

Investigation of the Nutrition and Physical Activity Behaviours of Mothers with Children Aged 6-18 Years

6-18 Yaş Grubu Çocuğa Sahip Annelerin Beslenme ve Fiziksel Aktivite Davranışlarının İncelenmesi

Gülpinar ASLAN¹, Fatma Gül CAN², Elif KANT³

ABSTRACT

Aim: The purpose of this study is to investigate the nutrition and physical activity behaviors of mothers with children aged 6-18 years.

Materials and Methods: The study utilized a descriptive design. The target population of the study was mothers who were registered in seven Family Health Centers in a city located in eastern Turkey, met the research criteria, and agreed to participate in the stud. Sample size was calculated using the sampling method with an unknown population and determined as 293 individuals.

Findings: In the study, the score was found to be high in mothers who had an education level of university and above, who were working, who had a good income level.

Conclusion: The results of this study indicated that the mean scores of nutrition and physical activity were higher in mothers who had a high education level and who had knowledge about nutrition and physical activity issues.

Keywords: Child, Mother, Nutrition, Physical Activity

ÖZ

Amaç: Bu çalışma, 6-18 yaş aralığında çocuğa sahip annelerin beslenme ve fiziksel aktivite davranışlarının incelenmesi amacıyla yapıldı.

Gereç ve Yöntem: Araştırma tanımlayıcı tipte bir araştırmadır. Araştırmanın evrenini, Türkiye'nin doğusunda yer alan bir ildeki yedi Aile Sağlığı Merkezlerine kayıtlı araştırmaya katılmayı kabul eden ve araştırma kriterlerine uyan kadınlar oluşturmuştur. Örneklem hacmi de evreni bilinmeyen örnekleme yöntemine göre hesaplanmış ve 293 kişi olarak belirlenmiştir.

Bulgular: Annelerin tanıtıcı özelliklerine göre aile beslenme ve fiziksel aktivite ölçeği toplam puan ortalamaları karşılaştırıldığında; üniversite ve üstü eğitime sahip olan, çalışan, gelir düzeyi iyi olan annelerin ölçek puan ortalamaları yüksek bulunmuştur.

Sonuç: Bu çalışmanın sonuçlarına göre, eğitim düzeyi yüksek olan, beslenme ve fiziksel aktivite konularında bilgisi olan annelerin puan ortalamaları daha yüksek bulunmuştur.

Anahtar Kelimeler: Anne, Beslenme, Çocuk, Fiziksel Aktivite

Introduction

Nutrition, an important need to maintain a healthy life, is the use of food items to provide the necessary energy and nutrients for growth and development. Nutrition is an essential need that forms the baseline for health in all periods of life (1).

Healthy nutrition refers to maintaining adequate and balanced amounts of food necessary for the human body (fruits, vegetables, milk, meat, etc.). Besides, having a normal body mass index is among the criteria for healthy nutrition (2). Nutrition habits gained in the childhood period shape other periods of life as well. Therefore, healthy nutrition habits in childhood and adolescence periods are of great importance for the growth and development processes (3).

It is very important to transform physical activity, which has an important place together with healthy nutrition in the process of healthy growth and development, into a habit since childhood to adopt an active lifestyle. Four-fifth of children and adolescents worldwide are reported to be below the recommended physical activity level indicated in the Community Health Guide (4).

1-PhD, RN. Assistant Professor, Department of Midwifery, Agri Ibrahim Cecen University Faculty of Health Sciences, Ağrı / Turkey E-mail: pinar_goksuguzel@hotmail.com
ORCID: 0000-0002-1231-4272

2- PhD, RN. Assistant Professor, Department of Midwifery, Agri Ibrahim Cecen University Faculty of Health Sciences, Ağrı / Turkey E-mail: fgulcan@agri.edu.tr
ORCID: 0000-0002-6608-6340

3- PhD, RN. Assistant Professor, Ataturk University Health Services Vocational School, Aged Care Department, Erzurum, Turkey E-mail: elifkant25@hotmail.com
ORCID: 0000-0002-3643-1975

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The prevalence of excessive weight or obesity has increased in children and adolescents in many countries within the past 20 years. The increase in the obesity pandemic in this populations continues to be an important public health issue in developed and developing countries (5) Besides, one-third of individuals who are obese in the adulthood period were found to be obese in the childhood period, too (6). Obese children who have the risk of being obese in adulthood have several health problems such as sleep apnea, gallbladder diseases, liver fattening, growing fast, diabetes, hypertension, and psychological problems). Childhood obesity is an important condition that needs to be followed well because it could cause the development of chronic diseases as well as adaptation problems and lack of self-confidence in the following years (5).

Healthy nutrition and regular physical activity are indicated to protect against diseases that can be encountered at later ages (e.g., cardiovascular diseases, obesity, hypertension, type II diabetes, metabolism disorders, bone tissue disorders such as osteoporosis, some cancer types, and stomach and liver diseases) (7,8).

The effects of many factors such as nutrition, physical exercises, environmental conditions, and genetics on the healthy growth and development of children are known. On the other hand, the parent factor is also a strong indicator of healthy growth and development. Studies show that the parent effect is very high on children's health behaviors and weight conditions (9,10).

Determination of knowledge of parents about the importance of child nutrition and physical activity could help to determine the relationship between the level of knowledge and children's development and to plan accordingly for better outcomes. Providing health services to individuals who are responsible for children's nutrition and growth, particularly mothers, is highly important for enabling behavioral changes for a healthy lifestyle (nutrition, physical activity, etc.). (11,12). In this regard, this study aims to investigate the nutrition and physical activity behaviors of mothers with children aged 6-18 years.

Research Questions

Q.1 Is the level of knowledge of mothers with children aged 6-18 years about physical activity and nutrition sufficient?

Materials and Methods

Design and Setting

This descriptive study included mothers with children aged 6-18 who were registered in Family Health Centers of a city in Eastern Turkey between November 2021 and March 2022.

Sample

The target population of the study was mothers who were registered in seven Family Health Centers in a city located in eastern Turkey, met the research criteria, and agreed to participate in the stud. Sample size was calculated using the sampling method with an unknown population and determined as 293 individuals.

Inclusion Criteria

Mothers who were registered in Family Health Centers, had children aged 6-18 years, graduated at least from primary school, had online access, and agreed to participate in the study.

Measures

Data were collected through the Socio-demographic Form and the Family Nutrition and Physical Activity (FNPA) Screening Tool. Children's BMI was calculated using the Child Body Mass Index calculation tool available on the web site of the Public Health General Directorate (13). The mothers were categorized based on their reported monthly income level (Low: Less than 3414₺, medium: 3414 to 11.415 ₺ high: More than 11.415 ₺) (14).

The Socio-demographic Form

The Socio-demographic Form prepared by the researchers was composed of 11 questions that aimed to collect data about the participants' socio-demographic characteristics, children's height and body weight, measures, source of nutrition

information, and family members who had a role in children's nutrition.

The Family Nutrition and Physical Activity (FNPA) Screening Tool

The Family Nutrition and Physical Activity (FNPA) Screening Tool was developed by Ihmels et al. in 2009 (15) and its Turkish validity and reliability were performed by Özdemir and Terzi in 2020. (16) The 4-point Likert scale is composed of 20 items. Six items on the scale (Item 3, 4, 5, 7, 10, and 13) are scored reversely. The total score to be obtained from the scale ranges between 20 and 80. While higher scores obtained from the scale indicate low-risk family practices and behaviors for the child's obesity, lower scores indicate high-risk family environment and behaviors. Cronbach's alpha value of the scale was reported 0.72 by Ihmels et al. (15) and 0.76 by Özdemir et al. (16) Cronbach's alpha value was found 0.88 in this study.

Data collection

Data were collected from mothers who agreed to participate in the study after their verbal consent was received using questionnaires prepared in online setting; questionnaires were sent to the participants' or their relatives' mobile phones with the help of the health personnel and filled in based on their answers.

Analysis

Data were analyzed in the SPSS package program. Analyses included frequencies, percentages and arithmetic means, kurtosis and skewness coefficients, t-test in independent groups, one-way ANOVA, post hoc and X² test. Statistical significance was accepted $p < 0,05$ in all the comparisons. BMI of children was calculated using the Child Body Mass Index calculator available at the General Directorate of Community Health in the Ministry of Health website (13).

Ethical Considerations

Ethics committee approval was obtained from the Scientific Research Ethics Committee of the university before the study was conducted

(Document date and number: 26.05.2021-E.9655). Participating mothers were given information about the purpose of the study online, and their verbal consent was received. Necessary permissions were obtained for the data collection tools utilized in the study. The study also followed the principles in the Declaration of Helsinki.

Results

Data obtained from the mothers who participated in the study are presented below.

The average age of participating women was 36.1 ± 7.23 of all the participants, 43.7% graduated from a high school, 52.2% was not working, 46.8% had medium income level, 95.2% had health insurance, 54.9% had knowledge about nutrition and physical activity, 55.3% had received this information from health personnel, 56.6% trusted mostly health personnel about issues such as physical activity, nutrition, diet or food, 53.6% were affected mostly by a health personnel about their child's nutrition. The average age of children was 11.1 ± 4.07 years, the average BMI was 18.84 ± 3.45 kg/m², and the mothers' Nutrition and Physical Activity Screening Tool mean score was 56.6 ± 10.24 (Table 1).

Table 1. Distribution of the Descriptive Characteristics of Mothers and the Scale Mean Scores (n=293), Ağrı, 2021

Demographic Characteristics	Groups	n	%
Education level	Secondary School	48	16.4
	High School	128	43.7
	University and above	117	39.9
Occupation	Working	140	47.8
	Housewife	153	52.2
Income level	Low	59	20.1
	Medium	137	46.8
	Good	97	33.1
Presence of health insurance	Yes	279	95.2
	No	14	4.8
Do you think you have adequate information about nutrition and physical activity?	Yes	161	54.9
	No	132	45.1
If yes, where/from whom did you receive this information?	Health personnel	89	55.3
	Internet	23	14.3
	Family and friends	49	30.4
Which one of the following sources of information do you trust most about physical activity, nutrition, diet, or food?	Health personnel	166	56.6
	Experienced women in the family such as mother and mother-in-law	94	32.1
	Internet	33	11.3
Who are you affected by most about the issues concerning your child's type of nutrition?	Health personnel	157	53.6
	Experienced women in the family such as mother and mother-in-law	88	30.0
	Internet	48	16.4
	$\bar{X} \pm SD$	Min.	Max
Mother's age (years)	36.1±7.23	20	54
Child's age (years)	11.1±4.07	6	18
Child's BMI (kg/m ²)	18.84±3.45	11	31
Scale Mean Score	56.6 ±10.24	20	80

Table 2. Comparison of Nutrition and Physical Activity Screening Tool Total Mean Scores of Mothers according to their Descriptive Characteristics (n=293), Ağrı, 2021

Demographic Characteristics	n	Nutrition And Physical Activity Screening Tool	
		$\bar{X} \pm SD$	Test Value and Significance
Education Level			
Secondary School	48	47.5±7.91	F=59.21 p=0.000
High School	128	54.4± 9.01	
University and above	117	62.7± 8.55	
Occupation			
Working	140	61.1± 9.29	t=7.900 p=0.000
Housewife	153	52.5± 9.33	
Income Level			
Low	59	49.7±6.18	F=22.24 p=0.000
Medium	137	56.1±10.09	
Good	97	60.2±10.45	
Presence of Health Insurance			
Yes	279	56.8±10.27	t=1.522 p=0.129
No	14	52.6±9.02	
Do you think you have adequate information about nutrition and physical activity?			
Yes	161	57.6±10.3	t=3.471 p=0.063
No	132	55.4±9.98	
If yes, where/from whom did you receive this information?			
Health personnel			F=28.12 p= 0.000
Internet	89	62.2±9.11	
Family-friends	23 49	54.5±9.55 50.6±8.59	
Which one of the following sources of information do you trust most about physical activity, nutrition, diet, or food?			
Health personnel	166	61.0±9.07	F=46.525 p=0.000
Experienced women in the family such as mother and mother-in-law	94	51.3±9.05	
Internet	33	49.5±7.88	
Who are you affected by most about the issues concerning your child's type of nutrition?			
Health personnel	157	61.3±9.04	F=52.99 p=0.000
Experienced women in the family such as mother and mother-in-law	88	53.0±9.30	
Internet	48	47.9±6.76	

t: t-test in dependent groups

f: One-way ANOVA- Post hoc tests

*p<0.05 was accepted to be statistically significant

When participating mothers' family nutrition and physical activity mean scores were compared by their descriptive characteristics, the scale mean score was found to be high in mothers who had an education level of university and above, who were working, who had a good income level, who had knowledge about nutrition and physical activity, who learned this information from health

personnel, who trusted mostly health personnel about information such as physical activity, nutrition, diet and food, and who were affected mostly by health personnel about their children's nutrition and the difference between the mean scores was found to be highly statistically significant (p<0.05) (Table 2).

Table 3. Comparison of BMI Distribution and Mean Scores by Children's Gender and the comparison of Mothers' Family Nutrition and Physical Activity Screening Tool Total Mean Scores by Children's BMI mean scores, Ağrı, 2021

BMI (kg/ m2)	Percentile range	Female (N= 144)		Male (N=149)		Scale Total Score					
		n	%	n	%	X ²	p	n	X±SD	f	p
Underweight	<5.	7	4.9	14	9.4	3.13	0.37	21	59,2±10.48	2.29	0.07
Normal	≥5 ≤ 85.	112	77.8	112	75.2			224	57.0±10.25		
Overweight	≥85≤95.	12	8.3	14	9.4			26	55.2±9.27		
Obese	≥95.	13	9.0	9	6.0			22	51.9±10.13		

X²: Q-Square Test

f: One-way ANOVA- Post hoc tests

*p<0.05 was accepted to be statistically significant

When the children's body mass index was analyzed according to the growth percentile ranges, it was found that 4.9% of girls were underweight, 77.8% were normal, 8.3% were overweight, and 9% were obese. As to boys, 9.40% were underweight, 75.2% were normal, 9.4% were overweight, and 6% were obese. No statistically significant differences were found between children's gender and BMI (p>0.05) and between mothers' Family Nutrition and Physical Activity Screening Tool total mean scores and children's BMI mean scores (p>0.05) (Table 3).

Discussion

Parent effect is highly important in children's adopting and maintaining healthy lifestyle behaviors. Parents' attitudes and behaviors have effects on children's both nutrition habits and physical activity behaviors (17,18). Therefore, investigation of parent behaviors is of importance. This study is believed to provide important information for determining the nutrition and physical activity behaviors of mothers with children aged 6-18 years and taking necessary measures.

The scale mean score was found 56.6±10.24 in this study. Another study using a similar measurement tool also found the mean score as 55.7 ± 7.40 (19) This finding is similar to the literature.

When the Family Nutrition and Physical Activity Screening Tool total mean scores were compared according to mothers' descriptive characteristics, mean score was found to be high in those who had an education level of university and above, who were working, who had good income level, and who had knowledge about nutrition and physical activity and the difference between the mean scores were found highly statistically significant (p<0.05). Easier access to information for women with a high education level is reported to increase their level of knowledge about children's health and nutrition (20,21). Other studies also showed that children's nutrition habits were affected positively with the increase in parents' education level (22,23).

Similar studies in our country and other countries reported that the scale mean scores increased with the increase in families' income levels (23-25). Jones et al. (26) in 2019 and Tornaritis et al. (27) in 2014 also found that the scale mean scores were higher in women who had reported they had knowledge about nutrition and physical activity (26,27). These results are in line with the findings of this study.

The scale mean score was found to be higher in women who learned physical activity and nutrition topics from health personnel, who trusted mostly health personnel about information concerning physical activity and nutrition, and who were

affected mostly by health personnel about their children's nutrition; the difference between the mean scores was highly statistically significant. Various studies reported that individuals who received the right nutrition information from different sources (doctor, nurse, dietitian, and community health nutrition education programs) developed positive behavioral changes about nutrition and had higher scale mean scores (28,29).

When the children's body mass index was analyzed according to growth percentiles, it was found that 4.9% of girls were underweight, 77.8% were normal, 8.3% were overweight, and 9% were obese. As to boys, 9.40% were underweight, 75.2% were normal, 9.4% were overweight, and 6% were obese. No statistically significant difference was found between children's gender and BMI ($p>0.05$). The study conducted by Yazıcı and Gülay (30) reported the obesity rate higher in girls. Similar studies also reported no significant differences between children's gender and BMI (30-32).

According to the Turkish Nutrition and Health Research report (2010), of female children aged 6-18 years, 4.1% are very thin, 14.5% are thin, 14.4% are overweight, and 7.6% are obese; and of male children, 3.8 % are very thin, 15.2% are thin, 14.2 % are overweight, and 7.3% are obese (33).

Limitation of the study

The limitation of this study is that the results of children's body weight and height were based on the family's self-report. The results can be generalized only to this group.

Conclusions

Family nutrition and physical activity mean scores were found to be high in mothers who had a high education level, who had knowledge about nutrition and physical activity and learned this information from health personnel, who trusted mostly health personnel about information such as physical activity nutrition, diet and food, and who were affected mostly by health personnel

about their children's nutrition. As healthy life behaviors that have been formed since early ages affect the rest of life, particularly healthcare professionals should organize education programs to increase awareness of mothers about nutrition and physical activity. Health professionals' encouraging behaviors are highly important for helping mothers to gain the right nutrition habits and transforming physical activity, necessary for a healthy life, into behaviors.

Ethical considerations: Ethics committee approval was obtained from the Scientific Research Ethics Committee of the university before the study was conducted (Document date and number: 26.05.2021- E.9655).

Conflict of Interest: The authors declare no conflict of interest.

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