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NUTRITION LITERACY AT MOTHERS WHO HAS CHILDREN BETWEEN THE AGES OF 3-6

3-6 YAŞLARI ARASINDA ÇOCUĞU OLAN ANNELERDE BESLENME OKURYAZARLIĞI

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ABSTRACT

Nutrients such as proteins, fat, carbohydrates, minerals, vitamins and water are needed for the functions of the cells that make up the body, growth and development, and for the maintenance of health. These nutrients are called nutrition for daily intake through consumed foods. Early childhood nutrition experiences have an important influence on the future life of the individual. Children's eating habits cannot be considered separately from parental attitudes, behaviors and habits. For this reason, consciousness of the family is important in the healthy nutrition process. Literacy is a condition that plays an important role in the formation of eating habits. The integration of nutrition knowledge and literacy forms the notion of nutrition literacy and can help increase the control of individual eating behaviors and the formation of a healthy lifestyle. Nutrition literacy can be defined as having the capacity to acquire, process and understand basic nutrition knowledge. General screening model was used in the study to determine the nutritional literacy levels of the mothers who has 3-6 years old children. The study group of the research consisted of 381 mothers living in the province of Konya, who has children aged between 3-6 years. This study was conducted between December-2017 and January-2018 with the aim of identifying nutritional literacy levels for mothers of children aged 3-6 years. The data collection tool was the "Nutrition Literacy Assessment Tool for Adults" and the "Personal Information Form" covering the socio-demographic characteristics of the participants. The "Nutrition Literacy Assessment Tool for Adults" is composed of 35 items and has 5 subgroups. Subgroups are; general nutrition information, reading comprehension and interpretation, food groups, portion size and food label reading. Each subgroup can be used independently. In the evaluation of the data, SPSS package program was used, socio-demographic characteristics were given as frequency tables, necessary statistical analyzes were made, One-Way Anova and Tukey HSD Test were used. According to the results of the research, it is seen that nearly half of the mothers (47.8%) are between 30-35 years of age. 50.9% of the children are girls and 49.1% of the children are boys. The average age of the children is 2.97 ± 0.89 years. Half of the mothers (50.1%) has undergraduate and graduate degrees and 59.3% were housewives. In the study, the general reliability coefficient of the "Nutrition Literacy Assessment Tool for Adults" scale was $\alpha = 0.73$; the reliability coefficients of general nutrition information, reading comprehension and interpretation, food groups, portion size and food label reading subscales were calculated as $\alpha = 0.69$, $\alpha = 0.71$, $\alpha = 0.63$, $\alpha = 0.7$ and $\alpha = 0.68$ respectively. When the analysis results were examined, it was determined that the variables of mother occupation, monthly income, family type and mother education level were significantly different ($p < 0.05$) on total nutrition literacy scores.

Keywords: Nutrition Literacy, Preschool Period, 3-6 ages, General Nutrition Information, Food Label

ÖZ

Vücudu oluşturan hücrelerin işlevlerini yerine getirebilmesi, büyüme ve gelişmenin devam etmesi, sağlığın korunması için protein, yağ, karbonhidrat, mineral, vitamin ve su gibi besin ögelerine ihtiyaç vardır. Bu besin ögelerinin günlük olarak tüketilen besinler aracılığı ile alınmasına beslenme denmektedir. Erken çocukluk dönemindeki beslenme deneyimleri, bireyin gelecek yaşamı üzerinde de önemli etkiye sahiptir. Çocukların beslenme düzenleri ebeveyn tutum, davranış ve alışkanlıklarından da ayrı düşünülememektedir. Bu nedenle sağlıklı beslenme sürecinde ailenin bilinçli olması önem kazanmaktadır. Okuryazarlık, beslenme alışkanlıklarının oluşmasında önemli role sahip olan bir durumdur. Beslenme bilimi ve okuryazarlığın bütünleşmesi ile beslenme okuryazarlığı kavramı oluşmakta, bireylerin yeme davranışlarının kontrolünün artmasının sağlanmasında ve sağlıklı yaşam biçiminin oluşmasında yardımcı olabilmektedir. Beslenme okuryazarlığı, temel beslenme bilgisini elde etme, işleme ve anlama kapasitesine sahip olma derecesi olarak tanımlanabilmektedir. 3-6 yaş grubunda çocuğu olan annelerin beslenme okuryazarlığı düzeylerinin saptanması amacıyla yapılan araştırmada genel tarama modeli kullanılmıştır. Araştırmanın çalışma grubunu Konya ilinde yaşayan, 3-6 yaş gurubunda çocuğu olan toplam 381 anne oluşturmaktadır. Bu araştırma 3-6 yaş grubunda çocuğu olan annelerin beslenme okuryazarlığı düzeylerinin saptanması amacıyla Aralık-2017 ve Ocak-2018 tarihleri arasında yapılmıştır. Araştırmada veri toplama aracı olarak "Yetişkinlerde Beslenme Okuryazarlığı Değerlendirme Aracı" ve katılımcıların sosyo-demografik özelliklerini kapsayan "Kişisel Bilgi Formu" kullanılmıştır. "Yetişkinlerde Beslenme Okuryazarlığı Değerlendirme Aracı" toplam 35 maddeden oluşmuştur ve 5 alt grubu vardır. Alt gruplar; genel beslenme bilgisi, okuduğunu anlama yorumlama, besin grupları, porsiyon miktarı ve gıda etiketi okumadır. Her bir alt grup bağımsız olarak tek başına kullanılabilmektedir. Verilerin değerlendirilmesinde, SPSS paket programı kullanılmış, sosyo-demografik özellikler frekans tablosu olarak verilmiş, gerekli istatistiksel analizler yapılmış, One-Way Anova ve Tukey HSD Testi kullanılmıştır. Araştırma sonucuna göre, annelerin yarıya yakınının (%47.8) 30-35 yaş arasında olduğu görülmektedir. Çocukların %50.9'u kız, %49.1'i de erkektir. Çocukların yaş ortalaması 2.97±0.89 yıldır. Annelerin yarısı (%50.1) lisans ve lisans üstü mezunu olup, %59.3'ü ev hanımıdır. Çalışmada, "Yetişkinlerde Beslenme Okuryazarlığı Değerlendirme Aracı" ölçeğinin geneline ait güvenirlik katsayısı α= 0.73; genel beslenme bilgisi, okuduğunu anlama ve yorumlama, besin grupları, porsiyon miktarı ve gıda etiketi okuma alt boyutlarına ait güvenirlik katsayıları ise sırasıyla α=0.69, α=0.71, α=0.63, α=0.7 ve α=0.68 olarak hesaplanmıştır. Analiz sonuçları incelendiğinde beslenme okuryazarlığı toplam puanları üzerinde anne mesleği, aylık gelir, aile tipi ve anne eğitim düzeyi değişkenlerinin anlamlı düzeyde farklılığa ($p<0.05$) neden olduğu saptanmıştır.

Anahtar sözcükler: Beslenme Okuryazarlığı, Okul Öncesi Dönem, 3-6 yaş, genel beslenme bilgisi, gıda etiketi

1. INTRODUCTION

Nutrients such as proteins, fat, carbohydrates, minerals, vitamins and water are needed for the functions of the cells that make up the body, growth and development, and for the maintenance of health. Taking of these nutrients through consumed foods on a daily basis is also called nutrition (Osmanoglu, 2016). Nutrition is the most economical way to obtain nutrients that will provide enough of each of the energy and nutrients necessary for long-term growth, development, healthy and productive life without losing nutritional value and becoming unhealthy (Baysal, 2007). Early childhood nutrition experiences have an important influence on the future life of the individual. Children's eating habits cannot be considered separately from parental attitudes, behaviors and habits. For this reason, awareness of the family is important in the healthy nutrition process (Koksal and Gokmen, 2016). Literacy is a condition that plays an important role in the formation of eating habits. The integration of nutrition knowledge and literacy forms the notion of nutrition literacy and can help to increase the control of individual eating behaviors and help to form a healthy lifestyle (Cesur et al., 2015). When the factors that may affect nutritional behavior are examined, the definition of nutrition literacy is encountered. Nutrition literacy; it can be defined as the level of acquiring, reading, and understanding a person's basic nutrition information (Zoellner et al., 2009). Nutrition literacy is also defined as the ability to read and understand complex food information (Bari, 2012). Nutritional literacy provides an understanding of the basic food groups (carbohydrates, proteins, and fats), their nutritional sources and their role in maintaining health (Laberge, 2011). It is also vital for those living in regions with dietary literacy, education, health and nutritional differences. The nutritional literacy situation shows how people are researching nutrition knowledge and the results of how confident they are. Understanding the causes and consequences of limited nutritional literacy can be a step toward reducing the burden of chronic diseases associated with nutrition in disadvantaged communities (Zoellner et al., 2009). Nutrition literacy consists of awareness of facts and processes, and procedural knowledge of knowing how to do something about declarative knowledge and skills and strategies characterized with knowing this. From this point of view, nutrition literacy is a more comprehensive concept beyond the acquisition of information and interpretation of food labels (Velardo, 2015).

Nutrition literacy is a concept that is related to everyday life and includes practices. Nutrition literacy conceptually includes diet, action, and ecology. The interconnected and interrelated relationships among

these three components create a complex and dynamic system to help adapt to the continuous changes in the system by using nutritional literacy, whose primary function is to perform daily practices that ensures the maintaining nutritional health of individuals and communities for all (Cimbaro, 2008). At the same time, nutritional literacy emphasizes the nutritional skills that should make wise decisions about dietary situations in everyday life, which can be regarded as a compulsory component of food education programs and is important in the development of healthy eating behaviors (Liao and Lai, 2017). It is also contemplated that if curricula at school focus on improving future health and nutritional knowledge of future parents, education will affect the nutritional status of future generations (Alderman and Headey, 2017). For this reason, nutrition literacy is an important factor in ensuring the continuity of social health. The aim of the study is to determine the nutritional literacy levels of the mothers of children aged 3-6 in order to raise awareness of this field.

2. METHOD

In this section, the model of the research, the universe and the sample, information on the collection of data and analysis of data are included.

2.1. The Model of the research

A general screening model was used in the study to determine the nutritional literacy levels of the mothers of 3-6 year olds. General screening models; "In a phase consisting of a large number of elements, a screening of all or part of the universe in order to arrive at a general judgment about the universe" (Karasar, 2010).

2.2. The Universe and the Sample

The universe of the research is composed of mothers who live in the districts of the province of Konya and have children in the age group of 3-6 years. Random sampling method was used in the study and 381 volunteers participated in the study.

2.3. Data Collecting Tools

The "Nutrition Literacy Assessment Tool for Adults" and the "Personal Information Form" were used as data collection tools in the study. Personal information form; 8 questions (gender of the child, duration of breastfeeding of the child, age of the child, age of the mother, education level of the mother, occupation of the mother, type of family, monthly income of the family) are included to determine the socio-demographic characteristics of women. Cesur and his colleagues (2015) conducted the first validity and reliability study of "Nutrition Literacy Assessment Tool for Adults" on 266 people aged 18-64 in Sivas. Content validity has been made to determine the substance discrimination of the substances in the scale and their compliance with cultural norms has been sent to 10 specialists for this purpose. According to the results of the analysis following the expert opinions, the value of KMO (Kaiser-Meyer-Olkin) was determined as 0.76. The assessment tool consists of 5 sections with 35 total questions including general nutrition information, reading comprehension, food groups, portion quantity, numerical literacy and food label reading. In order to investigate the reliability of the answers given to the questions, it was reapplied to the 60 selected subjects by systematic sampling methods 3 weeks after the first application and the correlation coefficient with the test-retest method was calculated as 0.85. In the analysis of substance strength and discrimination, the results of 0.552 and 0.730 respectively were obtained and it was determined that substance strength and discrimination were acceptable. In the factor analysis, the contribution of the subscales of the evaluation tool to the total variance was determined as 13.3%, 21.4%, 26.8%, 32.0% and 36.1% respectively. In addition, the Cronbach Alfa reliability coefficient was calculated as 0.75. As a result of analyzes made, it was determined that "Nutrition Literacy Assessment Tool for Adults" is valid and reliable (Cesur et al., 2015).

2.4. Data Analyzes

Statistical evaluation of data; the statistical package for the social sciences (SPSS) package program was used in the Windows environment and the necessary statistics were analyzed. The One Way Anova test was used to determine whether the Nutrition Literacy Assessment Tool subscale and total test scores differed in terms of maternal profession, monthly income, family type, maternal education level and maternal age, and the Tukey test was used to determine where the difference originated. In the study, the general reliability coefficient of the "Nutrition Literacy Assessment Tool for Adults" scale was calculated as $\alpha = 0.73$ and the reliability coefficients of general nutrition information, reading comprehension and

interpretation, food groups, portion size and food label reading subscales were calculated as α = 0.69, α = 0.71, α = 0.63, α = 0.7 and α = 0.68 respectively.

3. FINDINGS

According the research 50.9% of the children were girls and 49.1% of the children were boys. Only 13.9% of the children received breast milk for the first 6 months. The ages of the children ranged from 3 to 6, with a mean of 2.97 ± 0.89 years. Half of the mothers (50.1%) graduated from undergraduate and graduate degrees and 59.3% were housewives (Table 1).

Table 1. General Information about Children and Mothers

General Information	n	%
Gender of the Child		
Male	187	49.1
Female	194	50.9
The duration of the child's breastfeeding		
0-6 months	53	13.9
7-12 months	53	13.9
13 and above	258	67.7
None	17	4.5
Child's Age		
3 years old	19	5.0
4 years old	99	26.0
5 years old	139	36.5
6 years old	124	32.5
Mother's Age		
20-24 years old	5	1.3
25-29 years old	83	21.8
30-35 years old	182	47.8
35 and above	111	29.1
Mother's Education Level		
Primary School	55	14.4
Middle School	56	14.7
High School	79	20.7
Undergraduate and above	191	50.1
Mother's Occupation		
Officer	69	18.1
Labor	20	5.2
Self-employment	66	17.3
Housewife	226	59.3
Family Type		
Nuclear Family	324	85.0
Extended Family	41	10.8
Broken Family	16	4.2
Salary of the Family		
750 TL and below	5	1.3
751-1500 TL	27	7.1
1501-2250 TL	109	28.6
2251 TL and above	240	63.0

Table 2. ANOVA Results According to Maternal Job of Subtest and Total Test Scores of "Evaluation of Nutrition Literacy in Adults" Tool

	Average	Standard Deviation	F	Sig.
General Nutrition Knowledge	8.8031	1.37097	4.248	0.002
Reading Comprehension and interpretation	5.4278	0.83865	1.385	0.239
Food Groups	8.4593	2.48184	8.807	0.000
Portion Size	1.5354	0.79268	3.559	0.007
Food Label Reading	3.7507	1.67592	1.754	0.137
Nutrition Literacy Total Point	27.9764	4.64384	8.303	0.000

In Table 2, when the analysis results are analyzed, it is seen that there is a significant difference between the general nutrition knowledge, food groups, portion size subtest and nutrition literacy total scores in terms of maternal occupation ($p < 0.05$). Tukey test was conducted to determine where this difference originated. According to the Tukey test results, it was determined that the general nutrition information subscale scores of officer and housewives ($p = 0.012$); in nutritional group subscale scores ($p = 0.002$); portion sizes subscale scores of officer and housewives ($p = 0.028$) and the other ($p = 0.05$); the total scores of nutrition literacy resulted in the difference of civil servants and housewives ($p = 0.00$) groups.

Table 3. "Nutrition Literacy in Adults" ANOVA Results of Subtest and Total Test Scores According to Monthly Income Status

	Average	Standard Deviation	F	Sig.
General Nutrition Knowledge	8.8031	1.37097	5.453	0.001
Reading Comprehension and interpretation	5.4278	0.83865	2.802	0.040
Food Groups	8.4593	2.48184	11.062	0.000
Portion Size	1.5354	0.79268	0.260	0.854
Food Label Reading	3.7507	1.67592	4.823	0.003
Nutrition Literacy Total Point	27.9764	4.64384	12.534	0.000

When Table 3 is examined, it is determined that there is a significant difference regarding monthly income between general nutrition information, reading comprehension interpretation, food groups, food label reading subtest and nutrition literacy total scores ($p < 0.05$). Tukey test was conducted to determine where this difference originated. According to the Tukey test results, the general nutritional information subscale scores were between 751-1500 TL and monthly income was 2251 TL and above ($p = 0.007$) and monthly income was between 1501-2250 TL and the monthly income was 2251 TL and above $p = 0.018$); ($p = 0.041$) with a monthly income of 1501-2250 TL and a monthly income of 2251 TL and above in the reading comprehension and interpretation sub-test scores; nutritional group subscale scores were 750 TL and below, 2251 TL and above (0.006) and 751-1500 TL and 2251 TL and above ($p = 0.048$); food label reading subscale scores were between TL 1501-2250 and TL 2251 and above ($p = 0.02$); total nutritional literacy total scores were 2251 TL and above and 750 TL and below ($p=0.036$), between 751-1500 TL ($p = 0.023$) and between 1501-2250 TL ($p = 0.000$) groups were found to be different.

Table 4. ANOVA Results Based on Family Type Variability of Subtest and Total Test Scores in "Adult Nutrition Literacy Assessment Tool"

	Average	Standard Deviation	F	Sig.
General Nutrition Knowledge	8.8031	1.37097	3.111	0.046
Reading Comprehension and interpretation	5.4278	0.83865	0.765	0.466
Food Groups	8.4593	2.48184	2.815	0.061
Portion Size	1.5354	0.79268	0.155	0.857
Food Label Reading	3.7507	1.67592	4.086	0.018
Nutrition Literacy Total Point	27.9764	4.64384	4.949	0.008

According to Table 4, it is seen that there is a significant difference in family type between general nutrition information, food label reading subtest and nutrition literacy total scores ($p < 0.05$). Tukey test was conducted to determine where this difference originated. According to the Tukey test results, the general nutrition knowledge sub-test scores were with the nuclear family and broken family ($p = 0.039$); in the food label reading sub-test scores were nuclear family and broken family ($p = 0.019$) and extended family and

broken family (p=0.17); in the nutrition literacy total test scores were nuclear family and broken family (p = 0.05) and extended family and broken family (p=0.046) groups were found to be different.

Table 5. ANOVA Results of "Nutrition Literacy Assessment Tool for Adults" Subtest and Total Test Scores according to Mother Education Level

	Average	Standard Deviation	F	Sig.
General Nutrition Knowledge	8.8031	1.37097	15.996	0.000
Reading Comprehension and interpretation	5.4278	0.83865	4.883	0.002
Food Groups	8.4593	2.48184	23.127	0.000
Portion Size	1.5354	0.79268	2.965	0.032
Food Label Reading	3.7507	1.67592	10.201	0.000
Nutrition Literacy Total Point	27.9764	4.64384	32.981	0.000

When Table 5 was examined, it was found that nutrition literacy subtest and total test scores were significantly different according to education level (p <0.05). Tukey test was conducted to determine where this difference originated. According to the results of Tukey test, general nutrition information subscale scores of primary school-university (p = 0.00), middle school-university (p = 0.04); reading comprehension and interpretation subscale scores of primary school-university (p = 0.013), high school-university (p = 0.039); food groups subscale scores of primary school-university (p = 0.00), middle school-university (p = 0.00) high school-university (p=0.00); food label reading subscale scores of primary school-high school (p = 0.026), primary school-university (p=0.00); nutrition literacy total test scores of primary school-high school (p = 0.011), primary school-university (p=0.00) middle school-university (p = 0.000), high school-university (p=0.000) groups were found to be different.

Table 6. ANOVA Results of "Nutrition Literacy Assessment Tool for Adults" Subtest and Total Test Scores according to Mother's Age Variation

	Average	Standard Deviation	F	Sig.
General Nutrition Knowledge	8.8031	1.37097	0.438	0.726
Reading Comprehension and interpretation	5.4278	0.83865	0.431	0.731
Food Groups	8.4593	2.48184	0.280	0.840
Portion Size	1.5354	0.79268	1.465	0.224
Food Label Reading	3.7507	1.67592	0.513	0.673
Nutrition Literacy Total Point	27.9764	4.64384	0.108	0.956

In Table 6, when the analysis results are examined, it is seen that there is no significant difference in nutritional literacy subscale and total scores in terms of mother's age (p> 0.05).

Discussion

When the analysis results were examined, it was determined that the variables of mother's occupation, monthly income, family type and mother's education level were significantly different on nutrition literacy total scores. Debela et al. (2017) reported that the relationship between mother nutrition knowledge and the nutritional status of children is directly related to the health and nutrition policies of educational campaigns and educational programs. Soyler (2005) found that health and nutrition information is influential on consumers' behavior in purchasing and modifying nutrition habits. Chari et al. (2014) was found the result that the obesity seen in school age children is related to the health literacy level of the parents. Ronto et al. (2016) has found that it is important to address the lack of support for food literacy skills in the home environment, as food literacy training has a critical impact on adolescents' increased food literacy scores, diet behavior, and their long-term health, in their study of adolescent food literacy's potential to influence nutritional behavior. Gibbs et al. (2016) reported that children's diet quality supported simultaneous validity of parent nutrition literacy, as the parental nutrition literacy, parental age, parental education level, and income correlated significantly in their study that they examine the relation between parent's nutritional literacy and the quality of their children's diet. Winkleby et al. (1997) concluded that programs for nutrition education for adults with low literacy skills would be effective; Hirvonen et al. (2017) reported that nutritional knowledge in areas where food accessibility is good provided significant improvements in children's dietary diversity.

Tuna Oran et al. (2017) study has found that the women who make up the research group pay attention to the freshness of most of the products they buy, the vast majority of them pay attention to their expiration

date, nutritional characteristics, fitness for health, price and budget. Appoh and Krekling (2005) reported in their investigated study of maternal nutritional literacy and nutritional status of children that maternal nutrition knowledge influence children's nutritional status however maternal nutritional practical information may be more effective than official maternal nutritional education in children's nutrition. Lee et al. (2011) found that nutrition knowledge and behaviors of mothers were particularly influential in the nutritional pattern of female child in their studies with children and mothers at middle school level, and therefore the gender factor in the nutrition program of children at middle school level should also be considered. Silk et al. (2008) investigated the effects of written material, web sites and play methods in increasing nutrition literacy and found that the most effective method is web site.

Liechty et al. (2015) has come to the conclusion that health literacy affects parental views and it has an impact on children's weight loss in their study that investigating the relation between health literacy scale which is a scale based on interpreting the information on the nutrition label correctly, and parent health literacy and parents' attitudes towards weight control of young children. Also, Kakinami et al. (2016) found that there is lower level anointment with the children of parents who has the use of nutrition labeling, high literacy and nutrition knowledge. Cluss et al. (2013) stated that the low education level and very low income level are associated with poor nutrition. Yabanci et al. (2014) reached the conclusion in their study of mother's nutrition knowledge on children's attitudes towards nutrition that higher-nutritionally informed mothers placed vegetables, fruits, legumes and less sugary drinks in their children's nutrition and mother's nutrition knowledge affected children's eating habits.

4. RESULT AND SUGGESTIONS

In the literature, when the studies (Debe. et al, 2017; Soyler, 2005; Gibbs et al., 2016; Appoh and Krekling, 2005; Yabanci et al., 2014; Cluss et al., 2013) examined, it is found that nutritional literacy is associated with the family's socioeconomic status and level of education. This situation also coincides with the results of our work. In one of the most critical moments of life which is pre-school term, parents' knowledge about nutrition and its application in practice is an important element that development can continue in the way that is desired. When the development is a whole and each area of development is thought to be influenced by one another, the importance of nutrition one more time draws attention. In order to ensure the continuity of good health in society, that is to say, to maintain the continuity of a healthy society, it is necessary to increase nutrition knowledge and transfer it to practice. For this, it is thought that understanding the concepts of nutrition and nutrition literacy and comprehension of the areas they cover and increasing the nutrition education are expected to have an effect on nutrition characteristics of pre-school children.

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