

ORIGINAL ARTICLE

Preservice Primary School Teachers' Perspectives on Classroom-Based Mealtime as a Tool for Nutrition Education and Healthy Eating Habits

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Ethical Statement

All participants were fully informed about the purpose of the study, the procedures involved, and their rights as participants, including their right to withdraw at any time without any consequence.

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No conflict of interest is present in the conduction or the reporting of this study.

ABSTRACT

Nutrition is fundamental to children's holistic development, particularly during primary school, as it supports physical growth, cognitive abilities, and academic performance. This study explores the perceptions and practices of preservice primary school teachers regarding nutrition education, focusing on their role in fostering healthy eating habits among students. Utilizing a phenomenological research design, the study captures the lived experiences of 22 preservice teachers from a state university during 2019–2020 academic year. Semi-structured interviews were conducted to gather rich, qualitative data. The findings reveal that preservice teachers emphasize imparting nutritional knowledge, ensuring hygiene, and enforcing dietary rules during in-class nutrition sessions. They recognize their dual role as educators and role models, advocating for teacher-led initiatives and parental collaboration in promoting sustainable nutritional practices. Furthermore, the study highlights the significance of integrating nutrition education into the school curriculum as a continuous and practical endeavor. Recommendations include incorporating hands-on activities like meal preparation demonstrations and leveraging artificial intelligence tools to provide personalized nutritional guidance. These strategies aim to enhance nutrition education's efficacy, fostering lifelong healthy eating behaviors. This study contributes to the growing body of literature emphasizing the critical role of educators in shaping children's nutritional habits and underscores the need for comprehensive nutrition education programs in schools.

Keywords: Classroom-based mealtime, eating habits, lunchbox, nutrition education.

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INTRODUCTION

One of the basic needs of humans is nutrition. The importance of proper nutrition has become more apparent in the modern world. Aside from consuming the right amount of nutrients, a balanced diet also helps maintain a healthy and balanced lifestyle (Gökce & Bayındır, 2021). Nutrition is the ability of the individual to receive the nutrients required for growth, development, and quality of life for a long time in an acceptable and balanced manner. A healthy individual can maintain body balance as a whole by eating and living healthy. (Karakas & Törnük, 2016). The primary school period, when the child's growth and learning speed are the highest, reveals the importance of nutrition in childhood. Inadequate and unbalanced nutrition of schoolchildren will negatively affect their growth and development and school success. At the same time, healthy and balanced eating habits acquired during this period will continue throughout their lives. The way to turn the habit gained in this period into a behavioral style is through nutrition education (Amin et al., 2016; Kızıltan & Oral, 2024; Küren, 2019; Şimşek et al., 2009).

Children who eat a healthy diet regularly have high academic success and high disease resistance. Evidence of the effect of healthy eating on children's academic success is also essential. Studies have revealed that as the consumption of ready-made foods increases, children's scores from standard tests decrease, and their body resistance decreases (Kim et al., 2016; Müller et al., 2013; Oğunsile, 2012; Stroebele et al., 2013; Meydanlıoğlu, 2016). Also, foods high in trans-fat, sodium, and preservatives affect success negatively. This can also be the case for children because nutrition is always playing an important role.

Birch et al. (1980) suggest that when food is served with the support of an adult, the frequency of food preference increases, so the social environment affects their food preferences, and Newman and Taylor (1992) think that children try to finish the meal when they see it as a reward. Also, Hendy (1999) shows a high desire to consume different foods at each meal. Moreover, parental guidance is practical in their meal preferences, and Unver (2004) states that nutrition programs regulate children's nutrition habits (Tepe, 2010). Moreover, Wardle et al. (2003) suggest that children can consume more foods when they like them.

The realization of nutritional literacy and sustainable nutrition education aims to increase health awareness and the awareness of individuals and, thus, society. In this sense, it is expected that teachers who undertake the education and training of child nutrition and have expertise in many fields will be closely monitored and developed. The only area where the teacher can closely observe, monitor, and intervene is students' food mealtime, which occurs in the classroom, so feedback can easily be given about nutrition and related habits (Moitra et al., 2021). During mealtime or allotted hours for nutrition, the teacher can observe the type of quality of the food that the student brings from home, what nutrients it contains, their diversity, being healthy, and their behavior before and after consuming them. They can also monitor the students to see whether they comply with the rules such as hygiene, and the necessary guidance can be made. In particular, healthy nutrition, nutrition rules, and hygiene follow-up and training are the products of sustainable nutrition education.

Today, various daily decisions can be made regarding food and nutrition. It should be considered that while making these decisions, food products have multiple characteristics, such as health, nutritional value, price, taste, naturalness, satiety, freshness, habit, cultural suitability, and quality. It is necessary to be food- and nutritionally literate to make many decisions correctly, such as what kind of food to buy, how much, and where to buy it. The rising trend in the world and our country is the phenomenon of food and nutrition literacy. (Brooks & Begley, 2014; Cullen et al., 2015; Velardo, 2015;



Aktaş & Özdoğan, 2016). Healthy eating rules and practices, also known as nutritional literacy, encourage students to eat homemade, natural, healthy, unpackaged, fresh, and satisfying foods from an early age. They ensure they understand the dietary elements and food groups, food diversity, and balance in these foods. It will also enable students to know which foods are healthy for them, which foods in what proportion, and how.

Awareness of nutrition-health interaction, increasing diversity in food products, and growing alternatives for food consumption outside the home have made food and nutritional literacy a principal issue. Students need to understand and critically evaluate various foods, nutrients, food groups, and nutrition information. They must apply this information by making the right decisions for healthy food selection and consumption (Keser & Çıracıoğlu, 2015; Sivri & Özpulat, 2015).

In this sense, raising awareness of healthy nutrition with nutrition education is vital to prevent inadequate and unbalanced nutrition. For the children, who constitute the future of society, to take their place in the country's development, it is necessary to determine their eating behaviors, factors affecting them and acquire the proper eating habits (Aymankuy & Sarıoğlu, 2007; Taşdemir, 2019).

In schools, students have snacks, such as mid-morning and afternoon snacks. Students either bring food from home according to their wishes, buy it from the canteen, or bring it according to the schedule specified by the teacher and consume it during snack hours. However, unfortunately, these nutrition hours can be perceived as suppressing hunger, as a snack and excluded from the scope of nutrition education (Garipağaoğlu & Özgüneş, 2008).

However, teachers' thoughts on nutrition and eating habits directly affect students' eating habits. In this sense, there is a need for research regarding teachers' awareness of food. Therefore, how to convey this awareness to students should also be considered. Aktaş and Özdoğan (2016) concluded in their study that nutritional actions realized with family support will increase the quality of nutrition education because students who do not have family support spend their money in the canteen and buy pastries, packaged foods, or foods with high salt and sugar content during mealtime (Aktaş & Özdoğan, 2016). Thus, organizing and implementing educational activities regarding nutrition will be more accessible. (Akçay & Yıldırımlar, 2018; Akder et al., 2018). The present study reveals the views of preservice primary school teachers about what can be done for the effectiveness of nutrition hours in improving the eating habits of primary school students.

Nutrition Education

Studies suggest that breakfast with harmful content affects educational performance. However, children who consume more fruit, vegetables, and home-prepared meals have been reported to have better IQ and memory ability. Furthermore, milk and dairy products also help cognitive functions such as memory, attention, and planning. A positive relationship was found between daily milk consumption and school performance (Meydanlıoğlu, 2016; Şimşek et al., 2009). In addition, it has been determined that the school performance of children who do not consume enough fruits and vegetables is lower than children who consume enough fruits and vegetables. In this context, nutrition education may be necessary for school children.

Children's nutritional problems can start at home or school. Home-based nutritional problems and school-based (canteen and packaged food-based) nutritional problems can also be corrected at school. If this is not achieved, wrong eating habits will lead to serious health problems such as skipping meals and unbalanced and inadequate nutrition. Failure to provide adequate nutrition education at home and school plays a vital role in acquiring potential bad eating habits

(Orhan & Çelik, 2014). Families can prepare cereal diets (bagels, pastries, bread) that are insufficient in milk, vegetables, and fruit groups by putting their favorite foods in children's lunch boxes. Even worse, children may not like their diets and eat in the school canteen. When children come to school without their lunchboxes, they turn to school canteens; they consume fast-food products, fizzy drinks, and packaged foods, and both eat unhealthy and do not gain nutritional habits (Dilber & Dilber, 2018; Orhan & Çelik, 2014). Considering these, nutrition education comes to the forefront, and different educational supports and programs can be implemented.

Given the information above, nutrition education combines educational strategies with environmental support to promote the choice of foods that promote health and well-being, the voluntary adoption of food and other nutrition-related behaviors. It is delivered in many settings and includes individual, community, and political activities. It should address food preferences, sensory and emotional factors, and personal factors such as perceptions, beliefs, attitudes, social norms, and environmental factors. To be effective, it must be a much broader endeavor than the dissemination of information (Contento, 2007).

In addition, nutrition education that is given continuously and effectively during the hours when students eat plays an influential role in protecting and improving health. It can also be effective in gaining healthy eating habits and is essential in preventing problems that threaten human health and wrong eating habits (Kawafha, 2018; Mhurcu et al., 2010; Şanlıer et al., 2017).

Moreover, schools are ideal places for nutrition education as an important part of on the spot education. Since nutrition education programs in schools have a crucial role in providing children with good eating habits, areas such as social psychology and health education in nutrition education and behavioral nutrition can be evaluated to facilitate personal diet change and provide environmental support (Gökce & Bayındır, 2021).

METHOD

Research Design

This study adopted a phenomenological design, a qualitative research approach that aims to explore individuals' lived experiences of a particular phenomenon. Phenomenology seeks to uncover the essence of these experiences by focusing on how individuals perceive and make sense of the realities they experience in a particular context (Creswell & Poth, 2023; Van Manen, 2016).

The aim of the study was to examine students' experiences of in-class mealtimes and highlight the dual role of these times: not only as moments of hunger satisfaction, but also as opportunities for nutrition education and the development of healthy eating habits. This approach aligns with the phenomenological tradition, which aims to capture the depth and richness of participants' shared experiences rather than seeking generalizable conclusions. Phenomenology provides a nuanced understanding of the phenomenon, allowing researchers to uncover the essence underlying these collective experiences (Smith et al., 2009).

Setting and Participants

When studying a group of people, gathering data from every individual in that group is often neither realistic nor practical. Instead, researchers typically select a representative sample, a smaller subset of individuals chosen to provide insights into the broader population (Creswell & Creswell, 2018). In this study, convenience sampling and non-probability



sampling were used. This method is commonly chosen when factors like time, cost, or accessibility make random selection difficult, as it allows researchers to select readily available participants (Etikan et al., 2016).

For this study, the sample consisted of 22 preservice primary school teachers studying at a state university during 2019-2020 academic year. All participants volunteered to participate in the study and were chosen based on their availability and willingness to contribute. Their voluntary participation ensured that the data collected reflected their genuine experiences and insights. This approach allowed the researchers to gather relevant data efficiently while considering the practical limitations of time and resources (Patton, 2015).

Instruments and Procedure

In this study, data were collected through a semi-structured interview form. Interviews are a widely used data collection tool in qualitative research, as they allow researchers to uncover the deeper meaning behind participants' responses, reducing superficiality and minimizing artificial answers (Karasar, 2002). By focusing on the core of what participants express, researchers were able to organize the data in alignment with the objectives of the study.

Data collection, a systematic process of gathering observations or measurements, provides first-hand information and unique insights into research problems. This process is crucial in obtaining reliable data for commercial, official, or academic purposes. In this study, the semi-structured interview form developed for preservice teachers was reviewed by field experts before being finalized. Feedback from the experts was incorporated to address any gaps or deficiencies. Once finalized, the interview form was administered electronically to ensure ease of access and participation.

Data Analysis

Data analysis in this study aimed to extract meaningful information from the collected data and facilitate informed decisions. Often rich and detailed, qualitative data typically consist of subjective information expressed in words. Analyzing such data involves reading through multiple transcripts, identifying patterns or differences, uncovering themes, and developing categories (Wong, 2008; Braun & Clarke, 2019). In this study, the data were first coded, then the themes were identified from the coded data, and the codes and themes were systematically organized. Finally, the findings were interpreted. Each preservice teacher was assigned a code using the letter "P" (from the word "preservice"), followed by a number from P1 to P22, based on their interview order. Similar responses were grouped, and themes were created based on these groupings.

To ensure the validity and reliability of the research, expert opinion was sought, as expert evaluation enhances these aspects of research when necessary to obtain evidence (Bogner & Menz, 2009; Cohen et al., 2002). In this study, nutrition and classroom education experts were consulted to verify whether the identified codes accurately represented the established themes. The main themes identified were the importance of nutrition in the classroom, nutrition content, nutrition knowledge and guidance, nutrition hygiene, and nutrition rules. Direct quotes from participants were included in the descriptive analysis to reflect their perspectives effectively and authentically.

RESULTS

Sub-problems related to the findings obtained to reveal the preservice teachers' views about the teacher's duties during nutrition hours in the classroom are given in the table below.



Preservice teachers' opinions regarding the question "As a teacher, what can/should be done before, during, and after nutrition?" are given in Table 1.

Table 1. What the teacher does during the nutrition process

Views	Frequency (n)	Percentage (%)
Giving information about nutrition	5	22,7
Ensuring hygiene	7	31,8
Follow the dietary rules	10	45,5

Preservice teachers think that they mainly explain and apply the nutritional rules ($f = 10$) before, during, and after nutrition in the classroom. This is followed by providing information about hygiene and nutrition. Sample views that were coded are as follows.

"P1-Teacher: The importance of a healthy and regular diet before nutrition, how to make a healthy diet, what kind of foods should be consumed, and foods that are beneficial and not beneficial for our body should be explained to the students with examples. By drawing attention to not wasting food during nutrition, students should gain sensitivity, clean the foods consumed, expiry date, etc. Students should be aware of these issues. After nutrition, the students should be mentioned about the hygiene rules and the things to be done after nutrition, and they should be implemented in practice."

"Before nutrition, the teacher can have the students watch a video about how to get ready for nutrition time. Students should wash their hands following the necessary hygiene rules, making the environment they have food suitable for nutrition. The teacher should also be involved in the process of nutrition. She should lay the tablecloth on her table in a suitable way for her students and make her nutrition in a healthy way that will serve as an example to them with the nutritional products she brings from home. After the nutrition, the teacher should clean her table and ask the students to clean it in the same way. We should convey to students that we need to clean the food spills under the desk or around and leave our classroom clean. In the same way, we should show and remind that we should wash our hands by following the hygiene rules after the nutrition is over, just as we follow the rules of hygiene and wash our hands before starting to eat. At the end of the process, we can provide feedback with verbal reinforcement to the students who follow these rules."

"P2- Before nutrition, students can be given information about foods such as which food is beneficial for our body. In this way, the student is motivated for mealtime. "You can open a video about food during nutrition and have them watch while eating."

"P3- Before nutrition, children should be told to wash their hands, and the teacher should do this too. During nutrition, they should be told to lay their covers or napkin on the table, then it should be collected. After nutrition, garbage should be thrown into the garbage can, nutritional materials should be collected properly, and hands and mouth should be washed. Teacher's nutrition with students from time to time can also be effective in gaining these behaviors."

Views of preservice teachers regarding the question "As a teacher, how do we ensure that families prepare healthy eating meals?" are given in Table 2.

Table 2. Teacher's effect on families to prepare healthy food

Views	Frequency (n)	Percentage (%)
Giving information about healthy eating	17	77,2
Provide healthy food preparation suggestions	5	22,8

Preservice teachers stated that the teacher gave information about healthy eating ($f = 17$) for families to prepare healthy food items. Some suggestions that were coded can be found in the following.

"P3-It is quite easy and very healthy to prepare hamburgers, toast, and similar fast-food products at home. It will also be beneficial for the teacher to inform families about this issue, have a meeting with them, explain this process, and even help the students while preparing these kind of foods."

"P8- A meeting can also be held with parents on this issue. We can explain how they can protect their children's health and, most importantly, turn them into healthy fast-food products that they will love and enjoy. For example, making healthy burgers with homemade meatballs, healthy nutrition can be provided with homemade products."

"P11-As teachers, we can prepare a suitable nutrition menu with common decisions through communication with families. We pay attention to choose our food from healthy and delicious food. Also, we can inform parents about healthy eating habits and ensure that their children take responsibility for eating healthy. We can decide with the school administration and open a small buffet with volunteer parents. Families can sell the fruit they bring or buy at home for a low fee. Thus, students may not want to eat fast food in the canteen."

"P22- If the child wants a hamburger, we can make it at home instead of buying it from outside. When making hamburger bread, we can substitute the wheat flour to whole wheat flour. If the child likes meatballs, we can put chicken meat for meatballs if he likes chicken. So instead of hamburgers, we make slight changes to make it look like hamburgers. If the child wants French fries, we can cook the potato in an oven and give it as French fries. So, in short, no matter what fast-food product the child wants, we can create healthier options with healthy ingredients in our home."

Preservice teachers' opinions regarding the "How can we create a healthy eating culture as a teacher?" question are given in Table 3.

Table 3. What the teacher should do to create a nutrition culture

Views	Frequency (n)	Percentage (%)
Setting an example	17	77,2
Follow the dietary rules	5	22,8

The preservice teachers think that the teacher must first exhibit exemplary behaviors ($f = 14$) to create a healthy eating culture at mealtime. Sample views that were coded are given below.

"P8- The first thing to do for the teacher is to be an example. The teacher should pay attention to what s/he eats in the classroom. The teacher should inform the families about this. Children should be told what kind of negativity we may encounter if we do not eat healthily."

"P21-Being a role model for students is particularly important at this point. When students see that their teachers repeat their behavior, they internalize the accuracy of their behavior. In this sense, the primary school teacher needs to eat at mealtime

just like the students. Likewise, it can be emphasized that we should focus on the benefits of nutrition with our healthy products like Domestic Goods Week will provide us, our country, and our families and that we should feed children with healthy food that we will bring from home in those days. Likewise, as long as the weather conditions are good, I think that nutritional activities can be held in the school garden, and a nutrition culture can be gained by making this process attractive to them as if they were having a picnic."

"P20-Healthy eating culture is gained by teaching students what they eat. If the students know the features of the fruits, vegetables, and fast food they eat, and if they know the benefits and harms for their bodies, they will want to eat a healthy diet. Besides, we can choose our students' healthy foods from tasty ones. The teacher can be a model for her students with the healthy food she brings from home. We can emphasize healthy nutrition with drama practices in our lessons, such as free activities or in life science lessons. Alternatively, he can organize a healthy nutrition corner in the classroom every week and students may introduce products to their friends."

"P6-The teacher can occasionally have meals with them, but not often. Because if this becomes frequent, this situation becomes a habit in children, and there may be students who do not want to eat without a teacher. The teachers makes the students gain healthy eating culture especially by cooking and bringing food to the classroom on days such as the domestic goods week and introducing the food to them."

Regarding the findings, preservice teachers think teachers should be an example to create a nutrition culture in school. They state that the teachers may create a nutrition culture with the nutrition information by applying the nutrition rules regularly and continuously, and by staying in the classes during the nutrition hours. Besides, they should cooperate with the families and ensure that they eat meals together at home as a family and follow the food/hygiene rules. Considering all findings, it can be stated that it is of great importance to raise the awareness of parents and teachers about the careful preparation of student lunchboxes at home by paying attention to nutritional elements. Moreover, it should be kept in mind that training the students on nutrition/hygiene about meals can also sensitize the parents and teachers. In addition to these, if possible, it is recommended to use child nutritionists to provide examples of children's menus, have the teacher meals with the students during nutrition hours, and turn these hours into a joyful educational activity.

DISCUSSION, CONCLUSION AND SUGGESTIONS

Regarding the preservice teachers' views about what a teacher will do in the nutrition process, participants state that they remember and apply the nutrition rules the most, and it is followed by ensuring hygiene. Accordingly, preservice teachers think that teachers should give information about healthy nutrition, observe deficiencies in this regard, and serve as an example for forming a nutrition culture.

Preservice teachers think that it is insufficient for teachers to provide nutrition information. In other studies (Bozkurt & Erdoğan, 2019; Çongar & Özdemir, 2004; Gürel et al., 2004; Hacibeyoğlu, 1976; Köksal & Kırli, 1988; Sadbağ, 2003; Sakar & Açıktur, 2019) teachers' knowledge on this subject is insufficient. This research shows that teachers who will be role models for students need to learn more about nutrition. As it can be understood from both this research and other studies, the knowledge of a significant part of the teachers on nutrition is insufficient in general. In a few studies, some teachers stated that they could not be models for children with healthy eating behaviors and do not believe they can influence children. It is stated that the reason for this is that teachers do not fully understand nutrition education issues on their own and think that they cannot teach these subjects to children confidently (Metos et al., 2019; Perez-Rodrigo & Aranceta, 2001; Perez-Rodrigo & Aranceta, 2003). Implementing comprehensive nutrition education programs in



schools is essential for fostering healthy eating habits among students, which in turn can enhance their academic performance and reduce absenteeism (Sormaz, 2014).

According to the study results, teachers should apply nutrition rules and provide hygiene to increase the educational quality of nutrition hours. In terms of preservice teachers, teachers should convey the importance of a healthy and regular diet before nutrition, how to make a nutritious diet, what kind of food should be consumed, and the food which are beneficial and not beneficial for human bodies. Besides, they should raise students' awareness by drawing attention to not wasting food at the time of nutrition and increasing students' understanding of the cleaning of the foods consumed, expiry date, and similar issues. After the nutrition hours, students should be informed about the hygiene rules and what to do after nutrition, and they should be carried out practically. Sample videos can be shown, or individual/collective presentations can be performed to achieve this.

Preservice teachers believe that nutrition is one of the key aspects that teachers should address in preparing healthy meals for families. Teachers can give parents valuable information on food, nutrition, and ways to protect their children's health. Most importantly, they can transform these ingredients into healthy, enjoyable fast-food options that children like, such as preparing homemade burgers with nutritious, handmade meatballs, making the process both fun and engaging.

According to preservice teachers, teachers should set an example to form a nutrition culture in the classroom. They claim the teachers may cultivate a nutrition culture by using the nutrition education, following the nutrition regulations consistently, and remaining in the classroom during nutrition hours. They should also work with families to ensure that everyone in the family eats together during meals and that all food and hygiene regulations are observed. Considering the findings, it is suggested that parents and teachers be made more aware of the importance of carefully preparing student lunchboxes at home while paying attention to nutritional factors. It should also be noted that educating pupils about nutrition and meal hygiene can simultaneously educate parents and instructors. Furthermore, involving child nutritionists to provide examples of balanced diets for children, having the teacher share nutritious meals with students during the scheduled nutrition hours, and turning these sessions into enjoyable educational activities is highly encouraged.

Conflict of Interest Statement

The authors declare that there is no conflict of interest regarding the publication of this article.



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