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Original Article

Mothers' knowledge and management of fever in febrile children

Ateşli çocuklarda, annelerin bilgi düzeyleri ve ateşe yaklaşımları

Yasemin Korkut[a]

[a]Dumlupinar University, School of Medicine, Department of Family Medicine, Kutahya, Turkey

ABSTRACT

Introduction: This study was planned to determine the knowledge, thoughts, and attitudes of mothers with 0-7-years-old children and related factors about fever.

Methods: The study was conducted with 112 mothers who applied to the Dumlupınar University Evliya Çelebi Hospital Family Practice Policlinics. The data were collected by a questionnaire consisting of multiple-choice questions.

Results: The mean age of the mothers was 31 ± 5.3 years. According to the educational status, 68 (60.7%) were primary school graduates, 30 (26.7%) were high school graduates, and 14 (12.5%) were university graduates. The mean number of children was 3 ± 1.7. Of the parents surveyed, 65% stated that they owned a thermometer, but still 53 (47.3%) mothers were evaluating the child's fever by touching and 13 by looking at the general appearance. Thirty-three (29.4%) mothers were using thermometers to measure fever. Although 75 (67%) mothers claimed to knowhow to measure body temperature, only 18 (16%) were able to describe how to make a complete and accurate measurement. Of the mothers who said they knew how to use a thermometer, 17 (22.6%) guessed the required duration for measurement less and 29(38.6%) unnecessarily higher than needed. Eighty-eight (78.5%) of the mothers measured the body temperature from the axillary region, followed by tympanic, oral, and in small children rectal routes.

Conclusion: Mothers often have false or incomplete information about the location, duration, and method of temperature measurement.

Keywords: Temperature, Measurement, Level of knowledge

ÖZ

Giriş: Bu çalışmanın amacı, Aile Hekimliği polikliniğine farklı nedenlerle başvuran, 0-7 yaş arası çocuğa sahip annelerinin ateş konusundaki bilgilerinin ve ateş karşısındaki tutumlarının belirlenmesi, bunları etkileyen faktörlerin incelenmesidir.

Yöntem: Çalışma, Dumlupınar Üniversitesi Evliya Çelebi Hastanesi Aile Hekimliği Polikliniği'ne başvuran 112 anne ile yapıldı. Veriler çoktan seçmeli sorulardan oluşan anket formu ile toplandı ve değerlendirildi.

Bulgular: Annelerin yaş ortalaması 31 ± 5,3 yıl idi. Eğitim durumuna göre 68'i (%60,7) ilköğretim, 30'u (%26,7) lise ve 14'ü (%12,5) ise üniversite mezunu idi. Annelerin sahip olduğu çocuk sayısı ortalama 3±1,7 idi. Katılımcıların, 73'ünün evinde ısıölçer vardı, fakat ısıölçeri bulunsa da annelerin 53'ü (%47,3) ateşi dokunarak, 13'ü genel durumuna bakarak anlamaktaydı. Otuz üç anne (%29,4) derece kullanarak ateş ölçtüğünü ifade etti. Yetmiş beş (%67) anne vücut sıcaklığını ölçmeyi bildiğini söylese de, nasıl ölçüm yaptıkları sorulduğunda yalnızca 18'i (%16) tam ve doğru ölçümün nasıl yapıldığını anlatabildi. Termometre kullanmayı bildiğini söyleyen annelerin 17'si (%22,6) termometrenin ölçüm alanında tutulması gereken süreden daha az, 29'u (%38,6) ise daha fazla bir sürede tutulması gerektiğini söylemişlerdir. Ölçüm yerlerine göre, annelerin 88'i (%78,5) vücut sıcaklığını koltuk altı bölgesinden ölçmekteydi. Bunu sırasıyla timpanik, oral ve daha küçük çocuklarda rektal ölçümler izliyordu.

Sonuç: Sonuç olarak; annelerin genellikle ateş ölçüm yeri, süresi ve şekli ile ilgili yanlış veya eksik bilgiye sahip olduğu gözlenmiştir. Ayrıca, annelerin eğitim düzeyi yükseldikçe ateş korkusunun azaldığı da tespit edildi.

Anahtar kelimeler: Ateş, Ölçüm, Bilgi düzeyi

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E-mail: ykorkut95@yahoo.com

Correspondence: Yasemin Korkut, MD. Dumlupinar University, School of Medicine, Department of Family Medicine, 43100 Kutahya, Turkey

Introduction

High fever is among the most common causes of childhood hospital admissions. It can lead to unnecessary panic when it isn't considered by the parents as the body's defense mechanism. In fact, fever is a symptom. Infection, vaccine and tissue damage cause changes in the brain center that regulates body temperature [1,2]. Studies show that the body's response to high fever is actually a useful response to infection [3,4].

Most mothers know that high fever isn't a disease but a symptom. Some mothers believe that high fever can hurt the child, and if the fever isn't dropped, the body temperature will increase gradually, causing damage in the brain [5-7].

If the mother does not know how to make a correct measurement, she may make mistakes in reading and interpreting fever. Mothers may perceive the smallest heat increase in the body as fever. This triggers the idea that the heat has to be reduced immediately and leads to panic. This condition, which is defined as "fear of fever", can lead to unnecessary applications to the emergency services and inappropriate medication use [8-10]. In developed countries, 10-20% of the emergency applications and a significant proportion of the pediatric outpatient applications are due to febrile diseases [11]. In many scientific investigations, the temperature threshold is used as 38°C and above [12,13].

Setting a too low fever threshold, inappropriate use of antibiotics at slightly elevated temperatures, alcohol or vinegar applications, or irresponsible use of multiple antipyretics may be harmful to the patient [10,13].

This study aimed to determine the knowledge and attitudes of the mothers with 0-7-years-old children regarding high fever.

Methods

The population consisted of 275 mothers who applied consecutively to Dumlupınar University Evliya Çelebi Hospital Family Practice Polyclinics within two months due to various reasons. From these mothers, 112 who had 0-7-years-old children and accepted to join the study were included into the sample. Participants were informed about the purpose of the study and the questionnaires were filled with face-to-face interview.

The questionnaire was organized into two sections. The first part consisted of questions about the mother's age, educational status, income level, marital status, number of children, number of household members, child's age, and presence of a chronic illness. The second part consisted of questions such as definition of fever, signs and symptoms of fever, presence of thermometer at home, temperature measurement technique, frequency of temperature measurements, frequency of going to a doctor, and knowledge of types and methods of fever reduction. Approval of the ethics committee for the study was taken from the Ethics Committee of Dumlupınar University Faculty of Medicine (IRB number: 2018-3/11).

Statistical analyses

The Statistical Package for Social Sciences 18.0 (SPSS IBM Inc., Armonk, NY, USA) was used for statistical analysis. Quantitative data were presented as mean ± SD (standard deviation) values. Categorical data were reported as n (number) and percentages (%).

Results

The mean age was 31 ± 5.3 years for the mothers and 38 ± 25 months for the children. The mean number of children was 3 ± 1.7.

Fifty-nine of the mothers (52.6%) were housewives, 68 (60.7%) were primary school graduates, 30 (26.7%) were high school graduates, and 14 (12.5%) were university graduates. Of the family members 82 (73.2%) had low and moderate incomes (Table 1). There were 7 (6.2%) children with chronic illnesses, asthma being in the first place (71.4%, n=5).

Table 1. Demographic data of the mothers

Variable	Range	Mean±SD
Age, year	19-43	31 ± 5.3
Education, year	4-18	11±4.5
Number of children, n	1-6	3±1.7

Seventy-three (65.1%) of the participants had a thermometer at home, but 13 (15.4%) were using a mercury thermometer, which is legally restricted. Despite the presence of a thermometer in the house, 53 mothers (47.3%) evaluated the child's temperature by touching, and 13 mothers (11.6%) by looking at the general appearance of the child.

Although 75 mothers (66.9%) said they knew how to measure body temperature, only 18 (16%) could correctly select how to make precise measurements. Of the mothers who said they knew how to use a thermometer, 17 (22.6%) selected the measurement time shorter and 29 mothers (38.6%) longer than required.

The most frequent measurement sites in decreasing order were axillary, tympanic, oral, and rectal measurements. Axillary measurement rate was 78.5%.

Of mothers who participated in the survey, 28 (25%) stated that they did not know the normal limits of body temperature. Sixty-five (58%) mothers considered 38°C measured from any site as high fever. Thirty-seven mothers said that body temperature lower than 38°C at the axillary region is high and requires intervention.

The number of mothers who knew that each body area has a separate fever threshold were only 2 (1.7%). Mother's thoughts and attitudes about fever are summarized in Table 2.

Table 2. Mothers' knowledge levels and practices concerning fever

Variable	n	%
Body temperature interpreted as high		
≤ 37 °C	1	0.8
37.1-38.0 °C	18	16
38.1-39.9 °C	42	37.7
≥ 40 °C	23	20.5
No information	28	25
Presence of thermometer at home		
Yes	73	65.2
No	39	34.8
Measurement place(first choice)		
Axillary	88	78.5
Tympanic	10	8.9
Oral	9	8
Rectal	4	4.6
Measurement method		
Touching by hand	53	53.5
With a thermometer	33	33.3
Looking at the general appearance	13	13.2
Measurement information		
Correct	18	16
Wrong-Missing	57	50.8
No information	37	33.2

Fourteen (12.5%) mothers believed that they do not need to decrease high fever. Seventy-four (66%) mothers believed that even the smallest fever changes were harmful to their children. In total 83 (74.1%) mothers were experiencing fear of fever. As the level of education of the mothers increased, the fear of fever decreased. When the mothers were asked what they did first in case of high fever, 35 mothers (31.2%) said they took off the clothes, while 26 mothers (23.2%) preferred to give immediate antipyretics. Seven (6.2%) mothers stated that they used antibiotics without consulting the doctor. It was found that 99 of the participants (88.3%) had antipyretics at home and 56% preferred paracetamol (Table 3).

Table 3. Fever-management practices of the participants

Action in case of high fever	n	%
Removing clothes	35	31.3
Shower with warm / cold water	19	17
Give antipyretic	26	23.3
Give antibiotics	7	6.2
Go to the doctor	8	7.1
No action (no need to drop the fever)	14	12.5
No idea	3	2.6

Discussion

There are studies showing that high levels of fever increase anxiety levels in families with insufficient knowledge and that the use of antipyretics / antibiotics is increased among these families [10].

Providing mothers the right information about the definition and management of fever is thought to reduce anxiety and increase consciousness. It is important to support positive behaviors related to fever management, as well as to identify harmful ones and correct them through education.

Some studies have shown that 30% of the population does not have correct knowledge on the normal body temperature and 75% of patients considered temperatures below 38°C as high-grade fever [14-17].

In this study, we found that only 18 of the 75 parents who claimed to know correct temperature measurement could select a complete and accurate measurement. However, there may still be mistakes in evaluating fever because even if they make accurate measurements, the knowledge of most mothers about fever threshold is wrong.

In one study, it was found that most of the mothers didn't correctly measure the fever and made mistakes while assessing body temperature [10].

In a study by Saz et al, 20% of the parents thought that the body temperature between 30-37°C was high and required antipyretics. In our study this rate was 0.8%. Fear of fever is related to maternal education level; the fear of fever decreases with increased education [10]. Also, our findings were in this direction. In another study; unnecessary fear and anxiety have been shown to reflect on the attitudes and behaviors of the mothers during fever [15].

In our study, 79 mothers stated that they measured the fever of their febrile child at least twice during the night, and applied medication or shower. In this case, they awakened the child at least once. Thus, we can postulate that incorrect measurement technique and lack of information on the interpretation of findings has negatively consequences on both mothers and children. This condition may also cause anxiety and loss of working days in the mothers.

Conclusion

In this study, maternal general knowledge levels of fever were similar with previous findings. According to these results; mothers had inaccurate knowledge about the threshold of fever, as well as its correct measurement and interpretation. We recommend educational activities for mothers with titles such as how to raise a rising child, complications of fever, importance correct methods of fever measurement, warm compress application, fever reduction methods and their application, when and how to use antipyretics and antibiotics, the importance of liquid support in a feverish child, importance of clothing removal and room ventilation, and signs and symptoms requiring referral to health providers.

In conclusion, our work can be useful in planning maternal educational programs. However, there is a need to expand the sample size including multi-centered studies on mothers from different socio-cultural levels.

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