

## Mothers' Knowledge and Traditional Practices for Management of their Feverish Children

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**Abstract:** *Background:* Fever is an everyday reaction to a set of situations, mainly the infection. Lack of knowledge regarding fever and febrile illness continues to be one of the most prevalent public health issues encountered by parents of young children. Traditional Practices relating to fever are numerous. It may include; touching the child's forehead for measuring body temperature, giving boiled herbs, making iced-cold water sponging or baths, and rubbing the child's body with vinegar, lemon or alcohol. *Objective:* Determine mothers' knowledge and traditional practices for management of their feverish children. *Setting:* The study was conducted at Pediatric Outpatient and Medical Departments of Sidi Salem General Hospital. *Subjects:* A convenience sample of 250 mothers who had feverish children under five years comprised study subjects. *Tool:* One tool used; Mothers' knowledge and traditional practices for management of their feverish children structured interview schedule. *Results:* The present study revealed that mothers' knowledge about fever were deficient in the majority of mothers regarding definition of fever (89.6%). In addition, incomplete knowledge mentioned by more than half of mothers regarding causes of fever (78.8%), methods of measuring body temperature (60.0%) and non-Pharmacological methods for managing fever (57.6%). Concerning mothers' traditional practices, slightly more than half of mothers (52.4%) reported that they performed traditional practices for their feverish children. It was reported also that the performed practices were; using herbs, using honey, using oils, using lubkha, and uvula elevation (39.7%, 51.9%, 15.3%, 1.5%, and 44.3% respectively). All mothers (100%) who done traditional practices for their feverish children had unsatisfactory practices with total mean 20.67±10.32. *Conclusion:* It was concluded from this study that mothers' knowledge regarding fever were deficient in more than half of mothers and all mothers who done traditional practices for their feverish children had unsatisfactory practices.

**Key words:** *Fever, traditional Practices, mothers' knowledge, Under five.*

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### I. Introduction

Fever is common in children in the first five years of life. Its incidence increases between the ages of 2 months to 3 years of child's life. Fever is an everyday reaction to a set of situations, mainly the infection (Serrano, 2012). It has potentially serious consequences as seizures and dehydration which indicate seeking medical consultation (Adrienne, 2015). It constitutes approximately 30% of health care visits (Ward et al., 2015).

Defining fever remain a subject of controversy with varied definitions by different authors due to wide variability of body temperature in relation to several factors (Chiappini et al., 2012). However, most authors describe fever as a state in which core temperature is increased above normal limit due to an increase in the body's temperature set-point (Lim et al., 2008). The American College of Critical Care Medicine (ACCCM) and the Infectious Diseases Society of America (IDSA) defined fever as a body temperature of 38.3°C (101°F) or higher (Kluger & Matthew, 2015).

The predominant causes of fever in children may be categorized as infectious and non-infectious (Hasan et al., 2012). Respiratory infections and gastroenteritis are the main causes of childhood morbidity and mortality. While non-infectious causes of fever includes; dehydration, cancer, injuries, and side effects of some medications as antibiotics e.g : minocycline and sulfonamides (Chung, 2014).

Fever does not always need to be treated with drugs except for those who are sick or at risk for further complications. The central focus should be the treatment of its cause and not the reduction of the temperature (Kool et al., 2013). Using acetaminophen or ibuprofen is the most suitable way to make a feverish child comfortable (Chapman & Arnold, 2018). Aspirin shouldn't be used to treat fever in children to protect them from Reye's Syndrome (World Health Organization (WHO), 2017).

Lack of knowledge regarding fever and febrile illness continues to be one of the most prevalent public health issues encountered by parents of young children. It may result in mother's frustration, uncertainty,

dissatisfaction with care and wrong assumptions about fever in children. Therefore, it's important to recognize when and why mothers in reality seek medical advice for their feverish children, what self-control activities they practice, and which facts, gaps they experience (Saxena et al., 2012).

The traditional healing practices still persist over generations, despite the advances of scientific medicine. Traditional Practices relating to fever are numerous. It may include; touching the child's forehead for measuring body temperature, giving boiled herbs, making iced-cold water sponging or baths, and rubbing the child's body with vinegar, lemon or alcohol (Schmitt, 2013). Home remedies are also commonly used which may or may not have medicinal properties that treat or cure the disease. Many are merely used as a result of tradition or habit or because they believe in its effectiveness (Cohee et al., 2010).

It is essential that pediatric nurses' practices when caring for febrile children reflect the latest scientific evidence (Edwards et al., 2007). The pediatric nurse is liable for diagnosing and treating fever which can be accomplished through history taking and physical assessment (Green et al., 2013). Physical assessment is the first step in the management of fever in youngsters (Demir & Sekreter, 2012). Mothers of febrile children are usually anxious about fever (Becky, 2012) and caregivers usually seek reassurance from a variety of sources including healthcare practitioners. Those, health care practitioners are mainly nurses who support parents to decrease their stress and frightens about child's fever (Tolan & R.W, 2010). The pediatric nurse also has a great role as a health educator and give obvious instructions for mothers of febrile children. Finally, she has to be knowledgeable about mothers culture and social pattern in relation to their child's health since, understanding current traditional beliefs and practices in caring for children may help in directing appropriate intervention to improve the health of children (American Academy of Pediatrics (AAP), 2015).

#### **Aim of study**

This study aimed to determine mothers' knowledge and traditional practices for management of their feverish children.

#### **The Research question**

- What are the mothers' knowledge and traditional practices for management of their feverish children?

#### **Materials and Method**

##### **Research Design:**

Descriptive design was used to accomplish this study.

##### **Setting:**

The study was conducted at Pediatric Outpatient and Medical Departments of Sidi Salem General Hospital.

##### **Subjects:**

A convenience sample of 250 mothers who had feverish children under five years and attended the previously mentioned setting were compromised the study subjects.

##### **Tool:**

One tool used for data collection.

#### **Mothers' knowledge and traditional practices for management of their feverish children structured interview schedule.**

This tool was developed by the researcher after thorough reviewing of relevant related literatures (Chiappini et al., 2012; Athamneh et al., 2014; and AlAteeq et al., 2018) to assess mothers' knowledge and traditional practices for management of their feverish children. It included four parts as the following:

##### **Part 1:- Socio-demographic characteristics of mothers and their children:**

- Characteristics of mothers which included: age, level of education, occupation, residence (rural-urban), family income (from mother's point of view) and number of their children.
- Characteristics of children which included: age, sex and birth order.

##### **Part 2:- Medical history of children:**

It included: the onset of fever, degree of fever, frequency of fever, if related to illness, history of recent vaccination, medications used to treat fever.

##### **Part 3:- Assessment of mothers' knowledge about fever it included:**

1. Definition of fever.
2. Causes of fever e.g.: viral and bacterial illnesses, some autoimmune diseases, some metabolic disease.
3. Associated signs and symptoms e.g.: look flushed and feel hot, feel tired, tachypnea, tachycardia and anorexia.
4. Complications of fever e.g.: dehydration, convulsion and brain damage.
5. Importance of monitoring body temperature e.g.: to avoid complications and to avoid recurrence.

6. Methods of measuring body temperature e.g.: oral, axillary, rectal and inguinal.
7. Pharmacological methods for managing fever e.g.: Using antipyretics, using antibiotics.
8. Non pharmacological methods for managing fever e.g.: Giving extra fluids, making tepid compresses, lightening clothes and ventilating the place.

**Part 4:- Assessment of mothers' traditional practices for management of their feverish children:**

It included two items:

1. Traditional practices: as using home remedies such as: willow bark, acacia, Kuzbarah or Liquorices, covering of skin surface with sesame or olive oil, add kamon or tea ,use lubkha, using honey and cauterization.
2. Source of their information about fever and its management as: T.V, radio, friends, past personal experience, family members.

**Scoring system:**

- The score of mothers' knowledge were done on a three Likert Scale that ranged from 0-2 as follows:
- Poor = 0
  - incomplete = 1
  - complete and correct =2

Accordingly, the total score of mothers' knowledge about fever was categorized as follows:

- ❖ Poor = less than 50%.
  - ❖ Incomplete = 50% to less than 65%.
  - ❖ Complete and correct = 65% and more.
- The score of mothers' practices has been calculated as follow:

- Unsatisfactory practices = 0
- Satisfactory practices = 1

Accordingly, the total score of mothers' practices about fever was categorized as follows:

- ❖ Satisfactory practice → 50% and more.
- ❖ Unsatisfactory practice→ less than 50%.

## **II. Method**

- 1- An official letter from the Faculty of Nursing, Alexandria University was directed to the responsible authorities of pediatric outpatient and medical departments at Sidi Salem General Hospital in Kafr-Elshikh Governorate to get their permission for conducting this study after explaining its purpose.
- 2- The study tool was developed by the researcher after thorough review of the relevant related literature.
- 3- The tool was tested for their content validity by five experts in pediatric nursing field. The validity value was 86.
- 4- Reliability of the tool was ascertained using the Cronbach's coefficient alpha test. The reliability for tool was  $\alpha = 0.85$ .
- 5- A pilot study was carried out on 25 of mothers who have children currently having fever to test clarity and feasibility of the tool. Those mothers were excluded from the subjects.
- 6- Every mother was interviewed individually for 30-40 minutes in the waiting room of Pediatric Outpatient and Medical Department to assess her knowledge and traditional practices in managing her feverish children.
- 7- Data were collected over a period of 4 months from the beginning of April to the end of July 2018.

**Ethical considerations:**

- Written informed consent was obtained from every mother after explaining the aim of the study.
- Privacy and anonymity were always considered during data collection.
- The confidentiality of data was always ascertained.
- Children and their mothers had the right to withdraw from the study at any time.

**Statistical analysis:**

- Data were fed to the computer and analyzed using IBM SPSS software package version 20.
- Qualitative data were described using number and percent.
- Quantitative data were described using minimum, maximum, mean, and standard deviation.
- Significance of the obtained results was judged at the 5% level.

**The used tests were:**

- **Spearman's correlation**  
For intensity of association for two quantitative variables.
- **Pearson coefficient**  
To correlate between two normally distributed quantitative variables.
- **Mann Whitney test**  
For comparison of the median between two different groups.

### **III. Results:**

**Table (1)** presents characteristics of studied mothers of feverish children. It was noticed that nearly two thirds (64.0 %) of mother's age ranged from 20- less than 30 years. Whereas, only 4.8 % of mother's age was less than 20 years with a mean age of  $26.67 \pm 4.84$  years. It was also shown that 61.6 % of studied mothers completed secondary education. The majority of mothers (88.8%) were not working and 94.0% of them came from rural areas. Regarding the number of children in the family, 44.0% of families had two children. More than half of mothers (58.0%) were lived in nuclear families. In addition, 74.0% of them reported that their families hadn't enough income.

**Table (2)** portrays the distribution of the studied mothers according knowledge percent scores about fever(detailed eight sub items). It was found that the majority of mothers had poor knowledge related to range of normal body temperature (92.0%) and feverdefinition (95.2%). While, more than three quarters of them (78.8%) mentioned incomplete causes of fever.

Almost all studied mothers (95.6%) reported that they were knowing complications of fever. While, 96.4% of them mentioned fever complications incompletely. Regarding importance of monitoring body temperature, 97.6% of mothers mentioned that they were knowing importance of monitoring body temperature and 77.2% of them stated complete and correct knowledge regarding importance of monitoring body temperature.

Considering methods of measuring body temperature, it was shown that 88.8% of studied mothers reported that they were knowing different methods of measuring body temperature. Almost three quarters of them mentioned that they were knowing types of the thermometers (70.4%) and sites of measuring body temperature (75.2%). While, the majority of them reported incomplete knowledge regarding types of the thermometers and sites of measuring body temperature (92.0% and 97.6% respectively).

Furthermore, the duration of measuring body temperature and the frequency was reported poorly by most of mothers (92.8%, 92.0% respectively).

Finally, it was noticed that more than half of studied mothers (57.6%) had incomplete knowledge regarding using non pharmacological methods for managing fever.

**Table (3)** highlights distribution of mothers' common management practices for their feverish children. It was shown that all mentioned types of common management were done by 31.2% of mothers. Where, 28.3% of them used compresses & gave medication, 27.8% gave certain foods (soft diet) for their feverish children and only 1.0% of them went to doctor.

**Table (4)** illustrates mothers' traditional practices for their feverish children. More than half of mothers (52.4%) reported that they performed traditional practices for their feverish children. Fifty seven point three percent of those mothers (57.3%) did one traditional practice. While, 32.8% of them did two practices and only 9.9% did three practices. It was reported also that the performed practices were; using herbs, using honey, using oils, using lubkha, and uvula elevation (39.7%, 51.9%, 15.3%, 1.5%, and 44.3% respectively). Fortunately, all studied mothers (100.0%) didn't use cauterization for their feverish children.

**Table (5)** presents distribution of mothers' traditional practices regarding using herbs for their feverish children. It was found that peppermint used by more than half of mothers (61.5%) who used herbs. Almost all mothers (96.1%) boiled these herbs and drunk it to their feverish children. It was reported that these herbs had good effect on lowering children's body temperature by all mothers (100%).

**Table (6)** declares distribution of mothers' traditional practices regarding using oils for their feverish children. Peppermint oil was used for rubbing by 80.0% of mothers who used oils. It was reported that children's extremities & neck rubbed by 30.0% of mothers. All mothers (100.0%) mentioned that using these oils was effective on lowering children's body temperature.

**Table (7)** clarifies distribution of mothers' traditional practices regarding uvula elevation for their feverish children. It was reported that traditional healers were elevated the children's uvula in all mothers who used uvula elevation (100%). Traditional healers' thumbs used for elevation in 51.7%. While, the rest of them (48.3%) used mothers breast milk on the traditional healers' thumbs for elevation. Almost all mothers (93.1%) reported that uvula elevation was effective on lowering child's temperature.

**Table (8)** represents evaluation of mothers' traditional practices for their feverish children. It showed that all mothers who done traditional practices for their feverish children had unsatisfactory practices with a total mean of  $20.67 \pm 10.32$ .

**Table (9)** shows the correlation between knowledge, traditional practices total percent scores and the quantitative characters of the studied mothers and children. It was illustrated that total knowledge percent scores are statistically significant; fair positively correlated with mothers' education ( $r = 0.35$ ). While, it is statistically significant; little negatively correlated with fever frequency ( $r = -0.21$ ). Additionally, total traditional practices percent scores are statistically significant; little positively correlated with both child's age and total knowledge percent scores ( $r = 0.21$  &  $0.20$  respectively).

**Table (10)** clarifies the relationship between knowledge, traditional practices median total percent scores and the qualitative characters of mothers and children. It was delineated that the total knowledge median percent scores are statistically significant higher among working mothers those were living in urban areas ( $65.79$  and  $63.16$  respectively) compared to their counterparts ( $57.9$ ). In addition, the total traditional practices median percent scores are statistically significant higher among mothers living in nuclear family, had enough income and mentioned past child medical history compared to their counterparts ( $22.22$  compared to  $14.81$ ).

#### IV. Discussion

Fever is considered a foremost disease symptom in children, and mothers play a pivotal role in preserving the health of children. Therefore, adequate knowledge of mothers regarding this condition could affect their attitude and performance. As proposed by previous research, recognition of effective behavioral factors could remarkably affect the changes in the attitude of individuals (SajadiHazaveh, 2011).

The mother is usually the main caregiver during early childhood (Pinto et al., 2017; Van Belkum et al., 2013). Also, parents' literacy is an important factor contributing to the overall health of children (Abu Hamila, 2013). The results of the current study revealed that nearly two thirds of the mothers completed secondary education (table 1). From researcher' point of view insufficient mothers' knowledge and unsatisfactory practices in caring for their feverish children attributed to their uncompleted education. Badawy et al., (2017) in disagreement with the current study finding who reported that 66% of mothers had a high school level or lower. Alex-Hart, & Frank-Briggs, (2011) also contradict the present study finding who concluded that 66.2% of the mothers had tertiary education.

The present study showed that not working mothers formed the greatest proportion of the sample (table 1). This may be attributed to the fact that, lack of mothers' knowledge and their drivenness to traditional practices in caring for their feverish children. This finding is coincided with Arica et al., (2012) who reported that ninety one percent of the mothers were housewives. On the contrary, Athamneh et al., (2014) who revealed that more than half of their participants were employed.

Furthermore, the current study revealed that the majority of mothers live in rural areas (table 1). This could be attributed to limited access to health services and poor health literacy of families residing in rural areas. Similar finding was reported by Zyoud et al., (2013) who found that more than three quarters of their participants live in a village. In contrast, Abdinia et al., (2017) who revealed that 83.7% of participants resided in urban areas.

Concerning family income, it was observed that nearly three quarters of the mothers' families hadn't enough income (table 1). This result may be related to increased poverty and unemployment in Egypt especially rural regions which ultimately leads to poor compliance, limited attendance for medical services and negatively affect health. This finding is contrary to Athamneh et al. (2014), who reported that more than half of participants had moderate income.

As regards mothers' knowledge about fever, the current study showed that the correct definition of normal body temperature was unknown for majority of mothers (table 2). The findings of Athamneh et al., (2014) is congruent with the present study finding, who reported that most of parents believed that  $37^{\circ}\text{C}$  is the normal body temperature. On the contrary, Leduc & Wood (2015), who mentioned that the normal range for core temperature in the literature varies, although ( $36^{\circ}\text{C}$ - $37.5^{\circ}\text{C}$ ) is acceptable in clinical practice.

Additionally, the present study revealed that parental knowledge regarding correct definition of febrile temperature is deficient (table 2), where the majority of participants could not identify fever and described it as hotness of body. This result is correspondent with Rkain et al., (2014) who reported that only 3.5% of parents knew the correct definition of fever. Similarly, Anokye et al., (2018) who illustrated that more than half of the mothers described fever as hotness of the body. Moreover, Kelly et al., (2017) who reported many parents identifying fever when temperatures are either above or below the accepted level. On the other hand, this finding inconsistent with the findings of Al-Ateeq et al., (2018), who found that most of the parents identified normal temperature and defined fever correctly.

As regards to causes of fever, the current study findings delineated that more than three quarters of the mothers mentioned incomplete causes of fever (table 2). This may be due to mothers' experience with fever

since, they knew only causes usually comes with their febrile children. This result in the same line with Shannon & David (2010) who reported that ( common cold, sore throat, tonsillitis, bronchitis, bronchial asthma and meningitis) the common causes of fever. Similarly, Thota et al., (2018) who found that infection was most commonly cited to be causing fever (64%).

In relation to associated manifestations of fever, it was observed that complete & correct manifestations mentioned by the majority of mothers (table 2), where they consider (all of the above) which include: feel tired, tachycardia, tachypnea, anorexia, look flushed and feel hot as associated manifestations of fever. This indicates that these manifestations usually attributed to fever. Inversely, Oshikoya&Senbanjo (2008), who found that more than two fifth of the parents considered loss of appetite and vomiting whereas, more than one third of them considered decreasing activity and body ache.

As for fever complications, this study showed that almost all of mothers stated incomplete complications (table 2) since, the majority of them mentioned that convulsions was the only complication of fever. This result may be related to the fact that, febrile convulsions are the most feared and serious complications of fever to mothers. This result is correspondent with Byington et al., (2012) who found that the majority of parents mentioned that convulsions was the most common feared complication. On contrast, Rkain et al., (2014) who reported that more than one quarter of parents considered brain damage, less than one quarter of them considered seizures, paralysis, breathing difficulties and coma. Moreover, National Institute of Neurological Disorder and Stroke (2014) who showed that all parents believed that fever could cause at least one harmful effect if left untreated; more than one third of them reported brain damage, less than one quarter mentioned dehydration and other mentioned organs damage.

In the same context, the present study revealed that more than three quarters of mothers stated complete and correct knowledge regarding importance of monitoring body temperature (table 2), since the most of them mentioned that monitoring body temperature is important and they continued to take child's temperature frequently. This finding could be interpreted in the light of mothers' fear and anxiety from fever complications. This finding is in harmony with Enarson et al., (2012), who revealed that most parents held unrealistic fears about the consequences of fever so, they monitored and treated fever aggressively.

Concerning mothers' knowledge about methods of measuring body temperature, it was found that correct methods for measuring body temperature mentioned by three quarters of mothers (table 2), since they determined their children's fever using a thermometer. Moreover, the majority of mothers mentioned incomplete types of thermometers where most of them revealed glass mercury thermometer. This may be due to glass mercury thermometer considered the most commonly used and financially available in health care facilities. Similarly, Al-Ateeq et al., (2018) who mentioned that more than half of mothers determined their children's temperature using a thermometer. On contrary, Abdinia et al., (2017) who reported that more than half of mothers checked for fever through touching the child's body.

Frequency for measuring body temperature wasn't identified by the vast majority of mothers (table 2). It might be due to mothers' habitual practice to measure child's temperature only when they felt that the child become feverish. On the contrary, Enarson et al., (2012) who stated that most parents checked their child's temperature at least every 4 hours. Moreover, Athamneh et al., (2014) who concluded that the vast majority of mothers continued to measure child's temperature every (15-30 minutes).

Treatment of fever at home prior to presentation to a hospital is a common practice in our environment and other sub-Saharan African countries (Aluka et al., 2013). It has been postulated that almost one third of the mothers treat their children for fever at home using common management practices (physical methods) and only one percent of them went to doctor (table 3). This may be explained in the light of increase costs of medical services plus these methods are cheap and readily available. Congruently, Lawani&Akhogba, (2015) who reported that most of parents treat fever at home. While, Khan et al., (2015) mentioned that only 13% treat their children for fever at home.

The current study verified that more than half of mothers performed traditional practices for their feverish children (table 4). It could explained in the light of increase costs of health services and that traditional practices are more accessible, cheaper, and more holistic. In contrast with, Phuka, (2012) who revealed that only 3.6% performed traditional practices in their homes recently.

Concerning traditional practice type, the current study presented that more than one third of the mothers used herbs as a traditional practice (table 4). This may be related to mothers' believe that they are safer and more natural than pharmaceuticals. This finding is coincided with Ohemu et al., (2017) who illustrated that herbal was used for fever by 33.6% of mothers. On contrary, Talebi et al., (2016) who reported that only 0.8% of the mothers used herbal remedies and the majority of those mothers used Violets and Manna.

The current study showed that peppermint used as a drink to feverish children by more than half of mothers who used herbs (table 5). On contrary, the finding of Phuka, (2012) concluded that Manikmoni, Neem and Tulsi are taken orally in the treatment of persistent fever while, other plants used as a paste placed over forehead for relieving fever for young children.

In relation to mothers' traditional practices regarding using oils, the current study revealed that less than one fourth of mothers who used traditional practices for their feverish children used oils (table 4). Peppermint oil is used for rubbing by the majority of those mothers and their children's forehead and extremities were rubbed by 30% of them (table 6). Incongruently, Wells, (2011) who stated that placing diluted peppermint oil on the bottom of the feet and back of the neck is an effective method for treating fever in babies and children.

The present study also, presented that nearly half of the mothers who used traditional practices performed uvula elevation for their feverish children (table 4). The traditional healers' thumb was the method of elevation in more than half of children while, 48.3% of them used mothers' breast milk on the traditional healers' thumb (table 7). Although, all mothers mentioned that uvula elevation was effective in treating their feverish children, their usage considered unsatisfactory since all of them performed it just as a traditional practice based on peoples advice and completely missed their complications.

According to the results of this study, all mothers who done traditional practices for their feverish children had unsatisfactory practices with a total mean of  $20.67 \pm 10.32$  (table 8). This may be explained in the light of deficiency of mothers' knowledge about traditional practices for managing fever. From the researcher's point of view most of mothers mentioned effectiveness of the used methods for decreasing body temperature for many reasons; first of which antipyretics used by all studied mothers secondly, those mothers combined pharmacological methods with physical methods thirdly, most of the traditional practices used were natural remedies and weren't had harmful effect.

Findings of the present study were indicative of a significant correlation between mothers' education and total knowledge percent scores as mentioned in (table 9), whereas total knowledge percent scores are statistically significant; fair positively correlated with mothers' education ( $p < 0.001$ ). This finding consistent with the findings of Talebi et al., (2016) who mentioned that there was a significant correlation between the mean score of fever management and education level of the mother. Similarly, Arica et al., (2012) who concluded that there is a highly significant relationship between the knowledge on fever and mothers' education.

Also, there was a significant reverse relationship between knowledge of fever and the fever frequency, where mothers' total knowledge decreased with increased fever frequency as mentioned in (table 9) that total knowledge percent scores are statistically significant; little negatively correlated with fever frequency ( $p = 0.001$ ).

Contrary to researcher' expectations, neither mothers' knowledge nor traditional practices total percent scores influenced by mothers' age where, mothers' knowledge and traditional practices total percent scores aren't statistically significant with mothers' age (table 9). Inconsistent with Talebi et al., (2016) whose findings indicate a significant correlation between maternal age and proper fever management. Arica et al., (2012) also contradict the present study findings who found that there was a highly significant relationship between the fever knowledge and mothers' age; level of knowledge is increased in line with older ages.

According to the results of the present study, both mothers' occupation and residence influenced on mothers' knowledge where mothers' total knowledge median percent scores are statistically significant higher among working mothers those were living in urban areas ( $p < 0.001$ ,  $p = 0.02$  respectively) (table 10). This may be due to acquiring knowledge and exchanging it with their coworkers and increasing higher education level among urban residence.

Within the same context, contrary to researcher' expectations the present study also revealed that mothers' proceedings to traditional practices to manage fever increased among those who living in nuclear family, had enough income and mentioned past child medical history (table 10), where the total traditional practices median percent scores are statistically significant higher among mothers living in nuclear family, had enough income and mentioned past child medical history ( $p = 0.02$ ,  $0.02$  and  $0.03$  respectively).

Based on the findings of the current study, mothers' knowledge and traditional practices for managing fever were deficient in some areas. Therefore, educational programs and adequate training should be provided for mothers to strengthen defect areas in mothers' knowledge and traditional practices for effective management of their feverish children.

## **V. Conclusion**

Based on the findings of the current study, it can be concluded that mothers' knowledge about fever were deficient in the majority of mothers regarding definition of fever. Also, some areas still needed to be improved as; causes of fever, methods of measuring body temperature and non-Pharmacological methods for managing fever since incomplete knowledge mentioned by mothers regarding it. Finally, more than half of mothers performed traditional practices for their feverish children and mothers' total percent scores of practices were unsatisfactory in all mothers.

**The main recommendations are:**

1. A reliable evidence based information about fever should be introduced to all mothers attending pediatric institutions.
2. Aggressive educational campaigns for appropriate antipyretic use should be targeted toward physicians and nurses.
3. Conducting public awareness programs and establishment of illustrated posters and booklets about traditional plants for fever management and key points for correct usage.
4. Development of vigorous research on the efficacy of traditional plants on fever treatment should be carried out to ascertain their usefulness.
5. Ethno-pharmacological studies are encouraged to determine the usefulness these traditional remedies, as few of these were found to be having some anti-fever property

**Table 1: Distribution of characteristics of mothers of feverish children; (n = 250).**

Mothers' characteristics	No.	%
<b>• Age in years:-</b>		
- <20	12	4.8
- 20 – 30	160	64.0
- 30 – 40	76	30.4
- ≥40	2	0.8
Min. – Max.	18.0 – 45.0	
Mean ± SD	26.67 ± 4.84	
<b>• Level of education:-</b>		
- Illiterate	32	12.8
- Read and write	8	3.2
- Preparatory education	8	3.2
- Secondary education	154	61.6
- University education	38	15.2
- Moderate technical institute	10	4.0
<b>• Occupation:-</b>		
- Working	28	11.2
- Not working	222	88.8
<b>• Residence:-</b>		
- Urban	15	6.0
- Rural	235	94.0
<b>• Number of children:-</b>		
- One child	51	20.4
- Two children	110	44.0
- Three children and more	89	35.6
<b>• Type of family:-</b>		
- Nuclear	145	58.0
- Extended	105	42.0
<b>• Family income:-</b>		
- Not enough	185	74.0
- Enough	65	26.0

**Table 2: Distribution of the studied mothers according to their knowledge about fever; (n=250)**

Items	Level of knowledge					
	Poor		Incomplete		Complete & correct	
	No.	%	No.	%	No.	%
<b>1. Definition</b>						
- Knowing body temperature.	150	60.0	0	0.0	100	40.0
- Range of normal body temperature	230	92.0	0	0.0	20	8.0
- Fever definition	238	95.2	0	0.0	12	4.8
<b>2. Causes of fever</b>	51	20.4	197	78.8	2	0.8
<b>3. Manifestations of fever</b>	2	0.8	50	20.0	198	79.2
<b>4. Complications of fever</b>						
-Knowing complications of fever	11	4.4	0	0.0	239	95.6
-Mentioned complications of fever	9	3.6	241	96.4	0	0.0
<b>5. Importance of monitoring body temperature:</b>						
-Knowing importance of monitoring body temperature	6	2.4	0	0.0	244	97.6
-Mentioned importance of monitoring body	57	22.8	0	0.0	193	77.2



temperature						
<b>6. Methods of measuring body temperature:</b>						
-knowing methods of measuring body temperature	28	11.2	0	0.0	222	88.8
-Enumerate methods of measuring body temperature	62	24.8	0	0.0	188	75.2
- knowing types of the thermometers	74	29.6	0	0.0	176	70.4
-Enumerate types of thermometers	10	4.0	230	92.0	10	4.0
- knowing sites of measuring body temperature	62	24.8	0	0.0	188	75.2
- List sites of measuring body temperature	0	0.0	244	97.6	6	2.4
-Duration of measuring body temperature	232	92.8	0	0.0	18	7.2
- Frequency for measuring body temperature	230	92.0	0	0.0	20	8.0
<b>7. Pharmacological methods for managing fever</b>	93	37.2	0	0.0	157	62.8
<b>8. Non-pharmacological methods for managing fever</b>	4	1.6	144	57.6	102	40.8

**Table 3: Distribution of mothers' common management practices for their feverish children; (n = 250)**

Types of common management practices	No. #	%
- Giving medication	15	3.9
- Applying compresses	7	1.8
- Medication and compresses	107	28.3
- Bathing the child & lightening clothes	2	0.5
- Ventilating the place	10	2.6
- Giving extra fluids	10	2.6
- Giving certain foods	105	27.8
- Go to the doctor	4	1.0
- All of above	118	31.2

#More than one answer was given.

**Table 4: Distribution of mothers' traditional practices for their feverish children; (n=250).**

Mothers' traditional practices	No.	%
<b>• Traditional practices for feverish child:-</b>		
- No	119	47.6
- Yes	131	52.4
<b>• Number of used practices:- (n=131)</b>		
- One practice	75	57.3
- Two practices	43	32.8
- Three practices	13	9.9
<b># Traditional practices types:-</b>		
- Using herbs	52	39.7
- Using honey	68	51.9
- Using oils	20	15.3
- Using lubkha	2	1.5
- <b>Using cauterization</b>	<b>0</b>	<b>0.0</b>
- Uvula elevation	58	44.3

#more than one practice was used.

**Table 5: Distribution of mothers' traditional practices regarding using herbs for their feverish children; (n = 52).**

Mothers' traditional practices regarding using herbs	No.	%
<b>• Types of the herbs used:-</b>		
- Peppermint	32	61.5
- Cumin	6	11.5
- Anise	14	26.9
<b>• Method of using herbs:-</b>		
- Boiled it and serve to the child	50	96.1
- Making a batter from it and placing it on child's fore head	2	3.9
<b>• The effect of using these herbs on lowering child's body temperature according mothers' perception:-</b>		
- Effective	<b>52</b>	<b>100.0</b>

**Table 6: Distribution of mothers' traditional practices regarding using oils for their feverish children; (n= 20).**

Mothers' traditional practices regarding using oils	No.	%
• <b>Types of oils used:-</b>		
- Olive oil	4	20.0
- Peppermint oil	16	80.0
• <b>Areas to be rubbed with oils:-</b>		
- Extremities & neck	6	30.0
- Extremities	5	25.0
- Neck	3	15.0
- Whole body	3	15.0
- Forehead	3	15.0
• <b>Reasons for using these areas:-</b>		
- Decrease body temperature	12	60.0
- Someone advise to use it	4	20.0
- Moist the skin	4	20.0
• <b>The effect of using these oils on lowering child's body temperature according mothers' perception:-</b>		
- Effective	20	100.0

**Table 7: Distribution of mothers' traditional practices regarding using lubkha for their feverish children; (n= 2).**

Mothers' traditional practices regarding using lubkha	No.	%
• <b>Compositions of lubkha used:- (n= 2)</b>		
- A batter with sugar	2	100.0
• <b>Applying lubkha on certain body areas:-</b>		
- Yes	2	100.0
• <b>Body areas which used:-</b>		
- Forehead	2	100.0
• <b>The effect of using this lubkha on lowering child's body temperature according mothers' perception:-</b>		
- Effective	2	100.0

**Table 8: Distribution of mothers' traditional practices regarding uvula elevation for their feverish children; (n=58).**

Mothers' traditional practices regarding uvula elevation	No.	%
• <b>Person who elevate uvula:-</b>		
- Someone else	58	100.0
• <b>Methods of elevation:-</b>		
- Using thumb only	30	51.7
- Using mother's breast milk on the thumb	28	48.3
• <b>The effect of using uvula elevation on lowering child's body temperature according mothers' perception:-</b>		
- Effective	54	93.1
- Not effective	4	6.9

**Table 9: Distribution of the studied mothers according to evaluation of their traditional practices for management of their feverish children; (n = 131).**

Mothers' practices evaluation	No.	%
- Unsatisfactory practices <50%	118	90.1
- Satisfactory practices ≥50%	13	9.9
<b>Total common practice score</b>		
Min. – Max.	2.00 – 16.00	
Mean ± SD.	4.74 ± 2.89	

**Table 10: The relationship between the studied mothers' knowledge mean scores and the socio-demographic characteristics of mothers and children:**

Socio-demographic characteristics	Mothers' knowledge mean scores	Test of significance
	M ± S. D	
<b>Mothers' age</b>		
▪ < 20	22.50±1.834	F=1.838
▪ 20- < 30	21.70±4.817	P=0.141
▪ 30- < 40	20.92±4.989	
▪ ≥ 40	15.00±0.000	
<b>Level of education</b>		
▪ Illiterate	17.91±3.946	F= 118.35
▪ Read & write	16.25±3.536	P=0.000*
▪ Preparatory education	21.00±3.464	
▪ Secondary education	24.22±4.399	
▪ Technical education	19.80±6.443	
▪ University education	25.24±4.327	
<b>Occupation</b>		
▪ Working	25.79±5.459	T= 31.870
▪ Not working (Housewife)	20.60±4.458	P=0.000*
<b>Place of residence</b>		
▪ Urban	25.20±7.380	T= 11.385
▪ Rural	20.93±4.550	P=0.001*
<b>Number of children</b>		
▪ One	21.25±4.915	F= 0.292
▪ Two	21.40±4.968	P=0.747
▪ Three and more	21.88±4.709	
<b>Income sufficiency</b>		
▪ Not enough	20.81±4.856	F= 6.552
▪ Barely enough	21.94±4.454	P=0.002*
▪ Enough	32.00±0.001	
<b>Age of the child (years)</b>		
▪ < 1	18.02±1.414	F= 2.119
▪ 1- < 3	20.56±3.823	P=0.003*
▪ 3 ≤ 5	23.71±4.386	
<b>Sex of the child</b>		
▪ Male	21.28±4.681	T= 0.162
▪ Female	21.02±5.157	P=0.687
<b>Birth order of the child</b>		
▪ 1 <sup>st</sup>	20.08±5.045	F= 2.951
▪ 2 <sup>nd</sup>	21.01±5.113	P=0.054*
▪ 3 <sup>rd</sup> or more	21.91±4.465	

**Table 11: The relationship between the studied mothers' common practices mean scores and the socio-demographic characteristics:**

Items	Mothers' common practices mean scores	Test of significance
	M ± S. D	
<b>Mothers' age</b>		
▪ < 20	14.00±6.353	F=0.392
▪ 20- < 30	13.96±6.843	P=0.759
▪ 30- < 40	13.78±6.524	
▪ ≥ 40	19.00±0.000	
<b>Level of education</b>		
▪ Illiterate	11.21±5.493	F= 6.410
▪ Read & write	7.000±2.138	P=0.000*
▪ Preparatory education	11.12±5.488	
▪ Secondary education	14.01±6.455	
▪ Technical education	14.60±7.168	
▪ University education	17.92±7.027	
<b>Occupation</b>		
▪ Working	17.00±6.917	T= 6.700
▪ Not working (Housewife)	13.56±6.574	P=0.010*
<b>Place of residence</b>		
▪ Urban	14.53±7.971	T= 0.120
▪ Rural	13.91±6.615	P=0.729
<b>Number of children</b>		

▪ One	12.47±6.605	F= 4.565
▪ Two	13.64±6.492	P=0.011*
▪ Three and more	15.29±6.629	
<b>Income sufficiency</b>		
▪ Not enough	9.001±4.751	F= 3.927
▪ Barely enough	12.12±7.058	P=0.021*
▪ Enough	14.62±6.470	
<b>Age of the child (years)</b>		
▪ < 1	10.66±4.670	F= 2.813
▪ 1- < 3	11.01±5.477	P=0.000*
▪ 3 ≤ 5	13.33±6.608	
<b>Sex of the child</b>		
▪ Male	14.26±6.449	T= 0.945
▪ Female	13.41±7.081	P=0.332
<b>Birth order of the child</b>		
▪ 1 <sup>st</sup>	12.79±6.725	F= 3.397
▪ 2 <sup>nd</sup>	13.21±6.267	P=0.035*
▪ 3 <sup>rd</sup> or more	15.15±6.743	

**Table 12: The relationship between the studied mothers' knowledge mean scores and their common and traditional practices regarding fever management:**

Items	Mothers' knowledge mean scores	Test of significance
	M ± S. D	
<b>Mothers' common practices</b>		
▪ Unsatisfactory	19.66±4.860	F=26.728
▪ Satisfactory	22.68±4.370	P=0.000*
<b>Mothers' traditional practices</b>		
▪ Unsatisfactory	21.08±4.912	F=0.182
▪ Satisfactory	21.69±4.535	P=0.671

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