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- Beslenme ve Diyetetik / Araştırma -

Knowledge of Mothers with Children Aged 0-24 Months on Child Nutrition

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ABSTRACT

Adequate and balanced nutrition plays an important role in the healthy growth and development of children. The main problem related to nutrition in children derives from the fact that mothers do not have enough knowledge on nutrition. Determining the nutritional knowledge of the mothers, identifying the deficiencies and mistakes and transferring the correct one instead of them is important for raising healthy generations. The aim of this study is to determine the knowledge of mothers with children between 0-24 months old about child nutrition and to evaluate them according to various variables.

The descriptive study was conducted on mothers (n:250) with children between 0-24 months old. Data were obtained via questionnaire form. The questionnaire included 20 knowledge statements on child nutrition. The data were analyzed using IBM-SPSS 20.0 for statistical program. Ages of mother's and children's, mothers' employment status and educational levels, birth order of children in the family and the mother's knowledge sources were used as variables to evaluate the maternal nutritional knowledge of the mothers. For the analysis, independent sample t-test and One-way Anova were used.

The average knowledge scores of the mothers was 15.4±1.5; 75.0.% of the highest possible score of 20. When knowledge scores of the mothers were analyzed by variables, a significant difference was found between their scores according to age. This difference was due to the 26-30 age group (15.7±1.2 score, $p<0.05$). The knowledge scores of the mothers increased as the level of education increased ($p<0.01$); and the knowledge scores of working mothers (16.3±1.1 score) were higher than housewives (15.3±1.5 score)($p<0.01$).

The results of our study reveal that in general, mothers included in the study had a good level of nutritional knowledge. On the other hand, they had some mistakes in breastfeeding and complementary feeding. It is important that mothers, who are one of the main factors in raising healthy generations, are educated by health professionals about nutrition and health, and that these pieces of training are disseminated and sustained through the government and its other stakeholders.

Keywords: Nutrition, Knowledge, Mother, child.

0-24 Aylık Çocuğa Sahip Olan Annelerin Çocuk Beslenmesi Konusundaki Bilgileri

ÖZ

Yeterli ve dengeli beslenme, çocukların ağlıklı büyüme ve gelişiminde önemli bir rol oynar. Çocuklarda beslenmeye bağlı oluşabilecek sağlık sorunları, annelerin beslenme konusunda yeterince bilgilerinin olmamasıyla ilişkilidir. Annelerin beslenme bilgilerinin belirlenerek eksiklerin ve hataların saptanması ve yerine doğru bilgilerin aktarılması, sağlıklı nesillerin yetişmesi açısından önemlidir. Bu çalışmanın amacı iki yaşından küçük çocuğa sahip olan annelerin çocuk beslenmesi konusundaki bilgilerinin belirlenmesi ve çeşitli değişkenlere göre değerlendirilmesidir.

Tanımlayıcı tipte olan bu çalışma, 0-24 aylık bebeği olan 250 anne üzerinde yürütülmüştür. Araştırmanın verileri anket formu ile elde edilmiştir. Ankette çocuk beslenmesine yönelik 20 bilgi cümlesi yer almıştır. Araştırma sonucu elde edilen veriler, IBM SPSS 20.0 programı kullanılarak analiz edilmiştir. Annelerin beslenme bilgisinin değerlendirilmesinde açıklayıcı değişken olarak annelerin ve çocukların yaşları, annelerin çalışma durumu, eğitim düzeyleri, çocuğun ailedeki sırası ve annenin başvurduğu bilgi kaynakları ele alınmıştır. Verilerin analizinde Independent sample t test ve Oneway anova testi kullanılmıştır.

Yapılan analiz sonucuna göre, annelerin bilgi testinden aldıkları ortalama bilgi puanı (15.4±1.5) alınabilecek en yüksek puanın %75.0'idir. Annelerin bilgi puanları değişkenler tarafından incelendiğinde; yaşa göre puanları arasında anlamlı bir fark bulunmuştur ($p<0.05$). Bu fark 26-30 yaş aralığındaki annelerin bilgi puanlarının daha yüksek olmasından (15.7±1.2) kaynaklanmaktadır. Eğitim düzeyine göre, annelerin eğitim düzeyi arttıkça bilgi puanlarının da arttığı ($p<0.01$); çalışan annelerin bilgi puanlarının (16.3±1.1) çalışmayan annelerin bilgi puanından (15.3±1.5) daha yüksek olduğu ($p<0.01$) saptanmıştır.

Araştırmanın sonucunda, annelerin genel olarak çocuk beslenmesi bilgi düzeylerinin iyi olduğu ortaya çıkmıştır. Diğer taraftan, annelerin emzirme ve tamamlayıcı beslenme konusunda bazı hataları bulunmaktadır. Sağlıklı nesiller yetiştirmede temel

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faktörlerden olan annelerin beslenme ve sağlık konusunda sağlık profesyonelleri tarafından eğitilmesi, bu eğitimlerin devlet ve diğer paydaşları aracılığıyla yaygınlaştırılması ve sürdürülebilirliğinin sağlanması önemlidir.
Anahtar Kelimeler: Beslenme, Bilgi, Anne, Çocuk.

1. Introduction

Adequate and balanced nutrition plays an important role in the healthy growth and development of children. Children particularly in the first two years of life, suffer nutritional deficiency in many countries around the world. Inadequate and unbalanced nutrition causes malnutrition, growth and developmental retardation, long-term health problems, and deaths in children (Nicklasand Hayes, 2008; World Health Organization [WHO], 2009).

Parents have an impact on their children's nutrition. Mothers are the primary health care providers of children and they are role models of their children in eating behaviours ((Nicklasand Hayes, 2008; Karaağaoğlu and Samur, 2015). Primary care is strongly influenced by mother's nutrition knowledge level (Appoh and Krekling, 2005; Vereecken and Maes, 2010; Williams et al., 2012). Various studies reported that mothers who have a higher level of nutritional knowledge feed their children more effectively (Sule et al., 2009; Siagian and Halisitijayani, 2015; Chinnasami et al., 2016; Türker et al., 2016). However, mother's limited knowledge on child nutrition leads to negative health outcomes in children in most developing countries (Fadare et al., 2019). Also, improper eating habits that occur in childhood and adolescence periods increase the risk of future chronic disease (Yabancı et al., 2014).

It is well known that socio-demograpghic factors such as age, sex, education, marital status, and socioeconomic status influence nutritional knowledge and eating behaviours (Parmenter et al., 2000; Wardle et al., 2000). Therefore, it is important to determine the mothers' nutritional knowledge and related factors to identify the deficiencies, mistakes and to teach the correct information, in terms of raising healthy generations (Sukandara et al., 2015).

In this context the aim of this study is to determine the knowledge of mothers with children between 0-24 months old on child nutrition and to evaluate them according to some variables.

2. Material and Methods

This study was planned as descriptive research. The planning phase of the study began in January 2017 and data was collected in June–August 2017. Evaluation of data was completed in March 2018. The research sample comprises mothers (n:250) with children between 0-24 months old, who registered at two family health centers in Aksaray province in Central Anatolia. The subjects participated on a voluntary basis after being fully informed about the objectives and methods of the study. They signed the informed consent and filled in questionnaires, which adhered to Declaration of Helsinki protocols (World Medical Association).

The mother's participation in the study according to the following criteria was included, that the mothers have 0-24 month's old child, there is no communication barrier, and mothers are literate and accept to participate in the study. In determining the children to be included in the study, attention was paid to the fact that the child was born at term, did not have any nutritional or other health problems and did not apply any special dietary treatment.

Data were obtained via questionnaire form by using face to face technique. The questionnaire form included information about the mother and child, knowledge statementsrelated with child nutrition prepared by authors after a review of the literature (Özdoğan et al., 2012). The child nutrition knowledge section consisted of 20 statements. "One" point was given for each correct statement and "0" point for incorrect statements. The highest possible score was "20".

The data were analyzed using SPSS 20.0 for statistical analysis. Frequencies, means, and standard deviation were calculated. Maternal nutritional knowledge was examined by six variables: The ages of the mothers and children, the mothers' employment status and levels of education, the children' birth order in the family and the mother's knowledge sources.

In order to examine the nutritional knowledge of the mothers included in the research, the study tested whether their scores from nutritional knowledge statements dispersed normally. For this purpose, the

Kolmogorov–Smirnov One-Sample Test was used in the study. Accordingly, the test results indicated that the mean scores of nutritional knowledge disperse normally ($p>0.05$). Therefore, parametric tests (independent sample t-test one-way ANOVA and post hoc test (Tukey) were used in the analysis (Büyüköztürk, 2003). *p*-values<0.01 and <0.05 were accepted as statistically significant.

3. Results

3.1. Characteristics of Mothers and Children

The mean age of the mothers involved in the research was 28.5±5.4 years. A majority of them (88.0%) were housewives, and 66.4% of them had attended high school or higher education. All of them were married. The majority of their families (91.2%) were nuclear with an average of 4.3±1.2 members.

The mean age of the children was 10.3±6.4 months. The average birth weight was 3.260±491.4g and lenght was 49.9±2.2 cm. 34.4% of them were aged 0–6 months, 29.6% of them were aged 7-12 months, 22.4% of them were aged 13-18 months, and 13.6% of them were aged 19-24 months. The children involved in the research were the families' second child on average.

When the knowledge sources of mothers about infant nutrition were examined, it was determined that the most frequently used source of knowledge was the health personnel (39.2%). Family elders (38.8%) ranked number two and media (22.0%) ranked number three.

3.2. Knowledge of Mothers on Child Nutrition

Table 1: Distribution of Mothers based on True and False Answers about Child Nutrition (n=250)

Statements	True n /(%)	False n /(%)
Knowledge statements on breastfeeding		
Breastfeeding alone is sufficient for the first six months	245 (98.0)	5 (2.0)
Breastfeeding is very beneficial for children	244 (97.6)	6 (2.4)
Newborn infants should be breastfed paying attention to body movements	90 (36.0)	160 (64.0)
The infant who is breastfed alone should not be given water	172 (68.8)	78 (31.2)
Breast milk is more beneficial than formulas	250 (100.0)	-
Colostrum is the best food for infants	244 (97.6)	6 (2.4)
Breastfed infants are fatter than the infants fed with formulas	154 (61.6)	96 (38.4)
The infant with diarrhea should not be breastfed	238 (95.2)	12 (4.8)
Knowledge statements on complementary food		
Tea and biscuits are good for children	230 (92.0)	20 (8.0)
Formula cooked with water and starch is useful for children	146 (58.4)	104 (41.6)
Cow milk should not be given to children without diluting whenever it is started	216 (86.4)	34 (13.6)
Eggs should be fed to children hard-boiled for the first time.	156 (62.4)	94 (37.6)
The gravy of a meal is more nutritious than the meal itself	37 (14.8)	213 (85.2)
Dry legumes can be given to 2-month-old children	248 (99.2)	2 (0.8)
Oil and sugar should be added to diluted milk	27 (10.8)	223 (89.2)
Honey is more nutritious than molasses for 0-1-year-old children	216 (86.4)	34 (13.6)
First sugar water should be given after birth	246 (98.4)	4 (1.6)
Giving salt to the child until the age of one is a good thing	244 (97.6)	6 (2.4)
The infant with diarrhea should not be given water	225 (90.0)	25 (10.0)
Confectionery foods are healthy for children	222 (88.8)	28 (11.2)

Mothers' mean knowledge score on breastfeeding was 6.5±0.8; mean knowledge score on complementary food was 8.9±1.2. All mothers (100.0%) agreed with the following statement; "Breast milk is more beneficial than formulas". Most of the mothers disagree with the following statement; "Newborn infants should be breastfed whenever they want" (64.0%). The item correctly known best in the section of knowledge on complementary food was "Dry legumes can be given to the 2-month-old child" (99.2%), and the item most of inaccurately identified as correct was, "Oil and sugar should be added to diluted milk" with the rate of 89.2%. This was followed by, "The gravy of the meal is more nutritious than the meal itself" with a rate of 85.2%. Except for these items, the mothers mostly responded about child nutrition correctly (Table 1).

Table 2: Mothers' Knowledge Scores and Analysis Results by Variables (n=250)

Variables	X±SD	t/F	p
Age of Mothers			
≤25 years[a]	15.3±1.4	3.383	0.036
26-30 years[b]	15.7±1.2		
31-43 years[c]	15.2±1.8		
Educatioanal Status			
Secondary school and below	15.0±1.6	-2753	0.006
High school and higher	15.6±1.4		
Working Status			
Working	16.3±1.1	-3.428	0.001
Housewife	15.3±1.5		
Age of Children (month)			
0-6	15.4±1.6	1.820	0.144
7-12	15.1±1.6		
13-18	15.7±1.3		
19-24	15.6±1.5		
Child Birth Order in the Family			
1.	15.3±1.5	0.302	0.740
2.	15.5±1.5		
≥3.	1534±1.4		
Source of Mothers' Nutritional Knowledge			
Health Personnel	15.6±1.6	1.031	0.358
Media	15.2±1.5		
Family Elders	15.5±1.4		
Total score	15.4±1.5	-	-

* b>a, c

The average knowledge scores of the mothers were 15.4±1.5; 75.0% of the highest possible score of 20. When knowledge scores of the mothers were analysed by variables, a significant difference was found between their scores according to age. This difference was due to the 26-30 age group (15.7±1.2 score) according to the Tukey analysis result (p:0.036). The knowledge scores of the mothers increased as the level of education increased (p:0.006); and the knowledge scores of working mothers were (16.3±1.1 score) higher than (15.3±1.5 score) housewives (p:0.001). There are no significant differences between the children, the birth order of children in the family, and the mother's source of knowledge in nutrition (Table 2).

4. Discussion

Children particularly in the first two years of life, suffer from nutritional deficiency for social, economic and cultural, behavioral reasons in many countries around the world. Breast milk is the most important food contributing to the healthy growth and development of children. The most correct feeding style for babies is breastfeeding alone for the first six months postpartum (WHO, 2009). Breastfed children have much lower mortality from diarrhea and other diseases and are less likely to be obese or catch diabetes in adolescence and adulthood (Arenz et al., 2004; Monasta et al., 2010). The type and duration of infant feeding may have an important role in biological and behavioral development and affect subsequent growth and health (Savage et al., 2007). Breast milk should be supported with suitable complementary foods beginning in the sixth months of age in infants (WHO, 2009).

One of the most important factors affecting the behavior of mothers on child nutrition is the knowledge levels of mothers on breastfeeding and complementary foods (American Academy of Pediatrics, 2012; Bertini et al., 2003; Dunn et al., 2006).

The majority of the mothers involved in the research were determined to have correct knowledge on the importance of breast milk. Some studies, demonstrated that mothers generally answered the questions on breast milk correctly too. For example, Eker and Yurdakul (2006), Şahin (2008), Mohammed et al. (2014), Şengül et al. (2005), Chinnasami et al. (2016) observed that mothers in their studies generally gave

the correct answer that breast milk is the most beneficial nutrient for infants. These studies and the results of our study raise the thought that mothers are aware of the importance of breast milk for infants. It was noted that the remarkable high rate of not knowing these expressions is as follows; "Newborn infants should be breastfed paying attention to body movements (64.0%)", "The infant who is breastfed alone should not be given water (31.2%)", and, "Breastfed infants are fatter than the infants fed with formulas (38.4%)". Supplying the correct information in training and consultation by health staff could be useful. Formula-fed infants have particular difficulties in taking breast milk, and this leads to the early introduction of complementary foods (Clayton et al., 2013). The knowledge that "future obesity risk is higher in the infants fed with formula (Weng et al, 2012) should be shared with mothers. Whereas the early introduction of complementary foods and formula feeding of infants are important risk factors according to the results of scientific research, breastfeeding is considered as one of the protective factors (Arenz et al., 2004; Griffiths et al., 2009). Furthermore, the intellectual and social development scores of the children fed with formula are lower than those who were breastfed (American Academy of Pediatrics, 2012). Mothers should be educated about the content of breast milk especially.

The mothers have incorrect and insufficient knowledge about complementary foods (Table 1). Of them, 41.6% believe that formula cooked with water and starch is good for infants. However, formula cooked by this way has no nutritional value. The rate of mothers, who wrongly believe that the gravy is more nutritious than the meal itself, is also very high (85.2%). Giving the meal itself to infants is the correct way to meet their need for nutrients. In cases of a requirement of giving other kinds of milk in the first few months postpartum because of breast-milk insufficiency or lack of adequate nutrition, it is appropriate to add oil and sugar in certain measures in order to meet the energy and liken it to breast milk (WHO, 2018). However, most of the mothers in the study (89.2%) did not know when and how to start cow's milk. Except for these items, the mothers' knowledge was generally correct.

Mothers' knowledge and practices on child nutrition are known to be affected by age, educational level and socioeconomic status (Karaçam, 2008; Bramson et al., 2010; Hauck et al., 2011). Age effects one's mindset, increasing age and experience increases individual well which means it can influence the attitudes and behavior of individuals. The ages of the mothers effect their knowledge levels (Jahangeer et al., 2009). Although the scores were close to each other between the age groups in this study, the mothers between the ages of 26 and 30 had more knowledge ($p<0.05$, Table 2). In the study conducted by Örsdemir (2011) found that the difference between the knowledge scores according to the education and working status of mothers is important ($p<0.05$), whereas the difference according to age is not important. In another study, Özer et al. (2010) stated that the knowledge score of mothers in the 20-34 age group on breastfeeding to be higher than those of the mothers in other age groups. Also, Siagian and Halisitijayani (2015) stated that the level of knowledge of mothers was associated with age; for the age of 26-35 years as many as 49 (94%) with a good level of knowledge.

The average knowledge scores of mothers were analyzed according to their educational level and it was determined that the knowledge scores of mothers increased as their level of education increased ($p<0.01$, Table 2). Many studies have indicated maternal levels of education as the single most important factor affecting child nutrition behavior (Bonuck et al., 2005; Wen et al., 2009; Al Ketbi et al., 2018). According to the results of the Turkey Demographic Health Survey (2013), there is a positive relationship between early breastfeeding and education level since 40.0% of the children of mothers with no education or who completed only primary school, and 54.0% of the children of mothers with at least high school education were breastfed within the first hour postpartum (Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü, T.C. Kalkınma Bakanlığı ve TUBİTAK, 2014). In addition, WHO and The United Nations International Children's Emergency Fund [UNICEF] believe that the education of mothers regarding nutrition by health professionals lead to sustainable child nutrition which is an important issue against undernutrition (WHO, 2009; UNICEF, 2019). In studies, it was determined that the education given to mothers about child nutrition had a positive effect on mothers' knowledge and behavior and the nutritional status of children (Sethi et al., 2003; Kulwa et al., 2014; Sukandara et al., 2015).

Employment was identified as an important factor that affects breastfeeding. The knowledge scores of working mothers were higher. Considering the levels of education of mothers, these high knowledge

scores are an expected result since all working mothers (100.0%) were high school and university graduates. In their study, Al Ketbi et al. (2018) found that better breastfeeding knowledge was seen among mothers who were employed too ($p<0.01$). Siagian and Halisitijayani (2015), also found that employed mothers have higher nutritional knowledge than non-employed mothers.

The mean knowledge score of the mothers did not change statistically according to the age of the children (months) (p:0.740) and the birth order of the child in the family ($p>0.05$). However, as the age of the child increases, the average knowledge scores of the mothers increase (Table 2). This may be due to the increased experience of the mother in child care as the child's age increases and due to the ranking secondly in the birth order. Al-Ayed (2010) also found no significant relationship between mothers' nutritional knowledge score and child rankings. On the other hand, Moawed and Saeed (2000) and Siagian and Halisitijayani (2015) found that there was a statistically significant relationship between the mothers' knowledge and the order of birth of the children and that the mothers' nutritional knowledge increased as the number of children in the family increased. This difference may be due to the use of different research methodologies (sample selection, data collection, etc.).

Parents provide the strongest influence on beliefs of mothers of infants and toddlers in feeding (Duncanson et al., 2013; Ball et al., 2017), as their most regular sources of nutrition knowledge are the internet, family, and friends (Duncanson et al., 2014). Mothers obtain their knowledge of child nutrition from health staff (39.2%), their own mothers (38.8%) and mass media (22.0%). Mothers have been found to prefer similar knowledge sources on child nutrition in other studies (Jarosz et al., 2004; Bağ et al., 2006; Chinnasami et al., 2016). In this study, the rates of referring the health personnel and their parents as knowledge sources of the mothers are close to each other. Al-Ayed (2010), on the other hand, found that the primary source of knowledge for most mothers was family elders, that the rate of mothers who portray health professionals as the primary source of health information was very low. These results can be explained by the fact that mothers attach importance to the use of their own parents' experiences. Health-related behaviors in child feeding are affected by peers, social norms and attitudes. (Duncanson et al., 2013). Duncanson et al. (2013) explained this phenomenon by the Theory of Planned Behaviour (TPB). The complex interaction between attitudes perceived control, normative beliefs, motivation to comply with norms and interactions between these factors are all the key factors in the determination of behaviour. Mothers usually have mistaken in the selection of knowledge sources which is important for providing the correct information. To provide the aforementioned support by influencing decisions about feeding behaviors among mothers is the main role of health care professionals. Thus, every meeting with mothers should be accepted as an opportunity that exists for educational purposes.

5. Conclusion and Recommendations

The results of our study reveal that mothers included in the study had a good level of nutritional knowledge ($X \pm SD = 15.4 \pm 1.5$). It is considered that this result is due to the trainings given in health care institutions. And it is gratifying in terms of raising a healthy generation. On the other hand, although mothers' overall child nutrition knowledge scores were good; they had some mistakes in breastfeeding and complementary feeding.

We find it important for mothers to raise their awareness about the content of breast milk and its' protective properties against obesity in terms of providing exclusively breastfeeding. Similarly, it was determined that the mother needs to be informed about the healthy formula preparation in the absence of milk. In addition, it is thought that mothers need to be informed about starting complementary nutrition at the right time and with appropriate nutrients.

Mothers' nutritional knowledge differs statistically depending on their age, educational level and working status. The fact that the average knowledge scores increase with the education level and ages of the mothers reveals the importance of education and age range. In conclusion, it is especially considered that mothers should be more aware of child nutrition as a result of factors such as having a baby in the age range where the consciousness level can occur more, increasing educational level, socializing by participating in employment.

It is important that mothers, who are one of the main factors in raising healthy generations, are educated by health professionals about nutrition and health, and that these pieces of training are disseminated and sustained through the government and its other stakeholders.

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