Health & Research Journal

Vol 8, No 4 (2022)

Volume 8 Issue 4 October - December 2022

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doi: 10.12681/healthresj.30245

To cite this article:

Karakul, A., & Doğan, P. (2022). Determination of Fever Management and Rational Drug Use of Mothers with Children Under Six Years Old: Fever management and rational drug use of mothers. *Health & Research Journal*, *8*(4), 299–310. https://doi.org/10.12681/healthresj.30245

HEALTH AND RESEARCH JOURNAL
E-ISSN:2459-3192

(2022), Volume 8, Issue 4

RESEARCHARTICLE

DETERMINATION OF FEVER MANAGEMENT AND RATIONAL DRUG USE OF MOTHERS WITH CHILDREN UNDER SIX YEARS OLD

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Abstract

Background: Fever is one of the most common problems of childhood, which worries mothers. An insufficient level of knowledge about when and how to intervene in fever causes children to be exposed to inadequate and/or wrong practices and to use unnecessary or improper doses of antipyretics and antibiotics

Aim: In this study, it was aimed to examine the fever management and rational drug use of mothers with children under six years old.

Material and Method: The research is of descriptive type. It was conducted with 276 mothers between January and March 2021.Introductory Information Form, Parental Fever Management Scale (PFMS) and Rational Drug Use Scale (RDUS) were used. The data were analyzed by number and percentage distribution, mean standard deviation, Mann Whitney U and Kruskal-Wallis and correlation test.

Results: It was determined that 25% of the mothers participating in the study were 30 years old and younger. The mean total score for PFMS is 28.71±3.86; RDU scale is 39.28±3.18. There was a statistically significant difference between the mothers taking their children to the doctor to fever, the children being hospitalized due to high fever before, the children having convulsions due to fever, and measuring the fever of the children when they got a fever, and the total score of the parental fever management scale. It was found that there was a statistically significant difference between the education level of the mothers, the place of residence, income level, and the total score of the rational drug use scale and getting information from someone when fever occurred.

Conclusion: Based on the result of this study, It was determined that the mothers had good fever management and had rational knowledge of drug use. In addition, mothers' education level, place of residence, income level and the fact that they receive information from someone during febricity increase the knowledge of rational drug use. Therefore, it can be suggested that education programs for mothers on fever management and rational drug use.

Keywords: Fever management, rational drug, mother.

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Cite as:Karakul, A., Doğan, P.(2022).Determination of Fever Management and Rational Drug Use of Mothers with Children Under Six Years Old. Health and Research Journal,8(4),299-310. https://ejournals.epublishing.ekt.gr/index.php/HealthResJ

INTRODUCTION

Inflammatory diseases are the most common reasons for children to visit a healthcare facility and health personnel.[1] Fever is one of the most common symptoms in childhood. Fever is the body's physiological and natural response to infections and inflammatory or immunological disorders.[2-4] It can cause parents to experience anxiety and fear. Many parents have difficulty in fever management.[1] Accordingly, parents also refer to many resources such as the internet, family, friends, books and magazines, and health care professionals for fever management.[5-7] It also constitutes the most common reason for drug use in childhood.[8] The ability of parents to perform fever management safely and effectively has an important place in ensuring proper drug use.[9]

The majority of parents do not use antipyretic drugs at the appropriate dose and time interval. For this reason, the influence of health workers, especially nurses, on the attitudes and behaviors of parents about fever is quite significant. The education to be given by the nurses to the parents may contribute to the definition of fever, its causes, and first interventions to the child with fever, a contribution is provided to the prevention of malpractices in children with fever and to reduce the number of applications to the emergency department.[9-11] The previous experiences of the parents and the application of the information they learned from the internet/media/ or their family/friends reveal that their drug use is not safe and inappropriate. In addition, it shows that parents do not give sufficient importance to rational drug use.[9]

The literature states that parents experience more anxiety and fear due to fever, their knowledge and practices about fever management are insufficient, and antipyretic drugs and antibiotics are misused.[1,6,10,11-14] Due to the common occurrence of inflammatory diseases in children, drug use may increase. Parents' knowledge of rational drug use can also be effective on their drug use behaviours.[9] It is essential to provide parents with training to raise and expand awareness about reasonable drug use and correct incorrect or incomplete information.

AIM

This study was aimed to examine the fever management and rational drug use status of mothers with children under six.

METHODS

Study design, setting, and sample

The study was conducted as descriptive research. Study data were collected through social media. Since the number of individuals in the population was not known in our study, the number of samples was calculated according to the incidence of the event. In previous studies, the frequency of admission to the emergency department due to fever was 22.3%.[15] It was calculated using the formula $n=t^2.p.q/d^2$. According to this formula, the number of samples was determined as 266. Data were collected from 276 mothers with children under six between January 2021 and March 2021.

The inclusion criteria were as follows: (i) Volunteering to participate in the research (ii) Having a child under six years old(iii) Having no severe psychiatric disorder

Data collection

As in the whole world, there have been many restrictions in our country due to the pandemic. Due to these restrictions, hospitals did not allow face-to-face data collection. Therefore, the data of the study were collected through social media. Snowball method was used in data collection. Data collection tools were shared on the social media accounts of the researchers (facebook, instagram etc.), and the data were collected.

Measures

A three-step questionnaire was applied to the participants using the Introductory Information Form, the Parental Fever Management Scale (PFMS), and the Rational Drug Use Scale (RDUS) to collect data regarding the study

Introductory Information Form

The information form consists of 25 questions. In this form, questions such as age, marital status, educational status, employment status, economic status, longest place of residence, family type are included.[10,11,16,17]

Parental Fever Management Scale (PFMS)

It was developed by Walsh et al. in 2008 to evaluate parent's fever management and translated into Turkish by Çınar et al. in 2013, and its validity and reliability study was conducted. The

total internal consistency coefficient Cronbach's alpha of PFMS was calculated as 0.79. The scale consists of eight questions. Sixteen actions that the mother usually takes when her child has a fever are questioned with the questions. Participants can choose answers scored as "1=never, 2=rarely, 3=sometimes, 4=often, 5=always" for Likert-type questions. Scoring of this scale can be a minimum of 8 points and a maximum of 40 points. The higher the score, the higher the level of actions made, indicating fever phobia and a greater burden of parental care during their children's inflammatory disease.[18]

Rational Drug Use Scale (RDUS)

It was developed by Demirtaş et al. in 2018, and its validity and reliability were performed. The total internal consistency coefficient, Cronbach's alpha value of the RDUS, was calculated as 0.789. RDUS is a scale consisting of 10 true, 11 false, a total of 21 propositions. Each proposition is expected to be answered as 'true,' 'false,' and 'I don't know.' Of the questions, 10 (1,3,4,7,8,11,12,14,18,21) are scored as "true=2, I don't know=1, false=0". Eleven (2,5,6,9,10,13,15,16,17,19,20) were reverse scored as "true=0, I don't know=1, false=2". It is accepted that as the level of knowledge increases, the score obtained from the questionnaire increases. The predictive value of the scale was calculated as 36.5 points. Those who scored 36.5 and above in the questionnaire were interpreted as having knowledge of rational drug use, and those who scored below 36.5 as not having knowledge of rational drug use.[19]

Ethics

The study was approved by the Non-Interventional Ethics Committee of a university in Turkey (Decision No: 1111 Date: 24.12.2020). The Helsinki Declaration was complied with to conduct the study. The mothers participating in the study marked the option that they read the information form on the first page of the online questionnaire, which states the purpose of the study and is approved to participate in the study. Permission was obtained from the authors via e-mail to use the Rational Drug Use Scale and the Parental Fever Management Scale.

Statistical analysis

The analysis of the data obtained from the study was carried out in the SPSS 21.0 statistics package program. The socio-demographic characteristics of the mothers participating in the study were given as number and percentage distributions. The suitability of the data for normal distribution was evaluated with the Shapiro-Wilk normality test. The introductory characteristics of the mothers and the mean scores obtained from the Rational Drug Use Scale and the Parental Fever Management Scale were evaluated with the Mann-Whitney U and Kruskal-Wallis tests. Correlation analysis was performed to determine the correlation between the Rational Drug Use Scale and the Parental Fever Management Scale. Statistical significance was accepted as $p<0.05$.

RESULTS

It was determined that 25% of the mothers participating in the study were aged 30 and under, 86.6% of the mothers were university graduates, 82.2% of the fathers were university graduates, 92.6% were nuclear families, 57.6% lived in metropolitans, 53.6% had income equal to expenses, 99.6% of them had health insurance, 62% of the mothers had one child, 50% of the children were male, and 22.1% were aged between 49-60 months (Table 1).

When they were asked about the fever status of their children, it was found that 93.8% had a fever, 72.8% had been taken to the health personnel before due to fever, 13% were hospitalized due to high fever, and 2.2% convulsed due to fever. When asked about being informed by someone when the fever rises, it was found that someone informed 81.9% of the respondents and 90.7% of those who received information got it from health personnel. When parents were asked about taking child's temperature when fevered, it was found that 79.7% of them always took their temperature (Table 1).

The total score the mothers got from the Parental Fever Management Scale was 28.71±3.86 (min-max:14-35). It was determined that there was no statistically significant difference between the mothers' educational level, place of residence, income level, and getting information from someone when the fever went up, and the total score of the parental fever management scale ($p>0.05$). It was determined that there was a statistically significant difference between the mothers' visiting the health personnel due to fever, hospitalization due to high

fever before, being convulsed due to fever, and taking their temperature when fevered, and the total score of the parental fever management scale ($p<0.05$) (Table 2).

The total score the mothers got from the Rational Drug Use Scale was 39.28±3.18 (min-max:20-42). It was found that there is a statistically significant difference between the mothers' educational level, place of residence, income level, and getting information from someone when the fever goes up and the rational drug use scale total score ($p<0.05$) (Table 3).There was no statistically significant difference between the mothers' visiting the health personnel due to fever, hospitalization due to high fever before, being convulsed due to fever, taking the temperature when fevered, and the rational drug use scale total score ($p>0.05$).

No significant correlation was found between the Parental Fever Management Scale and the Rational Drug Use Scale ($p=0.285$, $r=0.065$).

DISCUSSION

Fever is one of the most common problems of childhood, which worries mothers the most and is one of the most common reasons for referral to emergency services.[15] Due to the high incidence of fever, the approach of the family, especially the mothers who are primarily responsible for the care of children, to the child with fever, and the level of knowledge about fever are of great importance. Therefore, an insufficient level of knowledge about when and how to intervene in fever causes children to be exposed to inadequate and/or wrong practices and to use unnecessary or improper doses of antipyretics and antibiotics.[20] Therefore, this study aimed to determine the fever management and rational drug use status of mothers with children under six.

When we examine the educational status of mothers; most of them were seen to be university graduates. In studies conducted at different times in the literature, the educational status of mothers varied.[8,10-12,16] In the study conducted by Aburaida et al.[6] 65.2% of the mothers were university graduates. It may be because the data of the study were collected on an online platform. In the literature, generally, there are findings related to the data of mothers with low educational levels. In this study, where the educational level was good, in response to the question of "getting information when the fever goes up" about fever management, most mothers (90.7%) stated that they received information from health personnel. According to the data of this study, health personnel was shown as the source of information in fever management the most (74.4%). According to the data of this study, health personnel was shown as the source of information in fever management the most (74.4%). In the literature, on the other hand, this rate is quite low.[17] It has been stated that only 35.3% of mothers with low educational levels received information about fever management. Therefore, the educational level of mothers affects their status of accessing the information on fever management. In our study, 79.7% of the mothers stated that they always take the temperature of their children. Similarly, in our country, it has been found that parents check their children frequently during follow-up and treatment of fever.[10,17,18] Our study also observed that the rate of mothers taking their children to the doctor when their children were feverish was 72.8%. However, in the study of Alqudah et al.[20] it has been found that parents delayed in taking their children to the doctor if they had a fever.

In this study, where the educational level was high, in response to the questions about the "receiving information from health workers in case of fever" about fever management, the majority of the mothers stated that they received information from the health personnel. According to the data of this study, it was determined that the parents received the most information from the health personnel in the management of fever. In the study of Gülcan[17], it has been observed that 61.3% of those who received information received information from health personnel.[17] In the study of Aburaida[6], 64.5% of the families and the study of Abdina et al.[5], almost half of the parents indicated health personnel as the source of information. In this study and many other studies, the most indicated source of information was healthcare professionals. In case of fever, it is preferred and safe for the health personnel to be the mother's source of information.It is important for mothers to receive information from health personnel, to be able to manage fever correctly and to ensure correct drug use.

The experience of mothers with fever management increases. Therefore, the anxiety and fear of mothers with increased experience may decrease. In the study, 93.3% of the mothers stated that their children had a fever, and 72.8% stated that they applied to a doctor because of fever. In the study of Gürarslan-Baş[10], 55.5% of the mothers; in the study of Türker et al.[16], nearly half of the mothers have stated that their children had fever 1-2 times a year. As seen in the literature and our study, fever is a common complaint. Accordingly, for mothers with children under six, fever can cause anxiety and fear. Especially the possibility of the child convulsing due to fever increases this fear. Therefore, these feelings experienced by mothers may also pave the way for misimplementations.

The mothers' total PFMS score was above the average, demonstrating that mothers practiced at a high level. Therefore, fever indicates fever phobia and a greater burden of parental care during their children's inflammatory disease. However, while in our study, the total score of the fever management scale was 28.71±3.86, in the study of Gülcan[17] it has been determined that the mean scores of the mothers were 33.39±4.4. In the study of Hew et al.[8], mothers had high PFMS scores. Although the mothers' educational level was high in our study, the PFMS total score was lower. Similar to our study, Hew et al.[8] stated that there was no significant difference between the parents' educational level, place of residence, income level, and their status of getting information from someone when the fever went up, and the total score of the fever management scale. However, it has been found that mothers taking their children to the health personnel for fever, prior hospitalization due to high fever, having had a convulsion due to fever, and taking their temperature when they have a fever affect parents' knowledge of how to deal with fever. The fact that mothers have previous experience in fever management positively affects their fever management.

The mothers' total RDUS score was 39.28±3.18. It was observed that the mothers had the knowledge of rational drug use. The results of our study are consistent with the results of the literature.[9,19] It was determined that there is a statistically significant difference between the mothers' educational level, place of residence, income level, and getting information from someone when the fever goes up and the total score of rational drug use scale. Similarly, in the study of Demirtaş et al.[19], it has been stated that the RDUS score was affected by education status and income level. Utli and Turan[9] found that there was a highly significant difference between education level, income level, place of residence, and rational drug use). It has been determined that the sociodemographic characteristics of the parents (occupation, educational level, income status, and the region they live in) have an effect on the rational use of drugs. The positive effect of education on knowledge is known; it is thought that providing accurate information on fever management and rational use of medications through public service announcements, public education, or the media to raise public awareness significantly reduces the mistakes of mothers in drug use. In the study, it was observed that the rational use of drugs increased significantly with education. In this regard, planned training should be given to families with low education levels, especially mothers, on the use and importance of antipyretic and antibiotics in particular.

Mothers' lack of knowledge about fever in children and their fears about fever due to this condition often leads to the use of antipyretic drugs.[1] Antipyretic drugs are often used unnecessarily or in the wrong dose and interval.[12,14] It is thought that the high fever management of the mothers may reduce the improper drug administration. In our study, no significant relationship was found between mothers' fever management and rational drug use. It is thought that the high educational level of the majority of the mothers participating in the study and their experience of fever affect this result.

Study limitation

This study has some limitations. In the study, the number of mothers whose children did not have a fever is very low. Therefore, the fact that their children had a fever before affected the fever management of the mothers. For this reason, studies with a larger sample size of mothers who have not experienced fever before should be conducted. Accordingly, the results of the study cannot be generalized to the whole population.

CONCLUSIONS

As a result of the study, it was concluded that the mothers had a good level of fever management and had knowledge of rational drug use. It was determined that the majority of the children of the mothers had a fever and had been taken to the doctor due to fever before. When their child's fever goes up, mothers receive information from health personnel. In addition, the state of mothers visiting the doctor due to fever, being hospitalized due to high fever before, being convulsed due to fever, and taking their temperature when fevered has a positive effect on the fever method. Also, mothers' educational level, place of residence, income level, and the fact that they receive information from someone when fever increases increase mothers' knowledge of rational drug use. Therefore, it can be suggested that education programs for mothers on fever management and rational drug use that are clear, understandable, and accessible 24 hours a day should be organized by pediatric nurses.

Funding: This research received no external funding.

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

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ANNEX

Table 1. Descriptive characteristics of mothers (n=276).

	Number	**%**
Age		
30 years and under	69	25.0
31-40	195	70.7
41-50	12	4.3
Educational status		
Elementary school	2	0.7
Secondary school	2	0.7
High school	33	12.0
University or higher	239	86.6
Paternal educational status		
Elementary school	7	2.5
Secondary school	3	1.1
High school	39	14.1
University or higher	227	82.2
Family type		
Nuclear	255	92.4
Extended	18	6.5
Fragmented	3	1.1
Living place		
Village	3	1.1
Town	67	24.3
City	47	17.0
Metropolis	159	57.6
Income status		
Income less than expenses	15	5.4
Income equals expense	148	53.7
Income more than expenses	113	40.9
Health Insurance		
Yes	275	99.6
No	1	0.4
Number of having children		
1	171	62.0
2	92	33.3
3 and more	13	4.7
Child's Gender		

Girl	138	50.0
Boy	138	50.0
Child's age		
10-12 months	16	5.8
13-24 months	48	17.4
25-36 months	41	14.9
37-48 months	53	19.2
49-60 months	61	22.1
61-72 months	57	20.7
Fever status to date		
Yes	259	93.8
No	17	6.2
Take to the doctor because of a fever		
Yes	201	72.8
No	75	27.2
Being hospitalized for a previous high fever		
Yes	36	13.0
No	240	87.0
Convulsion due to fever		
Yes	6	2.2
No	270	97.8
Getting information from someone when a fever rises		
Yes	226	81.9
No	50	18.1
Person receiving information		
Health personnel	205	90.7
Television-radio-social media	3	1.3
Neighbor-relative-friend	13	5.8
Book-magazine-newspaper	5	2.2
Frequency of measuring when the child has a fever		
Always	220	79.7
Mostly	40	14.5
Sometime	11	4.0
Rarely	3	1.1
Never	2	0.7

Table 2. Comparison of the total score from the Fever Management Scale with the some descriptive features.

		Scale Total Score	
	n	**X±SS**	**Statistical value**
Take to the doctor because of a fever			
Yes	201	29.49±3.49	MWU:-5.326*
No	75	26.61±4.04	p=0.000
Being hospitalized for a previous high fever			
Yes	36	31.00±2.65	MWU:-3.935*
No	240	28.37±3.90	p=0.000
Convulsion due to fever			
Yes	6	32.16±2.71	MWU:-2.374*
No	270	28.63±3.85	p=0.018
Frequency of measuring when the child has a fever			
Always	220	29.49±3.19	KWS:44.515**
Mostly	40	27.12±4.02	p=0.000
Sometime	11	21.81±2.96	
Rarely	3	17.66±3.51	
Never	2	29.00±1.41	

*MWU: Mann-Whitney U test

**KWS: Kruskal-Wallis test

Table 3. Comparison of the total score from the Rational Drug Use Scale with some descriptive features.

		Scale Total Score	
	X±SS	**X±SS**	**Statistical value**
Educatinal status			
Elementary school	2	39.50±0.70	KWS:17.476**
Secondary school	2	34.50±0.70	p=0.001
High school	33	37.48±4.30	
University or higher	239	39.56±2.91	
Living place			
Village	3	35.33±3.05	KWS:14.085**
Town	67	38.23±3.98	p=0.003
City	47	39.72±2.43	
Metropolis	159	39.66±2.86	
Income status			
Income less than expenses	15	39.60±2.87	KWS:8.359**
Income equals expense	148	38.70±3.72	p=0.015
Income more than expenses	113	39.99±2.17	
Getting information from someone when a fever rises			
Yes	226	39.42±3.22	MWU:-2.082*
No	50	38.64±2.93	p: p=0.037

*MWU: Mann-Whitney U test

**KWS: Kruskal-Wallis test

Table 3. Comparison of the total score from the Rational Drug Use Scale with some descriptive features.

		ScaleTotalScore	
	X±SS	**X±SS**	**Statisticalvalue**
Educatinal status			
Elementaryschool	2	39.50±0.70	KWS:17.476**
Secondaryschool	2	34.50±0.70	p=0.001
High school	33	37.48±4.30	
Universityorhigher	239	39.56±2.91	
Livingplace			
Village	3	35.33±3.05	KWS:14.085**
Town	67	38.23±3.98	p=0.003
City	47	39.72±2.43	
Metropolis	159	39.66±2.86	
Income status			
Incomelessthanexpenses	15	39.60±2.87	KWS:8.359**
Incomeequalsexpense	148	38.70±3.72	p=0.015
Incomemorethanexpenses	113	39.99±2.17	
Getting information from someone when a fever rises			
Yes	226	39.42±3.22	MWU:-2.082*
No	50	38.64±2.93	p: p=0.037

*MWU: Mann-Whitney U test

**KWS: Kruskal-Wallistest