Health Beliefs Regarding Medicine Use of Mothers Whose Children Are Hospitalized in a University Hospital and Knowledge and Practices of Mothers Towards Rational Use of Medicines in Their Children

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Original Research / Orijinal Araştırma

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ABSTRACT

Aim: This study was carried out to determine the health beliefs of mothers with children hospitalized at a university hospital regarding medicine use and their knowledge and practices towards rational use of medicines in the children.

Methods: This is a descriptive and cross-sectional study. The study was conducted between 15 July and 15 October 2018 at the Karabük University Research and Training Hospital with 260 mothers. A Participant Information Form and the Drug Use Health Beliefs Scale were used as the data collection tools.

Results: It was determined that only 10.8% (n=28) of the mothers had knowledge about rational use of medicines. The mothers' Drug Use Health Beliefs Scale total mean score was 150.91 ± 15.13. 93.5% (n=243) of the mothers used antipyretics, whereas only 17.7% (n=43) of them used antipyretics recommended by a doctor. The mothers who read the package inserts of medicine had a significantly higher mean scale score than those who did not.

Conclusion: The mothers had insufficient knowledge on rational use of medicines, but their health beliefs related to prescription medicine use were high. However, the mothers used antipyretic, analgesic, antibiotic and cough medicines in their children without consulting a doctor, whereas the majority of them used particularly antipyretics without a doctor's recommendation.

Keywords: rational use of medicines, Drug Use Health Beliefs Scale, children, mothers

Bir Üniversite Hastanesinde Çocuğu Yatan Annelerin İlaç Kullanmaya İlişkin Sağlık İnançları ve Çocuklarında Akılcı İlaç Kullanımına Yönelik Bilgi ve Uygulamaları

ÖZ

Amaç: Bu çalışma, bir üniversite hastanesinde çocuğu yatan annelerin ilaç kullanmaya ilişkin sağlık inançlarını ve çocuklarında akılcı ilaç kullanımına yönelik bilgi ve uygulamalarını belirlemek amacıyla yapılmıştır.

Yöntem: Tanımlayıcı ve kesitsel tipte bir çalışmadır. Çalışma, Karabük Üniversitesi Eğitim ve Araştırma Hastanesinde, 15 Temmuz- 15 Ekim 2018 tarihleri arasında 260 anne ile gerçekleştirilmiştir. Veri toplama aracı olarak, Katılımcı Bilgi Formu ve İlaç Kullanımı Sağlık İnançları Ölçeği kullanılmıştır.

Bulgular: Annelerin sadece %10,8'inin (n=28) akılcı ilaç kullanımı konusunda bilgi sahibi oldukları belirlenmiştir. Annelerin İlaç Kullanmaya İlişkin Sağlık İnanç Ölçeği genel puan ortalaması 150,91 ± 15,13 olarak bulunmuştur. Annelerin %93,5'i (n=243) ateş düşürücü kullandığını, bu annelerin ise sadece %17,7'si (n=43) doktor önerisi ile kullandığını ifade etmiştir. İlaç prospektüsü okuyan annelerin ölçek puan medyanı, prospektüs okumayanlara göre daha yüksek olup, bu farklılık istatistiksel olarak anlamlı bulunmuştur.

Sonuç: Annelerin akılcı ilaç kullanımı konusunda yetersiz bilgi sahibi olmalarına rağmen reçeteli ilaç kullanımı konusunda sağlık inancının yüksek olduğu görülmüştür. Ancak annelerin çocuklarında, doktor önerisi olmadan antipiretik, analjezik, antibiyotik ve öksürük ilaçlarını kullandıkları ve özellikle annelerin büyük bir çoğunluğunun antipiretiği doktor önerisi olmadan kullandıkları sonucuna varılmıştır.

Anahtar kelimeler: akılcı ilaç kullanımı, İlaç Kullanımı Sağlık İnançları Ölçeği, çocuklar, anneler

Introduction

WHO defines rational use of medicines (RUM) as that "patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community" (1). If RUM principles are not followed, irrational use of medicines (IRUM) occurs. These practices include excessive and unnecessary medicine use, use of medicines at wrong doses, via the wrong route or in the wrong duration and non-prescribed use of medicines (2,3). World Health Organization (WHO) reports that, worldwide, more than 50% of all medicines are prescribed, dispensed or sold inappropriately, while 50% of patients fail to take them correctly (4).

Unnecessary and inappropriate medicine use is an important problem that affects public health both in Turkey and across the world (5). The causes of IRUM are lack of information and communication, insufficient diagnostic facilities, individual medicine demands, incorrect medicine supply chain and promotional activities of pharmaceutical companies (2). Additionally, the use of medicines by individuals on their own is a form of IRUM that they use to relieve symptoms of acute illness without going to a doctor (6). However, negative outcomes such as ineffective treatment, resistance to antibiotics, medicine side effects and increased financial burden can occur due to IRUM (7,8).

IRUM may be of significance for every age group due to its possible risks, but it is even more important especially for the pediatric age group. Certain biological processes of medicine absorption, distribution, metabolism and elimination in children make them one of the high-risk populations in medication use (9,10). The most significant problems of RUM in children occur in the use of antipyretics, antibiotics, analgesics and cough medicines (8,11,12).

RUM is essential to eliminate health issues caused by incorrect and unnecessary use of medicines (5). Additionally, medicines have an important place among health expenditures, and they also have protective, diagnostic and therapeutic effects, which

reveal the importance of RUM (13). Patients have an important personal role in RUM. However, this role is performed in pediatric patients by their parents, especially mothers. This is because preparing medicines and having children use of them are mostly under the responsibility of nurses at the hospital and mothers at home. Therefore, mothers should have knowledge about RUM to ensure that medicines are properly used at home (3,9,12).

The most common errors of mothers in RUM for their children are situations such as adjusting the dosage and duration of the medicines and using more than one medication. It is known that parents' knowledge for the use of medicines plays an active role in RUM (14). Therefore, physicians, nurses and all relevant healthcare professionals have important responsibilities for raising awareness of both patients and the society about RUM (15).

Although there are many studies on RUM in adults, there is only a limited number of studies in Turkey examining the knowledge, attitudes, beliefs and practices of RUM in mothers with children, a risky group in medication use (9,16,17). There are international studies about parents' knowledge, attitudes and practices regarding the use of specific medications in children such as antibiotics, antipyretics, and cough medicines (8,10,11,18,19). By using their own practitioner and trainer roles, nurses can provide both patients and their families with education and counseling about the correct and safe use and storage of medicines during treatment, according to their needs, learning capabilities, demands and requests (3,12). Therefore, determining the knowledge and practices of mothers towards RUM may be a guiding in both planning relevant trainings for mothers in this regard and taking some protective measures for IRUM, as well as contributing to the literature. Thus, this study was conducted to determine the health beliefs of mothers with children hospitalized at the Karabük University Research and Training Hospital on medicine use and their knowledge and practices regarding rational use of medicines in their children.

Methods

This is a descriptive and cross-sectional study. The study was conducted between 15 July and 15 October 2018 at the Karabük University Research and Training Hospital affiliated to the Turkish Ministry of Health. The hospital where the study was conducted is the only research and training hospital in Karabük, Turkey, which offers both outpatient and inpatient treatment services. There are two pediatric clinics at the hospital, including one child/adolescent surgery clinic and one infant/toddler pediatric clinic. The study was conducted in these two clinics which include a total of 27 beds for hospitalization of pediatric patients.

A total of 705 children were hospitalized at these clinics between the dates of the study. The inclusion criteria for the mothers in the study were as follows: being a hospital attendant mother, being 18 years of age or older, having cognitive competence, having no communication problems, and being willing to participate in the study. At the beginning of the study, it was aimed to reach the population of study instead of calculating a sample. However, since some mothers did not want to participate in the study or did not meet the inclusion criteria, the study was conducted with the participation of 260 mothers. Besides, at the end of the study, the power of this study was calculated by using the "G.Power-3.1.9.2" software. As a result of the analysis, on the level of α=0.05, the power of the study that was calculated by post-hoc analysis after applying it on 260 individuals was 0.90. For post-hoc analysis, the minimum power value that needs to be obtained is 0.67. In this case, the calculated power was on an acceptable level, and the sample size was adequate.

Participant Information Form: This form prepared by the researchers consisted of four parts. These sections were as follows:

Section 1: Socio-demographic characteristics of the mothers (6 questions) such as age, education status, employment status and number of children.

Section 2: Knowledge statuses on RUM (3 questions) such as having knowledge of RUM and the sources from which the information is obtained.

Section 3: General medication use and practices of the mothers (6 questions) such as reading package insert, what is done with the remaining medicines after the treatment and having expired medicines at home.

Section 4: Medication use and practices of the mothers in their children (12 qestions) such as what mothers do when the child is ill, using non-prescription medicines without consulting a doctor and use of antibiotics, analgesics, antipyretic and cough medicines. This form contained a total of 27 questions, 10 of which are open-ended.

Drug Use Health Beliefs Scale: The validity and reliability study of the Drug Use Health Beliefs Scale in adult women was performed by Erci and Cicek (20). The scale consists of 35 items and six (6) subscales, including the following:

1. Perceived susceptibility: It measures perceptions of susceptibly for conscious and prescription medicine use (6 items).

2. Perceived severity: It measures perceptions of severity for issues due to conscious and prescription medicine use (6 items).

3. Health motivation: It assesses health motivation related to conscious and prescription medicine use (6 items).

4. Perceived benefits: It assesses perceived benefits of conscious and prescription medicine use (4 items).

5. Perceived barriers: It determines the extent of perceived barriers of having conscious and prescription medicine use (6 items).

6. Self-efficacy: It assesses self-efficacy and correctness of behaviors in conscious and prescription medicine use (7 items).

This is a five-point Likert-type scale that is scored as strongly disagree, disagree, uncertain, agree and strongly agree. It includes 6 items (23-28) which are inversely scored. The minimum and maximum scores of the scale are 35 and 175, respectively. The scale does not have a cut-off point. A higher scale score indicates a higher health belief level related to conscious and prescription medicine use. The Cronbach's alpha reliability coefficient is 0.91 for the scale, and it ranges between 0.80 and 0.93 for the subscales, suggesting high validity and reliability for

the scale (20). In this study, the Cronbach's alpha value was 0.92 for the scale and ranged between 0.86 and 0.90 for the subscales.

Mothers who met the study inclusion criteria were informed about the study by the researchers. Written and verbal consents were obtained from the mothers who agreed to participate in the study. The data collection forms were completed by the researchers through face-to-face interviews. The researchers helped in filling out the questionnaires of 7 illiterate mothers. The application of the data forms lasted an average of 15 minutes for each mother.

The data were analyzed using the Statistical Package for the Social Sciences 25.0 for Windows (SPSS Inc., Chicago, Illinois, USA). The data were evaluated using descriptive statistical methods (frequency, percentage, standard deviation, median, minimum and maximum values). Kolmogorov-Smirnov test was used to determine whether the variables showed a normal distribution. Since the data did not have a normal distribution, nonparametric tests were used in the statistical analyses. Mann Whitney U Test was used to compare two groups whose quantitative data were not normally distributed, and Kruskal Wallis analysis was used in the comparisons of more than two groups. A p value of <0.05 was considered as the criterion for statistical significance.

For conducting the study, ethics committee approval (date: 21.05.2018, protocol number: 77192459-050.99-E.1525) was obtained from the Karabük University Faculty of Medicine Non-Interventional Ethics Committee, and institutional permission was obtained from the Karabük Provincal Directorate of Health (date: 27.06.2018, protocol number: 98024045-604.02). Additionally, a permit was obtained from Zeynep Çiçek via e-mail to use the Drug Use Health Beliefs Scale in the study. The principle of voluntary basis was prioritized by informing the mothers about the research. Verbal and written consent was obtained from the mothers who agreed to participate in the study.

Results

A total of 260 mothers participated in the study,

and their mean age was 33.55 ± 6.55 years. Among the participants, 28.5% (n=74) were in the age range of 24-29 years, 29.2% (n=76) were high school graduates, 76.2% (n=198) were housewives, 23.8% (n=62) were employed, and 43.1% (n=112) had two children.

Additionally, only 10.8% (n=28) of the mothers had knowledge of RUM. Visual media 34.2% (n=12) ranked first among the mothers' information resources of RUM. A total of 105 mothers did not respond to the question of "What is rational use of medicines?", and 47.7% (n=74) of the mothers who responded to the question reported that they did not know about RUM (Table 1).

Table 1. Knowledge status of mothers about RUM

Features	n	%
Having Knowledge of RUM (n=260)		
Yes	28	10.8
No	232	89.2
Information sources (n=35)*		**
Visual media	12	34.2
Health personnel	8	22.9
Friends	8	22.9
Self (health worker)	3	8.6
Printed media	2	5.7
Brochures	2	5.7
Responses to the question of "What is RUM?" (n=155)*		****
I do not know	74	47.7
Using medication consciously	22	14.2
Using medication with a doctor's recommendation	19	12.3
Not using medication unnecessarily	18	11.6
Using the right medicine at the right dosage	18	11.6
Using self-medication	4	2.6

*: Multiple options were marked. **: Percentage (%) values calculated according to the number of information sources (35). ***: A total of 105 people who did not respond were excluded from the analysis. ****: Percentage (%) values calculated according to the number of people who responded (155).

When the medicine use status and practices of the mothers were examined, 86.2% (n=218) of 253 literate mothers reported to read the package inserts of medicines, and 88.9% (n=225) reported to have no expired medicines at home. Additionally, 51.1% (n=140) of the mothers reported to throw away remaining medicines after treatment, whereas 38.7% (n=106) reported to keep them. While 73.1% (n=190) of the mothers reported to go to a hospital when their

children got ill, 11.5% (n=30) reported to use medicines without consulting a doctor, and 27.0% (n=54) reported to use medicines of their other children for the ill child (Table 2).

Table 2. Medicine use and practices of mothers

Features	n	%
Do you read the package inserts of medicines? (n=253)*		
Yes	218	86.2
No	35	13.8
Where do you prescribe medicines? (n=260)		
Hospital	195	75.0
Family practice center	62	23.8
From pharmacies without a prescription	3	1.2
Do you have expired medicines at home? (n=253)*		
Yes	225	88.9
No	28	11.1
What do you do with medicines remaining after treatment? (n=274)**		***
I throw them away	140	51.1
I keep them	106	38.7
I take them to the pharmacy.	16	5.8
I give them to someone in need	12	4.4
What do you do when your children get ill? (n=260)		
I go to the hospital	190	73.1
I go to the family practice center	56	21.5
I treat my child using herbal medicine/supplements	14	5.4
Do you use medicines for your children without consulting your doctor? (n=260)		
Yes	30	11.5
No	230	88.5
Do you use your other children's medicines for your ill children?(n=200)**		*****
Yes	54	27.0
No	146	73.0

*: A total of seven illiterate mothers were excluded from the analysis. **: More than one option was marked. ***: Percentage (%) values calculated according to the number of people who responded (274). ****: A total of 60 mothers with one child were excluded from the analysis. *****: Percentage (%) values calculated according to the number of people who responded (200).

The mothers' Drug Use Health Beliefs Scale total mean score was 150.91 ± 15.13. They obtained the lowest and highest mean scores in the subscales of "perceived severity" and "health motivation", respectively (Table 3).

Table 3. Drug Use Health Beliefs Scale total and subscale mean scores

Subscales	Item nr	Lower and upper values	Mean scores	Item mean scores
Perceived susceptibility (6-30)	6	6-30	24.51±4.73	4.08±0.78
Perceived severity (6-30)	6	6-30	22.65±5.26	3.77±0.87
Health motivation (6-30)	6	17-30	27.38±2.88	4.56±0.48
Perceived benefits (4-20)	4	4-20	17.95±2.44	4.49±0.60
Perceived barriers (6-30)	6	6-30	26.65±4.10	4.43±0.67
Self-efficacy (7-35)	7	19-35	31.70±3.40	4.52±0.48
Total Scale Score (35-175)	**35**	**100-175**	**150.91±15.13**	**4.31±0.43**

*: The highest score to be obtained on each item is 5.

The mothers' mean scale scores were compared based on some of their descriptive characteristics, and no statistically significant difference was found between their scores based on age (p=0.557), education status (p=0.197), employment status (p=0.576), number of children (p=0.160), and RUM knowledge status (p=0.641). However, the mothers who read the package inserts of medicines had a significantly higher mean scale score than those who did not (p=0.024) (Table 4).

Table 4. Comparison of the mothers' mean scale scores based on some of their descriptive characteristics

Characteristics	n	%	Median (min-max)	KW, MW	p
Age					
18-23	12	4.6	150.00 (130-175)		
24-29	74	28.5	152.50 (102-175)	3.005*	0.557
30-35	72	27.7	152.00 (121-175)		
36-41	72	27.7	147.00 (105-175)		
42 and above	30	11.5	155.00 (100-175)		
Education status					
Illiterate	7	2.7	141.00 (102-169)		
Literate	8	3.1	152.50 (125-175)	7.338*	0.197
Primary school	61	23.5	153.00 (100-174)		
Secondary school	52	20.0	150.00 (105-171)		
High school	76	29.2	149.00 (113-175)		
University	56	21.5	156.00 (121-175)		
Employment status					
Housewife	198	76.2	151.00 (102-175)		
Public sector	26	10.0	152.50 (100-175)	1.105*	0.576
Private sector	36	13.8	152.50 (112-175)		
Number of children					
1	60	23.1	152.50 (113-175)		
2	112	43.1	152.00 (100-175)	3.663*	0.160
3 and above	88	33.8	148.50 (105-175)		
Having knowledge about RUM					
Yes	28	10.8	151.00 (105-175)	3073.000**	0.641
No	232	89.2	152.00 (100-175)		
Reading the package inserts of medicines*					
Yes	218	86.2	152.00 (105-175)	2908.000**	**0.024**
No	35	13.8	145.00 (100-175)		

*: Kruskal Wallis analysis was performed. **: Mann-Whitney U Test was used. ***: A total of seven illiterate mothers were excluded from the analysis.

When the medicine use status of the mothers in their children was examined; 80% (n=208) of the mothers used antibiotics, whereas 89.4% (n=186) of them used antibiotics recommended by a doctor, 67.7% (n=176) of the mothers used analgesics, whereas 69.3% (n=122) of them used analgesics recommended by a doctor. 54.2% (n=141) of the mothers used cough medicine, whereas 90.8% (n=128) of them used cough medicine recommended by a doctor, and 93.5% (n=243) of the mothers used antipyretics, whereas only 17.7% (n=43) of them used antipyretics recommended by a doctor. When the mothers' mean scale scores were compared based on their practices towards RUM in their children, the mothers who used antibiotics had a significantly higher mean score than those who did not (p=0.041). The mothers who did not use analgesics had a significantly higher mean score than those who did (p=0.024). Additionally, the mothers who used cough medicine recommended by a doctor had a significantly higher mean score than those who did not (p=0.003) (Table 5).

Table 5. Comparison between of practices of mothers towards RUM in their children and Drug Use Health Beliefs Scale Score

Features	n	%	Median (min-max)	MW*	p
Use of medicines without consulting your doctor					
Yes	30	11.5	146.00 (112-171)	2865.500	0.131
No	230	88.5	152.00 (100-175)		
Use of antibiotics					
Yes	208	80.0	156.00 (100-175)	4457.500	**0.041**
No	52	20.0	151.00 (105-175)		
Use of antibiotics recommended by a doctor (n=208)					
Yes	186	89.4	153.00 (100-175)	1773.500	0.307
No	22	10.6	148.50 (105-175)		
Use of analgesics					
Yes	176	67.7	150.00 (100-175)	6148.500	**0.024**
No	84	32.3	154.00 (111-175)		
Use of analgesics recommended by a doctor (n=176)					
Yes	122	69.3	151.00 (102-175)	2930.000	0.243
No	54	30.7	149.00 (100-174)		
Use of cough medicine					
Yes	141	54.2	152.00 (100-175)	8114.000	0.648
No	119	45.8	152.00 (102-175)		
Use of cough medicine recommended by a doctor (n=141)					
Yes	128	90.8	152.00 (105-175)	412.000	**0.003**
No	13	9.2	136.00 (100-163)		
Use of antipyretics					
Yes	243	93.5	152.00 (100-175)	1834.000	0.440
No	17	6.5	145.00 (125-172)		
Use of antipyretics recommended by a doctor (n=243)					
Yes	43	17.7	149.00 (100-175)	3673.500	0.134
No	200	82.3	152.00 (105-175)		

*: Mann-Whitney U Test was used.

Discussion

In this study, the use of four medicine groups (antipyretics, antibiotics, analgesics and cough medicines) was evaluated as the most important problematic issue for RUM in children. It was determined that the mothers used antipyretic, analgesic, antibiotic and cough medicines in their children without consulting a doctor, whereas the majority of them used particularly antipyretics without doctor's recommendation. It is noteworthy that the use of antipyretics by parents without consulting a doctor was found to be very high in this study in comparison to those in the literature (19,21-23). This may be because mothers use antipyretics to relieve the fever in their children promptly due the anxiety they experience, and they do not have sufficient information on the proper use of antipyretics. In consistency with this interpretation, studies have also reported that parents do not have sufficient information about the proper use of antipyretics (24,25). Additionally, antibiotics were the second most common medicine group used by the mothers in the study, where the majority of them reported to use antibiotics by consulting a doctor. However, studies have reported that pediatric age is not only the period in which antibiotics are most frequently used but also

the period in which unnecessary and wrong use of antibiotics is most common (8,18,26). The low rate of unnecessary and wrong use of antibiotics by the mothers in the study may be considered as a pleasing result for RUM in children. In this study, cough medicines were the least used medicine group by the mothers in their children. Studies have also shown that the use of cough medicine without consulting a doctor in children was higher than the rate in our study (27-29). The mothers who used cough medicine by consulting a doctor obtained a significantly higher mean scale score than those who did not. This suggested that the mothers who used cough medicine by consulting a doctor had higher health beliefs regarding the use of prescription medicines.

Medication administration in children is different from adults. This is because, except for some cases occurring among teenagers, medicines are given to children by their parents at home (30,31). The fact that autonomy is lacking in the children mainly at early ages, self-medication use reverts to a parental manner. This responsibility belongs especially to mothers among parents (32). Therefore, it is important for mothers to have sufficient information about the proper use of medicines (12). In this study, very few of the mothers had knowledge of RUM, and for the question "What is RUM?", almost half of the mothers who answered the question stated that they did not know. Visual media ranked first among the mothers' information resources for RUM. This study found a lower rate of mothers who had knowledge about RUM than in other studies (16,33). Nurses play a key role in teaching parents how to administer medicines safely through health education (34). Considering the role of nurses in parents' RUM, the fact that healthcare professionals did not rank first among the mothers' information resources and that the percentage of those who obtained information from healthcare professionals was low may be interpreted as an undesirable result for RUM.

This study determined that the majority of the mothers read the package inserts of medicines. This ratio was found to be lower in one study (16) and higher in another study (17). Physicians constitute the first step of the physician, pharmacist, nurse, patient/relatives components of RUM. Physicians are responsible for calculating appropriate medicine dosage and writing out medicine prescriptions for children (3,35). In comparison to other studies in the literature, this study found a lower rate of mothers who used medicines without consulting a doctor (31,36,37). However, this study found a higher rate of mothers who had more than one child and used medicines of their other children for the ill child. In one study, this rate was very low (22). In the study, as the reason for mothers to use their other children's medicines for their ill children, one may think that mothers do not destroy and keep the remaining medicines after home treatment and use them again when they need it. Consistently with our interpretation, it was observed that the rate of keeping remaining medicines after treatment was high in the mothers. The rate of keeping the remaining medicines after treatment was reported much lower in one study than in this study, and this rate was found by one another study on a compatible level with this study (17,37).

The mothers in the study obtained scale scores above the average. The effect of health beliefs model education on conscious and prescription drug use for women was examined in the validity and reliability study of the scale. However, the total mean scale score of the mothers in this study was even higher than the post-education scale mean score of women who were trained about on conscious and prescription medicine use in the validity and reliability study of the scale (20). This difference may have been because the participants of these two studies differed in age, education level and socio-cultural status. It may also have been because the sample of this study consisted of only mothers, but single women constituted 15% of the sample of the other study. Since the scale used in the study has not been used in any other study on mothers, the results of this study may provide significant data to the literature.

In this study, the sociodemographic characteristics (age, education state, employment state and number of children) of the mothers did not affect their health beliefs on conscious and prescription medicines use,

which was not compatible with the results of other studies in the literature (38,39). In the planning phase of this study, it was considered that the mothers with knowledge of RUM would have a higher drug use health belief scale mean score; but it was surprising that they obtained lower scale mean score than those without knowledge of RUM. However, the mothers who read the package inserts of medicines had a significantly higher mean scale score than those who did not. This may be interpreted as an expected and desired result, considering that a higher scale score indicates higher health beliefs related to conscious and prescription medicines use.

Strengths and limitations: At the planning stage of this study, it was aimed to reach the entire population. However, some mothers did not agree to participate in the study or did not meet the inclusion criteria. This is why the entire population could not be reached, but is was determined that the sample size representing the population was adequate by power analysis. Another limitation of the study was that it was conducted at a single center because there was only one hospital at the city center where the study was conducted. Moreover, as the study was carried out with mothers, the results may not be generalized to other, different samples.

Conclusion

According to the results obtained in this study; the mothers had insufficient knowledge of RUM, but both the use of prescription medicines for their children in consultation with a doctor and the health beliefs related conscious and prescription medicines use were high among them. However, the mothers used antipyretic, analgesic, antibiotic and cough medicines in their children without consulting a doctor, where the majority used particularly antipyretics without a doctor's recommendation. Accordingly, healthcare professionals have important responsibilities for informing parents about RUM. In particular, nurses should ensure that parents use appropriate medicines at appropriate doses, through the health education they provide to parents by using their educational roles.

References

1. World Health Organization [internet]. WHO policy perspectives on medicines-promoting rational use of medicines: core components. Geneva: World Health Organization [cited 2020 November 23]. Available from: http://archives.who.int/tbs/rational/h3011e.pdf

2. Eftimova B, Lazarova B. Drug use at clinical hospital stip-evaluation of rational/irrational use. Knowledge International Journal 2018;22(5):1193-5.

3. Ciftci B, Aksoy M. Rational drug use in children and nurses's responsibilities. Gumushane University Journal of Health Sciences 2017;6(3):191-4.

4. World Health Organization [internet]. Antimicrobial resistance: a threat to global health security. Rational use of medicines by prescribers and patients 2005 [cited 2018 August 20]. Available from: https://apps.who.int/gb/archive/pdf_files/WHA58/A58_14-en.pdf

5. Karakoc MD, Uyanik O. Evaluation of nurses' knowledge, attitudes and behaviours about rational drug use in a public hospital. SDU Saglık Bilimleri Enstitusu Dergisi 2018;9(2):112-8.

6. Fereidouni Z, Kalyani MN. A model to explain self-medication by Iranian people: a qualitative grounded theory study. BMC Public Health 2019;19(1):1609.

7. Nadeshkumar A, Sathiadas G, Pathmeswaran A, Ranganathan SS. Prescribing, dispensing and administration indicators to describe rational use of oral dosage forms of medicines given to children.

WHO South-East Asia J Public Health 2019;8(1):42-9.

8. Wang J, Sheng Y, Ni J, Zhu J, Zhou Z, Liu T, et al. Shanghai parents' perception and attitude towards the use of antibiotics on children: A cross-sectional study. Infect Drug Resist 2019;12:3259-67.

9. Utli H, Turan M. Investigation of attitudes of parents having children aged 0-12 years towards rational drug use. EGE HFD 2020;36(2):87-95.

10. Mi X, Li W, Zhang L, Li J, Zeng L, Huang L, et al. The drug use to treat community-acquired pneumonia in children: A cross-sectional study in China. Medicine 2018;97(46):e13224.

11. Yu M, Zhao G, Lundborg CS, Zhu Y, Zhao Q, Xu B. Knowledge, attitudes, and practices of parents in rural China on the use of antibiotics in children: a cross-sectional study. BMC Infect Dis 2014;14(112):1-8.

12. Hassan AM, Mohamed NT, Mohammed FM, Gad EF. Impact of an educational program for mothers about preventing oral medications misuse for children under five years. Am J Nurs Res 2018;6(3):125-36.

13. Ma Z, Zhao Z, Sun S, Li Y, An Z, Yan Y, et al. Impact of 'Chief-Pharmacist-System' on drug expenditures and rational drug use. Int J Clin Pharm 2020;41(1):167-73.

14. Aleem MA, Rahman MM, Ishfaq M, Mehmood K, Ahmed SS. Determinants of antibiotics misuse by the parents in children: A survey from Northern Region of Saudi Arabia. Bangladesh Journal of Child Health 2016;40(2):64-71.

15. Snyder BD, Polasek TM, Doogue MP. Drug interactions: principles and practice. Aust Prescr 2012;35(3):85-8.

16. Cinar AS. Rational use of medicines for mothers having children under five years old in Pınarhisar and effecting factors (master's thesis). Kırklareli: Kırklareli University, Health Science Institute; 2018.

17. Yeniceri S. Rational drug use and adult health literacy of children emergency patients (master's thesis). Tokat: Tokat Gaziosmanpasa University; 2019.

18. Tunc SK, Feslihan E. Assessment of the awereness level of mothers about antibiotic use in children at the age of 0-12. Van Tıp Derg 2019;26(4):498-504.

19. Hew YH, Blebil AQ, Dujaili JA, Khan TM. Assessment of knowledge and practices of parents regarding childhood fever management in Kuala Lumpur, Malaysia. Drugs Ther Perspect 2019;35(1):29-35.

20. Erci B, Cicek Z. Reliability and validity of Drugs Use Health Belief Scale in adult women. Int Arch Nurs Health Care 2017;3(1):1-7.

21. Tobaigy M, MacLure K, Rodwi M, Almalki A, Alhasan AH, Tannoury M, et al. Parental experince of potential adverse drug reactions related to their oral administration of antipyretic analgesic medicines in children in Saudi Arabia. Curr Ther Res 2020;92:1-5..

22. Zyoud SH, Al-Jabi SW, Sweileh WM, Nabulsi MM, Tubaila MF, Awang R, et al. Beliefs and practices regarding childhood fever among parents: a cross-sectional study from palestine. BMC Pediatr 2013;13(66):1-8.

23. Anokye R, Amihere R, Abbiaw P, Acheampong E, Gyamfi N, Budu-Ainooson A. Childhood fever knowledge and management: A case of mothers with children under five years. Int J Pediatr Res 2018;4(2):1-7.

24. Purssell E, Collin J. Fever phobia: The impact of time and mortality– A systematic review and meta-analysis. Int J Nurs Stud 2016;56:81-9.

25. Thompson AP, Nesari M, Hartling L, Scott SD. Parents' experiences and information needs related to childhood fever: A systematic review. Patient Educ Couns 2020;103(4):750-63.

26. Ekambi GE, Ebongue CO,

Penda IC, Nga EN, Mponda EM, Moukoko CE. Knowledge, practices and attitudes on antibiotics use in Cameroon: self-medication and prescription survey among children, adolescents and adults in private pharmacies. Plos One 2019;14(2):1-17.

27. Cristescu C, Negreş S, Suciu M, Voicu A, Buda V, Suciu L, et al. Study regarding the parents' use of self – medication among children under 12 years old. Farmacia 2018;66(5):811-9.

28. Buyuk ET, Gudek E, Kalayci N. Mothers' approaches to children with cough. Gumushane University Journal of Health Sciences 2014;3(4):1019-31.

29. Tarciuc P, Stanescu AM, Diaconu CC, Paduraru L, Duduciuc A, Diaconescu S. Patterns and factors associated with self-medication among the pediatric population in Romania. Medicina 2020;56(6):1-12.

30. Mande BG, Tebandite KE, Marini R, Alworonga O. Determinants of self-medication of children by their parents at Kisangani. Asian Journal of Research in Medical and Pharmaceutical Sciences 2018;4(1):1-8.

31. Mukattash TL, Jarab AS, Khawaldeh A, Nusair M. Parental self-treatment of their children in Jordan, a qualitative study. Journal of Pharmaceutical Health Services Research 2019;10(3):317-23.

32. Potchoo Y, Awizoba A. Socio-demographic factors of parental self-medication among children under 15 years, at the Teaching Hospitals of Lome, Togo. J Adv Med Pharm Sci 2018;18(1):1-6.

33. Nayir T, Okyay RA, Yesilyurt H, Akbaba M, Nazlıcan E, Acik Y, et al. Assessment of rational use of drugs and self-medication in Turkey: A pilot study from Elazığ and its suburbs. Pak J Pharm Sci 2016;29(4):1429-35.

34. Silva JG, Gomes GC, Costa AR, Juliano LF, Aruda CP, Carvalho LN. The practice of self medication in children by their parents: performance in nursing. J Nurs UFPE 2018;12(6):1570-7.

35. Altindis S. Systematic overview of rational drug use. J Biotechnol and Strategic Health Res 2017;1(2):34-8.

36. Tsifiregna RL, Razafimahatratra SH, Raveloharimino NH, Rakotomalala RLH, Ravelomanana N. Self-medication practice among children in Antananarivo, Madagascar. Int J Res Med Sci 2016;4(12):5172-5.

37. Gungor A, Cakir BC, Yalcin H, Cakir HT, Karauzun A. Evaluation of parents' attitudes and behaviors related to the use of antibiotics in children. Turkish J Pediatr Dis 2019;13(3):203-7.

38. Bian C, Xu S, Wang H, Li N, Wu J, Zhao Y, et al. A study on the application of the information-motivation-behavioral skills (IMB) model on rational drug use behavior among second-level hospital outpatients in Anhui, China. PloS One 2015;10(9):1-11.

39. Pavyde E, Veikutis V, Maciuliene A, Maciulis V, Petrikonis K, Stankevicius E. Public knowledge, beliefs and behavior on antibiotic use and self-medication in Lithuania. Int J Environ Res Public Health 2015;12(6):7002-16.