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RESEARCH ARTICLE

Mothers' Attitudes Toward Sun Protection for Children Aged 3-6 Years

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ABSTRACT

Objective: Reducing ultraviolet radiation exposure is important for preventing skin cancer. Parents' behaviors can reduce the risk of their children developing skin cancer in the future. In this study we evaluated the knowledge and attitudes of mothers with children aged 3-6 years regarding sun protection behaviors.

Methods: The study was conducted at the Family Medicine outpatient clinics of Şişli Hamidiye Etfal Training and Research Hospital in Turkey. A data form with 20 questions was administered to the participants which assesses demographic data, attitudes toward sun protection, sources of sun-related information, and knowledge about sunscreen. A p-value<0.05 was considered significant.

Results: The study included 278 participants with a mean age of 33.05 years. Of them, 61.2% (n: 170) had at least a high school education, 30.2% (n: 84) were white-collar workers, and 12.6% (n: 35) were blue-collar workers. While 87.2% (n: 242) reported taking sun protection measures, 60.4% (n: 168) used sunscreen for their children. The most common method was wearing a hat (82.7%, n: 230). The mean knowledge score was 10.14 ± 3.92 (min: 0, max: 18), No one could give correct answers to the questions. The most frequently incorrect item was "sunscreen should only be used in summer." Most mothers' source of information were healthcare professionals (%71, n: 199). Mothers who had more than one child, had higher education, and were white-collar workers had higher scores (p< 0.05). Sunscreen users had higher knowledge scores than non-users (p< 0.05).

Conclusions: While most mothers reported taking sun protection measures, their knowledge was insufficient. Healthcare professionals, as a key source of information for mothers, should be more educating them during the routine follow-ups.

Keywords: Children, parents, sun-related behaviors, sun protection

INTRODUCTION

Skin cancer is one of the most commonly diagnosed cancers worldwide. In the United States, approximately 5 million individuals undergo skin cancer treatment annually (1). Despite the increasing incidence of skin cancer in recent years, it is considered one of the most preventable malignancies (2). Risk factors for skin cancer can be classified as modifiable and non-modifiable (1). Excessive exposure to ultraviolet radiation (UVR) from sunlight, indoor tanning devices, overexposure to the sun (including sunburn), weakened immune system, and genetic predisposition increase the risk of various types of skin cancer (1). UVR exposure is a modifiable factor, and lifestyle changes such wearing protective clothing (long-sleeved shirts, hats), using sunscreen, and avoiding the sun during 10 a.m.-4 p.m.- can minimize it (1-3).

Young children and elderly adults are particularly sensitive to sunlight (4). Children are especially sensitive because they depend entirely on their parents to protect them from the sun (5, 6). Most exposure to solar radiation occurs during childhood, and early-life exposure is a contributes to an increased risk of melanoma later in life (2, 7, 8). For these reasons, sun protection is important for children and adolescents (1, 2).

The formation of health-related behavior patterns begins in early childhood, and the behaviors exhibited by parents are critical during these years (2, 9). Parents should actively practice safe behaviors to protect their children from the sun and ensure they provide sunscreen, hats, and sunglasses for their children (5, 10). Parental attitudes also serve as a role model for children's attitudes and behaviors toward sun safety (5, 6). Educating parents and increasing their awareness about this issue can effectively protect children from the harmful effects of the sun.

Therefore, this study evaluated mothers' knowledge of sun protection behaviors and their attitudes toward sun protection.

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MATERIALS AND METHODS

This single-center, descriptive study was conducted at the Family Medicine outpatient clinics Şişli Hamidiye Etfal Training and Research Hospital in Turkey between April 1, 2021 and July 1, 2021.

Study population and sample

This study included mothers with children aged 3-6 years who visited the Family outpatient clinics of Şişli Hamidiye Etfal Training and Research Hospital for any reason between April 1, 2021 and July 1, 2021. The sample size was calculated with 95% reliability for over 1000 people who were likely to apply to the outpatient clinics between these dates. It was planned to reach a minimum of 278 people according to the sample size calculation.

Ethics committee approval

Ethical committee approval was obtained from the Şişli Hamidiye Etfal Training and Research Hospital Clinical Research Ethics Committee the Health Science University (dated 02/03/2021 and numbered 3179).

Data collection

Our team questioned participants who provided informed consent via face-to-face interviews**.** The first part of the data form provided the information of the participants, mothers' and their children's ages (the children who were with their mothers during the interviews and were considered in responses), mothers' educational status, whether they take sun protection measures for their children, their use of sunscreen, their opinions on sun protection methods, sources of knowledge about sun protection, and what they did when they noticed sunburn symptoms. The second part of the data form consisted of three-point Likert-type propositions created by the researchers, to evaluate mothers' knowledge about the effects of the sun on their skin, sunscreen, and protection from the harmful effects of the sun. Participants responded to these propositions with "Yes," "No," and "I Don't Know." Each correct answer given to these 20 propositions was scored as "1" point, while incorrect answers were scored as a "0" point; thus the mothers' knowledge levels were evaluated. When the responses to these propositions were evaluated by Cronbach's Alpha analysis, the alpha coefficient was found to be 0.746. In the literature, values of 0.7 and above are considered reliable for Cronbach's alpha's analysis (11).

The exclusion criteria were any psychiatric diagnoses, communication impediments, or refusal to participate in the research.

Statistical analysis

In the data obtained from the study, descriptive statistics are presented as; frequency distribution and percentage for categorical data and, as mean, standard deviation, minimum, and maximum for numerical data. The distribution of data was assessed using the Kolmogorov-Smirnov test. The Pearson chi-square test was used for comparisons of descriptive groups. Nonparametric tests were employed for data that did not exhibit normal distribution. Independent two-group comparisons of numerical variables were conducted using the Student t-test when the normality assumption was met and, the Mann-Whitney U test when the normality assumption was not met. Descriptive group comparisons were performed using Pearson's chi-squared test, Fisher's exact test, and the independent t-test. For correlation analysis, Pearson's correlation coefficient was used to evaluate the relationship between two continuous variables that were normally distributed. In cases in which the data did not follow a normal distribution, Spearman's rank correlation coefficient was applied to assess the strength and direction of the association between variables. Data analysis was performed using the SPSS 25.0 package, and p values of <0.05 were considered indicative of statistical significance.

RESULTS

A total of 278 mothers participated in the study, and their mean age was 33.05 ± 5.4 years (min: 21; max: 46). The number of children that mothers had was a minimum of 1 and a maximum of 8. The main age of the children was 4.18 ± 1.12 years (min: 3; max: 6). Of the mothers, 61.2% (n: 170) had a high school education or above, 37.4% (n: 104) had an education below high school, and 1.4% (n: 4) were illiterate. Most of the mothers were unemployed (57.2%, n: 159) while, 30.2% (n: 84) were white-collar workers, and 12.6% (n: 35) were blue-collar workers. In addition, 9 mothers (3.2%) had a family member with skin cancer.

Regarding sunscreen use, 54.7% of the mothers (n: 152) reported using sunscreen for themselves, with Sun Protection Factor (SPF) 50 being the most used factor (n: 101, 36.3%); and 168 mothers (60.4%) reported using sunscreen for their children, with SPF 50 being the most commonly used factor for children as well (n: 141, 50.7%). The use of sunscreen for children was higher among those who were employed, had a high school education or above, had higher income levels, and had more than one child (p: 0.000; 0.000; 0.000, 0.032, respectively). The rate of sunscreen use among children was higher among mothers who used sunscreen on their own. This difference was statistically significant (p: 0.000).

In addition, 87.2% of the mothers (n: 242) stated that they took preventive measures to protect their children from the sun, while 8.6% (n: 24) stated that the sun was harmless and that protection was unnecessary. The most common measures reported by mothers were wearing a hat (82.7%, n: 230), using sunscreen (60.1%, n: 167), and keeping their children in shaded areas when the sun is at its peak time (51.4%, n: 143). Figure 1 shows the mothers' responses to the question about their sources of information on sun protection.

When asked whether their child had a history of sunburn, 7.6% of the mothers (n: 21) reported that their child had previously experienced sunburn. In addition, 60.8% (n: 169) of the mothers stated that they would seek medical attention first when their child showed symptoms of sunburn, whereas 28.4% (n: 79) stated that they would use medications available at home, 15.5% (n: 43) used traditional remedies such as yogurt or toothpaste, and 9.4% (n: 26) said they would do nothing as they believed it would heal on its own.

Table 1 presents the distribution of mothers' responses to Likert-type statements regarding their knowledge. Their knowledge mean score 10.14 ± 3.92 (min: 0, max: 18). No mother achieved a perfect score. Among the statements assessing their knowledge, the highest number of correct responses from mothers was for the item "a special sunscreen for children should be used because their skin is more sensitive," while the highest number of incorrect responses was for the item "sunscreen should be used only in summer."

There was no statistically significant relationship between the mothers' knowledge scores and the ages of the mothers and their children (p > 0.05). However, there was a statistically significant negative correlation between their total knowledge scores and the number of children (p: 0.012, r: -0.151). Among the mothers, those who were white-collar workers had a significantly higher knowledge score than those who were blue-collar workers and those who were not employed (p: 0.005, p: 0.000, respectively). In addition, mothers with a high school education or higher education had significantly higher knowledge scores than those with less than a high school education (p: 0.000).

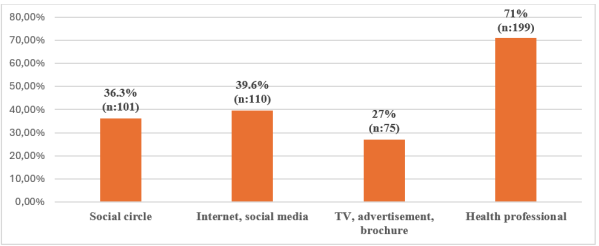

Figure 1: Sources of information on sun protection among mother.

No significant relationship was found in the mothers' knowledge scores based on whether their family had a history of skin cancer or whether their children had previously experienced sunburn (p > 0.05).

There was no statistically significant difference between the mothers' knowledge scores according to whether they took sun protection measures for their children (p > 0.05). However, among the mothers, those who used hats, sunscreen, and covered the baby stroller to protect their children from the sun had significantly higher knowledge scores than those who did not take these measures (p: 0.005, p: 0.000, p: 0.001, respectively). There was no significant relationship between the knowledge scores of mothers who used protection methods, such as wearing long clothing or staying indoors when the sun was at its peak time and those who did not use these methods (p > 0.005). In addition, mothers who used sunscreen for themselves and/or their children had significantly higher knowledge scores than those who did not use sunscreen (p: 0.000, p: 0.000, respectively).

Table 1. Participants' responses to the propositions

	Yes n (%)	No n (%)	I do not know. n (%)
The harmful rays of the sun can cause skin cancer, so sunscreen should be used.	196 (70.5%)	24 (8.6%)	58 (20.9%)
As the duration of sun exposure increases in children, the risk of skin cancer is higher than that in to adults.	165 (59.4%)	20 (7.2%)	93 (33.5%)
A special sunscreen for children should be used because their skin is sensitive.	223 (80.2%)	19 (6.8%)	36 (12.9%)
Sunlight weakens the immune system.	52 (18.7%)	139 (50%)	87 (31.3%)
Use of sunscreen does not reduce the beneficial effects of sunlight.	124 (44.6%)	68 (24.5%)	86 (30.9%)
Using sunscreen does not reduce the production of vitamin D, which is produced by direct contact with skin.	118 (42.5%)	64 (23%)	96 (36.5%)
The beneficial effects of sunlight cannot be obtained through window glass.	186 (64.9%)	49 (17.6%)	43 (15.5%)
The time required to benefit from the positive effects of sunlight is at least 20 min.	201 (72.3%)	25 (9%)	52 (18.7%)
Sunscreen should be used only during summer.	148 (53.2%)	90 (32.4%)	40 (14.4%)
Sunscreen should be applied before entering the sea.	100 (36%)	151 (54.3%)	27 (9.7%)
Sunscreen should be applied between 10:00 AM and 16:00 PM	156 (56.1%)	69 (24.8%)	53 (19.1%)
It is recommended to wait 15-30 minutes after applying sunscreen before going outside.	173 (62.2%)	36 (12.9%)	69 (24.8%)
Sunscreen should be reapplied after every contact with water.	160 (57.6%)	50 (18%)	68 (24.5%)
Sunscreen should be reapplied every 2-3 hours.	154 (55.4%)	50 (18%)	74 (26.6%)
Prolonged exposure to the sun with sunscreen is dangerous.	148 (53.2%)	48 (17.3%)	82 (29.5%)
Fair-skinned individuals are more sensitive to the sun and are prone to skin cancer.	191 (68.7%)	13 (4.7%)	74 (26.8%)
Dark-skinned people do not get sunburn.	91 (32.7%)	121 (43.5%)	66 (23.7%)
Tanned skin does not protect against sunlight.	123 (44.2%)	53 (19.1%)	102 (36.7%)
Tanning is evidence of skin damage.	101 (36.3%)	87 (31.3%)	90 (32.4%)
Avoiding sun exposure at regular intervals does not prevent sunburn.	118 (42.4%)	75 (27%)	85 (30.6%)

DISCUSSION

In this study, which evaluated the knowledge, attitudes, and behaviors of mothers regarding methods for protecting their children from the sun, most mothers reported using a method to protect their children from the sun; however, their level of knowledge on the subject was found to be insufficient.

Early childhood is the stage during which fundamental personality traits, behaviors, and habits are formed. It is widely acknowledged as the most active phase of a child's development, with behaviors established during this time often continuing into adulthood (2, 9). Parents' knowledge and approaches to sun protection methods are important because they can reduce the risk of their children developing skin cancer in the future and help them acquire correct behavioral patterns throughout their lives.

Multiple methods have been recommended for sun protection, including wearing protective clothing, hats, sunglasses, keeping in shade, and minimizing time spent outdoors (12). In a study examining sun protection methods used for children, hat use was found to be the most common method, followed by avoiding sun exposure between 10:00 AM and 4:00 PM and using sunscreen, respectively (13). Another study evaluating sun protection methods among children aged 6-18 found that approximately 85% of children used at least one sun protection method, with wearing long-sleeved clothing being the most common method for girls and wearing hats being most common method for boys. The least used method in both genders was sunscreen application (14). In our study, 87.2% of the mothers used at least one method to protect their children from the sun, and the most common methods were hat use, sunscreen application, and avoiding sun exposure during peak hours. These results are consistent with those reported in literature. The differences in the ranking of these sun protection methods may be attributed to variations in knowledge and sociodemographic factors.

In our study, the predominance of health personnel as the primary source of information for mothers underscores the significant role of health professionals in creating awareness about sun protection, as demonstrated in other studies (6, 15, 16). However, in a study of pediatricians, although over 90% of them believed that skin cancer is a public health issue and that protection from sun exposure during childhood reduces the risk of melanoma in adulthood, only 22.3% reported providing counseling on sun protection for all age groups (17). Considering the impact of healthcare professionals in this regard, they should be encouraged to provide parents with information on sun protection, and the process should be supported through public awareness campaigns.

The mean knowledge score of the mothers was 10.14 ± 3.92, and no mother achieved a perfect score. This result indicates a deficiency of parental knowledge on this topic. Similarly, a study conducted in Turkey found that mothers had relatively low levels of knowledge regarding the harmful effects of the sun and appropriate sun protection behaviors. It was observed that mothers' knowledge levels on this subject were not influenced by several factors, such as age, educational level, employment status, number of children, family type, and health insurance coverage (18). However, our study determined that mothers' knowledge levels were associated with their employment status, educational level, and income levels. Moreover, the decrease in their knowledge scores as the number of their children increased may stem from differences in the time and attention mothers allocate to their children relative, to those with only one child. The fact that half of the mothers believed that sunscreen should be used only in summer could be considered an indicator that not only a lack of knowledge exists, but that the content of knowledge needs to be expanded.

The World Health Organization recommends starting habits for protection from UVR in the early life of children and teaching these habits as part of routine preventive health services for effective sun protection, which is the simplest and most feasible way to prevent skin cancer (19). Among different countries, Australia has developed successful strategies to monitor and reduce the frequency of skin cancer after recognizing that childhood exposure to the sun is a significant risk factor for its development (20). In France, melanoma prevention programs have been implemented for a long time (21). The U.S. The Preventive Services Task Force (USPSTF) recommends that clinicians counsel young adults, adolescents, children, and parents of young children with fair skin types aged 6 months to 24 years to minimize UVR exposure and reduce the risk of skin cancer (18, 22).

In Turkey, there are no educational programs aimed at conveying accurate information or correcting misconceptions about sun protection among children. In a randomized controlled trial conducted under the program "Protecting My Child from the Sun," parents with children aged 3-6 years were divided into three groups: a control group, an educated group, and a group receiving education along with short message reminders. The group that received education along with short message reminders showed the greatest increase in sun protection behaviors for their children, indicating the positive impact of informing parents through such programs (23). In our study, mothers who used sunscreen themselves were more likely to use sunscreen for their children**.** Parental implementation variations directly affect the safety of their offspring. However, when providing recommendations to individuals, their socioeconomic status should be considered and supported using appropriate methods.

A strength of this study is the identification of the target population. By focusing on the mothers of children aged 3-6, the research highlights the importance of parental attitudes in shaping health-related behaviors in this age group. Additionally, by providing valuable insights into sun protection behaviors, this study demonstrates that this study can yield practical results for public health education and cancer prevention strategies. The prominence of healthcare workers as the primary source of information for mothers offers important clues to areas in which future educational efforts should be concentrated.

The study also has some limitations. First, the study was conducted in a single hospital setting; thus, it may be difficult to generalize the findings to other regions or different socioeconomic and cultural settings. Second, interviews with mothers alone did not assess the role of fathers or other caregivers in sun protection. This condition limits the full understanding of sun protection behaviors within family dynamics.

CONCLUSION

In conclusion, this study showed that most mothers took preventive measures to protect their children from the harmful effects of the sun; however, their overall level knowledge level was found to be insufficient. The fact that healthcare professionals are the primary source of information for mothers highlights the importance of education and awareness efforts in this field. It is particularly important for healthcare professionals to provide more information to families about sun protection during routine follow-ups. Socioeconomic factors, such as mothers' level education level, employment status, and income level, were observed to influence their knowledge and behaviors regarding sun protection. Therefore, raising awareness of sun protection through targeted educational programs aimed at different segments of the population is of great importance. Furthermore, involving not only mothers but also fathers and caregivers in the process could contribute to more comprehensive and effective outcomes.

Ethics Committee Approval: This study was approved by the Şişli Hamidiye Etfal Training and Research Hospital Clinical Research Ethics Committee the Health Science University (dated 02/03/2021 and numbered 3179).

Informed Consent: Written consent was obtained from the participants.

Peer Review: Externally peer-reviewed.

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