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CHAPTER 11

Beyond the Effort of the National School Feeding Program (PNAE) in Public Schools of the Municipality of Tupã (SP) during the Covid-19 Pandemic: Impacts on Achieving the Sustainable Development Goals

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FOOD AND NUTRITIONAL SECURITY – A VISION BEYOND COMBATING HUNGER AND MALNUTRITION

The theme of Food and Nutritional Security (SAN) encompasses various segments of society, far beyond combating hunger and malnutrition, which is among the Sustainable Development Goals (SDG 2) of the United Nations (UN). Non-communicable Chronic Diseases (NCDs) constitute a group of diseases such as diabetes, hypertension, cardiovascular diseases, cancer, chronic respiratory diseases, among others, and can relate to the debate of SDG 3, Health and Well-being. These diseases are directly associated with several risk factors, but primarily with the consumption of harmful foods over long periods of life. This includes the excessive consumption of ultra-processed foods rich in sugar, saturated fat, and sodium, as well as low intake of fruits, vegetables, fibers, and nutrient-rich foods (De Moraes, 2013; Francischi *et al.*, 2000).

Malnutrition (SDG 2) is associated with NCDs (SDG 3), which are responsible for approximately 71% of all deaths worldwide, that is, the death of 41 million people each year, of which 15 million are aged between 30 and 70 years, with half of these, 7.2 million, being from countries with a higher prevalence of Socioeconomic Inequality, hence, poverty in the world (WHO, 2018; PAHO, 2020).

Without the Reduction of Inequality (SDG 10), one cannot combat one of the main causes of global health expenses, where the costs associated with these diseases vary considerably, influenced by factors such as the type and stage of the disease, geographic location, the health system of the country, and access to treatment. The increase in NCDs can lead to poverty due to various factors, disproportionately affecting vulnerable populations. This happens due to the lack of access to health information, quality medical care, and appropriate treatments, resulting in higher healthcare expenses. Moreover, NCDs not only affect the patient but also their families, who often need to take on caregiving roles, reducing their capacity to work and invest in education. This relationship between poverty and NCDs creates a negative cycle, where poor living conditions increase the risk of developing

NCDs, which, in turn, worsen the economic situation of people and, consequently, poverty, perpetuating social inequality worldwide (Brasil, 2021; Colon, 2018; Duarte; Shirassu; Moraes, 2023).

To combat this cycle, it is essential to adopt a comprehensive approach involving public health policies, equitable access to healthcare, education on prevention, measures to reduce social and economic inequalities, and promotion of healthy environments, contributing to the sustainable socioeconomic development of society.

Issues of SAN and healthy eating are themes involving various interconnected factors and an approach that is multi-, trans-, and interdisciplinary. In multidisciplinarity, diverse areas such as nutrition, agriculture, economics, public health, education, sociology, anthropology, and psychology contribute different perspectives on the subject. Interdisciplinarity seeks a greater understanding of the factors affecting SAN and healthy eating, considering aspects such as access to food, public policies, economy, agribusiness, health, education, culture, and others. In transdisciplinarity, connections between these factors are identified, such as agricultural policies influencing the availability of healthy foods or how food education affects food choices (Banerjee; Van Der Heijden, 2023).

The municipality of Tupã, in the state of São Paulo (SP), adopted the practice of healthy eating, which involves educating to promote habits and behaviors for choosing nutritious foods suitable for daily caloric needs, especially in the school environment. It is a city in the Alta Paulista region with about 65,615 inhabitants and 11,921 students enrolled in public schools, with the Municipal Department of Education being one of the main responsible for the policies of the National School Feeding Program (PNAE), including purchases of school meals for students enrolled in the 32 schools in the municipality, with 19 managed by the municipality and 13 by the state. The PNAE is an important government tool for promoting these healthy habits, being one of the largest SAN programs in the world, with significant coverage and impact on agriculture (Rossetti; Da Silva; Winnie, 2016).

Policies related to school feeding and food security have undergone changes throughout the country, and this also happened in Tupá, São Paulo. Exceptionally, during the period of class suspension due to the pandemic, Law No. 13,987 was enacted on April 7, 2020 (Brasil, 2020):

Authorize, exceptionally, during the period of class suspension due to an emergency or public calamity, the distribution of foodstuffs purchased with resources from the National School Feeding Program to parents or guardians of students in public basic education schools.

That, in June 2009, amended Law No. 11,947 to:

Provide for the provision of school feeding and the Direct Money Program in Schools to students in basic education (Brasil, 2009).

Thus, it enabled the delivery of school meals directly to the homes of students in public schools, not only to the most vulnerable families covered by Bolsa Família. On this occasion, the surplus produced by family farmers was offered through direct sales or the free market to local community consumers (Valadares *et al.*, 2020).

Kunihiro *et al.* analyzed the performance of PNAE in the municipality of Tupá (SP) according to economic indicators of production related to Family Farming from 2017 to 2021. The study did not cover whether the actions of distributing fresh food products to public school families had any positive impact on combating NCDs, especially on the risk variables of these diseases such as overweight and obesity (Kunihiro; Montefusco Ceschim Silva; Cristina Vieira Gomes, 2023).

PNAE is responsible for directing resources from the National Education Development Fund (FNDE) to states and municipalities, which are used to purchase school food. Federal Law No. 11,947 of 2009 incorporated sustainability and the provision of healthy and adequate food

as an essential part of the program. Therefore, school feeding is seen as a fundamental right that also contributes to the SAN of students (Paetzhold Pauli *et al.*, 2018; Rossetti; Da Silva; Winnie, 2016).

PNAE, as a public policy for SAN and the strengthening of Family Farming, also aligns with SDG 2 “Zero Hunger” and SDG 12 “Responsible Consumption and Production”. SDG 2 aims to combat malnutrition, increase the agricultural productivity of small producers, and ensure access to safe and nutritious food. SDG 12 focuses on reducing food waste, promoting sustainable public procurement, and supporting sustainable development through local products. Both goals guide policies for sustainable local development, supporting family farming and SAN (IPEA, 2019).

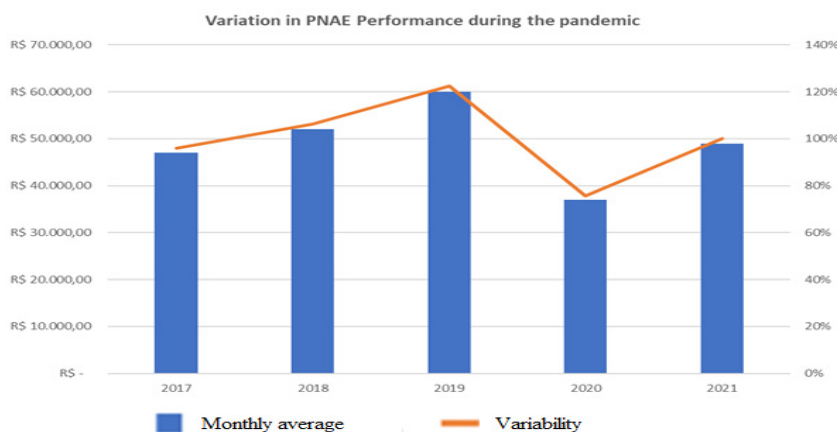
The Covid-19 pandemic affected SAN in Brazil and worldwide. The closure of schools and suspension of classes impacted the food supply by PNAE. Emergency measures were defined in Law No. 13,987 of 2020 and Resolution No. 2 of 2020, but face challenges in implementation due to a lack of effective financial transfers. To support small producers and avoid economic losses, some municipalities, such as the Federal District, used agricultural associations and cooperatives to distribute food. Public policies, such as the Food Acquisition Program (PAA) and PNAE, played an important role in maintaining production, preventing losses, and supporting farmers’ income during the pandemic. To ensure the functioning of PNAE, various strategies were adopted, such as distributing food kits, encouraging the purchase of food from family farming, assessing Food Insecurity among students, increasing the per capita transfer in areas of higher Food Insecurity risk, and serving during school vacations and recesses (Alpino *et al.*, 2020; Amorim; Ribeiro Junior; Bandoni, 2020; Hossain, 2020; Nogueira; Marcelino, 2021).

The study aimed to analyze the performance of PNAE, under the effect of the Covid-19 pandemic, in combating hunger and ensuring SAN in schools in the municipality of Tupã from 2017 to 2021⁷.

⁷ This study on the operationalization of the PNAE in Tupã adopted a quantitative and qualitative approach, including bibliographical analysis, documentary research, and data collection through messages on the WhatsApp application for institutional actors. The responses from the participants focused on

The result of PNAE's performance concerning the pandemic showed variations as illustrated in Figure 1. With adjusted values, the values from 2017 and 2021 served as a benchmark for the last 10 years, from 2007 to 2017. Even though in absolute terms, the values are not of great financial value, it was observed that from 2017 to 2019 there was a significant increase in PNAE's performance, reaching its climax during the pandemic. With the suspension of classes during the period of social isolation, instead of interrupting the acquisition of fresh food production, there was a considerable increase in the acquisition of food products from family farmers, thanks to the collaboration between the Municipal Departments of Social Assistance, Environment, Agriculture, and Education, to ensure students' nutrition, even while absent from schools. In 2020, due to institutional bureaucratic issues of the bodies responsible for regulating PNAE, there was a decrease and even temporary interruption of product acquisition, until the return to normality process in mid-2020 to 2021 (Kunihiro; Montefusco Ceschim Silva; Cristina Vieira Gomes, 2023).

Figure 1 – Performance of PNAE in relation to the pandemic



Source: Kunihiro; Montefusco Ceschim Silva; Cristina Vieira Gomes, 2023.

understanding the perceptions and points of convergence or divergence of the interviewees. Confidentiality and secrecy were maintained through the anonymization of the interviewees. In addition, health data were collected through a structured questionnaire and focus groups with various actors, contributing to the analysis of the performance of the PNAE from 2017 to 2021 (Kunihiro; Montefusco Ceschim Silva; Cristina Vieira Gomes, 2023).

Considering the increase in fresh food products in the basic basket of the population assisted by Bolsa Família and the provision of the same products to all families whose children attended public schools, even without being registered in Bolsa Família, the fact is that it allowed the population access to natural foods of high nutritional value during the pandemic. According to the Banana Growers Association, there was a previously unnoticed factor: because it concerns Family Farmers, the added nutritional value of the delivered products had not been attributed until then (Kunihiro; Montefusco Ceschim Silva; Cristina Vieira Gomes, 2023).

Considering that the food did indeed reach the final consumers and that they did indeed consume it, there are still some questions, such as: 1) If they did consume and enjoy it, would they continue consuming the same even without the free supply, i.e., did it help the beneficiaries change their lifestyle? 2) Would there actually be adherence to a healthier lifestyle by the population if there were a public policy that favored better conditions for acquiring healthy foods? 3) What were the most effective strategies to reduce barriers for the population to adhere to a healthier lifestyle? Given these questions, the study continued in search of possible answers or clarifications to these questions.

THE INTERSECTORAL CONVERGENCE THAT ENABLES MEETING THE SDGs OF THE 2030 AGENDA

Given the above questions, it was understood that if the implementation of PNAE was effective in the municipality of Tupã, the SDGs, such as 2 (Hunger and Food and Nutritional Security), 3 (Health and Well-being), 10 (Reducing Inequality), and 12 (Sustainable Consumption and Production), should be, even partially, evidenced.

An observational and analytical research⁸ was conducted to analyze whether the difficulty in adhering to healthy food consumption was due

⁸ The observational study presented some limitations such as selection, sampling and non-response bias. As for selection bias, although there is no intervention or control mechanism, the representation of community health agents refers to 50% of the population of the municipality of Tupã, therefore it does not have full

to economic unviability or the simple choice of individuals or families regarding the consumption of higher or lower nutritional quality foods. The questionnaire, consisting of three questions, was initially answered individually by 21 community health agents from the family health program. The agents were then randomly divided into five groups, where the same content was discussed, seeking the group's perception within the proposed theme. In the third moment, the five groups shared their perceptions on the same theme, with this content being recorded by the interviewer⁹.

The first question was whether the distribution of fresh food in the basic basket could help beneficiaries change their lifestyle. Among the responses, the most highlighted change in eating habits was reported by individuals due to the presence of women at home during the pandemic. The responses were as diverse as possible, even somewhat antagonistic. On occasion, because people were forced to stay at home longer, women cooked more, bought, and consumed more fruits and vegetables, and the few who did not return to their activities maintained this habit. With less emphasis but still in focus was the more vulnerable population, where the factor of access to knowledge of other foods, referring to healthier foods, could provoke a possible change if the experience of receiving fresh food for free in the basic basket continued.

At the group level, out of the five groups, four stated that although there was an increase in fresh food consumption during the pandemic, post-pandemic, there was no effective change in eating habits, returning to old eating habits. The group that claimed to have changed attributed it to the fact of cooking more at home and consequently consuming healthier foods. One attributed the lack of access to these foods due to financial subsidy, and three others to the lack of awareness of the need to change eating habits, corroborating individual findings.

representation, except for its coverage area. Regarding sampling bias, in the areas covered by the PSE, there was no population uniformity in the socioeconomic variable item that allows for inferences and application of such knowledge in other realities.

⁹ Before the activities began, participants were informed about the research and data collection, which was free from any personal or nominal nature, but guaranteed anonymity and that no personal or moral harm would be caused to the participants. Those who felt embarrassed or, for any reason, did not want to participate could abstain or even withdraw, without any loss or embarrassment. Participants were also asked to sign the Informed Consent Form, as well as the Confidentiality Agreement.

In both moments, no one could bring any evidence of effective lifestyle modification as a result of the fresh food increment during the pandemic. Practically in 100% of the group reports, it was not possible to evidence consensus on significant changes.

The second question was whether the population would adhere to a healthier lifestyle if there were a public policy that favored better conditions for acquiring healthy foods.

Individually, 30% admitted that lowering acquisition costs could help but not guarantee adherence to the new lifestyle. Forty percent stressed that efforts should focus on awareness and food education reflecting cultural change within households. The remaining 30% pointed to the application of education, not in traditional forms such as lectures but in hands-on experiences such as community gardens, cooking workshops with tastings, etc.

At the group level, it was consented that the focus was on education for adherence and progressive change to a healthier lifestyle, not on increasing accessibility or reducing the cost of acquiring healthy food.

The third question was about the most effective strategies to reduce barriers for the population to adhere to a healthier lifestyle.

Individually, attention was directed to the more vulnerable population with increased accessibility, awareness, and re-education of society. The most accepted strategy was the community garden. Of the 60%, 35% believed that management should not be the community's responsibility but the municipal management; the other 25% cited that it goes beyond public management but partnerships with suppliers and agricultural technicians. Of the 40% who did not believe in community garden development initiatives as strategies to promote a change in eating habits, they did not believe in the population's engagement in the project due to an ingrained assistance culture that discourages the population's protagonism in achieving a healthier lifestyle.

Collectively, the community garden was cited not only as a place for supply or reducing acquisition costs but as a place transitioning from

an individualistic paradigm to a collective outlook, as an effective strategy for food education and health promotion. The reference for this was the school itself, which weekly informs parents via the WhatsApp application of the menu of healthy food. Concerning school cafeterias, it was mentioned that fried snacks are no longer sold, only baked ones. In higher-income neighborhoods, the gradual elimination of school cafeterias was determined, and in lower-income neighborhoods, the total elimination of school cafeterias.

From the PNAE actions data collected and analyzed in light of the SDGs, the statements of the Community Health Agents (ACS) ensured the promotion of SAN (SDG 2) that PNAE proposed. This was evidenced among many reports about women cooking more at home during the isolation period, leading to greater fruit and vegetable consumption. The repercussion of this result reaches other areas such as promoting healthy living and well-being linked to SDG 3. It was also reported by the ACS that this phenomenon was limited to the isolation period during the Covid-19 pandemic, as returning to professional activities, especially among lower-education and lower-income women, along with the cut of the fresh food increment benefit, tended to revert to pre-pandemic eating habits.

Given the limiting factors of PNAE in promoting a healthy lifestyle, the study showed that emphasis on awareness and food education reflecting cultural change within households is a fundamental strategy for addressing sociocultural inequalities in the barrier to adherence to a healthier lifestyle. Contextualized food education can help bridge the knowledge gap and promote healthier food choices across all socioeconomic groups, thus addressing SDG 10, in reducing inequalities.

FINAL CONSIDERATIONS

The results of PNAE during the Covid-19 pandemic allowed, albeit partially, to prove the importance of joint intersectoral action as public policy, education, social assistance, health, and agribusiness in combating

major societal challenges such as malnutrition, primarily arising from inequality and social vulnerability.

The report highlighted, above all, the importance of education and awareness as key strategies to promote a healthier lifestyle, aligned with SDG 3 (Health and Well-being), 10 (Reducing Inequalities), and 12 (Responsible Consumption and Production). By addressing these aspects, public policies can play a significant role in combating NCDs, promoting equal access to healthy foods, and encouraging sustainable consumption and production practices.

It is observed that despite the socio-economic non-uniformity of this research, the determining factor in the non-change in food consumption style was evidenced, not by the lack of access to resources for acquiring such foods, but by the lack of a culture of consuming these foods. In the non-response bias, respondents sometimes differed from one another. The point of greatest divergence was regarding the accessibility of healthy products by the vulnerable population due to high costs. While some argue that people would not buy the products, being healthy on their own, even if they were of low acquisition value, but would only consume them if free. Others argue that the more vulnerable population would indeed acquire them if the price were accessible.

It is known that nutritional food education faces great challenges, especially sociocultural elements, in breaking with the culture of attractiveness, ease of preparation and consumption, and low cost developed and offered for decades by agribusiness. Traditional education does not respond, whether to awaken the need for change and/or to effect the change in food consumption style. The focus on non-traditional education, such as community gardens and cooking workshops with tasting, has been widely discussed to promote sustainable production practices to final consumption without waste. Teaching to adopt a responsible lifestyle, from growing their own food, preparing healthy meals, to achieving positive changes in healthy food consumption, aligns with SDGs 3 and 12. Furthermore, raising awareness of the importance of choosing healthy foods promotes more sustainable consumption practices, such as supporting local and seasonal producers and reducing food waste.

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