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Original Article

Scope of Mothers' Knowledge Regarding Child Fever Management in Ranya City, Iraq Kurdistan Region

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ABSTRACT

Background and objective: Children's caregivers around the world are often unaware of the level of body temperature that indicates a fever. The way that they deal with a feverish child is sometimes incorrect or inappropriate. This study aimed to assess the mothers' knowledge regarding fever management of a child under the age of five.

Methods: A quantitative descriptive study was carried out in Ranya in the Kurdistan Region of Iraq in 2018-2019. A purposive sample of 120 participants was initially selected from the mothers who attended two Primary Healthcare Centers (Kewarash and Paparin) in Ranya. The questionnaire was utilized as a tool for data collection, and both descriptive and inferential statistical methods were used to analyze the data. Descriptive statistical data analysis included frequencies, percentages, and mean scores and the inferential statistical data analysis provided mean scores and Chi-square.

Results: A total of 110 mothers participated in the study after the exclusion of 10 women. The findings showed that 76% of participants did not know which measurement is the best to measure child temperature, 82% were not sure about the best place to take child's temperature, and 63% did not have knowledge about what temperature is considered to be a fever. According to the results, 72% of mothers believed that a cold sponge or ice pack is suitable for lowering body temperature, while 87% of mothers knew the most common complication of high fever. There was a positive association between level of education and mothers' knowledge regarding child fever management.

Conclusions: While mothers have some knowledge about fever and its management, they are unable to utilize this knowledge correctly. An educational program should be developed for mothers who attend primary healthcare centres to teach them about child fever management.

Keywords: Child, Mothers, Fever Management, Knowledge, Primary Health Care

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INTRODUCTION

Fever is a common problem in children and one of the most common reasons parents seek medical attention for their children. It accounts for 20–30% of all practical visiting, and in most of the cases, nothing harmful is diagnosed [1, 2].Fever is one of the most common symptoms of childhood disease, which in turn causes several concerns among families. Almost every child has a fever of 37.8 - 40.8°C at least once during childhood [3-5].While fever is well recognized to be a natural defence mechanism, it is a significant source of family fear. Even a slight increase in body temperature will trigger attempts to reduce the temperature and cause

panic among family members [6].Fever causes a high level of anxiety and fear in a child's caregiver regarding its possible complications [7]. Fever is generally harmless and usually manifests that the body is fighting an illness or infection. It can be considered a good sign that the child's immune system is working, and the body is trying to heal itself. At the same time, it is essential to look at the cause of fever [8].

Most mothers quickly administer an antipyretic (Paracetamol or Ibuprofen) to their children if they feel that the child has a fever. Paracetamol is a safe medicine if it is given correctly, but giving too much can be dangerous and causes death in rare cases. Overdose is the leading cause of liver failure in children. Ibuprofen can cause gut problems and kidney damage in some children, even when it is given at the recommended dose [9]. Fever is one of the most common problems in paediatrics for which parents seek health care. Nurses can provide parents with correct information regarding the fever and the appropriate management for it.

METHODS

The study was carried out from August 2, 2018, to January 14, 2019, at Kewarash and Raparin primary health care centres (PHC) in Ranya in the Kurdistan Region of Iraq. The researcher obtained ethical approval for the study from the Research Ethics Committee of the College of the Nursing, University of Raparin, the Research Centre Department, University of Raparin, the Raparin Directorate of Health, and the two involved primary health care centres. The study used a quantitative descriptive design. The researcher recruited a non-probability, convenient sample of 120 mothers and excluded 10 women. Criteria for selection included: mothers who attend PHCs with children under the age of five with fever. A questionnaire was constructed after a review of the literature to achieve the objectives of the study and consisted of two parts. The first part included the socio-demographic characteristics of mothers, and part two included 12 items related to the mothers' knowledge regarding child fever management. The data were collected using a face to face interview approach. Items were measured by using three levels of Likert scales and rated as the: a correct answer - 3, not sure - 2, and an incorrect answer - 1 [10]. The mean of the score from 1 - 1.66 was considered insufficient knowledge, 1.67 - 2.33 was considered moderate knowledge, and 2.34 - 3 was considered high knowledge. Statistical Package for Social Sciences (SPSS) version 20 was used for data analysis. Descriptive statistical data analysis included frequencies, percentages, and mean scores and inferential statistical data analysis calculated mean scores and Chi-square.

RESULTS

Out of 110 mothers who participated in this study, 25.0 % were 23-27 years old. Concerning the level of education, 42% of the study sample was illiterate, and 18% of participants graduated from college. More than 68% of mothers were housewives, 30% were governmental employees, and less than 2% were self-employed. Furthermore, 27.5% of subjects had one child, 25% had two children, and 47.5% had three or more children. Finally, more than 94% of mothers lived in suburban areas, and 5.5% of participants lived in a rural setting (Table 1).Table 2 shows that the mothers had a low level of knowledge regarding the best method to measure temperature, when they should give unwell child paracetamol rectally, and when to use a cold sponge or ice pack. Also, mothers had limited knowledge regarding normal body temperature and fever, sites

for temperature measurement, indications for treatment, and visiting a health facility. In contrast, mothers had adequate knowledge regarding the most common complication of high fever in children, which medication is effective and safe for treating children with fever, when to give children paracetamol, and which tool is accurate in determining the right dose of paracetamol syrup.

Table 1: Socio-demographic characteristics of mothers participating in the study.

Age (years)	**F**	**(%)**
18 – 22	7	(6)
23 - 27	28	(25)
28 - 32	26	(24)
33 – 37	23	(21)
38 – 42	26	(24)
	110	**(100)**
Level of Education	**F**	**(%)**
Illiterate	23	(21)
Able to Read and Write	23	(21)
Primary School Graduate	10	(9)
Secondary School Graduate	21	(19)
Institute Graduate	13	(12)
College Graduate	20	(18)
	110	**(100)**
Occupational status	**F**	**(%)**
Governmental Employment	33	(30)
Self-Employed	2	(1.8)
Housewife	75	(68.2)
	110	**(100)**
Number of Children	**F**	**(%)**
One child	30	(27.5)
Two children	28	(25)
≥ Three children	52	(47.5)
Residential Area	**F**	**(%)**
Suburban	104	(94.5)
Rural	6	(5.5)
Total	**110**	**(100)**

F= Frequency %= Percentage

Table 2: Mothers' knowledge regarding child fever management.

No	Items	Correct		Incorrect		Not Sure		MS	K.L
		F	(%)	F	(%)	F	(%)		
1	The best place to take the temperature of a child under five years is: a. Rectal b. Mouth. c. Axilla. d. Not sure	14	(12)	8	(6)	88	(82.3)	2.06	M.K
2	The normal body temperature of a child: a. 36°C b. 37°C c. 38°C d. ≥ 39°C f. Not sure	34	(33)	10	(9)	66	(58)	2.21	M.K
3	Above what temperature would you consider child have a fever: a. 36.5°C b. 37°C.5 c. 38°.5C d. ≥39.5°C e. Not sure	35	(33)	5	(4)	70	(63)	2.27	M.K
4	Above what temperature would you give child treatment: a. 37.5°C b. 38.5°C c. ≥39°C e. Not sure	39	(36)	2	(1)	69	(63)	2.33	M.K
5	If a child has a fever, how high temperature you call the doctor or go to the hospital or consulting health care worker: a. 37.5 b. 38°C c, 39.5°C d. ≥40°C 5.e. Not sure	24	(24)	6	(6)	80	(70)	2.16	M.K
6	The most common complication of high fever in children if don't treat it: a. Febrile seizure b. Death c. Brain damage d. Coma e. Nothing will happen f. Not sure	96	(87)	5	(5)	9	(8)	2.82	G.K
7	Which measurement is the best way to measure unwell child temperature: a. Your hand b. Glass thermometer c. Electronic thermometer d. Not sure	7	(7)	84	(76)	19	(17)	1.30	L.K
8	Which drug is best to give to your unwell child for fever: a. Acetaminophen b. Aspirin c. Ibuprofen (Prufen) d. Antibiotic e. Not sure	81	(77)	13	(7)	16	(16)	2.61	G.K
9	Which instrument is best accurate to determine the right dose of paracetamol syrup: a. Tablespoon b. Teaspoon c. Specific measures spoon/Syringe drugs d. Not sure	70	(66)	25	(19)	15	(15)	2.40	G.K
10	Mothers should give unwell child paracetamol rectally if: a. She wants more useful b. She wants to become a more practical c. Unable to give him orally because of vomiting or child refusal. d. Not sure	25	(25)	61	(52)	24	(23)	1.67	L.K
11	How do you decide the right fever lowering drugs to give to your child: a. According to label instructions or consulting Health care worker b. According to information gathered previously c. I decide by myself what I think is right d. Not sure	81	(72)	10	(9)	19	(19)	2.64	G.K
12	Cold sponge or Ice pack is good for lowering body temperature in addition to drugs that reduce fever in children: a. Correct b. Incorrect c. Not sure	29	(29)	72	(62)	9	(9)	1.60	L.K

G.K= Good knowledge M.K= Moderate knowledge L.K= Low knowledge M.S= Mean of score K.L= Knowledge Level .

Table 3 shows there is no significant association between the age of the mothers who participated in the study and their knowledge regarding child fever management (P-value >0.05). Table 4 indicates that there is a significant association between the level of education of mothers and their knowledge regarding child fever management (P-value < 0.05). Table 5 shows that there is no significant correlation between the number of children in the family and mothers' knowledge regarding child fever management (P-value > 0.05).

Table 3: The association between mothers' knowledge regarding child fever management and the age of mothers.

Mothers respond to answer Age groups (years)	Correct		Incorrect		Not Sure		
	F	(%)	F	(%)	F	(%)	Total
18-22	38	(7.1)	15	(4.94)	31	(6.44)	84
23-27	153	(28.6)	64	(21.05)	107	(22.25)	324
28-32	129	(24.12)	80	(26.31)	115	(23.9)	324
33-37	105	(19.62)	71	(23.35)	100	(20.7)	276
Total	110	(20.56)	74	(24.35)	128	(26.61)	312
χ^2 obs= 13.4 df=8	535	(100)	304	(100)	481	(100)	1320
	χ^2 crit= 15.5		p>0.05				

F=Numbers of (correct, incorrect and not sure answers that had been answered by the sample regarding each question related to infant fever and its management in table 2

Table 4: The association between mothers' knowledge regarding child fever management and mothers' level of education.

Mothers respond to answer Level of education	Correct		Incorrect		Not Sure		
	F	(%)	F	(%)	F	(%)	Total
Illiterate	161	(30.09)	133	(43.75)	263	(54.68)	557
Primary school graduate	47	(8.78)	24	(7.90)	49	(10.19)	120
Secondary school graduate	120	(22.46)	59	(19.41)	73	(15.17)	252
Institution graduate	82	(15.33)	35	(11.51)	38	(7.91)	155
College graduate	125	(23.36)	53	(17.43)	58	(12.05)	236
χ^2 obs=74.7 df=8	535	(100)	304	(100)	481	(100)	1320
	χ^2 crit=15.51		p<0.05				

F=Numbers of (correct, incorrect and not sure answers that had been answered by the sample regarding each question related to infant fever and its management in table 2

Table 5: The association between mothers' knowledge regarding child fever management and mothers' number of children.

Mothers respond to answer Number of children among sample	Correct		Incorrect		Not Sure		Total
	F	(%)	F	(%)	F	(%)	
Mothers with one child	162	(30.29)	75	(24.68)	123	(25.57)	360
Mothers with two children	131	(24.48)	76	(25)	129	(26.82)	336
Mothers with ≥ three children	242	(45.23)	153	(50.32)	229	(47.61)	624
Total	535		304		481		1320
χ^2 obs= 4.7 df= 4 χ^2 crit= 9.5			p>0.05				

F=Numbers of (correct, incorrect and not sure answers that had been answered by the sample regarding each question related to infant fever and its management in table 2

DISCUSSION

Available research studies report that parents have false beliefs, limited knowledge and misconception regarding fever management, complications and its role in illness [11,12]. Mothers know the most common complications of high fever. Children with fever are not at increased risk of seizures, dehydration, brain damage, or death, except in high fever when the child may develop febrile seizures [13]. In the current study, 82.3% of mothers were not sure about which body site is the best for taking the temperature. This finding supports the conclusion of Desnous et al. (2011), who indicated that most of the mothers measured the body temperature of the children using a rectal route [14]. This means mothers often do not know the best place for checking the child's temperature as rectal or oral measurements of body temperature should be avoided [15]. Parents should be encouraged to measure the axillary temperature.
In this study, only 34% of the sample knew that normal body temperature is 37.0°C. E Yavuz et al. in their study found that more than 80% of the parents did not know the correct temperature for fever for the measured site. There are similar previous reports in Turkey and culturally diverse populations in different countries [16-20]. Concerning when to give a child treatment, 36% of the participants would give treatment at 37 °C. World Health Organization (WHO) recommends using treatment when the temperature is above 38.5°C [21].Additionally, mothers in this study had a lack of knowledge about when to call the doctor, go to the hospital, or consult a health care worker if the child has a fever. This is probably because most of the mothers did not know what the normal body temperature was. In contrast, mothers knew the correct medication to use to decrease fever. This finding is consistent with a study by Saed et al., 2013.Using antipyretics was the most commonly used treatment of fever [10]. In a study in Denmark, Jansen et al. indicated that acetaminophen is used by parents for treatment of fever [22]. Acetaminophen and Ibuprofen are the only antipyretic drugs recommended for use [23].In the current study, mothers had insufficient knowledge about the best way to measure temperature, and 76% answered that using a hand is the best method. Parmar et al. (2001) reported that only 15%

of parents had a thermometer at home [24], which is in line with the findings in this study. 66.0% of participants in the current study used the specific measuring spoon/syringe drug to determine the right dose of paracetamol syrup. It is recommended that mothers should never use kitchen spoons to give a child medication as they can vary in size [25]. Nearly half of the mothers in this study thought it was more useful and practical to give the unwell child paracetamol rectally. It has been recommended to use oral administration of acetaminophen rather than rectal administration, except in the presence of any conditions that prevent oral administration, such as vomiting or refusal [21]. This study's results show that most of the mothers gave paracetamol according to label instructions, or they consulted the dosage with a health care provider. In terms of cold sponge or ice pack being effective for lowering body temperature, only 29.0% answered correctly. Studies have found that physical methods used to reduce fever such as bathing, cold sponging, application of ice bags, and rubbing the body with alcohol might have adverse effects. These methods may paradoxically increase fever, shaking, shiver, severe hypoglycemia, or lead to coma [26]. Consequently, physical methods to reduce fever are not recommended except in cases of hyperthermia [27]. There is a necessity to provide parents with appropriate fever management strategies, such as giving their febrile children more fluids and rest and keeping them comfortable, as well as guidelines on when to use medications and seek medical advice, to reduce fever phobias and the probability of overdosing [28].The results of the current study showed no significant correlation between mothers' knowledge regarding child fever management and their age. In contrast, Reindolf Anokye et al. (2018) indicated that the age of mothers and the age of children were found to be significantly associated with mothers' knowledge of fever. However, the study also shows that there is a highly significant positive association between the mothers' knowledge and the level of education. Many studies have revealed that mothers' education has a positive impact on their knowledge and practice in child health matters [29-30]. Also, Sharabanou T et al. (2016) indicated a significant correlation between fever management and educational level [31]. This is significant when identifying strategies to help mothers better understand how to treat fever. Furthermore, the result of a study by Talebian et al. (2009) shows that with a high educational level, knowledge and attitudes of parents improved significantly [32]. Finally, the findings of the current study show that there is no significant association between the mothers' knowledge and a number of children in the family. Although 70% of mothers in the study had more than one child, they did not have the right knowledge in treating children with fever. However, Anokye R et al. (2018) indicated that the number of children and the level of education was found to be significantly associated with mothers' knowledge of fever [33].

CONCLUSION

Mothers in this study had some knowledge about fever and its management. However, they had insufficient information about which method of measurement is best for their children with fever; they did not know the reason and appropriate use of rectal paracetamol. A small number of mothers knew that the physical method (cold sponge or ice pack) is suitable for lowering body temperature only in the cases of hyperthermia. Finally, the findings of the study also show that there was a highly significant positive association between

mothers' knowledge regarding child fever management and level of education and a number of children that the mother has.

RECOMMENDATIONS

An educational program should be developed for mothers who attend primary health care centres for all issues related to child fever management. Health care providers such as nurses, health visitors or vaccinators can increase mothers' awareness and level of knowledge regarding fever management at home.

CONFLICT OF INTEREST

The author reports no conflict of interest.

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