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Preschool Children's Perceptions of Healthy and Unhealthy Foods

Okul Öncesi Dönem Çocuklarının Sağlıklı ve Sağlıksız Gıdalara İlişkin Algıları

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Abstract
Perceptions of children about healthy foods in early childhood years have the potential to influence their food choices and preferences in their future lives. In this aspect, the purpose of the study was twofold: (i) to adapt and implement The Healthy Food Knowledge Activity in order to assess preschool children's perceptions of healthy foods and (ii) to explore gender differences in their perceptions. A total of 104 five-year-old children participated in the study from three different public preschools in the capital city of Türkiye. The results revealed that these children could correctly identify the healthy foods regardless of gender whereas they had difficulty in identifying some foods (e.g., fried chicken, ice-cream, or cookies) as unhealthy. Therefore, this study gives clues about the types of foods that should be emphasized in terms of health during nutrition education for children.

Keywords: Early childhood education, nutrition, food, healthy, unhealthy.

Öz
Erken çocukluk döneminde sağlıklı besinlerle ilgili edinilen algılar, çocukların ilerideki yaşamlarındaki besin seçimlerini ve tercihlerini etkileyebilmektedir. Bu açıdan çalışmanın amacı iki yönlü olarak ele alınmıştır: (i) Sağlıklı Gıda Bilgisi Etkinliğini uyarlayıp uygulayarak okul öncesi dönemdeki çocukların sağlıklı gıdalara ilişkin algılarını değerlendirmek ve (ii) algı düzeyleri üzerinde cinsiyete göre değişim olup olmadığını araştırmak. Araştırmaya Türkiye'nin başkentindeki üç farklı devlet anaokulundan beş yaşında toplam 104 çocuk katılmıştır. Sonuçlar, çocukların cinsiyetlerine göre değişmeksizin sağlıklı yiyecekleri doğru bir şekilde tanımlayabildiklerini ancak bazı yiyecekleri (örneğin kızarmış tavuk, dondurma veya kurabiye) sağlıksız olarak tanımlamakta zorlandıklarını ortaya koymuştur. Dolayısıyla bu çalışma çocukların beslenme eğitimi sırasında sağlık açısından önem verilmesi gereken besin türleri hakkında ipuçları vermektedir.

Anahtar Kelimeler: Erken çocukluk eğitimi, beslenme, besin, sağlıklı, sağlıksız.

1. Introduction

Childhood is an important period for children's development and formation of their eating habits (Birch & Fisher, 1998) because perception of nutrition concepts in these ages can affect lifetime food choices (Bernath & Masi, 2006) and have positive effect on dietary behaviors and dietary quality (Nguyen et al., 2011; Wardle et al., 2000; Worsley, 2002). In particular, nutrition knowledge of children in early childhood years can influence their nutrition patterns in their future life as well as playing a role in the prevention of the obesity (Tatlow-Golden et al., 2013). Therefore, having an insight into children's knowledge of healthy foods may help to improve the efficacy of future health and nurturing programs (Gibson et al., 1998; Wardle et al., 2000; Worsley, 2002), and increasing young children's nutritional competency might also help them to make healthier choices (Tarabashkina et al., 2016).

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There is a growing interest in children's understanding of the food and drinks in the related literature (Tatlow-Golden et al., 2013). For instance, in previous research studies (e.g., Brindal et al., 2012; O'Dea, 2003; Protudjer et al., 2010), children viewed fruits and vegetables as a part of a healthy diet, and they associated junk foods and high fat or high sugar foods with an unhealthy diet. In other words, they relied on major food groups to determine healthiness (Frerichs et al., 2016; Brindal et al., 2012). On the other hand, Lipowska and Lipowski (2018) found that although children have no difficulty in identifying healthy products, they have challenges in evaluation of the unhealthy foods. It is highlighted in conclusion that it is important to teach unhealthy foods to children in preschool years (Tatlow-Golden et al., 2013). Therefore, nutrition-related education is important for children; however, this education should be based on children's understanding of the food (Holub & Musher-Eizenman, 2010; Skouteris, 2012; Tatlow-Golden et al., 2013). Yet, research studies highlight that there are specific gaps in children's knowledge and understanding of food (Nguyen et al., 2011; Tatlow-Golden et al., 2013). In response, children's perceptions of healthy and unhealthy foods were aimed to be investigated in this study.

1.1. Factors on children's nutrition-related perceptions

There are different reported affective factors on young children's nutrition-related perceptions and behaviors (e.g., Atik & Ertekin, 2013; Elliott, 2009). For instance, cultural influences, appealing foods, and social influences are some of these factors (Atik & Ertekin, 2013; Bian & Markman, 2020). In particular, families' and teachers' roles were highlighted as becoming role model for children and becoming a source of information (Arredondo et al., 2006). The ecological systems theory of Bronfenbrenner (1977) provides a background for these ideas by supporting that the environment including culture, school, and home might be influential in shaping children's food awareness.

Furthermore, gender was also an investigated factor in nutrition knowledge or behaviors of preschool children and also focused as a factor in this research study. To illustrate, in the research study of Holub and Musher-Eizenman (2010), girls preferred meals which have fewer calories and less fat than boys. In another study, Hart et al. (2002) examined nutrition knowledge and understanding of primary school children and as a result, gender differences were seen in food-health and food-nutrient links. Although 85% were correct for girls, 65% were correct for boys. Moreover, boys were more likely than girls to report their parents' ruling over manners or ask them to finish all the given food. In addition to these, marketing was also seen as an effective factor in food awareness similar to the findings by Boddy et al. (2012). All these indicate the importance of context on child nutrition-related perceptions and behaviors. Therefore, it is important to improve child nutrition-related awareness and also provide sophisticated environments for their healthy eating habits.

Chojnacka et al. (2021) and Sigman-Grant et al. (2014) pointed out the significance of nutrition education on the level of children's nutrition knowledge and awareness. In their research study, after participating in a nutrition education program, preschoolers' understanding of healthy foods was increased, and their preference was changed in terms of healthy foods. Therefore, it was supported that there is a relationship between children's food education, food knowledge, and their diet (Bannon & Schwartz, 2006; Taylor et al., 2005). These findings provide some implications about the significance of nutrition education for young children. However, as highlighted in the literature (Holub & Musher-Eizenman, 2010; Slaughter & Ting, 2010), this education must be based on the understanding of the children's thinking about food to support children about their lack of knowledge and provide related food environment for them. In this regard, research is needed to investigate children's perceptions of healthy foods (Tatlow-Golden et al., 2013) by using a valid and reliable assessment tool for children's healthy and unhealthy foods knowledge or perceptions. However, literature review in this field has indicated that research studies focusing on children's knowledge or perceptions pertinent to nutrition topics are relatively limited (e.g., Kerkez, 2018; Zarnowiecki et al., 2011). This research study contributes to the literature by investigating children's healthy food perceptions in Turkish culture by adapting an activity.

1.2. Current Study

In the Turkish context, there are interdisciplinary research studies regarding nutrition in early childhood education by interpreting its importance in terms of health or education focus, and these converged on the fact that healthy nutrition is essential for children's growth and development in the early childhood years. For instance, significant differences were reached between children's nutritional habits and their developmental screening test results in favor of the children who were consuming healthy foods (Akdoğan & Balcı, 2022). Furthermore, differences were also found between the nutritional value of food menus in preschools with respect to the socio-economic level of the region. To illustrate, although fruits and vegetables were integrated into the daily menus in high socio-economic schools, those were only included in some days in the other preschools with low socio-economic status (Atli & Osmanoğlu,

2021). Moreover, children's self-care skills including nutrition were also found to be changing in favor of the group whose mothers were working (Demiriz & Dinçer, 2000). In the other study, Oğuz and Derin (2013) investigated the heights, weights, and some nutritional habits of preschool children by interviewing their families, and the majority of the children were identified as picky eaters in the findings. Similarly, Özgen and Demiriz (2022) also examined children's nutritional habits and settings by conducting interviews with their families and concluded that children's recognition of healthy and unhealthy foods is changing in favor of families with higher education levels. As presented, children's nutritional habits and the factors on these were investigated in the national literature; however, the research findings are limited to the reports of other stakeholders (e.g., families, teachers) rather than the children. To be able to develop persistent healthy nutritional habits in preschool children, it is essential to develop their healthy food awareness and support them with respect to their necessities. This study's significance comes from investigating this focus by actively integrating children into the process and investigating their perceptions by adapting an activity to the Turkish context, which might provide a base for nutrition-related education in the early childhood period.

Considering the Healthy Food Knowledge Activity developed by Zarnowiecki et al. (2011) in Australia, a developed country reflecting primarily Western culture, the present study is an attempt to adapt this activity for young children living in Türkiye, which holds both Eastern and Western influences. To be more specific, this study aimed to determine young children's nutrition-related perceptions in the capital city of Türkiye while also investigating whether gender creates a significant difference in their perceptions. It has been proposed that rather than global perspectives, national and local recommendations should be developed for nutrition plans (Dikmen & Pekcan, 2014). Considering the fact that more than half of the world's population is living in developing countries, some empirical data on healthy nutrition-related attributes in these countries deserve some special attention. To illustrate, Türkiye as a developing country, where some significant changes in terms of industrialization, urbanization, and economy have been observed, has also encountered new challenges in nutritional habits. There is a rapid increase in consumption of carbohydrate- and fat-rich nutrients, which is reflecting a shift toward unhealthy diets in this society. Therefore, it deserves attention to undermine the significance of nutrition from early childhood years, which has long-lasting influences on children's future lives. Therefore, this research study will contribute to the literature by both adapting an activity and also investigating children's nutrition-related perceptions, which might be helpful in developing strategies for integrating nutrition into the curriculum according to children's necessities.

2. Method

This research study was designed in a quantitative nature to investigate the nutrition perceptions of five-year-old children related to healthy and unhealthy foods and also examine the gender difference in their nutrition-related perceptions. Therefore, this is a descriptive quantitative research study examining the following research questions:

- What are the preschool children's perceptions about healthy and unhealthy foods?
- Is there a significant difference in healthy food perceptions with respect to children's gender?

2.1. Participants

A total of 104 children participated in the study. They were five years old and attending three different public preschools in Ankara, the capital city of Türkiye. These participant preschools were selected from three different districts of the city, which was a convenience sample within the local community of the researcher and consisted of families with middle SES. Among the participants, 43 of them were girls and 61 of them were boys.

2.2. Data collection

This study was reviewed and approved by **** University Social and Human Sciences Ethics Committee with the approval number ****. After obtaining ethical permission from the university ethical board, consent was also taken from the school administrators to be able to carry out the research in their preschool. Moreover, prior to the study, children were asked to reveal their willingness to participate, and consent was also obtained from their parents. Data were collected by means of adapted healthy food knowledge activity which was implemented in the classroom environment and lasted about 20 minutes.

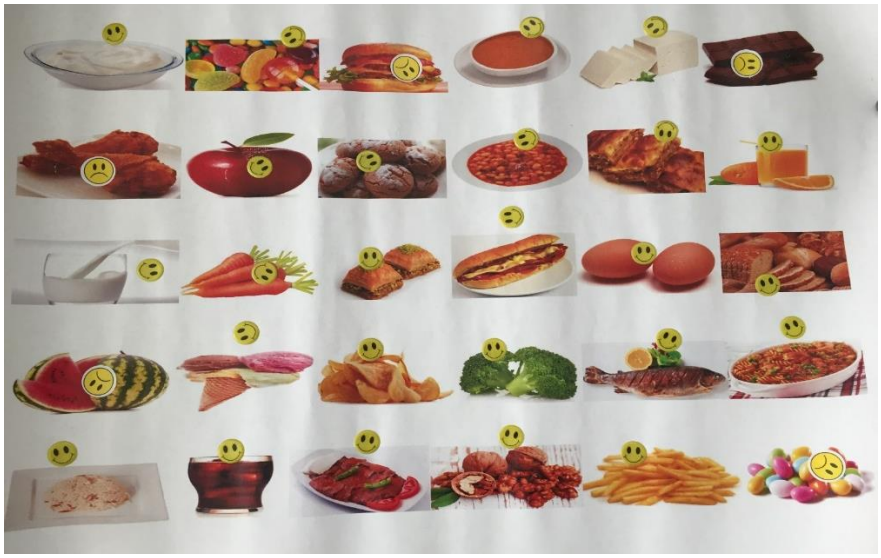
2.3. Healthy Food Knowledge Activity

The activity was adapted from Zarnowiecki et al. (2011) to investigate children's nutrition knowledge regarding healthy and unhealthy foods. They provided a list of thirty foods and drinks with varying degrees of difficulty to be

categorized as healthy or unhealthy. Colorful digital photographs of all the foods and drinks were presented on paper for five or six-aged children. A green tick, red cross, and blue question mark were also provided to get responses of children in the activity.

The activity sheet was adapted to Turkish culture by replacing some food photos (e.g., cereals, doughnuts) with the ones with which children are more familiar in Türkiye. For instance, *'baklava'* was presented as a national dessert, or traditional *'pastry'* photo was included. Moreover, traditional '*soup'* was presented in addition to including traditional cuisine of '*meat'*. The initial version of the activity sheet was pilot-tested in a preschool in Ankara. Considering the results of the pilot study, since children stated their unfamiliarity with *'breakfast cereals'*, which are primarily consumed in Western societies, they were excluded from the activity sheet. On the other hand, *'dragee'* was also added with respect to the responses of the participants in the pilot administration. However, the same food categories with different difficulty levels were included in line with the main study. As a result, it consisted of 30 foods which include non-core foods (pastry, cookies, coke, chips, chocolate, candies, dessert, ice-cream, fried chicken, fried potatoes, sausage bread, hamburger, dragee) and core foods (apple, watermelon, orange juice, broccoli, carrot, fish, eggs, nuts, legumes, soup, rice, bread, pasta, yoghurt, cheese, milk, meat) (Figure 1). Expert opinions were taken on the activity process from two experts in the field of early childhood education and child nutrition, and some minor revisions were conducted in instructions according to their suggestions.

Figure 1
Healthy food knowledge activity sheet with child answers



In line with the original activity, the data collection process was conducted with each child individually. Before beginning the activity process, as a warm-up, each child was asked to define the terms 'healthy food' and 'unhealthy food'. Then, the researcher provided standard definitions of the terms for the children in line with the original study. Healthy food was defined as "food that is good for you that you should eat a lot of', and unhealthy food was also defined as "food that is not good for you that you should only eat sometimes" (Zarnowiecki et al., 2011). For each photo, the child was first asked to name the food to assess whether they could correctly recognize the food or not. Then, the child was asked to say whether they thought the food was healthy or unhealthy. Children were provided with stickers of smiling faces, sad faces, and blue circles. They were requested to put smiling faces on healthy foods and sad faces on unhealthy ones. A blue circle was also requested to be put if they were unable to identify the food or the answer. The researcher explained that they could not talk about the answers until they all finished the activity photos. This activity process took about 15-20 minutes for each child to complete. Since children were not expected to read or write at this level, this method was preferred for data collection in line with the original study, and using pictures to attract children's attention and motivation. The same instructions were adapted in the data collection process for each child by the researchers. An example of the activity sheet with child responses is provided in Figure 1.

2.4. Data analysis

IBM SPSS 25 program was used in data analysis. Descriptive statistics were conducted to determine the foods that the children perceive as healthy or unhealthy. In order to explore gender differences in such nutrition-related perceptions, independent sample t-tests were also carried out, which are used to investigate the mean difference between two groups of subjects (Pallant, 2007).

3. Results

Data were analyzed with descriptive statistics, and findings revealed that the average perception score on the applied nutrition activity was 26 out of 30. Table 1 presents how children categorized each food in the healthy food knowledge activity.

Table 1
Summary of responses given by children

Food	Said healthy						Said unhealthy						Did not know					
	Girls		Boys		Total		Girls		Boys		Total		Girls		Boys		Total	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Unhealthy foods																		
Pastry	24	55.8	34	55.7	58	55.8	19	44.2	25	41	44	42.3	0	0	2	3.3	2	1.9
Cookies	22	51.2	33	54.1	55	52.9	20	46.5	27	44.3	47	45.2	1	2.3	1	1.6	2	1.9
Coke	3	7	8	13.1	11	10.6	40	93	53	86.9	93	89.4	0	0	0	0	0	0
Chips	2	4.7	1	1.6	3	2.9	41	95.3	59	96.7	100	96.2	0	0	1	1.6	1	1
Chocolate	1	2.3	1	1.6	2	1.9	42	97.7	59	96.7	101	97.1	0	0	1	1.6	1	1
Candies	2	4.7	1	1.6	3	2.9	41	95.3	60	98.4	101	97.1	0	0	0	0	0	0
Dessert (Baklava)	11	25.6	17	27.9	28	26.9	32	74.4	44	72.1	76	73.1	0	0	0	0	0	0
Ice-cream	36	83.7	53	86.9	89	85.6	7	16.3	7	11.5	14	13.5	0	0	1	1.6	1	1
Fried chicken	31	72.1	46	75.4	77	74	12	27.9	15	24.6	27	26	0	0	0	0	0	0
Fried potatoes	14	32.6	22	36.1	36	34.6	29	67.4	39	63.9	68	65.4	0	0	0	0	0	0
Sausage bread	7	16.3	10	16.4	17	16.3	36	83.7	50	82	86	82.7	0	0	1	1.6	1	1
Hamburger	1	2.3	4	6.6	5	4.8	42	97.7	56	91.8	98	94.2	0	0	1	1.6	1	1
Dragee	1	2.3	1	1.6	2	1.9	42	97.7	60	98.4	102	98.1	0	0	0	0	0	0
Healthy foods																		
Apple	42	97.7	61	100	103	99	0	0	0	0	0	0	1	2.3	0	0	1	1
Watermelon	42	97.7	53	86.9	95	91.3	1	2.3	8	13.1	9	8.7	0	0	0	0	0	0
Orange juice	41	95.3	55	90.2	96	92.3	2	4.7	6	9.8	8	7.7	0	0	0	0	0	0
Broccoli	42	97.7	56	91.8	98	94.2	1	2.3	5	8.2	6	5.8	0	0	0	0	0	0
Carrot	43	100	60	98.4	103	99	0	0	0	0	0	0	0	0	1	1.6	1	1
Fish	43	100	61	100	104	100	0	0	0	0	0	0	0	0	0	0	0	0
Eggs	43	100	60	98.4	103	99	0	0	1	1.6	1	1	0	0	0	0	0	0
Nuts	42	97.7	57	93.4	99	95.2	1	2.3	4	6.6	5	4.8	0	0	0	0	0	0
Legumes	41	95.3	59	96.7	100	96.2	2	4.7	2	3.3	4	3.8	0	0	0	0	0	0
Soup	43	100	61	100	104	100	0	0	0	0	0	0	0	0	0	0	0	0
Rice	40	93	50	82	90	86.5	3	7	10	16.4	13	12.5	0	0	1	1.6	1	1
Bread	31	72.1	45	73.8	76	73.1	12	27.9	15	24.6	27	26	0	0	1	1.6	1	1
Pasta	39	90.7	51	83.6	90	86.5	4	9.3	9	14.8	13	12.5	0	0	1	1.6	1	1
Yoghurt	42	97.7	59	96.7	101	97.1	1	2.3	2	3.3	3	2.9	0	0	0	0	0	0
Cheese	41	95.3	58	95.1	99	95.2	2	4.7	3	4.9	5	4.8	0	0	0	0	0	0
Milk	43	100	59	96.7	102	98.1	0	0	2	3.3	2	1.9	0	0	0	0	0	0
Meat	30	69.8	42	68.9	72	69.2	13	30.2	18	29.5	31	29.8	0	0	1	1.6	1	1

To explain, according to frequency analysis, all the children correctly recognized soup and fish as healthy. Over 95% of them correctly categorized milk, cheese, yoghurt, eggs, nuts, and legumes as healthy. Similarly, the majority of them (over 90%) viewed fruits and vegetables (apples, orange juice, broccoli, carrot, and watermelon) as healthy. Moreover, pasta and rice were viewed as healthy by over 85% of the children. However, bread and meat were not commonly classified correctly, only 73% of the children reported bread as healthy and meat was also categorized as healthy by only 69% of them.

On the other hand, candies, chocolate, chips, coke, and hamburger were correctly classified as unhealthy by over 90% of the children. Likewise, 83% of them recognized sausage bread as unhealthy. In contrast, baklava and fried potatoes were correctly viewed as unhealthy by only around 70% of the children. Moreover, 74% of the children did not recognize that fried chicken was unhealthy, and more than half of the children also could not recognize that cookies and pastries were unhealthy. Furthermore, only 14% of the children were able to recognize ice cream as unhealthy.

Moreover, an independent sample t-test was conducted to compare the children's healthy food perception score between girls and boys. Initially, assumptions were checked and ensured including level of measurement, random sampling, independence of observations, normal distribution, and equal variances (Pallant, 2007). As a result, it was shown that there was no statistically significant difference in the mean scores for girls (M=26.09, SD=2.51) and boys (M=25.38, SD=2.06); t (102) =1.60, p=.11 (two-tailed) (Table 2).

Table 2
The results of the independent sample t-test on total scores with respect to the gender

T-Test for the Equality of Means						
					95% Confidence Interval of Difference	
t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
1.596	102	.114	.716	.449	-.174	1.606

Then, two independent sample t-tests were also conducted to compare the children's perception scores in both healthy foods and unhealthy foods groups with respect to gender. Initially, assumptions were checked and ensured, and the results were interpreted by adopting the Bonferroni adjustment to decrease the probability of error (Tabachnick & Fidell, 2019). As a result, it was found that there was no statistically significant difference in the healthy food mean scores between girls (M=16.02, SD=1.44) and boys (M=15.54, SD=1.58); t (102) =1.59, p=.12 (two-tailed) (Table 3).

Table 3
The results of the independent sample t-test on healthy food scores with respect to gender

T-Test for the Equality of Means						
					95% Confidence Interval of Difference	
t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
.574	102	.567	.241	.419	-.590	1.071

Similarly, it was also shown that there was no statistically significant difference in the unhealthy food mean scores between girls (M=9.09, SD=2.23) and boys (M=8.85, SD=2.01); t (102) =.574, p=.57 (two-tailed) (Table 4).

Table 4
The results of the independent sample t-test on unhealthy food scores with respect to gender

T-Test for the Equality of Means						
					95% Confidence Interval of Difference	
t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
1.592	102	.115	.482	.303	-.119	1.083

4. Discussion

The healthy food knowledge activity was adapted as a part of this study to investigate children's nutrition-related perceptions, and it was concluded as useful to implement in Turkish culture. The results of this activity showed that five-year-old children can mostly recognize healthy foods. To illustrate, all the children correctly categorized soup and fish as healthy. The rate of correct responses for fruit and vegetables was higher than for other foods, and dairy products, nuts, and legumes were also viewed as healthy by the majority of the children. Similarly, it was pointed out in the literature that children have no difficulty in identifying healthy products (Boddy et al., 2012; Brindal et al., 2012; Frerichs et al., 2016; Holub & Musher-Eizenman, 2010; Lipowska & Lipowski, 2018). As a factor in this, school and family were viewed as important and trusted sources of information for children about the foods (Reeve & Bell, 2009; Strachan & Pavie-Latour, 2008), and their positive reinforcement and monitoring were also associated with children's healthy eating (Arredondo et al., 2006). On the other hand, children showed less understanding of the health benefits of meat and bread in this study. The probable reason is that families may provide less meat to their children in Türkiye due to mostly economic reasons as indicated in the rates of meat consumption. In contrast, although bread is one of the commonly consumed food in Turkish culture, there is an effort to decrease its consumption by considering its harmful impacts on health. These indicate the significance of socioeconomic status and social environment on children as mentioned in the research study of Atik and Ertekin (2013). Children learn by the models

in the media or their immediate social environment as expressed in the social cognitive theory (Bandura, 1994). In this regard, the environment including family and the broader community might have a role in children's perception of the foods. Children obtain health knowledge through direct instruction, modeling, and experiences with their environment (Lanigan, 2011).

Moreover, most of the unhealthy foods (candies, chocolate, chips, coke, and hamburgers) were correctly categorized by the majority of the children in this study. As an explanation, being unhealthy was related to sedentary and junk foods by children in the literature (e.g., Frerichs et al., 2016). Some children could refer to the nutrient content of the foods in their explanation. For instance, it was seen that added sugar makes the food unhealthy (Brindal et al., 2012; O'Dea, 2003; Protudjer et al., 2010). On the other hand, in this study, fried potatoes were viewed as healthy by about 30 percent of the children, and the majority of them also could not able to recognize that fried chicken was unhealthy. This was interpreted that they are made of potatoes and meat, and children do not understand the effect of the cooking process on the nutrition level of the foods. These confirm that children have basic knowledge about healthy eating at young ages similar to findings in different cultures (Hesketh et al., 2005; Zarnowiecki et al., 2011), and they rely on major food groups to determine the healthiness. Therefore, they are confusion when the item is included in multiple food groups. Similarly, another example is that fruit-flavored snacks (chocolate-covered berries) were also viewed as healthy, which shows the children's usage of simplified strategies to determine healthy foods. However, this might be problematic in the modern food environment (Frerichs et al., 2016). It is important to teach unhealthy foods to children in preschool years (Tatlow-Golden et al., 2013). Therefore, it is suggested to integrate nutrition into early childhood education programs, and participating in a nutrition education program is supported as effective on preschoolers' understanding of healthy foods and preferences (Sigman-Grant et al., 2014; Ünver & Ünüsan, 2005).

Furthermore, ice cream, cookies, and pastry were viewed as healthy by the majority of the children in the present study. This also confirms that children have challenges in the evaluation of some unhealthy foods (Lipowska & Lipowski, 2018). The probable reason is that they are available to children as common snacks, and there might be misconceptions about them because of marketing. For instance, visual elements on the packaging of some snacks lead some children to incorrectly think that they contain healthy ingredients (Letona et al., 2014). In fact, food advertisements can contribute to children's awareness and interest in the foods. However, they generally advertise low-nutrient foods as exciting and tasty, and healthy life-related messages in commercials for nutrient-poor foods lead to the perceived healthfulness of these items (Harris et al., 2018). As a result, children may not discriminate true messages from manipulative ones (Hart et al., 2002), and health messages in advertisements cause children's choosing of unhealthy foods and irregular eating habits (Esmaeilpour et al., 2018; Şahin et al, 2018). To illustrate, advertising in Türkiye implies that ice cream is healthy because it is made of milk, and such health messages by media might have an impact on children's food classifications. Therefore, it might be important to have policies about advertisements for public health, and advertisements and messages might also be prepared to increase the consciousness about the convenience of healthy foods. In this way, media can be a tool for nutrition-related education.

In this study, no significant difference was also found in children's nutrition-related perceptions with respect to gender. Although a similar finding was reached by Zarnowiecki et al. (2011), a significant difference was reached by Hart et al. (2002). It was justified that mothers' attitudes and behaviors might be influential for children's food-gender explicit stereotypes (Graziani et al., 2021). As an explanation, it was also found in another research that girls are more likely to have unhealthy diets than boys when parents have control strategies on eating (Arredondo et al., 2006). Therefore, parents might be an important factor in creating gender differences in nutrition-related habits and perceptions as having a crucial role in children's healthy eating (Boddy et al., 2012; Şahin et al., 2018). Moreover, children's preference for food might also be a possible factor that affects their view of food as healthy since taste and preference were found as effective in children's food classification (Hart et al., 2002). Nevertheless, nutrition knowledge was especially emphasized as necessary to make healthy choices in the related literature (Gibson et al., 1998; Wardle et al., 2000; Worsley, 2002) since the consciousness of health focus is important for increasing consumption of healthy foods (Lea et al., 2005). For this purpose, preschool activities on healthy food and nutrition are suggested to be integrated into the curriculum as playing a crucial role in children's gaining self-care skills regarding healthy nutritional habits.

4.1. Conclusion and recommendations for future research

In conclusion, childhood is an important period for children's development and formation of their eating habits (Birch & Fisher, 1998). In the present study, the adapted activity was found useful for identifying children's nutrition-related perceptions, and findings also indicated the areas in which children need to be supported during nutrition education. However, there are limitations of the study at the same time. Since the research data were collected in three different regions of Ankara, findings are limited in their generalizability to those regions. Increasing the sample size

in future research studies might increase the generalizability of the results. Moreover, since culture might have an impact on children's judgments about foods (Bian & Markman, 2020), it might be investigated in different cultural environments. Data were also collected from children, and only gender was noted as demographic information by the researcher in this study. In future research studies, children's nutritional habits and demographic information (age, weight, height, etc.) might also be collected and interpreted together with their perceptions to be able to get comprehensive data. Furthermore, future research studies might also utilize the adapted nutrition activity to determine children's nutrition-related perceptions and develop a nutrition education for children based on the findings. Nutrition education programs are influential on preschool children's nutritional habits (Ünver & Ünüsan, 2005) because increasing young children's nutritional competency might help them to make healthy choices (Tarabashkina et al., 2016).

5. Conflict of Interest

No conflict of interest.

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