

ORIGINAL ARTICLE

Qualitative Analysis of the “Healthy Growing at School Program” - Vision of Health Professionals, School Community and Family

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Abstract

Introduction: At present, school institutions exert a great influence on the diet of their pupils, since they usually remain for a long time in these places. The Food and Nutrition Education can help in the creation of healthy eating habits among children.

Objective: To analyze the results of the Healthy Growing in School Program with regard to encouraging healthy eating habits among preschoolers at a school in São Paulo (São Paulo, Brazil).

Methods: The Program lasted 1 academic year. The sample consisted of 108 children of both sexes, aged 4 to 6 years. A questionnaire was applied to those responsible for characterization and questions to measure the level of knowledge about balanced eating (score 0-37 points) at the beginning and end of the Program. Eighteen play activities were carried out with the children, and two with the parents. This study was approved by the Ethics Committee of the São Camilo University Center (No.2,450,931).

Results: Most of the parents or guardians have a high school education, receive from 1-3 minimum salaries and have a nutritional diagnosis of eutrophic. The average score of the food knowledge questionnaire was 27.0 ± 2.5 at the beginning of the Program and did not show a significant difference at the end ($p=0,322$). From the development of educational activities, it was possible to observe that the preschoolers acquired more knowledge about the fruits, vegetables and vegetables most commonly consumed in São Paulo. The vision of the school community and families was positive about the Program.

Conclusion: The Program provided has increased interest in healthy eating practices among children.

Keywords: food and nutrition education, preschool, nutrition.

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Authors summary

Why was this study done?

The study was carried out in view of the negative impact of poor diet on the health conditions of individuals. It is necessary to propose strategies related to food and nutrition education to help the population to acquire healthy eating habits for the prevention of obesity and its complications. Inadequate childhood eating habits can lead to overweight and an increased incidence of chronic non-communicable diseases in the general population at an early stage. It is believed that the food and nutrition education program at school is an effective strategy for building healthy eating habits and maintaining them in adulthood, as the school is an environment conducive to learning and facilitating in relation to the acquisition of adequate health habits.

What did the researchers do and find?

An intervention program was implemented with the focus on offering knowledge about healthy eating to children in a school environment. It was possible to show more balanced food/preparation options. The results found represent a more qualitative approach, in view of the characteristic maturity of the target audience. In this sense, the Program made it possible to increase the interest and knowledge of children for fresh foods, as well as the involvement of schools and families.

What do these findings mean?

Considering that studies on food and nutrition education for preschoolers are still scarce, it should be noted that the results of this study are unprecedented for the profile of children enrolled in EMEI in the southern region of the city of São Paulo, São Paulo, Brazil. The positive results found may contribute to the implementation of new intervention programs on healthy eating and incentives for the construction of adequate eating habits among preschoolers.

INTRODUCTION

The prevalence of overweight in children has been progressively increasing in recent years, being considered a current public health problem by the World Health Organization (WHO). This growing increase is influenced, in large part, by inadequate eating habits, contributing to the early appearance of diseases in adulthood¹. The prevalence of overweight is found, very often, from the age of five, when overweight reached 33.5% of children aged five to nine years, with 16.6% of boys and 11.3% of the girls were obese, as shown in the Family Budget Survey (POF), carried out by the Brazilian Institute of Geography and Statistics (IBGE) in partnership with the Ministry of Health between May 2008 and May 2009².

At birth, the child is exposed to stimuli of all kinds. According to the Ministry of Health, breastfeeding, which is the first feeding practice of individuals, is the initial step towards ensuring the health and adequate growth of children³. Subsequently with the child's development, the child will come into contact with other foods and begin the process of establishing eating habits, which will be carried on throughout life. With admission to school, this process will start to be more influenced by the environment in which the child finds itself: the child will have meals outside the home, the food will have an important social representation and the school environment will become the main source of formal knowledge about nutrition⁴.

Currently, school institutions have a great influence on their students' eating habits. In daycare centers and elementary schools, this intervention is of great relevance, as children generally remain for a long time in these places. Thus, the quality of food is considered fundamental, together with the appreciation of the local food culture, offered to children⁵.

In this sense, the learning process carried out in a playful way with children, favors the development of language, reasoning, socialization, initiative and self-esteem, preparing the individual to be a citizen capable of facing challenges and participating in the construction of a better world. Playing and playing are essential acts for the physical, emotional and intellectual health of human beings⁶.

A recent study states that playfulness is directly related to the concept of playing for children, as it involves fun without worries, in addition to a break in the routine, allowing teachers a greater diversity of activities to be applied⁷.

Thus, food and nutrition education (EAN) is an extremely important strategy, advocated by public policies on food and nutrition, being considered an instrument to promote healthy eating habits^{8,9}.

Considering the data of overweight in childhood and the relevance of forming an adequate eating habit for the prevention of chronic non-communicable diseases in adulthood, it is necessary to invest in intervention programs that focus on food and nutrition education in the school environment.

To this end, the objective of this study was to analyze the results of the "Programa Crescer Saudável na Escola" (Grow Healthy at School Program) with regard to encouraging healthy eating habits among preschoolers enrolled in a Municipal School of Early Childhood Education (EMEI) in the city of São Paulo, São Paulo, Brazil.

METHODS

This is a longitudinal study with the implementation of the Healthy Growing at School Program, with EAN actions, carried out at EMEI Profa. Lourdes Heredia Mello, located in the south of the city of São Paulo, São Paulo, Brazil. The pedagogical team of EMEI has a director, a coordinator and eight teachers. The sample size of this study was 108 preschoolers of both sexes, representing 95.6% of all students at the school. As inclusion criteria, the parents/guardians, aged between 4 and 6 years old and enrolled at EMEI, signed the free and informed consent form (ICF).

Students attend EMEI from Monday to Friday from 8 am to 4 pm, and have three meals/day at school (morning snack, lunch and afternoon snack).

The Program's pedagogical team was composed of 4 Nutrition school students and 4 professors from the Nutrition undergraduate course at Centro Universitário São Camilo (CUSC) São Paulo, São Paulo, Brazil. This

study was approved by the CUSC Ethics Committee (No. 2,450,931/CAAE: 80676417.2.0000.0062). And, the first phase of the Program included the presentation to the parents/guardians of the children during the face-to-face meeting at EMEI, and the delivery of the ICF.

Subsequently, a self-administered questionnaire was delivered to parents/guardians with questions related to the families' socioeconomic status, education, weight and height of the guardian for diagnosis of nutritional status, based on the classification of the body mass index (BMI) of the World Organization Health¹⁰. In addition, an investigation was carried out with parents/guardians about knowledge related to healthy eating, with a score from 0 to 36 points. This questionnaire was important to characterize the family of preschoolers and to plan educational activities.

At first, with the children, a diagnostic evaluation activity, called "Mini Market", was applied. 25 food figures were displayed on a bench, and the children had to choose the foods they liked most. The figures presented to the children attended the categories of the Food Guide for the Brazilian Population (in natura, minimally processed, processed and ultra-processed)¹¹.

During the Program, 18 different playful intervention activities were applied, each with a different methodology. They are: "What Fruit Am I?"; "What Vegetable Am I?"; "Food Calendar"; "Playing Washing Hands"; "In the Kingdom of Fruitland"; "Food Bowl"; "Healthy Food Fishing"; "My First Recipe Book"; "Fruit Charade"; "Child Nutritionist"; "Food Traffic Light"; "My Healthy Dish"; "Joy Race"; "My Healthy Body"; "Singing with Food"; "Playing with Vitamins"; "Food Puppet" and "Garland of Food". All activities were planned according to the children's age and education level. After each activity, there was a discussion between the pedagogical team of the Program and EMEI about the use of children.

In addition to educational activities with children, two face-to-face interventions were made with parents and/or guardians, on the days of the parents and teachers meeting at EMEI. The contents of these activities were the presence of sugar, salt and fat in ultra-processed foods, and how to face obstacles to having a healthy diet.

At the end of the Program, a summative assessment was made, that is, the same questionnaire was applied on knowledge related to healthy eating with parents/guardians and the "Mini Market" activity with children was repeated in order to compare the results and identify whether there were changes after the application of intervention activities with children.

The questionnaire data, after double typing (Epi Info[®] software), were organized, tabulated and compiled. Statistical analysis was performed to compare the scores obtained in the questionnaire before and after the intervention activities using the Wilcoxon test ($p < 0.05$), with the aid of the Statistical Package for the Social Sciences[®] (SPSS) program, version 20.

Considering the objective of the work, the main results of this study are of a qualitative nature, observed by those who participated in the application and monitoring of activities, considering that critical analysis and intellectual maturity, characteristics of preschool children, are in formation.

RESULTS

Approximately 90% of families ($n=97$) completed the parent/guardian questionnaire. Regarding education, it was observed that the majority had completed high school (38.7%). Regarding the socioeconomic aspect, it was observed that approximately half of the sample had a monthly income between 1 and 3 minimum wages (50.5%).

The nutritional status of parents/guardians, based on reports of weight and height, was calculated and classified according to WHO (2002). The results found were most frequently classified as eutrophic ($n=32$; 33.0%). However, approximately half of the sample was overweight (25.8% overweight and 21.6% obesity). As malnourished, only three individuals (3.1%) were found. The others did not know how to report weight and / or height ($n=16$; 16.5%).

Regarding the score obtained by the parents or guardians of the questionnaire on knowledge about healthy eating, the average score was 27.0 ± 2.5 at the beginning of the Program. The comparison of the total score of the initial questionnaire with the final one showed no significant difference ($p=0.322$).

In the characterization activity "Mini Market", a climate of intimidation of children was observed, as it was a first contact with the Program's educators, thus there was little understanding of the children about the activity. In view of this, most children took all the food, also confirming that they influence each other in the decision-making process. In general, the children who fulfilled the activity proposal, chose mostly processed and ultra-processed foods.

In the intervention activities "Which Fruit Am I?" and "What Legume Am I?", the children found it easy to carry out, showing an adequate income. This fact made it clear that the children were already more comfortable with the technical team and also with the dynamics of play.

In the "Food Calendar" activity, in which children learned about the harvest, there was a good evaluation and greater interaction between them. In this way, students were encouraged to have a diversity in food and the importance of consuming the foods that are most grown in the month so that they can provide more nutrients and that their cost is lower, ensuring a greater possibility of offering at the table of these families.

In the "Playing to Wash Your Hands" activity, using gouache paint, it was observed that the results were not adequate. Most students needed more time to perform the task, as the paint dried very fast and was therefore more difficult to remove (clean).

In the activity "In the Kingdom of Fruitland", which involved dramatization, all the children liked and were enthusiastic about the theater. After the story was told, the children colored the drawings of the characters in the play.

The objective of the "Food Bowling" activity was to emphasize to children which foods are considered unhealthy, and which can be consumed occasionally. However, some implications hindered the execution of this activity: uneven ground, very strong wind that could deflect the ball, and a very light weight, which could not reach the desired target.

In the “Healthy Food Fishing” activity, in general, all children achieved an adequate performance. However, some claimed to know that the food was bad for their health, and even so they took it because they liked the food in question very much. The difficulty in this activity was in relation to the size of the fishing rod, which is very big for preschool children.

The activity “My 1st Cookbook” aimed to encourage children to have contact with food by participating in the acquisition of ingredients and preparation of recipes, with the help of the family, during the holidays. The book was given to parents/guardians, so that the family could also approach the Program, to feel part of the process of forming a healthy eating habit for their children. However, it was observed on the return to school, the lack of participation/interest of parents/guardians, because less than 20% of children reported the preparation of recipes.

In the “Charade of Fruits” activity, children have an adequate level of knowledge of fruits, as most of them answered the questions asked correctly.

For the celebration of the day of the Nutritionist, the activity “Little Nutritionist” was carried out, in which the children were dressed in the Nutritionist costumes, and registered through photos. The children showed that they liked the activity, as playful and imaginary aspects were stimulated.

The children did not perform adequately in the “Food Traffic Light” activity. They were separated into groups, for each group figures of different foods were shown and the groups had to talk whether it was to put the food in the green (healthy) or red (unhealthy) basket. However, children were unable to agree on food classification, and in practice, each child classified according to their knowledge and/or food preference.

In the “My Healthy Dish” activity, the children, in general, knew how to design the right food groups to compose a healthy dish. These drawings were displayed in the common area of EMEI, on the day of the parents’ meeting, as a way to bring families closer to the activities developed in the Program.

In the activity “Joy Race”, all children showed a positive result, placing food in their respective basket. Although they commented that even though they know they are not healthy, they continued to report their consumption. This activity was better evaluated than the “Food Traffic Light”, because despite having the same proposal (classify food as healthy), in this activity, the interaction with the team of educators was individual, favoring the correct answers of the children.

In the activity “My Healthy Body”, the importance of each food group was discussed with the children, that is, those foods that are sources of carbohydrates, proteins, lipids, vitamins and minerals, and their respective health benefits, in simple language and easy to understand. All the children participated very enthusiastically, paying attention, and always curious, wanting to know more information about the food.

In the “Singing with Food” activity, the children learned about music and sang along with the educators. In addition, they asked to sing this song on the days of the later activities.

In the activity “Playing with Vitamins”, the children discussed the food that was delivered to each one of them. It was a different activity from the others, due to the fact that they do not have the habit of exposing themselves, being a time to stimulate self-confidence and security among classmates.

In the activity “Foo Puppet”, a story was told, through puppets. In all the rooms, the children remained silent, paying attention to what was being told. Right after the end, some questions about the story were discussed, and, in general, the children knew how to answer the questions on the topic in question.

The last intervention activity was the “Food Garland”. In this action, the children were able to paint and paste various foods. During the activity, the children asked the educators the role of the food they were gluing on their garland.

The last activity of the Program was the “Mini Market”, this was the same activity applied in the children’s diagnosis stage, and had the function of a summative assessment. The present activity served to assess the degree of knowledge about healthy eating acquired during the Program. All rooms obtained adequate results in what is expected from an adequate food profile, with the majority of children choosing healthy foods and knowing which food it was, saying their respective name. However, it was not possible to compare quantitatively with the results of the “Mini Market” applied at the beginning of the Program, as the children initially did not carry out the activity as planned. However, it can be seen that although they still have a preference for ultra-processed foods, in a qualitative way, children improved their food choices with the application of the Program.

The pedagogical coordinator and EMEI teachers observed an increase in knowledge in relation to healthy eating, and a greater consumption of fruits and vegetables in the meals that children had at school.

The reports of the families, in the face-to-face meetings, were always positive in relation to the development of the Program, in addition to the speech that it was very difficult to make the children try new foods and reduce the consumption of sweets.

■ DISCUSSION

The “Growing Healthy at School Program” enabled preschoolers to acquire greater knowledge about fruits and vegetables, in relation to variability and its benefits. In addition, the positive result of the Program was confirmed by the school staff and the families in the face-to-face meetings. These results have a beneficial impact on adequate growth and development and on the formation of eating habits, common in this stage of life.

The preschool phase is characterized by a high energy requirement, in which the smallest variety of foods can cause calorie and micronutrient deficiency, in addition to contributing to the impairment of child growth and development¹³. During this period, children’s appetites are fickle, in which there is a preference in the choice of certain foods, and low acceptance when trying new flavors, thus, a little diversified diet. They are interested in eating only favorite foods, developing food monotony¹⁴.

This behavior can explain the result of the Program's educational activities and also the children's behavior reported by family members. In the present study, it was observed that children find it difficult to try new foods, so often children, during activities, chose the foods they liked and because they have the habit of always consuming, even though they were not the best options in relation to health.

Food choices are based on the frequency that the child consumes certain foods, resulting from learning processes. For the child to increase acceptance and present a more diversified diet, it is necessary, even in the first year of life, to expose the child to different types of food¹⁵. In this sense, gastronomic techniques can be used in the preparation of meals so that it improves and enhances the taste of food, and arouses a greater desire to consume the preparation. Simple variations of a dish can make the child curious to taste¹⁶.

In this context, children's food choices and nutritional imbalance are directly related to parents' attitudes during meals. The family ends up being the main influencer of children during the learning phase about food, so the parents' eating habits determine those of the children¹⁷.

In the present study, families did not show any significant evolution in relation to the acquisition of knowledge about healthy eating, a fact that may be a limiting factor for the construction of a balanced eating habit among preschoolers, considering that they do not yet have autonomy in relation to food choices. It is noteworthy that children, even though they know that some foods are not good, chose to reinforce that they consumed at home and that they liked a lot, showing the possible influence of the knowledge of parents/guardians and family income in offering monotonous food focused on the palate, common in the preschool age group.

A recent study investigated the impact of a nutritional education program aimed at schoolchildren, in a quantitative approach, and observed an improvement in knowledge about food and nutrition, regardless of gender, age and BMI groups¹⁸.

According to the report of food handlers in a school, healthy eating is associated with the acceptability of students, that is, the taste. This indicates a lack of information on food and nutrition, which is proposed as a mandatory teaching measure in schools, not only for children, but for the entire school community (parents, teachers and handlers)¹⁹.

Food and nutrition education in childhood should be done through the effective inclusion of new foods. The child should be allowed to know the taste, characteristics and textures of the food. Therefore, the performance of parents is extremely important, as they alone will not be able to obtain this knowledge to have a healthy diet²⁰.

Early childhood education centers are places of new experiences, expansion and discoveries for children, which are cultural, social and educational. The school introduces the child to different environments compared to the family. In addition, it should assist in the child's development, without losing his particular habits, such as belief, culture, among others; in this way the school

environment has to encourage the formation of new habits in addition to those that children already have, so that they do not lose their essence²¹.

Involving the school community in favor of forming a healthier eating habit is extremely important, as the teacher is the main reference for students at school. In this way, children learn at school about more balanced food choices and transmit this knowledge at home with the family²². In the present Program, the interaction between the health team and the pedagogical staff of EMEI was fundamental for the better development of children, and thus, obtaining better results regarding food awareness..

Simple activities, from hand washing, to the most complex, such as choosing foods to make up a balanced meal, are examples of preventive and control measures for diseases. In which, health education at school is extremely important, as children are able to capture information and transmit it, thus being able to influence their families or even the community about their learning. It is believed that simple interventions are effective for improving the nutritional status of preschoolers, as long as they respect the characteristics of the local community²³.

In this context, and considering the affinity for play, activities that children interact with the environment, through music, drawing and dramatization, make them establish links with other children and adults, creating autonomy and security^{24,25}. Bearing in mind that the food for the child implies much more in pleasure, satiety, taste, socialization and play than the aspect of adequacy in relation to nutrients²⁵. According to the Ministry of Education, drawing for preschoolers is a form of plastic expression, as it has the function of representing and communicating the child. The analysis of the drawing can point to the child's development, so this is a strategy to teach and know how their learning is²⁶.

Food influences disposition, emotional state and even intelligence, thus, food can harm the child's interest in attending school, highlighting low performance, irritability, agitation, stress and apathy²⁷. It is important to perceive and discuss these determinants, thus including educational measures to assist in the formation of healthy eating habits, with adequate food consumption, both in qualitative and quantitative form, to meet the nutritional needs of each individual, without compromising the Your health²⁸.

According to a recent study, with regard to the nutritional monitoring program, the nutritional aspect is still limited to preventive practices, involving specific actions to a food education focused on the health problem and not on the needs of the target audience²⁹.

Although the children have benefited from the Program's educational activities, its implementation to encourage the practice and development of healthy eating habits among preschoolers has some limitations. The EMEI infrastructure, only four meetings about the Program with parents/guardians (application of the questionnaire at the beginning of the Program, two intervention meetings and application of the questionnaire at the end of the Program), time available to carry out the activities and limited financial resources may have interfered with the results of the Program.

CONCLUSION

The monitoring of preschoolers during the Healthy Growing at School Program demonstrated, in a qualitative way, an increase in the interest and knowledge of children in healthy foods, confirmed by the school and their families. Thus, these results may corroborate with the adequate growth and development of children and a lower risk of overweight and incidences of other chronic non-communicable diseases associated with unbalanced diet in the future.

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Resumo

Introdução: Atualmente, as instituições escolares exercem grande influência na alimentação dos alunos, pois, geralmente, permanecem longo período nestes locais. A Educação Alimentar e Nutricional pode auxiliar numa possível criação de hábitos alimentares saudáveis entre as crianças.

Objetivo: Analisar os resultados do Programa Crescer Saudável na Escola no que se refere ao estímulo de hábitos alimentares saudáveis entre os pré-escolares em uma escola municipal em São Paulo (SP, Brasil).

Método: O Programa teve duração de 1 ano letivo. A amostra foi composta por 108 crianças de ambos os sexos, com idade de 4 a 6 anos. Foi aplicado um questionário aos responsáveis para caracterização e medir o nível de conhecimento sobre alimentação equilibrada (0-37 pontos) no início e no final do Programa. Foram realizadas dezoito atividades com as crianças, e duas com os pais. Este estudo foi aprovado pelo Comitê de Ética.

Resultados: A maioria dos pais tem ensino médio, recebem de 1-3 salários mínimos e apresentam diagnóstico nutricional de eutrofia. A pontuação média do questionário foi de $27,0 \pm 2,5$ no início do Programa, e não apresentou diferença significativa no final ($p=0,322$). A partir do desenvolvimento das atividades educativas foi possível observar que os pré-escolares adquiriram maior conhecimento sobre frutas, verduras e legumes mais comumente consumidos em SP. As percepções da comunidade escolar e das famílias foram positivas.

Conclusão: O Programa proporcionou aumento do interesse sobre práticas alimentares saudáveis entre as crianças.

Palavras-chave: educação alimentar e nutricional, pré-escolar, nutrição.

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