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Assessment of Mother's Knowledge and Management Regarding Fever of Preschool Children in Mosul City

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Abstract

Objective: To assess maternal knowledge regarding fever management in children aged 5 years.

Methodology: Data were collected from October 7, 2023, to March 30, 2024. A total of 102 preschoolers (ages 3-5) from Alsalam and Ibn Sina hospitals in Mosul City/Iraq were recruited using convenience sampling. This study used a Completely Randomized Design. The researcher collected data by selecting a sample of participants and intruding to answers with simple explanations without giving any answer or suggestion that could bias the results. Data was collected one day a week from 8:30 A.M. to 1:30 P.M. The time required is 15–30 minutes. In face-to-face interviews, trained interviewers gave the moms the questionnaire. **Result:** most mothers in this research (39.85%) were 25–33 years old. The majority, 29.80%, had elementary education, 30.2% had more than four children, and 78.75% were homemakers. Our study revealed that 52.5% of mothers struggled to regulate their body temperature, starting around 38.5° (28.4%). They believe armpits are the best temperature sampling locations (51.6%) and medicine is the first step (45.6%). Mothers recognize that rainy covering can be used (66.3%). For fever in children under 5 years, 70.7% of mothers visited a physician, and 60.7% chose a height-appropriate dosage.

Keywords: Child preschool, Mothers, Fever Management, and Knowledge.

Introduction

Fever is a body temperature $> 38^{\circ}\text{C}$ resulting from elevation in the hypothalamic set point [1]. Fever is not a disease. Fever is a physiological reaction of the human body to infections and inflammatory and immunological illnesses [2]. During fever, the hypothalamus center regulates body temperature by regulating heat production and cost, ensuring it does

not exceed a maximum limit of 41°C [3]. Fever is a prevalent sign of several illnesses in preschool children and is a primary source of parental concern and the pursuit of medical guidance [4,5]. It is the most prevalent nontraumatic reason for pediatric emergency consultations [6]. Fever is the predominant pediatric disease encountered in general practice, a significant source of parental anxiety that

may result in misguided actions, and one of the most frequent triage concerns in hospital emergency rooms. Fever is a natural defensive mechanism in the body; nevertheless, it can indicate certain illnesses rather than diseases [7]. A sudden fever in a child appropriately dressed for the weather is defined as a core body temperature above 38 °C without physical effort [8,9]. A slight rise in temperature among children prompts the belief that fever must be rapidly mitigated, instilling panic among parents. When elevated body temperature induces worry among parents of children, it compels them to engage in improper actions [10]. Healthcare professionals play a crucial role in advising parents on fever management. Notifying the family of the fever, its underlying causes, and initial interventions for febrile children is essential. Supplying essential information helps prevent inappropriate interventions for febrile children and decreases emergency department visits [11]. Concerning fever in childhood and its treatment, there are discrepancies in parents' knowledge, behaviors, perceptions, beliefs, and practices [12]. The educational achievement of families, their historical experiences, and the sociocultural characteristics of their environment all influence these behaviors [13,14]. Therefore, to prevent errors in managing homegrown fever and reduce needless referrals to healthcare services, it is essential to evaluate parents' understanding and actions regarding their child's fever and how they correlate with their sociodemographic characteristics [15]. Research on parental concern regarding fever among children and misguided treatment strategies dates back to the 1980s. Although fever is now acknowledged as a natural physiological response and a protective mechanism, increased body temperature in children remains one of the most concerning and alarming indicators for families [16].

Methods:

The design: To assess mothers' knowledge of fever in Mosul City pre-schoolers, this study used a Completely Randomized Design from October 7, 2023, to March 30, 2024.

Sample: A convenience sampling method was used to recruit mothers with preschool children (aged 3-5 years) from Alsalam and Ibn Sina hospitals in Mosul City; the number of samples was (102). The research design of this study was simply randomized.

Study tool: The questionnaire was developed by the researchers and provided for mothers to measure their knowledge regarding fever management for children under 5 years old in Mosul city. The study instruments comprised (3) Parts, including the following.

Part One/Data includes demographic information (Age, educational level, marital status, occupation, residence, how many children there are, and duration of marriage); Part Two/Mother's knowledge regarding fever: 13 items; Part Three/Mother's knowledge about caring for feverish children: 10 items.

Validity:

(15) Experts on the panel verified the questionnaire instrument by identifying the content's sufficiency, relevance, and clarity.

Reliability:

To statistically assess the reliability of the questionnaire, a pilot study was completed before the start of work to gather data. The study involved (10) samples selected from Al-Salam Teaching Hospital and Ibn-Sina Teaching Hospital (this sample was excluded from the original study sample) by direct self-administering instrument questionnaire to assess the internal consistency of the questionnaire that examined the sample by using Cronbach's Alpha measurement (Cronbach's alpha is a measure of internal consistency, that is, how closely related a set of items are as a group), that done evaluation by the researcher, the result of reliability for a pilot study that Cronbach's Alpha was (0.854).

Data collection:

Data were collected by selecting the participant sample and prompting responses with straightforward explanations, avoiding any answers or suggestions that could influence or bias the results. The researcher designated the time frame from 8:30 A.M. to 1:30 p.m. and conducted data collection once

per week. Each session requires approximately 15 to 30 min. Trained interviewers conducted face-to-face

interviews with the participating mothers to deliver the questionnaire.

The Result:

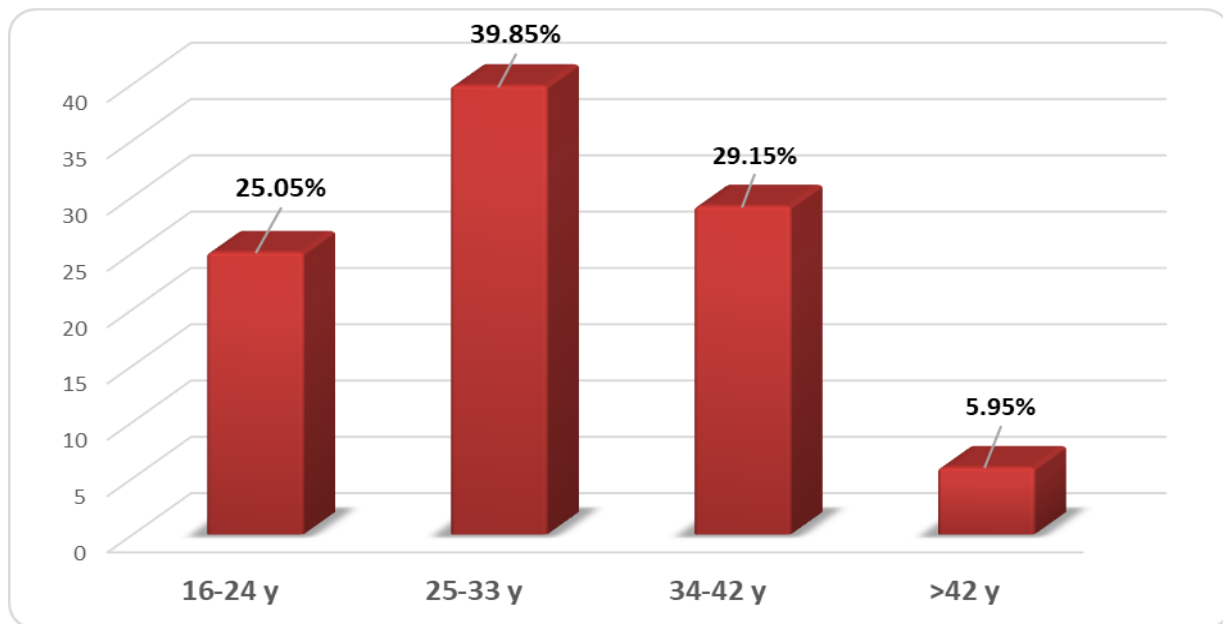


Figure (1) Percentage of Participants according to Age (years).

Figure (1) shows that the most samples were distributed in the age group (25 – 33 years) at (39.85%) followed by group (34 – 42 years) with (29.15%), less for age between (16 – 24 years) and the lowest percentage for the group (> 42 years).

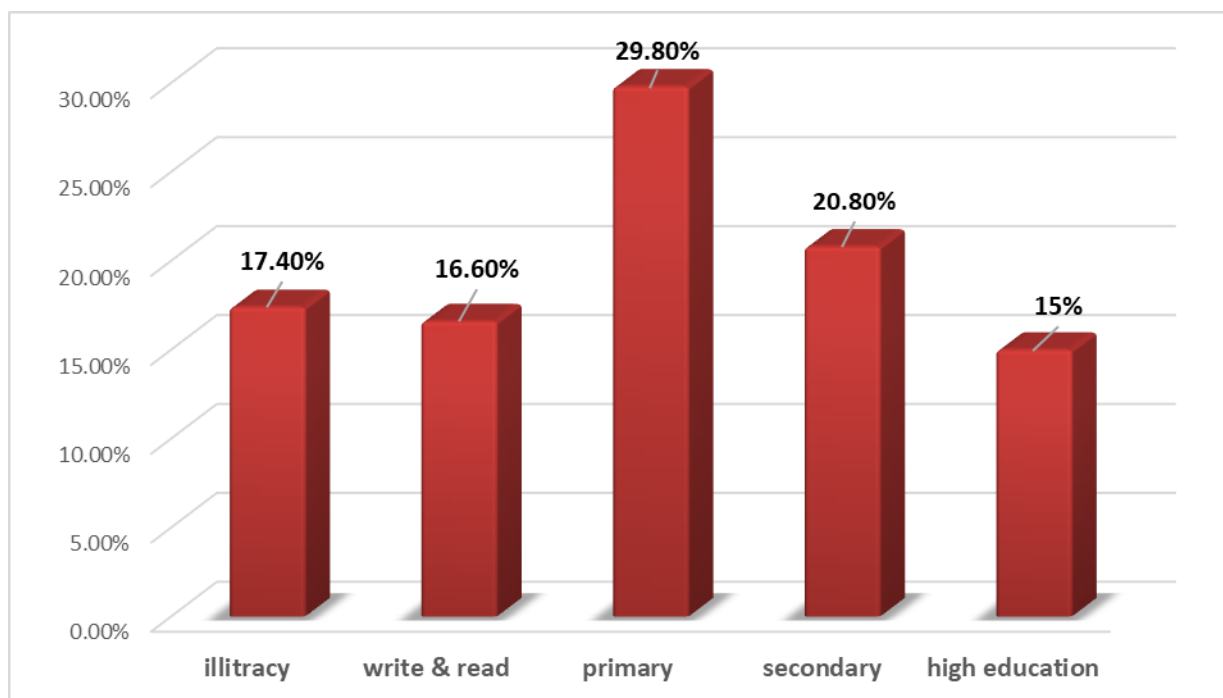


Figure (3.2) Distribution of educational level.

Figure (2) reveals that primary education has the highest percentage of samples (29.8) and the lowest percentage of samples distributed in higher education (15%).

Table (1): Statistical Results according to Mother's knowledge regarding fever

	Items	F.	%	P. value
Mechanism used to maintain body temperature	The hypothalamus regulates body temperature.	29	28.4	0.3
	The hypothalamus regulates body temperature, whereas heat dissipation occurs through perspiration.	16	15.7	
	Don't know	57	55.9	
Mechanism of fever	Leukocytosis in response to repeated infectious agents	31	30.4	0.5
	toxic reactions	1	1.0	
	Don't know	68	66.7	
Causes of fever	Inflammation caused by bacteria or virus	43	42.2	0.02
	Upper Respiratory Tract Infection	21	20.6	
	Lower Respiratory Tract Infection	29	28.4	
	Other	9	8.8	
Site for taking temperature	Axillary	59	57.8	0.007
	Rectal	4	3.9	
	Groin crease	2	2.0	
	Oral	5	4.9	
	Auricular	1	1.0	
	A plastic strip placed on the forehead	31	30.4	
Type of thermometer used	Mercury-in-glass	32	31.4	0.008
	Digital	11	10.8	
	Auricular	1	1.0	
	Skin Infrared	1	1.0	
	A plastic strip located on the forehead	1	10.8	
	Dummy-pacifier style	1	1.0	
	No thermometer kept/recommended	45	44.1	
Cut-off temperature is considered a fever. °C	36.5	9	8.8	0.002
	37	17	16.7	
	37.5	8	7.8	
	38	23	22.5	
	38.5	31	30.4	
	.39	14	13.7	
Cut-off fever is considered a high fever °C	< 37.8	4	3.9	0.03
	37.9 - 38.9	46	45.1	
	39 - 40	44	43.1	
	D. > 40	8	7.8	
Desired fever to take antipyretic	< 37.8	16	15.7	0.01
	37.9 - 38-9	43	42.2	
	39 - 40	41	40.2	
	> 40	2	2.0	
Fevered children are considered as high°C	< 40.6	58	56.9	0.7
	40.7 - 43.2	38	37.3	
	> 43.3	6	5.9	
Interval used with taking fevered child's temp. Minute	< 16	27	26.5	0.5
	16 - 30	37	36.3	
	31 – 60	23	22.5	
	61-120	14	13.7	
	> 121	1	1.0	

Signs & symptoms of fever in child	Forehead warmth	33	32.4	0.002
	Flashed face	11	10.8	
	Shivering	6	5.9	
	Hallucination and Drowsing	5	4.9	
	Sweating	2	2.0	
	Redness of the skin	34	33.3	
	Exhaustion and humor	6	5.9	
	Rash on the skin	1	1.0	
	Tachycardia	1	1.0	
	Tachypnea	2	2.0	
	Don't know	1	1.0	
Consequences of fever	Convulsions	19	18.6	0.003
	Death	2	2.0	
	Delerium	17	16.7	
	Paralysis	1	1.0	
	Mental retardation	3	2.9	
	Epilepsy	3	2.9	
	Meningitis	1	1.0	
	Blindness	1	1.0	
	Brain damage	23	22.5	
Coma	32	31.4		

Significance of p-value (≤ 0.05)

Table (1) explains that most mothers' knowledge has a significant effect on the study, the cause of fever, site of temperature measurement, types of thermometers used, cut-off temperature considered as fever or high fever, signs and symptoms of fever, consequences of fever, and declared source of information.

Table (2): Mother's knowledge about caring for fevered children

Items		F.	%	P. value
Feverish childcare goals	Reduced body temperature	79	77.5	0.05
	Prevent convulsions	15	14.7	
	Prevent dehydration	5	4.9	
	Don't know	3	2.9	
The type of antipyretics agent used	Acetaminophen	52	51.0	0.04
	Ibuprofen	21	20.6	
	Aspirin	14	13.7	
	Other (metamizole, betamethasone)	15	14.7	
Combination of antipyretics	Yes	18	17.6	0.80
	No	84	82.4	
Home remedies used during antipyretic therapy	Cold sponging	77	75.5	0.40
	Ice pack	2	2.0	
	Tepid sponging	21	20.6	
	Use only antipyretic drugs	29	28.4	
Antipyretic therapy	Orally	77	75.5	0.60
	Rectally	25	24.5	
Preference for rectally administered antipyretics	It's extra useful	27	26.5	0.02
	This is an additional practical	4	3.9	
	The doctor told me	63	61.8	
	I am not clever enough to give it orally because of the child's refusal	5	4.9	
	I am not able to give it orally because of the child's vomit.	3	2.9	
Administer the right dose of antipyretic therapy in response to	According to my pediatrician's instructions	7	6.9	0.70
	Reading the set leaflet	2	2.0	
	Consulting other persons	6	5.9	
	According to the information gathered from the internet, TV	87	85.3	
The consideration of antipyretic therapy	The weight	37	36.3	0.90
	The height	65	63.7	
Overdose during antipyretic therapy for tall fever	It is more effective	21	20.6	0.80
	It is more dangerous than that.	69	67.6	
	It's not hazardous, but it's effective.	12	11.8	
Tools used to determine the appropriate antipyretic dose	Tablespoons or tablespoons	28	27.5	0.20
	The specific dosimeter of the antipyretic drug	58	56.9	
	Dosemeters of other drugs	16	15.7	

Table (2) shows that much of mothers' knowledge has a significant effect on results like (goals of caring for a fevered child: ↓body temperature, ↓convulsion), (type of antipyretics used: acetaminophen, ibuprofen) and (preferences in giving antipyretics recently: more useful, obey doctor commands).

Discussion:

Fever is a significant public health concern for children. It is considered a prevalent symptom in children and accounts for 65%–70% of pediatric consultations. In children, if untreated, it may occasionally lead to severe complications, such as febrile seizures. When it occurs in children under five years old, parents feel discomfort and endure anxiety and despair. These elements elicit parental apprehension [9].

The study indicates that the predominant age group of the participating moms was 25–33 years, comprising 39.85% of the sample. Moreover, 29.80% possessed primary education, 30.2% had four or more children, and 78.75% were homemakers. Subjects in the research conducted by [17]. The study conducted in Kinshasa, Democratic Republic of Congo, revealed that the average age of the participating women was (28.4 ± 5.4) years, with a majority of (55.6%) falling within the 25 to 29 age brackets, and 47.2% of them possessed secondary education [14].

Participants in the study by [15]. The mean age of the participants was 37.7 years ($SD = 10$). Over 20% of parents possessed a university education whereas the majority (75%) held a secondary education [18]. The data on age align with ours; however, the two studies diverge regarding the prevalence of educational attainment. In Africa, 72.4% of mothers bore more than three children, according to a study by [14] on the assessment of Egyptian mothers' understanding and domestic management strategies for fever in preschool children within the Zagazig governorate of Sharkia. This result is consistent with our findings. Our survey indicates that most mothers lack understanding regarding the maintenance of body temperature, with 52.5% unaware that fever begins at 38.5°C (28.4%). They also found that the optimal temperature sampling location was the armpits (51.6%) and that the primary intervention was the delivery of medication (45.6%). The mothers were aware that wet wraps could be used

(66.3%). Our results partially differ from those of [19]. A study on parental knowledge, attitudes, and beliefs regarding fever in Ireland, conducted with a sample of 1,104 parents, revealed that 63.1% of the parents identified fever thresholds that deviated from the recognized definition of 38°C [13].

Their conclusions align with Hervouet's findings, which indicated that merely 56.4% of parents recognized the temperature threshold for fever (38°C), although 55.9% reported having reviewed the specific section of the health record [14]. In addition, the work of (1). The assessment of the beliefs and actions of Saudi paternity for the management of pediatric fever in Saudi Arabia revealed that a significant common (78.4%) employed cold sponging as a treatment method [16]. The study findings agree with ours, indicating a frequency of 66.3%, supporting this physical strategy for reducing fever.

Our findings indicate that among mothers' perspectives regarding fever in children under 5 years old, 70.7% consult a pediatrician, whereas 60.7% advocate for a dosage tailored to the child's height. In their study, [1] discovered that 11.7% of parents believed antibiotics should be administered to all children exhibiting fever, whereas 7.9% would demand the prescription of specific antibiotics for their feverish children [1]. Our findings regarding antibiotic usage contrast those reported by [18] at King Saud Hospital in Saudi Arabia, where only 15.7% of mothers reported using antibiotics to treat high fever without a prescription [18]. Research has revealed discrepancies in parental understanding of body temperature regulation, temperature measurement locations, and the earliest responses to a child's fever. Some parents accurately recognized the temperature threshold for fever and employed efficient techniques like wet wraps to reduce it, whereas others held misunderstandings and depended on medication or cold sponges. These findings underscore the need for enhanced parental education regarding fever treatment.

Conclusion:

1. Most samples were distributed in the age group (25 – 33 years). Primary education has the highest percentage of students. The highest percentage of samples was distributed to married women, housewives, urban residents, and marriages lasting 1–4 years.
2. The current study found that the mother's knowledge significantly affected the study regarding the cause of fever, site of temperature measurement, types of thermometers used, cutoff temperature considered as fever or high fever, signs and symptoms of fever, consequences of fever, and declared source of information.
3. Mothers' knowledge significantly affects the care of fevered children.

Recommendations:

1. Develop educational programs for mothers who attend primary healthcare centers to address all issues related to fever management in children.
2. Healthcare providers, such as nurses, health visitors, and vaccinators, can increase mothers' awareness and level of knowledge regarding fever management at home.
3. Additionally, further research is recommended to evaluate other characteristics associated with household fever management techniques.

Conflict of interest: NIL**Funding:** NIL**References:**

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