Northeast region was higher than that of the North region. In 2018, the Southeast region recorded a higher percentage than the Midwest, North and South regions; the Northeast region had a higher percentage than the Center-West and South; and in the North region, a higher percentage was observed than in the South region. In 2019, it was found that the Northeast and Southeast regions recorded the highest percentages when compared to the other Brazilian regions. In 2020, it was observed that the South region had a higher percentage compared to the Midwest, Northeast and North regions, with no difference with the Southeast region; however, the Southeast region presented a higher percentage than the Northeast region. In addition, in 2021, the South region had a higher percentage compared to the Midwest and Northeast regions; however, the North and Southeast regions recorded higher percentages in relation to the Northeast region.

Table 2. Average (95% CI) of the percentage of schools adhering to the School Health Program that performed at least one collective activity per year on the topic of healthy eating according to the region of Brazil, Brazil. 2017-2021

| | Region | | | | | |
|---|---|---|---|---|---|---|
| Year | Center-West | Northeast | North | Southeast | South | P-Value* |
| 2017 | 19.5 (16.6-22.3) ab | 22.9 (21.6-24.2) a | 16.6 (14.2-19.0) b | 27.7 (26.0-29.5) c | 21.1 (19.2-23.1) ab | <0.001 |
| 2018 | 25.8 (22.7-28.9) ac | 33.3 (31.9-34.8) bd | 29.3 (26.3-32.3) ad | 36.1 (34.2-38.0) b | 24.6 (22.2-26.2) c | <0.001 |
| 2019 | 37.3 (34.0-40.6) a | 41.9 (40.4-43.4) b | 35.4 (32.4-38.4) a | 46.2 (44.2-48.2) b | 35.1 (32.7-37.5) a | <0.001 |
| 2020 | 6.3 (4.7-8.0) ab | 5.9 (5.2-6.6) a | 6.8 (5.2-8.4) ab | 9.6 (8.4-10.8) bc | 10.5 (8.9-12.1) c | <0.001 |
| 2021 | 21.6 (18.6-24.7) ab | 20.6 (19.2-22.0) a | 25.4 (22.5-28.4) bc | 27.3 (25.4-29.3) bc | 29.7 (27.3-32.0) c | <0.001 |

Source: Health Information System for Primary Care (SISAB)[21].

*One Way ANOVA test. Means with at least one letter in common do not show statistically significant differences according to the Games-Howell post-hoc test.

According to *table 3*, it was observed for all years, with the exception of 2017, that the municipalities that received additional financial resources from the PCS had the highest percentages of schools that carried out at least one collective activity per year on the theme of healthy eating when compared to municipalities that only adhered to the PSE and did not receive the additional financial resource from the PCS, as an induction mechanism for carrying out the actions of PAAS (p<0.05).

Table 3. Average (95% CI) of the percentage of schools adhering to the Health at School Program that carried out at least one collective activity per year on the topic of healthy eating according to the receipt of the additional resource from the Health Grow Program, Brazil. 2017-2021

| | Received a bonum from the Health GRown Program | | |
|---|---|---|---|
| Year | No | Yes | P-Value* |
| 2017 | 22.4 (21.6-23.3) | 24.4 (22.1-26.6) | 0.121 |
| 2018 | 29.9 (28.9-30.9) | 39.2 (36.5-42.0) | <0.001 |
| 2019 | 24.8 (23.0-26.5) | 44.2 (43.2-45.3) | <0.001 |
| 2020 | 4.7 (3.8-5.6) | 8.8 (8.1-9.4) | <0.001 |
| 2021 | 16.3 (14.3-18.3) | 25.6 (24.6-26.6) | <0.001 |

Source: Health Information System for Primary Care (SISAB)[21].

*Simple Student's T.

## Discussion

The findings of this study evidence and reinforce the contribution of the Ministry of Health in allocating financial resources to priority programs, with a view to supporting the implementation and carrying out of actions, such as the collective activities of PAAS, within the scope of the PSE and PCS.

Since 2019, all municipalities in the country are able to join and participate in the PSE and PCS. Adherence to each PSE/PCS biannual cycle occurs through the e-Gestor Primary Care (AB) platform. At the time of joining, the manager must indicate the public schools and day care centers that will participate in the PSE, in addition to being able to join the PCS. It is noteworthy that adherence is a process of voluntary agreement of commitments to be signed between the municipal health and education secretaries with the Ministries of Health and Education. It is recommended that actions be developed through intersectoral planning and shared management between health and education. The decentralization of funding for the PSE and PCS is done annually, in a single installment, with direct transfer from the National Health Fund, at the federal level, to the Health Funds at the municipal and Federal District levels. The calculation that defines the amount to be transferred to each municipality is based on the number of students agreed upon at the time of adhesion, and recalculated in the second year of the cycle by the same factor, considering the performance of the municipalities in the indicators monitored by both programs[22].

It is noteworthy that the allocation of additional resources to the PCS favored the implementation of PAAS actions within the scope of the PSE, which reinforces the importance of supporting municipalities through regular financial transfers. In addition, it is important to emphasize that there was a significant increase in the reach of PCS in Brazilian municipalities, which shows the strengthening of this program over the years.

The PCS establishes a set of actions to be implemented with the objective of contributing to the prevention and attention to childhood obesity. Among the actions agreed upon in adherence and monitored by the Ministry of Health within the scope of the PCS are: the assessment of the nutritional status and food consumption of children under 10 years of age; individual assistance in PHC, of students diagnosed with obesity; and the provision of collective activities to promote adequate and healthy food and physical activity in schools[20]. As it is a condition with a complex and multifactorial etiology, prevention and attention to childhood obesity must be guided by multicomponent interventions and intersectoral strategies, which focus on its multiple determinants and on the environments commonly frequented by children, such as schools. Thus, despite the leadership that the health sector must assume to promote these actions, sectors such as education, sport and leisure, social assistance, food security, supply, public security, urban planning, among others, are fundamental to support healthy eating and physical activity, main direct determinants[13–17].

The present study showed that there has been a strengthening of PAAS actions within the scope of the PSE in the last five years. In addition, the collective activity of PAAS is among the most performed actions of the PSE. According to the monitoring report for the last completed cycle (2019/2020 cycle), in the first and second years, 1,450,634 and 131,300 PSE actions were carried out, respectively[23,24]. The collective activity on the topic of healthy eating was the second most carried out action among the scope of actions of the PSE, with 261,419 and 23,884 activities carried out in 2019 and 2020, in that order, corresponding to about 18% of the total of actions. Only the collective activity on oral health surpassed the PAAS activities. In 2019 and 2020, respectively, 50.8% and 36.6% of total PSE actions were on oral health[23,24]. The scope of PAAS actions throughout the country evidences the prioritization and recognition, on the part of managers and health professionals, of the importance of this action in relation to the set of health promotion measures carried out in schools participating in the PSE.

Since childhood obesity is the most prevalent nutritional problem among children, the school environment is recognized as a strategic space for the development of actions to monitor nutritional status, prevent and care for childhood obesity and promote health[13–17], since, in Brazil, more than 90% of children over 5 years of age and adolescents attend school[25]. Anthropometric assessment, an action promoted by both the PSE and the PCS, constitutes a fundamental strategy to contribute to the prevention and care of childhood obesity, since continuous monitoring allows for the early diagnosis of nutritional deviations and timely intervention[14].

Collective activities on PAAS also constitute an important action for the prevention of childhood obesity, among other diseases and disorders related to poor diet. The development of personal skills in food and nutrition implies thinking about food and nutrition education as a process of dialogue between health and education professionals and the population, of fundamental importance for the exercise of autonomy and self-care[11]. It is noteworthy that the PSE and PCS are guided by intersectoriality and consider the social determinants related to obesity[18,20]. In this sense, the responsibility of the health teams in relation to the PAAS must transcend the limits of the health units, inserting themselves in the other social facilities of the territory, such as schools and day care centers, for example[11]. In addition, considering the governmental actions that aim to promote adequate and healthy food within schools, it is worth highlighting the role of the National School Food Program (PNAE), which offers school meals in line with the official guidelines of the Ministry of Health for healthy eating, available in the Food Guide for the Brazilian Population, and encourages food and nutrition education actions for students enrolled in public Basic Education[26].

In addition to the transfer of financial resources within the scope of the PSE and PCS, which, in this study, proved to be effective in inducing and guaranteeing the realization and prioritization of these actions, other measures were adopted by the federal government to induce and strengthen the implementation of the programs at the national level, such as institutional support for professionals and managers, holding of virtual events and workshops and the availability of educational videos, support and instructional materials, and training courses, for example[20,27-30]. The availability of instructions and materials facilitates and supports health and education teams in carrying out actions, considering the autonomy of entities in adapting implementation strategies, considering the particularities and challenges of each local context.

In this sense, to support the performance of managers, health and education professionals involved in the PSE agenda, the Ministry of Health launched thematic notebooks with the objective of supporting the planning, organization and implementation of actions to promote adequate and healthy nutrition in the school environment, establishing relationships with the curricular parameters and valuing the transversality of food. Four thematic notebooks were produced for DayCare, Early Childhood Education, Elementary School I and Elementary School II[31-34]. In addition to these materials, since 2015, the Ministry of Health has collaborated on the construction of Didactic Back Covers for books used in public schools, which convey messages about adequate and healthy eating for students and teachers, based on the National Book and Teaching Material Program (PNLD)[35].

Thus, it is suggested that the mechanisms commonly used by federal management to promote actions at the local level are potential inducers for their realization. The most used instruments are the regular transfer of financial resources, investment in training and professional qualification, the preparation and availability of materials, instructions and institutional technical support to state and municipal managers. This study showed the contribution of funding in the implementation of priority actions, however, the evaluation of the use of materials and instructions in the implementation of the PSE and PCS has not yet been appreciated in the country and needs to be the object of future research.

Furthermore, the results of the present study showed that the implementation of PAAS actions did not occur homogeneously according to the Brazilian macro-regions. Between the years 2017 and 2019, the Southeast region followed by the Northeast region carried out the largest number of activities. In the period 2020 and 2021, the South and Southeast regions were the ones that presented the best performance in this action. Some of the hypotheses that may explain the difference in the implementation of collective activities in PAAS between the macro-regions are social and regional inequalities in Brazil, prioritization of the implementation of PAAS actions over other PSE actions and the coverage of PHC, with the Northeast region, followed by the South region, with the highest coverage of APS36. In addition, there was a possible negative effect of the Public Health Emergency of National Importance (ESPIN) caused by COVID-19, which greatly impacted face-to-face educational offerings, since, in 2020, there was the lowest percentage of schools that performed PAAS actions when compared with all the evaluation years. This hypothesis can be reinforced with information from the National Institute of Educational Studies and Research Anísio Teixeira (INEP), that the percentage of Brazilian schools that did not return to face-to-face activities in the 2020 school year was 90.1% and that schools in the country were, on average, 279.4 days without face-to-face classes at all levels of Basic Education. The highest average of days of suspension of face-to-face activities in schools was in the Northeast (299.2 days), with emphasis on the public network (307.1 days)[25].

In 2021, an increase in the percentage of schools that carried out PAAS actions can already be observed compared to 2020. One of the reasons for this increase may be the advance of vaccination against COVID-19, with a consequent improvement in the epidemiological scenario of the pandemic, enabling the resumption of face-to-face classes. In addition, it is noteworthy that the guiding document for the development of actions in the 2021/2022 PSE Cycle provided guidelines for carrying out collective activities in remote format, as well as the indication of materials that could support the teams in these actions[13]. Within this perspective, and in view of the time required for primary care teams and schools to organize themselves to resume health promotion activities, in 2021, a new increase was seen, in the percentage of schools adhering to the PSE that performed at least least one collective activity with the theme of healthy eating, returning to the percentage observed in 2017.

Considering the possibility of teams carrying out PSE actions remotely, according to the 2021/2022 PSE cycle guidance document[19], one of the possible justifications that add to the previous ones described is that, of the regions, the fact that the Southeast and South register the highest percentage of schools that carried out the PAAS action may be the better access to computers and other equipments and the internet[25]. According to Inep data, of the 29,900 public schools that do not have a computer available, 26,300 are located in the North (10,245) and Northeast (16,104), representing 80.5% of Brazilian establishments in this condition. The same inequality is observed in the distribution of internet access for use exclusively in administrative activities in public establishments, with the North and Northeast regions having the lowest internet access, even for exclusively administrative and non-pedagogical purposes[25].

Among the limitations of the study, it is highlighted that only collective activities on the topic of healthy eating properly registered in the e-SUS collective activity form were recorded. The absence of registration in the information system or the inadequate completion of the collective activity form impairs the monitoring of data. In addition, the secondary data from SISAB does not allow recording of the modality of carrying out the activity (remote or face-to-face) on the theme of each of the activities carried out, as well as the evaluation of the quality of each of the activities carried out.

Another issue refers to the feasibility of carrying out collective activities in the school environment, which demands greater articulation between professionals working in the PSE/PCS and educators for planning activities and sharing the calendar for carrying out actions. Although the data reveal an increase in the supply of activities on healthy eating in 2021 compared to 2020, optimizing the school calendar to overcome the learning gaps caused by the pandemic can lead to a reduction in health promotion activities to the detriment of other educational activities, for example, those aimed at replacing classes.

Despite these limitations, the present study has an innovative character, it shows the temporal evolution in the performance of PAAS actions under the PSE in the last five years and the importance of the additional financial transfer in the mobilization of managers and teams in the implementation of actions under the PCS. The strategy of establishing federal financial resources is a potential inducer in supporting municipalities for the implementation of collective activities on the topic of healthy eating in the school environment. In view of this, it appears that the PCS is a potentiating strategy for PAAS actions in schools, which can contribute to the adoption of healthy eating, prevention and care of schoolchildren in relation to childhood obesity.

## Final considerations

In the last five years, there has been an expansion of PAAS' actions within the scope of the PSE, with a significant reduction in 2020

due to the context of the COVID-19 pandemic, but with a tendency to resume in 2021. The execution of the PAAS actions did not occur homogeneously in all the Brazilian macro-regions. These findings highlight the importance of endorsing health promotion policies and programs in Brazil, through the establishment of agreed commitments between the federated entities, considering the current social and epidemiological scenario and the priority problems in public health. In addition, the importance of strengthening the implementation of PAAS actions within the scope of the PSE is highlighted, considering that these actions can contribute to the prevention of childhood obesity, among other diseases and disorders related to poor diet.

The municipalities that also adhered to the PCS, and therefore received additional financial resources for the implementation of this program, showed a better performance in carrying out collective activities on PAAS in schools agreed in the PSE, evidencing the contribution of this strategy in supporting municipalities and in prioritizing public policies to reach priority audiences.

## Collaborators

Carmo AS (0000-0002-3421-9495)* collected and analyzed the data and built the tables. Carmo AS, Serenini M (0000-0002-2266-2991)*, Pires ACL (0000-0002-2308-0336)*, Pedroso J (0000-0001-5446-4319)*, Lima AMC (0000-0003-0908 -7790)*, Silva AS (0000-0002-2605-378X)* and Bartolini GA (0000-0002-7830-9134)* interpreted the data and wrote the article. All authors reviewed and approved the final version. ■

## References

1. GBD 2017 Diet Collaborators. Health effects of dietary risks in 195 countries, 1990-2017: a systematic analysis for the Global Burden of Disease Study 2017. Lancet. 2019 [acesso em 2022 abr 30]; 393(10184):1958-1972. Disponível em: https://www.thelancet.com/article/S0140-6736(19)30041-8/fulltext.

2. Malta DC, Felisbino-Mendes MS, Machado ÍE, et al. Risk factors related to the global burden of disease in Brazil and its federated units, 2015. Rev Bras Epidemiol. 2017 [acesso em 2022 abr 30]; 20:217-232. Disponível em: https://www.scielo.br/j/rbepid/a/M7TDLLMWwp7vrVNs6LS47hC/?lang=en.

3. Stanaway JD, Afshin A, Gakidou E, et al. Global, regional, and national comparative risk assessment of 84 behavioural, environmental and occupational, and metabolic risks or clusters of risks for 195 countries and territories, 1990-2017: A systematic analysis for the Global Burden of Disease Study 2017. Lancet. 2018 [acesso em 2022 abr 30]; 392(10159):1923-94. Disponível em: https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(18)32225-6/fulltext.

4. Brasil. Ministério da Saúde, Secretaria de Atenção à Saúde, Departamento de Atenção Básica. Relatórios públicos do Sisvan. Brasília, DF: MS; 2022. [acesso em 2022 jul 30]. Disponível em: http://sisaps.saude.gov.br/sisvan/relatoriopublico/index.

5. Popkin BM, Corvalan C, Grummer-Strawn LM. Dynamics of the double burden of malnutrition and the changing nutrition reality. Lancet. 2020 [acesso em 2022 abr 30]; 395(10217):65-74. Disponível em: https://www.thelancet.com/journals/lancet/article/PIIS0140-67361932497-3/fulltext#:~:text=The%20

*Orcid (Open Researcher and Contributor ID).

double%20burden%20of%20malnutrition%20(DBM)%2C%20defined%20as%20the,it%20differs%20by%20socioeconomic%20level.

6. Dias PC, Henriques P, Anjos LA, et al. Obesidade e políticas públicas: concepções e estratégias adotadas pelo governo brasileiro. Cad. Saúde Pública 2017 [acesso em 2022 abr 30]; 33(7):e00006016. Disponível em: https://www.scielo.br/j/csp/a/Q7r6YWsJSR5GZ9bJFBr6ckm/abstract/?lang=pt.

7. Santana DD, Barros EG, Salles-Costa R, et al. Mudanças na prevalência de excesso de peso em adolescentes residentes em área de alta vulnerabilidade a insegurança alimentar. Ciênc. Saúde Colet. 2021 [acesso em 2022 abr 30]; 26(12):6189-6198. Disponível em: https://www.scielosp.org/article/csc/2021.v26n12/6189-6198/.

8. Brasil. Ministério da Saúde, Secretaria de Atenção Primária à Saúde, Departamento de Promoção da Saúde. Ações de enfrentamento da má nutrição no contexto da pandemia: Portaria GM/MS nº 894, de 11 de maio de 2021 – Capítulo III. Brasília, DF: Ministério da Saúde; 2021.

9. Instituto Brasileiro de Geografia e Estatística. Pesquisa de Orçamentos Familiares 2017-2018: análise da segurança alimentar no Brasil. Rio de Janeiro: IBGE; 2020.

10. UNICEF. Ipec – Inteligência em Pesquisa e Consultoria. Impactos Primários e Secundários da COVID-19 em Crianças e Adolescentes Relatório de análise 3ª Rodada. 2021. [acesso em 2022 abr 30]. Disponível em: https://www.unicef.org/brazil/media/15136/file/relatorio_analise_impactos-primarios-e-secundarios-da-covid-19-em-criancas-e-adolescentes_terceira-rodada.pdf.

11. Brasil. Ministério da Saúde, Secretaria de Atenção à Saúde, Departamento de Atenção Básica. Política Nacional de Alimentação e Nutrição. 1. ed. Brasília, DF: Ministério da Saúde; 2013.

12. Brasil. Ministério do Desenvolvimento Social e Combate à Fome (MDS). Marco de referência de educação alimentar e nutricional para as políticas públicas. Brasília, DF: MDS; Secretaria Nacional de Segurança Alimentar e Nutricional; 2012.

13. Fondo de las Naciones Unidas para la Infancia. El sobrepeso en la niñez: Un llamado para la prevención en América Latina y el Caribe. Ciudad de Panamá: UNICEF; 2021.

14. World Health Organization (WHO). Report of the Commission on Ending Childhood Obesity. WHO: Geneva; 2017.

15. Organização Pan-Americana da Saúde (OPAS). Plano de Ação para Prevenção da Obesidade em Crianças e Adolescentes. Washington, DC: OPAS; 2014.

16. The Organisation for Economic Co-operation and Development (OECD). The Heavy Burden of Obesity: The Economics of Prevention. Paris: OECD Health Policy Studies; OECD Publishing; 2019. [acesso em 2022 abr 30]. Disponível em: https://www.oecd.org/health/the-heavy-burden-of-obesity-67450d67-en.htm.

17. Shekar M, Popkin B. Obesity: health and economic consequences of an impending global challenge. [S.l.]: World Bank Publications; 2020.

18. Brasil. Presidência da República. Decreto nº 6.286, de 5 de dezembro de 2007. Institui o Programa Saúde na Escola (PSE), e dá outras providências. Diário Oficial da União. 5 Dez 2007.

19. Brasil. Ministério da Saúde, Secretaria de Atenção Primária à Saúde, Departamento de Promoção da Saúde. Documento orientador: indicadores e padrões de avaliação - PSE Ciclo 2021/2022. Brasília, DF: MS; 2021. [acesso em 2022 abr 30]. Disponível em: http://189.28.128.100/dab/docs/portaldab/documentos/academia/Documento_orientador_2021-2022_PSE.pdf.

20. Brasil. Ministério da Saúde, Secretaria de Atenção Primária à Saúde. Programa Crescer Saudável. Bra-

sília, DF: MS; 2022. [acesso em 2022 abr 30]. Disponível em: http://aps.saude.gov.br/ape/promocaosaude/crescersaudavel.

21. Brasil. Ministério da Saúde, Secretaria de Atenção Primária à Saúde. Relatórios públicos do Sistema de Informação em Saúde para a Atenção Básica (Sisab). Brasília, DF: MS; 2022. [acesso em 2022 jul 30]. Disponível em: https://sisab.saude.gov.br/.

22. Brasil. Ministério da Saúde. Passo a passo para adesão ao Programa Saúde na Escola – Ciclo 2021-2022. Brasília, DF: MS; 2021. [acesso em 2022 abr 30]. Disponível em: http://189.28.128.100/dab/docs/portaldab/documentos/pse/PSE_Passoapasso.pdf.

23. Brasil. Ministério da Saúde, Secretaria de Atenção Primária à Saúde, Departamento de Promoção da Saúde, Coordenação-Geral de Promoção da Atividade Física e Ações Intersetoriais. Nota Técnica Nº 17/2020-CGPROFI/DEPROS/SAPS/MS, de 04 de maio de 2020 (SEI/MS – 0014647570). Divulgação dos resultados do monitoramento das ações do Programa Saúde na Escola do primeiro ano do ciclo 2019/2020. Brasília, DF: MS; 2020. [acesso em 2022 abr 30]. Disponível em: http://189.28.128.100/dab/docs/portaldab/documentos/academia/NT17_Monitoramento_PSE_2019.pdf.

24. Brasil. Ministério da Saúde, Secretaria de Atenção Primária à Saúde, Departamento de Promoção da Saúde. Nota Técnica Nº 10/2021-DEPROS/SAPS/MS, de 29 de abril de 2021 (SEI/MS – 0020274939). Divulgação dos resultados do monitoramento das ações do Programa Saúde na Escola em 2020. Brasília, DF: MS; 2020. [acesso em 2022 abr 30]. Disponível em: http://189.28.128.100/dab/docs/portaldab/documentos/pse/NT_10_monitoramento_pse_2020.pdf.

25. Brasil. Ministério da Educação, Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira. Diretoria de Estatísticas Educacionais. O censo escolar 2021: divulgação de resultados. Brasília, DF: Inep; 2021. [acesso em 2022 abr 30]. Disponível em: https://download.inep.gov.br/censo_escolar/resultados/2021/apresentacao_coletiva.pdf.

26. Brasil. Ministério da Educação. Resolução/CD/FNDE nº 6, de 8 de maio de 2020. Dispõe sobre o atendimento da alimentação escolar aos alunos da educação básica no âmbito do Programa Nacional de Alimentação Escolar – PNAE. Diário Oficial da União. 8 Maio 2020.

27. Brasil. Ministério da Saúde, Secretaria de Atenção Primária à Saúde. Instrutivo Programa Crescer Saudável 2021/2022 - Versão Preliminar. Brasília, DF: MS; 2021.

28. Brasil. Ministério da Saúde, Secretaria de Atenção Primária à Saúde. Programa Saúde na Escola. Brasília, DF: MS; 2022. [acesso em 2022 abr 30]. Disponível em: https://aps.saude.gov.br/ape/pse.

29. Brasil. Ministério da Saúde, Secretaria de Atenção à Saúde; Ministério da Educação, Secretaria de Educação Básica. Caderno Temático Programa Saúde na Escola: Segurança Alimentar e Nutricional e Promoção da Alimentação Adequada e Saudável. Brasília, DF: MS; 2015. [acesso em 2022 abr 30]. Disponível em: http://189.28.128.100/dab/docs/portaldab/documentos/caderno_san_paas.pdf.

30. Brasil. Ministério da Saúde. Caderno temático do Programa Saúde na Escola: alimentação saudável e prevenção da obesidade. Brasília, DF: Ministério da Saúde; 2022.

31. Brasil. Ministério da Saúde. A creche como promotora da amamentação e da alimentação adequada e saudável: livreto para os gestores. Brasília, DF: Ministério da Saúde; 2018. [acesso em 2022 abr 30]. Disponível em: http://189.28.128.100/dab/docs/portaldab/publicacoes/a_creche_promotora_amamentacao_livreto_gestores.pdf.

32. Brasil. Ministério da Saúde. Promoção da Alimentação Adequada e Saudável: Educação Infantil. Brasília, DF: Ministério da Saúde; 2018. [acesso em 2022 abr 30]. Disponível em: http://189.28.128.100/dab/docs/portaldab/publicacoes/caderno_atividades_educacao_infantil.pdf.

33. Brasil. Ministério da Saúde. Promoção da Alimentação Adequada e Saudável: Ensino Fundamental I. Brasília, DF: Ministério da Saúde; 2018. [acesso em 2022 abr 30]. Disponível em: https://alimentacaoescolar.org.br/media/acervo/documentos/caderno_atividades_ensino_fundamental_I.pdf.

34. Brasil. Ministério da Saúde. Promoção da Alimentação Adequada e Saudável: Ensino Fundamental II. Brasília, DF: Ministério da Saúde; 2018. [acesso em 2022 abr 30]. Disponível em: https://bvsms.saude.gov.br/bvs/publicacoes/promocao_alimentacao_saudavel_ensino_fundamental_II.pdf.

35. Brasil. Ministério da Educação, Fundo Nacional de Desenvolvimento da Educação. Educação Alimentar e Nutricional: EAN. Brasília, DF: Ministério da Educação; 2022. [acesso em 2022 abr 30]. Disponível em: https://www.fnde.gov.br/programas/pnae/pnae-eixos-de-atuacao/pnae-educacao-alimentar-nutricional.

36. Brasil. Ministério da Saúde, Secretaria de Atenção à Saúde, Departamento de Atenção Básica. Relatório público do e-gestor AB. Histórico da cobertura da APS. Brasília, DF: MS; 2022. [acesso em 2020 jul 30]. Disponível em: https://egestorab.saude.gov.br/paginas/acessoPublico/relatorios/relHistoricoCobertura.xhtml.

Received on 05/09/2022
Approved on 09/15/2022
Conflict of interests: non-existent
Financial support: non-existent