

# Assessment of Mothers' Perception about Unknown Fever among Preschool Age Children at Mahalla Fever Hospital

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**Abstract:** **Back ground:** In the developing countries one of the major causes of mortality and morbidity in children is fever of unknown origin. Unknown fever represent as many as 20% of the childhood fevers in the world and physicians face a diagnostic dilemma on a daily basis due to the childhood fevers that have no apparent cause. So, this study was conducted to assess mothers' perception about unknown fever among preschool age child at Mahalla Fever Hospital. A cross sectional study design was utilized to accomplish this study at outpatient clinics of Mahalla Fever Hospital, affiliated to Ministry of Health and Population. Convenience sampling technique was used in this study and 80 mothers and their children had unknown fever at preschool age that attended to the previous mentioned setting during the researcher visits were recruited. Tools of data collection were structured interview to assess: mothers' and their under-five children's socio-demographic and economic characteristics, preschool age children's health status, mothers' knowledge, and subjective practice, about unknown fever in their preschool age children, and structured interview scale to assess mothers' attitude toward unknown fever in their preschool age children. Results of the study reveals that 67.5% of the studied mothers lie in age category from 20 to less than 30 years, and 50.0% of the studied children aged from 2-4 years. The studied mothers had 90.0% poor total score level of knowledge. Consequently 97.5%, 87.5%, 87.5%, 62.5%, and 87.5% of the studied mothers had improper subjective practice related to tools and technique used for measuring body temperature, management of unknown fever, on any body part apply the compresses, action taken when unknown fever without another symptoms, and action taken when unknown fever associated with another symptoms respectively. **Conclusion:** Most of the studied mothers had poor total score levels of knowledge regarding unknown fever in their preschool age children. As well the majority of the studied mothers had improper total score levels of subjective practice regarding unknown fever in their preschool age children. Furthermore the studied mothers' mean attitude score was 1.56 (0.5). Finally there was slight significant association between studied mothers' total score levels of knowledge, and order of their pre school age children. Finally, it is recommended that design and conduct health education program for mothers about unknown fever at various community settings. Empower health screening for preschool age children for early detection of health problems.

**Keywords:** Mothers, Perception, Preschool Age Children, Unknown Fever.

## 1. INTRODUCTION

**Mothers' knowledge , subjective Practice and attitude toward unknown- fever in preschool children**

Fever of unknown origin (FUO) is  $>38.3^{\circ}\text{C}$  ( $101^{\circ}\text{F}$ ) for eight days. Although, hospital evaluation through; history assessment, physical examination and initial laboratory investigation. FUO need to assess of broad categories of illness (infections, connective diseases and malignancy diseases) (1). unknown fever is classified into **four categories**, **first category**, is classical unknown fever and include infections, neoplasms, connective tissue diseases, miscellaneous disorders and undiagnosed conditions (2).

**Second category**, Nosocomial FUO, is recorded on several occasions in a hospitalized patient who is receiving acute care such as surgery, use of urinary catheter, intravascular devices and drugs included clostridium difficile colitis or drug fever **(3)**. **Third category**, immune-deficient FUO, fever in patients with immune-deficiencies. Seen in patients receiving chemotherapy or in hematologic malignancies with neutropenia (neutrophil <500/uL) **(4)**. **Fourth category**, Fever of Unknown origin related to HIV, fever for more than 3 weeks in outpatients with confirmed HIV infection as in a mononucleosis-like illness **(5)**.

The important thing in unknown fever to identify children with serious causes of fever such as meningitis, pneumonia and pyelo-nephritis or viral infection adenovirus, human herpes-virus 6, enterovirus, and parvovirus without too many procedures or tests and limit unnecessary antibiotic use and decrease from morbidity and mortality due to unknown fever **(6)**.

Related to diagnostic study, it represents in three steps depend on experience of physician (taking history of the child, physical examination and laboratory investigation and imaging). The history includes pattern and duration of fever, past medical history, drug history, social history infected contacts (eg, with TB), travel, possible exposure to animal or insect vectors, family history about inherited causes of fever (eg, familial Mediterranean fever). Regarding physical examination include notice to general appearance **(5)**.

Concerning laboratory investigation, divided into initial tests; include CBC and peripheral smear- ESR- CRP- Aerobic blood cultures- UA-urine culture- CXR-tuberculin skin test-electrolytes- BUN- Creatinine- hepatic enzymes- HIV serology **(7)**. There are additional tests as in EBV, CMV, toxoplasmosis, bartonellosis, brucellosis, tularemia. Immunoglobulins, serum IgG, IgA and IgM in children with evidence of recurrent or persistent infections and HIV serology **(8)**.

Regarding to empirical treatment can delay diagnosis of infections such as meningitis, infectious endocarditis or osteomyelitis but, antibiotics are essential with who that are immune-compromised, suspected to be bacteremia or sepsis and seem clinically deteriorating **(9, 10)**.

Drug approach of the fever treatment, if found pain, headache, backache and dizziness should seek for medical attention. Administering an appropriate antipyretics such as ibuprofen or paracetamol for relieve pain and inflammation **(11, 12)**. Non-drug approaches to decrease fever are putting the child in a warm or tepid bath, using cool compresses, and undressing the child. Keeping on the rest and hydrated through replenish fluids lost **(13)**.

Parents have been shown unrealistic fears related to harmful effects of fever to their children and make unnecessary clinic visits leading to excessive utilization of health care service **(14)**. This fever phobia lead to false practice from side the mothers such as wiping the body with alcohol, harmless numerous folk remedies (eg, putting onions or potatoes in socks) **(15)**.

Due to poor knowledge about fever and treat mild fever as high fever, there are incorrect using of antipyretics regardless parental education or socioeconomic status. **(16)**. There are conditions need to antipyretic drugs and others don't need should be known. Too much of the drug or too often can cause an overdose. The correct dose and at the correct interval should be follow **(17)**.

Therefore, Learning healthy dealing with unknown fever in preschool children can enhance to decrease the course of illness and strength the immune-system of the child. Consequently, nurses should report child individualized related fever management and concern medical diagnosis, history, medical orders, history of febrile convulsion, temperature recordings, nursing observations and the child's current state of health **(18)**.

### Aims of the Study

It is to assess mothers' perception about unknown fever among preschool age child at Mahalla Fever Hospital.

### Method

#### Design

A cross sectional study design was utilized to accomplish this study.

### Setting

The study was carried out at outpatient clinics of Mahalla Fever Hospital, affiliated to Ministry of Health and Population.

### Participants

A convenient sample technique was used in this study as consecutively selected through outpatient clinics visits according to the convenient accessibility of 80 mothers of preschool children with unknown fever from both genders, without excluding children.

### Tools for Data Collection

Five tools were used in this study (II, III, IV and V) developed by the researcher and tool (I) was adopted from **EL Gilany, EL-Wehady and EL-Wasify (19)**, as the following:

#### **Tool I: Structured interview to assess mothers' and their under-five children's socio-demographic and economic characteristics**

This tool was used to assess socio-demographic and economic characteristics of mothers and their under-five children including; age, education, occupation, marital status, family income, residence, family structure, family size and number of under-five children, as well child age, gender, and rank.

#### **Tool II: Structured interview questionnaire to assess preschool age children's health status**

This tool was used to assess six parts; characteristics of the preschool age children, past health history of the child related health problems and surgical operations, family genetic factor related to fever in the child, current health history of the child, history of carrying out laboratory investigation and physical assessment of the child including vital signs, height, weight and general appearance.

#### **Tool III: Structured interview questionnaire to assess mothers' knowledge about unknown fever in their preschool age children**

This tool was used to assess mothers' knowledge about unknown fever in their preschool age children. It was composed of 20 multiple choice questions about: meaning of fever and unknown fever, normal body temperature, measuring tool of body temperature, predisposing factors of unknown fever, perceived causes of unknown fever in mothers own preschool age children, benefits and complications of unknown fever, time of consult the doctors, treatment, and management of unknown fever, using of antipyretics, and follow infection control and sanitation measures . Each question took one mark for each correct item and zero for incorrect item. The total score for all questions according to the number of correct answers which was equal to 95 marks, that represents 100% and categorized into three levels based on the researcher cut of points as following:

- **Poor:** scores less than 50% of the total score (less than 47.5%)
- **Fair:** scores 50% to 75% of the total score (47.5% to 71.2%)
- **Good:** scores more than 75% of the total score (more than 71.2%)

#### **Tool IV: Structured interview questionnaire to assess mothers' subjective practice about unknown fever in their preschool age children**

This questionnaire was consisted of; tools and technique used for measuring body temperature, management of unknown fever, action taken when unknown fever with, or without another symptoms, and using antipyretic. The total score for all questions were equal to 19 marks that represents 100% and categorized into two levels based on the researcher cut of points following:

- **Proper:** score > 68% of the total score( more than and equal to 13 mark of the total score )
- **Improper:** score< 68% of the total score (less than 13markof the total score).

**Tool V: Structured interview scale to assess mothers' attitude toward unknown fever in their preschool age children**

This scale was developed by the researcher to assess mothers' attitude about unknown fever in their preschool children. It consisted of 32 statements requiring a response based on a four-point Likert scale with 4 continuums (strongly agree, agree, disagree and strongly disagree).

- The attitude scale constructed from 32 statements (17 statements reflected positive attitude and 15 statements reflected negative attitude) with total score of 128 marks.

**Procedure**
**Preparation phase:**
**1. Administrative stage**

A written official letter was obtained from the dean of the Faculty of Nursing, Mansoura University and delivered to the Manager of Mahalla Fever Hospital affiliated to Ministry of Health and Population in order to obtain the statistical numbers of mothers attending to outpatient clinic of this hospital; another written official letter was submitted to obtain the approval for conducting the study after explaining its aim.

**2. Ethical consideration**

- An approval was obtained from Research Ethics Committee of Faculty of Nursing, Mansoura University.
- The preschool age children's mothers verbal approval was obtained.
- The researcher introduces herself and a simple explanation about the aim of the study was given to them. They were assured that their participation in the study was voluntary and that collected data will be treated confidentially and would be only used for the purpose of the study.
- Participants were informed that they have the right to withdraw at any time from the study without giving any reason; this did not affect health care services delivered to them.

**Operational phase**
**2. LITERATURE REVIEW**

Review of national and international literatures on the prevalence, predisposing factors, risks and management of unknown fever. Aspect of unknown fever in preschool age children using scientific published articles, internet search, and text books. This review was a guide for developing the study tools.

**Developing of the study tools:** Tools of data collection were developed by the researcher except **tool I** that was adopted from **EL Gilany, EL-Wehady and EL-Wasify (19)**.

**The validity of the study was tested by:**

- Juries that involved five experts in the field of community health nursing tested the validity of the developed tools and the required modifications were carried out.
- A pilot study on 10 % of the study sample (8 mothers of preschool children with unknown fever) were selected conveniently from the study setting but not included in the same study sample. The pilot study carried out to test the validity, applicability and reliability of the study tools for estimation of the approximate time required for data collection, identifying the possible obstacles that may hinder data collection. Accordingly, the required modifications were done, so some questions were added and others were omitted.
- The developed tools were tested for their reliability by using Cronbach's Alpha test in (Statistical Product and Service Solutions) SPSS program version 16, which was carried out on the pilot study and the results were as the following:

The reliability was assured by calculating Cronbach's Alpha coefficients. Its value was (.966), which indicated high reliability.

### Implementation stage

#### *Initial data collection:*

- The duration of data collection approximately 4 weeks in July 2017.
- The researcher introduced herself to the heads of the outpatient clinics of Mahalla Fever Hospital and gave them a brief orientation about aim of the study in order to gain their cooperation.
- The researcher visited outpatient clinics at Mahalla Fever Hospital daily from 9am to 2pm to interview preschool age children's mothers and their preschool age children affected with unknown fever.
- The researcher interviewed mothers after introducing herself and took oral consent from them to be recruited in the study. Then the researcher explained the aim of the study.
- During the interview, the researcher read each question and explained its meaning to the mothers. The questionnaires were filled by the researcher. each questionnaire took about 20- 30 minutes. Mothers were allowed to ask any interpretation, elaboration or explanation confidentiality for all collected information was strictly assured.
- Tool I, II, III, IV and V used to assess socio-demographic and economic characteristics of preschool age children's mothers, and health status of preschool age children (characteristics, past, current, family health history, laboratory investigation and physical assessment) knowledge, subjective practice and attitude of them.

#### *Statistical analysis*

- Data were sorted, coded, organized, categorized and then transferred into especially designed formats.
- Data were analyzed using SPSS (Statistical Product and Service Solutions) version 16.
- Data were presented by using descriptive statistics in the form of frequencies and percentage.
- Mean (M) and standard deviation (SD) were calculated for continuous variables.

### 3. RESULTS

Table (1) shows that 67.5% of the studied mothers lie in age category from 20 to less than 30 years. Concerning to education, 40.0% of the studied mothers, and 36.2% of the studied fathers had secondary level of education. Related to occupation 72.5% of the studied mothers were house wives, and 41.3% of the studied fathers were unskilled, and skilled manual worker/ farmer. As for residence, and crowding index 77.5%, and 75.0% of the studied mothers resident at rural area, and overcrowding houses. Finally 27.5% of the studied mothers belonged to high social class.

Table (2) reveals in relation to health information access, 66.2 of the studied mothers access to it from their neighbors and relatives, and 62.5 of them utilize traditional healer /self care as a health care domain.

Table (3) illustrates that 50.0% of the studied children aged from 2-4 years, and 52.5% and 38.8% of them were girls, and second order among their sailings respectively. Only 6.3%, 8.5%, and 10.0% of the studied children had weight loss / jaundice / pneumonia, tonsillectomy, and Mediterranean fever/ chest allergy / arthritis and rheumatoid respectively.

Table (4) reveals that only 12.5% of all the studied preschool age children carried out complete blood count, and Vidal test, brucella, urine and stool analysis after taking the antibiotics.

Table (5) illustrates that all the studied mothers had poor score level of knowledge about meaning of unknown fever, benefits of mild and moderate unknown fever, and complications of unknown fever. Ass well 81.3%, 87.5%, 87.5%, and 93.7% of the studied mothers ad poor score level of knowledge about meaning of fever, normal body temperature, measuring tools of body temperature, and using antipyretics respectively. Related to perceived causes that lead to unknown fever in the studied mothers' children, and time of consult the doctors 62.5% of them had poor score level of knowledge about them. On the other side 62.5% of the studied mothers had fair score level of knowledge about factors causing unknown fever. The studied mothers had 90.0% poor total c score level of knowledge.

Table (6) reveals that 97.5%, 87.5%, 87.5%, 62.5%, and 87.5% of the studied mothers had improper subjective practice related to tools and technique used for measuring body temperature, management of unknown fever, on any body part

apply the compresses, action taken when unknown fever without another symptoms, and action taken when unknown fever associated with another symptoms respectively. On the other side 77.5% of the studied mothers had improper subjective practice related to using antipyretic. The studied mothers had 88.8% improper total c score level of subjective practice.

Tables (7) in relation to positive attitude of the studied mothers 46.2% of them strongly disagree that genetic disease cause unknown fever, and unknown fever can occurred to their children. Related to infection cause unknown fever, and infection control is necessary for prevention of unknown fever 43.8% of the studied mothers disagree with these statements.

According to follow the dose of antipyretic is essential, follow of doctor's instructions are essential, compresses and coolants useful in decrease temperature, antipyretics must be prescribed by the doctor, there is fear from inappropriate treatment of unknown fever, antipyretic inhibits the immune system, degree of fear from unknown fever depend on child age; unidentified the cause of unknown fever is source of worry, and improper management of unknown fever fearing the mother; 50.0%, 42.5%, 45.0%, 58.8%, 56.2%, 42.5%, 47.5%, 53.8% and 75.5% of the studied mothers respectively strongly disagree with these statements.

Oppositely 47.5%, 100%, and 65.0% strongly agree with cooling and antipyretics are necessary for control unknown fever, prolongation of unknown fever worrying the mother, and unknown fever is a source of worry for the family respectively.

As for negative attitude of the studied mothers 61.2% of them strongly agree with the medical team has role in your fear from unknown fever. Concerning with unknown fever is a disease more than a symptom, unknown fever cause child death, unknown fever cause convulsion, unknown fever cause brain damage, unknown fever sign of serious illness, and popular recipes is useful for unknown fever; 50.0%, 45.0%, 43.8%, 53.8%, 55.0%, and 45.0% of the studied mothers respectively strongly agree with these statements. The total attitude score of the studied mothers was 1.56(0.5).

Table (8, 9 & 10) indicates that no significant association between studied mothers' total score levels of knowledge, subjective practice and attitude and their age  $P=0.25$ ,  $0.25$  and  $0.4$  respectively.

Table (11) indicates that no significant association between studied mothers' total score levels of knowledge, subjective practice and attitude and their education  $P=0.15$ ,  $0.09$ , and  $0.2$  respectively.

Table (12) indicates that slight significant association between studied mothers' total score levels of knowledge, and order of their pre school age children  $P=0.005$ .

#### 4. DISCUSSION

Fever is a common problem in childhood. Most febrile episodes are manage at home before consultation. Mothers have many misconception, fears (fever phobia) and limited skills regarding fever and it's management (20). The present study was conducted mainly to assess the knowledge, practice and attitude of the mothers regarding unknown fever in their preschool age children at Mahalla Fever Hospital.

In relation to mothers' health information access, the present study shows that, almost two thirds of the studied mothers gained their information from neighbors and relatives and, few number access it from health team. Regarding seeking for health services less than two thirds use traditional healer or self care. These results in disagreement with the findings of a study carried out in Children's Hospital of Tabriz Iran (21) who shows that, 14.6%, and 40.7% of mothers had gained their information about fever and children's fever management through people around them and from doctors and nurses respectively. Only 19.8% of the mothers had waited emergence for other symptoms and 80.2% of them seeking for health services.

Regarding current health status of the studied preschool age children. The results of the present study demonstrates that associated signs and symptoms with unknown fever were cough represented less than half, diarrhea represented less than one third, and loss of appetite represented most of the studied preschool age children.. These results in accordance with a study carried out in selected health centers in Addis Ababa, Ethiopia (22) who revealed that the common under five childhood illnesses were acute respiratory tract infection, and diarrhea.

Concerning with history of laboratory investigation of the studied preschool age children, few number of them caring out laboratory investigation before taking antibiotic, and all of them after taking them.

These findings are in agreement with study conducted in Italian (23) who revealed that, two thirds of physicians (73.8%) recommended an antipyretic agent to every child under the age of 5 with fever, whatever the signs and symptoms. Only 26.2% of physicians took into consideration signs and symptoms other than fever (malaise, irritability, signs of infection) to prescribe antipyretic. Only 15% of physicians indicated that they prescribed antipyretics to ensure a child's comfort and remove irritability, except for reducing fever. In the present study less than half of the studied mothers belonged to very low, and low social class; accordingly studied mothers may consider laboratory investigations burden on their families, and they may resort to giving their children antibiotics firstly.

In relation to studied mothers' knowledge about unknown fever, the current study represents that all of them don't know the meaning of unknown fever, and benefits of mild and moderate fever. The majority of the studied mothers had poor score level of knowledge about meaning of fever, and normal body temperature. This results are in line with study carried out in Yenagoa (24), who reported that, majority of parents (63%) perceived fever to be hotness of the body and 47% had no idea of the normal body temperature. Some parents gave values higher of normal body temperature (7%) while others 20% gave lower values and 24% knew the correct normal temperature range.

Concerning the studied mothers' knowledge about factors causing unknown fever, and perceived causes that lead to unknown fever in their child, they reported infection and exposure to sunlight, rheumatic disease, drugs. vaccination, familial Mediterranean fever, and tonsillectomy operation.

These results in agreement with the findings of a study carried out in Iran(25) who finds that perceived causes of fever by Nigerian mothers were infection 43.7%, teething 33.3%, exposure to sunlight 17.1%, change in weather 14.6%, and drugs 8.3%.

As for the studied mothers' knowledge about time of consult the doctors, almost two thirds of them had poor score levels of knowledge. This result is in line with a study conducted in Children's Hospital of Tabriz by (21), who reveals that 43.3% of the mothers had visited a doctor immediately after the onset of the fever, 36.9% visited the doctor a few hours after the onset of the fever. 19.8% had waited for emergence of other symptoms.

Related to the studied mothers' knowledge about antipyretics dosing, more than half of them reveals that they follow instruction in the pamphlet or, associated disease severity. This result in contrast with a study carried out in the Nablus region of Palestine (26) who reported that frequency of antipyretics administration influenced by: physician's instruction 61.7%, degree of elevated temperature 14.9%, instruction in the drug leaflet 13.7%, pharmacist's instruction 3.7%, severity of the accompanying disease 3%, child's age 2%, child's weight 1%.

In relation to frequency of giving antipyretic, few number of the studied mothers of the present study stated that they administrate it every eight, or six hours. This finding is in agreement with a study conducted in urban hospital in Baltimore, Maryland (27) who revealed that there is incorrect dosing intervals of giving antipyretics.

Regarding the studied mothers' knowledge about treatment of unknown fever, and follow infection control, and sanitation measures, almost three quarters, and one quarters respectively of them have poor score level of knowledge. The current findings are disagree with study conducted in Ireland (28) who revealed that, the parents have a good level of knowledge regarding infection and medication. 94.9% of parents believed that the majority of children with a fever didn't need an antibiotic. 89.4% were aware that antibiotics are used for treatment the bacterial infection. 89.7% knew that antibiotics aren't used to cure viral infections, and few number said that compresses were the treatment of unknown fever.

Concerning the studied mothers' subjective practice, only few number of them using thermometer for measuring body temperature from the axillary, and adding half degree on reading. These results in contrast with a study carried out in family health care centers in Turkey (29) who showed that 45.8% of the sample measured fever with a thermometer prior to presentation, only 38% of the sample used the thermometer correctly, and 85% of the sample preferred axillary region for measurement.

Further more these results in agreement with a study carried out in Yenagoa (24) who reveals that tactile method was the most utilized method for detecting fever by the parents (88%), while, a small fragment (12%) used a thermometer. Most of the Egyptian's mothers estimate temperature of their children by touching skin.

Regarding to action taken from the studied mother when unknown fever with, or without another symptoms, the majority, and almost two thirds of them had improper subjective practice. These findings are in contrast with a study conducted in France (30) who reveals that, 78% of the sample gave oral hydration, 62% of the sample undress the child, 27% of the sample aerated the room and 15% of the sample used all three measures concomitantly as recommended.

Related to using of antipyretics, more than three quarters of the studied mothers had improper subjective practice. This result is in agree with a study carried out in Portarlinton (31) who shows that parents frequently make errors in dosage and frequency of antipyretics administered to their children, a large proportion of parents will administer the medication in too high, too low, too frequent or infrequent doses. Over dosing may cause drug toxicity, while under dosing may lead to unnecessary repeated general practitioner visits.

Regarding the studied mothers' attitude towards unknown fever, more than half and less than half them report negative attitude in the following items: the medical team has role in your fear of fever, fever is disease more than symptom, unknown fever cause (death, convulsions, damage brain cell, disability), fever is sign of serious illness, fever cause damage to other organs such as liver and kidney, medical herbs and popular recipes are useful, antipyretics safe no harm and important than cooling method, just raising the temperature requires going to the doctor, and fever is fatal disease respectively.

The present findings are in disagreement with study carried out in Miraj (32) who reported that, maximum parents (51%) perceived fever as a symptom and 21% described it as a disease, and agree with it in most of them had anxiety that fever would rise without limit if not treated, and maximum number of parents (84%) treated the child with home remedies before consulting doctor on 2nd day of fever.

Also, this findings in line with a study carried out in the Nablus region of Palestine (26) who reported that, all parents believed that unknown fever could cause at least one harmful effect if left untreated e.g. brain damage, dehydration, other organ damage such as liver, and kidney damage

From the researcher point of view studied mothers have negative attitude toward unknown fever due to cultural beliefs, individual's experiences toward methods of management fever by antipyretics (e.g. choice of antipyretic, dose, route, temperature at which antipyretic have to be administered), and physical management.

The present study shows that, no significant association between studied mothers' total score levels of knowledge, subjective practice and attitude and their age  $P=0.15$ ,  $0.09$ , and  $0.2$  respectively. This result was in disagreement with study carried out in Sabzevar city in Iran (33) who found that, there are a significant association between fever management and maternal age ( $p=.048$ ), educational level ( $p=.002$ ) and employment status ( $p < .001$ ).

While agreement with study carried out in Yenago (24) who revealed that parents of high socio-economic and educational status not different in terms of knowledge of fever from parents of lower socio-economic| educational background and limited previous experience.

## 5. CONCLUSION

Most of the studied mothers had poor total score levels of knowledge regarding unknown fever in their preschool age children. As well the majority of the studied mothers had improper total score levels of subjective practice regarding unknown fever in their preschool age children. Furthermore the studied mothers' mean attitude score was 1.56 (0.5). Finally there was slight significant association between studied mothers' total score levels of knowledge, and order of their pre school age children.

## 6. RECOMMENDATIONS

**According to the findings and conclusion drawn from the study, the following recommendations are suggested:**

1. Design and conduct health education program for mothers about unknown fever at various community settings.
2. Design and facilitate alternative health education media for mothers about unknown fever at various health care settings.
3. Empower health screening for preschool age children for early detection of health problems.



**Further studies are needed to:**

Conduct further study on larger sample to estimate magnitude of the problem.

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**Table (1) Socio-demographic and economic characteristics of the studied mothers (n = 80)**

| Items                                       | N                   | %    |
|---|---------------------|------|
| <b>Age ( in years)</b>                      |                     |      |
| < 20 years                                  | 5                   | 6.2  |
| 20 - < 30                                   | 54                  | 67.5 |
| 30 -40                                      | 21                  | 26.3 |
| <b>X<sup>2</sup> (SD)</b>                   | <b>26.56 (4.74)</b> |      |
| <b>Mothers' education</b>                   |                     |      |
| Illiteracy                                  | 10                  | 12.5 |
| Primary                                     | 3                   | 3.8  |
| Preparatory                                 | 14                  | 17.5 |
| Secondary                                   | 32                  | 40.0 |
| University                                  | 21                  | 26.2 |
| <b>Fathers' education</b>                   |                     |      |
| Illiteracy                                  | 15                  | 18.8 |
| Primary                                     | 11                  | 13.8 |
| preparatory                                 | 4                   | 5.0  |
| Secondary                                   | 29                  | 36.2 |
| University                                  | 21                  | 26.2 |
| <b>Mothers' occupation</b>                  |                     |      |
| House wife                                  | 58                  | 72.5 |
| Others *                                    | 22                  | 27.5 |
| <b>Fathers' occupation</b>                  |                     |      |
| Clerk                                       | 22                  | 27.5 |
| Trades /Business                            | 25                  | 31.2 |
| Unskilled and skilled manual worker/ Farmer | 33                  | 41.3 |
| <b>Residence</b>                            |                     |      |
| Urban                                       | 18                  | 22.5 |
| Rural                                       | 62                  | 77.5 |
| <b>Crowding index</b>                       |                     |      |
| Acceptable crowding                         | 20                  | 25.0 |
| Over crowding                               | 60                  | 75.0 |
| <b>Social class</b>                         |                     |      |
| Very low                                    | 19                  | 23.8 |
| Low   | 18                  | 22.5 |
| Middle                                      | 21                  | 26.2 |
| High  | 22                  | 27.5 |

\*Unskilled manual worker and skilled manual worker / Farmer / Trades / Business / Clerk

**Table (2) Health care services utilized by the studied mothers (n = 80)**

| Items   | N  | %    |
|---|----|------|
| <b>Access to health information</b>             |    |      |
| Printed materials as in books, poster, booklet  | 2  | 2.5  |
| Audio-visual message as in television and radio | 12 | 15.0 |
| Health team                                     | 13 | 16.2 |
| Neighbors and relatives                         | 53 | 66.2 |
| <b>Health care domain*</b>                      |    |      |
| Private health facilities                       | 10 | 12.5 |
| Free governmental health service                | 17 | 25.0 |
| Traditional healer /Self care                   | 53 | 62.5 |

\*More than one answer

**Table(3) Characteristics and previous and family health history of the studied preschool age children (n = 80 )**

| Items   | N  | %    |
|---|----|------|
| <b>Age of children</b>  |    |      |
| <2 years  | 26 | 32.5 |
| 2-4 years   | 40 | 50.0 |
| >4 years  | 14 | 17.2 |
| <b>X<sup>2</sup> (SD) 32 months (15)</b>                      |    |      |
| <b>Sex of children</b>  |    |      |
| Boys  | 38 | 47.5 |
| Girls   | 42 | 52.5 |
| <b>Order of children</b>                                      |    |      |
| First   | 28 | 35.0 |
| Second  | 31 | 38.8 |
| Third / Fourth  | 21 | 26.2 |
| <b>Previous health problems</b>                               |    |      |
| The child had complain from fever before                      | 3  | 3.7  |
| Weight loss / Jaundice / Pneumonia                            | 5  | 6.3  |
| <b>Surgical history</b>                                       |    |      |
| Abdominal hernia  | 4  | 5.0  |
| Tonsillectomy   | 7  | 8.5  |
| <b>Family genetic factor related to fever</b>                 |    |      |
| Mediterranean fever/ Chest allergy / Arthritis and rheumatoid | 8  | 10.0 |

**Table (4) History of laboratory investigations of the studied preschool age children (n = 80)**

| Items   | N  | %    |
|---|----|------|
| <b>Laboratory investigations</b>                      |    |      |
| Complete blood count                                  | 2  | 2.5  |
| Others*   | 8  | 10.0 |
| <b>Time of carrying out laboratory investigations</b> |    |      |
| After taking the antipyretics                         | 10 | 12.5 |

\*Vidal test, brucella, urine and stool analysis

**Table (5) Studied mothers' score levels of knowledge regarding unknown fever in their preschool age children (n = 80)**

| Items                    | Good |      | Fair |      | Poor |      |
|--------------------------|------|------|------|------|------|------|
|                          | N    | %    | N    | %    | N    | %    |
| Meaning of fever         | 2    | 2.5  | 13   | 16.2 | 65   | 81.3 |
| Meaning of unknown fever | 0    | 0.0  | 0    | 0.0  | 80   | 100  |
| Normal body temperature  | 10   | 12.5 | 0    | 0.0  | 70   | 87.5 |

|   |          |            |          |             |           |             |
|---|----------|------------|----------|-------------|-----------|-------------|
| Measuring tools of body temperature                       | 2        | 2.5        | 8        | 10.0        | 70        | 87.5        |
| Factors causing unknown fever                             | 20       | 25.0       | 50       | 62.5        | 10        | 12.5        |
| Perceived causes that lead to unknown fever in your child | 10       | 12.5       | 20       | 25.0        | 50        | 62.5        |
| Benefits of mild and moderate unknown fever               | 0        | 0.0        | 0        | 0.0         | 80        | 100         |
| Complications of unknown fever                            | 0        | 0.0        | 0        | 0.0         | 80        | 100         |
| Time of consult the doctors                               | 10       | 12.5       | 20       | 25.0        | 50        | 62.5        |
| Treatment of unknown fever                                | 12       | 15.0       | 10       | 12.5        | 58        | 72.5        |
| Management of unknown fever                               | 0        | 0.0        | 25       | 31.2        | 55        | 68.8        |
| Using antipyretics  | 3        | 3.8        | 2        | 2.5         | 75        | 93.7        |
| Follow infection control and sanitation measures          | 40       | 50.0       | 20       | 25.0        | 20        | 25.0        |
| <b>Total knowledge score</b>                              | <b>0</b> | <b>0.0</b> | <b>8</b> | <b>10.0</b> | <b>72</b> | <b>90.0</b> |

Poor < 50% of the total score (< 47.5)

Fair = 50% - 75% of total score (47.5 – 71.2)

Good > 75% of the total score (> 71.2)

Table (6) Studied mothers' score levels of subjective practice regarding unknown fever in their preschool age children. (n =80)

| Items  | Proper   |             | Improper  |             |
|--|----------|-------------|-----------|-------------|
|  | N        | %           | N         | %           |
| Tools and technique used for measuring body temperature          | 2        | 2.5         | 78        | 97.5        |
| Management of unknown fever                                      | 10       | 12.5        | 70        | 87.5        |
| On any body part apply the compresses                            | 10       | 12.5        | 70        | 87.5        |
| Action taken when unknown fever without another symptoms         | 30       | 37.5        | 50        | 62.5        |
| Action taken when unknown fever associated with another symptoms | 10       | 12.5        | 70        | 87.5        |
| Using antipyretic  | 62       | 77.5        | 18        | 22.5        |
| <b>Total subjective practice score</b>                           | <b>9</b> | <b>11.2</b> | <b>71</b> | <b>88.8</b> |

Proper > 68% of the total score (> 13 mark)

Improper < 68% of the total score (< 13 mark)

Table (7) Studied mothers' attitude regarding unknown fever in their preschool age children (n=80)

| Items  | Strongly agree |      | Agree |      | Disagree |      | Strongly disagree |      |
|--|----------------|------|-------|------|----------|------|-------------------|------|
|  | N              | %    | N     | %    | N        | %    | N                 | %    |
| <b>Positive attitude</b>   |                |      |       |      |          |      |                   |      |
| Genetic disease cause unknown fever                              | 2              | 2.5  | 31    | 38.8 | 10       | 12.5 | 37                | 46.2 |
| Infection cause unknown fever                                    | 25             | 31.2 | 10    | 12.5 | 35       | 43.8 | 10                | 12.5 |
| Unknown fever can occurred to any child                          | 11             | 13.8 | 10    | 12.5 | 22       | 27.5 | 37                | 46.2 |
| Follow the dose of antipyretic is essential                      | 15             | 18.8 | 10    | 12.5 | 15       | 18.8 | 40                | 50.0 |
| Follow of doctor's instructions are essential                    | 12             | 15   | 24    | 30.0 | 10       | 12.5 | 34                | 42.5 |
| Compresses and coolants useful in decrease temperature           | 8              | 10   | 14    | 17.5 | 22       | 27.5 | 36                | 45.0 |
| Cooling and antipyretics are necessary for control unknown fever | 38             | 47.5 | 15    | 18.8 | 14       | 17.5 | 13                | 16.2 |
| Infection control is necessary for prevention of unknown fever   | 25             | 31.2 | 10    | 12.5 | 35       | 43.8 | 10                | 12.5 |
| Antipyretics must be prescribed by the doctor                    | 10             | 12.5 | 14    | 17.5 | 9        | 11.2 | 47                | 58.8 |

|   |    |      |    |      |    |      |    |      |
|---|----|------|----|------|----|------|----|------|
| There is fear from inappropriate treatment of unknown fever | 13 | 16.2 | 14 | 17.5 | 8  | 10.0 | 45 | 56.2 |
| Antipyretic damage the liver                                | 10 | 12.5 | 13 | 16.2 | 29 | 36.2 | 28 | 35.0 |
| Antipyretic inhibits the immune system                      | 14 | 17.5 | 16 | 20.0 | 16 | 20.0 | 34 | 42.5 |
| Degree of fear from unknown fever depend on child age       | 9  | 11.2 | 11 | 13.8 | 22 | 27.5 | 38 | 47.5 |
| Unidentified the cause of unknown fever is source of worry  | 13 | 16.2 | 14 | 17.5 | 10 | 12.5 | 43 | 53.8 |
| Prolongation of unknown fever worrying the mother           | 80 | 100  | 0  | 0.0  | 0  | 0.0  | 0  | 0.0  |
| Improper management of unknown fever fearing the mother     | 8  | 10   | 4  | 5.0  | 8  | 10.0 | 60 | 75.0 |
| Unknown fever is a source of worry for the family           | 52 | 65.0 | 20 | 25.0 | 8  | 10.0 | 0  | 0.0  |
| <b>Total positive attitude statements(17)</b>               |    |      |    |      |    |      |    |      |

Table (7) Studied mothers' attitude regarding unknown fever in their preschool age children (n=80) Cont.,

| Items   | Strongly agree |      | Agree |      | Disagree |      | Strongly disagree |      |
|---|----------------|------|-------|------|----------|------|-------------------|------|
|   | N              | %    | N     | %    | N        | %    | N                 | %    |
| <b>Negative attitude</b>  |                |      |       |      |          |      |                   |      |
| The medical team has role in your fear from Unknown fever               | 49             | 61.2 | 10    | 12.5 | 11       | 13.8 | 10                | 12.5 |
| Unknown fever is a disease more than a symptom                          | 40             | 50.0 | 13    | 16.2 | 9        | 11.2 | 18                | 22.5 |
| Unknown fever cause child death   | 36             | 45.0 | 20    | 25.0 | 20       | 25.0 | 4                 | 5.0  |
| Unknown fever cause convulsion  | 35             | 43.8 | 21    | 26.2 | 20       | 25.0 | 4                 | 5.0  |
| Unknown fever cause brain damage  | 43             | 53.8 | 12    | 15.0 | 21       | 26.2 | 4                 | 5.0  |
| Unknown fever sign of serious illness                                   | 44             | 55.0 | 15    | 18.8 | 17       | 21.2 | 4                 | 5.0  |
| Unknown fever cause damage to liver and kidney                          | 22             | 27.5 | 37    | 46.2 | 17       | 21.2 | 4                 | 5.0  |
| Medical herbs is useful for unknown fever                               | 28             | 35.0 | 18    | 22.5 | 29       | 36.2 | 5                 | 6.2  |
| Popular recipes is useful for unknown fever                             | 36             | 45.0 | 14    | 17.5 | 19       | 23.8 | 11                | 13.8 |
| Antipyretic is safe and don't harm                                      | 26             | 32.5 | 26    | 32.5 | 18       | 22.5 | 10                | 12.5 |
| Antipyretics are preferred than cooling methods and compresses          | 41             | 51.3 | 21    | 26.2 | 10       | 12.5 | 8                 | 10.0 |
| Just raising the temperature without other symptoms require antibiotics | 38             | 47.5 | 17    | 21.2 | 17       | 21.2 | 8                 | 10.0 |
| Herbs and popular recipes more effective than medicine                  | 41             | 51.2 | 9     | 11.2 | 19       | 23.8 | 11                | 13.8 |
| Unknown fever is due to fatal disease                                   | 41             | 51.2 | 12    | 15.0 | 18       | 22.5 | 9                 | 11.2 |
| High temperature cause disability to the child throughout his life      | 30             | 37.5 | 21    | 26.2 | 22       | 27.5 | 7                 | 8.8  |
| <b>Total negative attitude statements(15)</b>                           |                |      |       |      |          |      |                   |      |
| <b>Total attitude score</b>   |                |      |       |      |          |      |                   |      |
| <b>Mean (SD) 1.56(0.5)</b>  |                |      |       |      |          |      |                   |      |

Table(8) Association between studied mothers' total score levels of knowledge and their age (n=80)

| Mothers' age | Knowledge |      | Test of sig<br>Chi square<br>P=0.25 |
|--------------|-----------|------|-------------------------------------|
|              | Fair      | Poor |                                     |
| <20          | 5         | 0    |                                     |
| 20-< 30      | 50        | 4    |                                     |
| 30-40        | 17        | 4    |                                     |

**Table (9) Association between studied mothers' total score levels of subjective practice and their age (n=80)**

| Mothers' age | Practice |        | Test of sig          |
|--------------|----------|--------|----------------------|
|              | Improper | Proper | Chi square<br>P=0.41 |
| <20          | 5        | 0      |                      |
| 20- < 30     | 49       | 5      |                      |
| 30-40        | 17       | 4      |                      |

**Table (10) Association between studied mothers' total score levels of attitude and their age (n=80)**

| Mothers' age | Attitude |          | Test of sig         |
|--------------|----------|----------|---------------------|
|              | Negative | Positive | Chi square<br>P=0.4 |
| <20          | 5        | 0        |                     |
| 20- < 30     | 49       | 5        |                     |
| 30-40        | 17       | 4        |                     |

Data expressed as mean, SD

Test used: One-way ANOVA

\*p value <0.05 significant

**Table (11) Association between studied mothers' total score levels of knowledge, subjective practice and attitude and their education (n=80)**

| Items                      | Illiterate<br>N=10 | Primary<br>N=3 | Preparatory<br>N=14 | Secondary<br>N=32 | High education<br>N=21 | P value |
|----------------------------|--------------------|----------------|---------------------|-------------------|------------------------|---------|
| <b>Knowledge</b>           | 41.3±<br>3.7       | 43.6±<br>5.6   | 38±<br>6.6          | 42.4±<br>5.8      | 41.8±<br>4.9           | 0.15    |
| <b>Subjective practice</b> | 6.1±<br>1.7        | 8.6±<br>6.6    | 5.9±1.5             | 8.4±4.6           | 6.3±2.7                | 0.09    |
| <b>Attitude</b>            | 59±<br>16.6        | 74.6±<br>37.2  | 52.8±<br>12         | 68.8±28           | 61.2±18.9              | 0.2     |

Data expressed as mean ±SD

Test use d: One-way ANOVA

\*p value <0.05 significant

**Table (12) Association between studied mothers' total score levels of knowledge, subjective practice and attitude and order of their preschool age children (n=80)**

| Items                      | Single       | First       | Second       | Third        | Fourth      | P value |
|----------------------------|--------------|-------------|--------------|--------------|-------------|---------|
| <b>Knowledge</b>           | 36.2±<br>4.1 | 40±<br>4.8  | 41.8±<br>6.3 | 44.3±<br>3.9 | 42±<br>4.2  | 0.005*  |
| <b>Subjective practice</b> | 5.6±<br>1.3  | 7±<br>3.3   | 7.9±<br>4.2  | 6.8±<br>3.9  | 6.5±<br>2.1 | 0.5     |
| <b>Attitude</b>            | 56.6±<br>13  | 63.8±<br>20 | 67±<br>27    | 59±<br>23.6  | 60±<br>14   | 0.7     |

Data expressed as mean, SD

Test used: One-way ANOVA

\*p value <0.05 significant

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