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Mothers Knowledge, Attitude and Practices toward Fever Management of Their Children

Thesis submitted

By

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To

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in Nursing Sciences

Supervisor by

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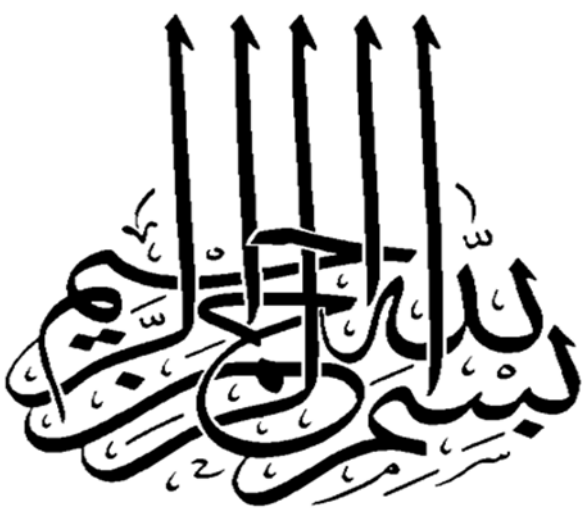

{ وَنُنزلُ مِنَ الْقُرْآنِ مَا هُوَ شِفَاءٌ وَرَحْمَةٌ لِلْمُؤْمِنِينَ}

صدق الله العلي العظيم

سورة الإسراء أية (٨٢)

Supervisor Certification

I certify that this thesis, entitled (**Mothers Knowledge, Attitude and Practices toward Fever Management of Their Children**), was prepared under my supervision at the College of Nursing, University of Babylon in partial fulfillment of the requirement for the degree of Master in Nursing Sciences.

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We, the examining committee, certify that we have read this thesis entitled (**Mothers Knowledge, Attitude and Practices toward Fever Management of their Children**), which was submitted by (**Rawaa Abase Fahdil**) from the department of Pediatric Nursing, and we have examined the student in its contents, and what is related to it and we decide that it is adequate for awarding the degree of (Master) in Nursing Sciences with specialty of (Pediatric Nursing) and estimate of (

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Dedication

First and foremost, this work is dedicated to my parents and my husband for all of them support through my educational endeavors. I thank, for their encouragement and supported me. This work is also dedicated to my son and daughters for their tolerance and keeping them away from me for a long period of time. Dedicated to every mother who participated with me to complete the thesis.

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Abstract

Fever is one of the most prevalent symptoms of childhood illnesses, which generates a lot of anxiety in families. Almost every child has a fever of 37.8–40.8°C at some point during their childhood**.**

This study aim to assess the knowledge, attitudes and practices of mothers about childhood fever management and to identify the sociodemographic variables associated with them.

A descriptive analytic study design was used during the period from 7th February 2022 to 8th March 2022. This study was conducted of (200) mothers attended to (Karbala Teaching Hospital for Pediatric) on non-probability purposive sample approach. The credibility of the questionnaire was investigated through a pilot study before was presented to experts to prove its validity. The total number of items included in the questionnaire was (14) items for knowledge, (9) items for attitudes and (17) items for practices. The data were collected using the interview method and analyzed by applying the descriptive and inferential statistical approach.

The results of the study indicated that (47.5%) of the mothers showed poor knowledge, (79.5%) positive attitudes, and (54.5%) insufficient practices. There were significant differences in knowledge regarding the mother's age, education level and sources of information, statistically significant differences in attitudes towards mothers' profession and significant differences in practices with regard to age, occupation, monthly income and the child's age. There was a significant positive association between mothers' knowledge and practices ($r = 0.626$; $p = 0.000$).

The study concluded that Knowledge in terms of management of children with fever, mothers expressed a poor level due to influence by mothers age. Positive attitudes towards management of children with fever and influenced

by mothers occupation. Practices related study variables, the inadequate level among mothers affected by mother's age.

The study recommended adds knowledge related to health education. Further study is needed to explore other factors related to the management of fever in children to prevent complications and reduce hospital burdens.

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List of Abbreviations

Item	Meaning
B.C	Before Christ
BBS	Blood Barriers
BMR	Basal Metabolic Rate
CD14	Cluster of Differentiation14
CNS	Central Nervous System
F	Frequency
HS	Highly Significant
IL	Interleukin
K	Number of items
KAP	Knowledge, Attitude ,Practice
LPS	Lipopolysaccharide
M.S	Mean of score
MIP-1	Macrophage Inflammation Protein -1
No.	Number
NS	Non-significant
NSAID	Nonsteroidal Anti-Inflammatory Drugs
NST	Nucleus of Solitary Tract
P.	Page
p.p.	Pages
PGE2	prostaglandin E2
P-value	Probability value
R	Correlation
S	Significant

S.D	Standard Deviation
SPSS-XX	Statistical Package of Social Sciences 20
WHO	World Health Organization

Symbol table

%	Percentage
σ_{ii}	Variance (not standard deviation) of item i
<	More than
>	Less than
σ_{ij}	Estimated covariance between items i and j
$\sum$	Sum

Chapter One
Introduction

Chapter One

Introduction

1.1.Background

Fever is one of the most prevalent symptoms of childhood illnesses, which generates a lot of anxiety in families. Almost every child has a fever of 37.8–40.8°C at some point during their childhood (Rajput *et al*.,2014).

Fever phobias have been observed in parents in various studies, including Italy, Ireland, Jordan, Nigeria, Canada, Morocco, and France, resulting in frequent hospital visits (Chiappini *et al*., 2017). One of the World Health Organization's eight Millennium Development Goals is to reduce under-five mortality. Because mothers are typically the major caretakers for their children, particularly those under the age of five, it is vital to expand their understanding of disease management for their children (Thomas and Martin, 2014).

The reason of a fever in a young child is frequently difficult to establish, posing a diagnostic challenge for doctors. Most episodes of childhood fever are caused by a self-healing viral infection, and the baby recovers without the need for medical treatment. Children's fever, on the other hand, can be caused by dangerous bacterial illnesses such as urinary tract infections, septicaemia, meningitis, and pneumonia, which can result in consequences such as convulsions, seizures, and dehydration (Athamneh *et al*., 2014).

It is critical for the consistent sensible management of fever that parents and caregivers have appropriate knowledge and a positive attitude toward the benefits of fever. It is critical to establish effective solutions based on a comprehensive grasp of society's beliefs and attitudes about pediatric disorders. Understanding the views and representations of parents and caregivers is required to ensure this (Cinar *et al*., 2014).

Most children who appear with fever are diagnosed with short-term, self-curing viral or uncomplicated and milder bacterial infections that can be managed at home by the primary care provider using supportive care methods and imparting sufficient knowledge to recognize early disease. Warning indicators and follow-up recommendations According to recent surveys in Turkey, 83-97 percent of parents believe that fever is hazardous (Chilambarasan, 2020).

However, parents' misunderstanding and fear of fever in younger children leads to multiple appointments, sometimes with a different doctor, during the same bout of febrile sickness. This is especially likely if the fever lasts for an extended period of time **(**Hussain et al., 2020).

Acute viral febrile fever typically manifests as a fast rise in temperature, without any local symptoms, and can linger for 3 to 4 days before dissipating gradually after 7 days. In such cases, appropriate rest and water, as well as antipyretics, are the mainstays of treatment, and they are usually self-limiting. However, this frequently causes dread in the parents, forcing them to seek regular consultations (Abdinia and Khalilzadeh, 2017).

It is critical to assess parents' understanding of fever and febrile disease management so that safe and effective fever control measures can be imparted. This will limit the number of unnecessary clinic visits (Kelly *et al*., 2016).

Fever is normally harmless and indicates that the body is fighting a sickness or infection. It can be interpreted as a positive indicator that the child's immune system is functioning properly and that the body is attempting to recover itself. At the same time, the source of the fever must be investigated (Ameen, 2020).

Current WHO fever management guidelines propose paracetamol for the treatment of children with temperatures greater than 38.5 °C,

indicating that mild to moderate fever should not be suppressed consistently (Raffaeli *et al*., 2016).

If a mother suspects her infant has a fever, she will usually give him or her an anti-fever medication (paracetamol or ibuprofen). If used correctly, paracetamol is considered a safe medicine; however, taking too much of it can be harmful and, in rare cases, fatal. Overdoes are a leading cause of pediatric liver failure. Even when taken at the prescribed amount, ibuprofen might cause stomach troubles and renal damage in some youngsters (Star and Choonara, 2015).

Most parents were unclear regarding the necessity of antibiotics for both viral and bacterial diseases, and most parents agreed that paracetamol was necessary for any kid with a fever. The study recommended raising awareness and teaching parents about the link between drug use and childhood fever (Davis *et al*., 2017).

When their child's body temperature rises, parents normally get highly concerned. In many situations, however, youngster recover without the need for treatment and with only two to three days of rest and parental attention. According to studies, many parents use antipyretics even if their child has a low-grade fever or no fever at all. According to some sources, the frequency of doctor visits for fever in youngsters ranged from 19 to 30 percent, while other sources claimed a figure closer to 50 percent (Abdinia and Khalilzadeh, 2017).

1.2. Importance of Study

Fever is a common presentation in childhood, accounting for approximately 65 to 70 percent of all pediatric visits. Fever is a self-limiting sickness, but it generates agony and anxiety in the parents. These factors, when combined, raise health-care expenses and contribute to the needless use of antibiotics, and parents tend to see doctors, which may result in unneeded lab testing or even the prescription of unnecessary

medications to children solely to assuage parents' anxieties (Hussain *et al*., 2020).

The management of a child's fever is dependent on the child's age group. For than two decades, mothers have expressed concern about the detrimental effects of fever. Despite successful educational initiatives, these issues continue (Cohee *et al*., 2010).

The temperature at which the negative effects of fever can arise has altered over time in the minds of parents. Although 94% of American parents of healthy children thought fever was dangerous, only 4% thought fevers of 37.8°C or lower were harmful; 48% said fevers below 40°C (moderate fever) were harmful (Walsh and Edwards, 2006).

This research of a US emergency department shows that triage temperatures at the Boston emergency department are lower in the morning than in the afternoon or evening. In the evening, the percentage of triage temperatures in this range was around 2.5 times higher than in the morning (7:00-8:59 pm vs 7:00-8:59 am: 4.1 percent vs 1.6 percent ; risk ratio [RR] 2.5, 95 percent CI, 2.0-3.3) (Harding *et al*., 2020).

Fever is a common problem in children, and it is one of the most popular reasons for parents to take their children to the doctor. It accounts for 20-30% of all operating visits, and in the vast majority of cases, nothing hazardous is discovered (Ameen, 2020).

Fever is the most prevalent symptom of children illness, accounting for up to a third of all pediatric visits to general practitioners. Fever-relieving medications (acetaminophen, ibuprofen) are widely used in many nations, and their use looks to be on the rise (Bertille *et al*., 2013).

Acute febrile episodes account for 20 to 30 percent of all pediatric emergency department visits. Fever is four to six times more common in children throughout their first two years of life. Fever is most commonly caused by a viral illness, which occurs in Australia in a seasonal pattern

from April to September, when there is an increase in acute infections in the community caused primarily by respiratory and gastrointestinal pathogens such as respiratory syncytial virus and rotavirus, respectively (Waly and Bakry, 2022).

Diarrhea (07.1 %), otitis media (03.7 %), urinary tract infections (02.2 %), measles (02.6 %), and measles (03.7 %) were the least common (07.1 %). Osteomyelitis, meningitis, and viral infections were among the other reasons. It is frequently caused by a very mild, self-healing viral infection in preschool-aged children, such as influenza-like illness and acute upper respiratory infection (Elbushra, 2004).

The symptoms of a self-limiting viral infection, on the other hand, may suggest dangerous diseases in less than 10% of instances and bacterial infections in around 4%. Fever is the leading cause of counseling in the Netherlands, with (122 per 1,000) children under the age of one year and (415 per 1,000) children aged one to five years. According to studies conducted in the United States, approximately 30% of children seen by pediatricians had a fever (Kelly *et al*., 2016).

In Africa, rural Senegal has a high frequency of fever, with 20 percent of youngsters developing a fever each month. Fever was found to be 6.2 % in the dry season and 12.8 % in the rainy season in Mali, while fever was found to be 23 percent among children under five in Guinea's rural areas and 6 percent in Kenya. In Ghana and other Sub-Saharan African nations, a fever officer is in charge of more than 60% of outpatient visits to children (Brito *et al*., 2015).

Between 2014 and 2016, 1034 instances of febrile child were reported at Kwahu State Hospital in Atepe, with 31-43 percent of the cases being febrile convulsions. The most prevalent childhood fever among children under the age of five is febrile convulsion, which is one of the

leading causes of admission to Ghanaian children's hospitals (Anokye *et al*., 2018).

Infection was shown to be the cause of fever in(37 %) to (74 %)of patients, while non-infectious causes were found in (3 %)to (52 %). 4-10 Urinary tract infection, pneumonia, sinusitis, and bloodstream infection are the most prevalent infectious causes (Kaul *et al*., 2006).

Fever has been documented in children under the age of five around the world, with three out of every four children under the age of five in Indonesia (74%) being brought to a health facility or provider for treatment, while in Rwanda, the prevalence was 19% and there were differences between provinces. The East (22%) and the South (21%) have the highest prevalence, while the North has the lowest (14 %) (Munezero, 2019). Around 10% of Saudi Arabia's population is under the age of four, resulting in a significant burden of pediatric ailments such as fever (Hussain *et al*., 2020).

In the Riyadh region of Saudi Arabia, a study was undertaken in 2018 to examine parents' awareness and experience in treating house fever in their preschool children. The majority of parents (64 %) properly described a fever, with a high temperature accounting for 56 percent of the time. The majority of people thought the fever was significant, and that the most common complication was febrile convulsion (74 %), which was followed by loss of consciousness, vomiting, brain injury, and hearing loss (AlAteeq *et al*., 2018).

When their child develops a high temperature, over 40% of parents of children aged 6 to 17 months seek medical help. Clinical guidelines require that these babies have their temperatures taken, but little is known about parents' experiences and opinions regarding taking their children's temperatures (Morris *et al*., 2021).

A lesser percentage of fevers (10–25%) are caused by gastroenteritis, which might manifest as nonspecific fevers, such as those caused by urinary tract infections, which account for just 1–6% of cases (D'acremont *et al*., 2014).

From a variety of sources, parents learn how to deal with fevers. In India, it was stated that parents learned about fever control via their family, doctors, books, or acquaintances. They learn more from doctors and nurses than from friends and relatives, unlike their American counterparts (Elbur, 2014).

Mothers lacked awareness about when to call a doctor, go to the hospital, or consult a health care worker if their child had a fever, according to a survey conducted in Erbil city. This is most likely due to the fact that most mothers have no idea what their typical body temperature is. As a result, the moms were aware of the proper medication to use in the event of a fever. Despite the fact that 70% of the mothers in the study had more than one child, they lacked the necessary skills to treat children with fever (Ameen, 2020).

In Iraq, mothers' knowledge, attitudes, and practices regarding fever management for their children have received little attention, and as a mother who is interested in this topic, I would like to increase mothers' knowledge about fever management to prevent complications for their children and reduce parental anxiety.

1.3. Problem Statement.

Fever is one of the most common a symptom of illness and it is going to cause damage and illness if untreated. Mothers lacked awareness about when to call a doctor, go to the hospital, or consult a health care worker if their child had a fever. In addition to the lack of local research conducted on Mothers Fever Knowledge, attitudes and Practices toward fever in childhood.

1.4. Objectives of a Study

The study aimed at:

1. Assess the knowledge, attitudes and practices of mothers toward childhood fever.
2. Determine the differences in knowledge, attitudes and practices with regards mothers' socio-demographic characteristics.
3. Find out the correlation between knowledge, attitudes, and their practices.

1.5.Definitions of Terms

1.5.1.Fever

Theoretical Definition:

Fever has been defined as "a state of elevated core temperature, which is often, but not necessarily, part of the defensive responses of multicellular organisms (host) to the invasion of live (microorganisms) or inanimate matter recognized as pathogenic or alien by the host (Mackowiak *et al*., 2021).

Operational Definition:

Its elevated of the child temperature more than 37°C .

1.5.2.Knowledge:

Theoretical Definition:

Knowledge is a complex term that necessitates the integration of data from various sources as well as the construction of one or more concepts about a situation (Bolisani and Bratianu, 2018).

Operational Definition:

Knowledge is the information of mothers about fever among children under 5 years (causes, complication, management).

1.5.3.Attitude:

Theoretical definition:

Attitude are the inclination or tendency to respond positively or negatively to a specific idea, item, person, or situation. Attitudes influence individual decision-making, as well as responses to challenges, in centers, and rewards (Jebur, 2019).

Operational Definition:

When a mother's sentiments or opinions about anything are conveyed in her conduct toward management fever, it is called management fever.

1.5.4.Practice

Theoretical Definition:

The sum total of knowledge, abilities, and practices based on indigenous theories, beliefs, and experiences of many cultures and traditions is known as practices (Mordeniz, 2019).

Operational Definition:

Actions taken by the mother to control and reduce her child's fever.

1.5.5.Mothers

Theoretical Definition

As used here, mother refers to a female parent. It is a cultural process in which women's identities are rooted on their ability to care for newborns and children (Biber, 2016).

Operational Definition

The researcher is interested in gathering data from mothers who have children under the age of five years on their knowledge, attitudes, and practices related to fever management.

1.5.6. children under5 years

Theoretically definition

Children under 5 years are the period from birth to eight years old is a time of remarkable growth with brain development at its peak. During this stage, children are highly influenced by the environment and the people that surround them (WHO, 2019)

Operationally definition

Children under 5 years are the early period of child life from day to 5 years old who suffered from fever.

Chapter Two
Literature Review

Chapter Two

Literature Review

2.1.Overview of Fever

Fever is a typical, but terrifying, physiologic response that has caused much anxiety throughout medicine's history (Hamlin, 2014). Fever is associated with a variety of ideas and perceptions. These ideas and impressions are still up for debate. The dread and apprehension most Mothers and caregivers have about fever is undeniable, which is why the term 'Fever Phobia' was coined (Purssell, 2014).

Fever in children frequently results in spontaneous doctor visits, phone calls from parents seeking advice on fever control, and the widespread use of over-the-counter antipyretics. Fever is such a prevalent symptom that an average child may experience 4-6 febrile episodes each year throughout his or her first two years of life (Chilambarasan, 2020).

2.2.Historical Timeline of Fever

Fever has been recognized as a symptom of sickness throughout the history of human civilisation. The Mesopotamian civilization's Akkadian cuneiform inscriptions from the sixth century B.C. used glowing copper to express fever during illness (Sajadi *et al*., 2012).

Long before the discovery of the thermometer, Hippocrates detailed in detail fluctuations in body temperature related with diseases such as pneumonia, malaria, and enteric fever. The idea of the four humors was used by the Ancient Greeks to explain this: An excess of yellow bile, connected with the element of fire, caused fever (Thompson, 2005).

The humoral hypothesis of fever needed to be rethought after William Harvey's description of the circulation in the 17th century. The iatrophysicists believed that fever was caused by physical forces such as friction from blood surging through the circulatory system in fever, while the iatro-

chemists believed that fever was caused by fermentation and putrefaction (Ray, 2020).

Borussia and others linked post-mortem tissue damage to fever symptoms in the early 18th century. Fever was thought to be caused by sources of inflammation, which led to the discovery of microbial infections (Sajadi, 2012).

Through post-mortem investigation of rabbits treated to hyperthermia and those who developed fever due to infection, William Welch advanced this theory of fever. He also suggested that fever was caused by a 'ferment' created by the host's leucocytes in reaction to both viral and non-infectious disease. The cytokine theory of fever was born with this discovery (Ray, 2020).

In 1875, von Liebermaster proposed that fever is caused by a condition that causes the body's temperature to rise. Based on temperature changes detected in animal trials after this area was wounded, Welch proposed that an area near the thalamus was involved in the regulation of body temperature in both health and disease (Casanova and Abel, 2021).

This was accomplished by balancing heat production and loss: animals with spinal cord transection had a harder time controlling their temperature. As a result of their influence on the central nervous system, the chemicals generated by leucocytes raise the body's set-point temperature. To create a fever, the body boosts heat production while decreasing heat loss. This is still how we think about fever today (Hamlin, 2014).

2.2.1.History of the Treatment of Fever

Because fever and illness states have historically been semantically linked, any sickness has been conceived of and treated as if it were a fever. For his feverish condition, Alexander the Great was prescribed chilly baths. Hippocrates, as well as Egyptians and Assyrians before him, used willow leaves; willow bark and leaves have since been discovered to contain sali-

cylic acid. Following Reverend Edward Stone's description of its use in the 19th century, willow bark produced salicylic acid became widely used in the treatment of malarial fever (Ray, 2020).

Salicylic acid had been refined and synthesized industrially by the mid-nineteenth century. Felix Hoffman, while working for Bayer, discovered acetylsalicylic acid as a way to decrease the gastrointestinal adverse effects of salicylic acid. Aspirin became popular in the treatment of rheumatic fever after it was first dismissed due to its 'heart-weakening effects (Miner and Hoffhines, 2007).

Fever, on the other hand, was not always regarded as harmful: the ancient Greeks believed that the heightened heat of fever might 'cook' the ailment out of the body. Fever, contrary to popular belief, has a calming impact on epileptics, according to Hippocrates. "Fever is a tremendous engine which Nature introduces into the world for the conquest of her adversaries," said Thomas Sydenham, an English physician in the 17th century (Walmsley, 2008).

In the nineteenth century, Pinel and Esquirol described the beneficial effects of fever on insanity. Rosenblum, a psychiatrist, used malaria and typhoid fever to produce fever as a possible treatment for psychoses. Julius Wagner-Jauregg, an Austrian neuropsychiatrist, investigated this approach further. He used blood from malaria patients to produce a fever in people with neurosyphilis. Malaria was treated with quinine seven to twelve days later. The observed remission rates were higher than those seen with traditional treatments such as iodine, mercury, and arsphenamine in the past (Ray, 2020).

Wagner-Jauregg was awarded the Nobel Prize for Medicine in 1927 as a result of this. The development of antibiotics, the post-Nuremburg bioethical movement, and Wagner-ties Jauregg's to the Nazi party pushed the

premise that fever might be used to cure sickness out of the forefront of clinical practice (Tsay, 2013)

2.3.Normal Body Temperature and Measurement

The hypothalamus determines normal body temperature, often known as core temperature. With the help of neurons known as preoptic nuclei, the hypothalamus regulates our body's temperature (Zhao *et al*., 2017).

The axilla, mouth cavity, ear canal, and rectum provide a fair approximation of body temperature, but none of these are equivalent to the core temperature.' Another commonly asked subject is whether there is a formula for equilibrating with core temperature. The conversion equations are too imprecise to be effective in all clinical settings, hence the answer is no.' Rather, the temperature should be compared to the typical range for that particular location. The typical core body temperature is between 36.5 and 37.5 degrees Celsius. Rectal temperature, on average, overestimates core temperature; for example, if the top limit of core temperature is 37.5°C, the corresponding rectal temperature is 38°C. The core body temperature is underestimated by the oral, aural, and axillary temperatures (Wait and Dennis, 2013;Pecoraro *et al*., 2021).

The National Institute for Health and Care Excellence (NICE) standards and the Canadian Pediatric Society (CPS) guidelines are the two main temperature-measurement guidelines. These principles state that no single website is superior to the others. It should be noted that both of these guidelines agree that oral thermometry should not be used in children under the age of five (Chilambarasan, 2020).(As show in table 2-1)

Table 2-1: NICE recommendations

Age	site measuring
< 5yrs	Do not use oral/ rectal
< 4 weeks	Axilla
4 weeks - 5 yrs.	Axilla, Tympanic
> 5 yrs.	Oral/Rectal/ Tympanic

(Sullivan and Farrar, 2011).

2.3.1. Axillary thermometry

It is the simplest and most straightforward way of determining temperature. However, as compared to other methods, it has some drawbacks, such as the possibility of displacement if not supervised, inaccuracy, and time commitment. Equilibration takes roughly 3-5 minutes, especially if a mercury thermometer is used. Furthermore, because it is sensitive to ambient temperature, there is a higher risk of inaccuracy (Pecoraro, 2021).

Another significant disadvantage is that when the temperature rises suddenly, the severe peripheral vasoconstriction caused by the raised hypothalamus thermostat set point causes the axillary temperature to appear normal while the core temperature rises rapidly (Sund-Levander and Grodzinsky, 2013).

2.3.2.Oral thermometry

It's simple to use and has a greater correlation with core temperature. The main disadvantages are that the child must cooperate while being measured, and it cannot be used on children under the age of five or patients who are unconscious. Furthermore, if the patient has had a hot or cold drink or used a mouth breather, it may provide a misleading result (Chilambarasan, 2020).

2.3.3.Rectal thermometry

The technique is regarded the gold standard for diagnosing hypothermia since it reflects the temperature of the rectal arteries. The most significant disadvantage of rectal thermometry is that most children dislike it since it can cause pain, mucosal abrasion, and psychological distress. Because the rectum has limited blood flow, it may take a long time for the rectal temperature to equalize with the core temperature (McCallum and Higgins, 2012).

2.3.4.Tympanic thermometry

The technique reflects the ear canal and tympanic membrane's thermal radiation. As a result, it's also known as an infrared radiation emission detector (IREDS). The thermometer's probe monitors the heat lost through radiation from the membrane. Because both the tympanic membrane and the hypothalamus share the carotid artery for blood flow, this approach allows for the closest approximation to core body temperature. The probe must be properly inserted and directed towards the tympanic membrane, and it is not appropriate for children under the age of two. With the availability of smaller probes for use in children under the age of two and a sensor to ensure the correct positioning of the thermometer, it has the potential to become the gold standard for detecting temperature in the future (Houdas and Ring, 2014; Yeoh *et al*., 2017).

2.4. Types of thermometers

There are many kinds of thermometers: Glass thermometers with mercury. These are the gold standard and most accurate. These can be oral, rectal or axillary. Digital thermometers run on batteries. They are good, work in less than 30 sec. They can be oral, rectal or axillary, Electronic axillary and infrared tympanic thermometers have been found to have moderate agreement themselves with central temperature measurements (Van den Bruel *et al*.,2020).

2.5.Regulation of Body Temperature

The hypothalamus regulates temperature by sending signals to the skin, glands, muscles, and organs. When the body senses a heated external environment or high levels of exercise activity, for example, the temperature rises, leading the hypothalamus to send signals to the skin cells to produce sweat and decrease sympathetic nervous system adrenergic activity. This results in cutaneous vasodilation and a decrease in basal metabolic rate (BMR). In a chilly environment, on the other hand, the body sends out signals for the shivering reaction and the activation of the Errector pili muscles in the skin. As a result, this procedure aids in supplying warmth and heat to the body (AlAteeq *et al*., 2018).

The release of thyroid stimulating hormone (TSH) is aided by a gradual drop in ambient temperature, which causes the thyroid gland to raise metabolic rate in order to produce more body heat. The hypothalamic sensors diminish heat generation and the stimulus activating heat loss prevention responses as the body warms up. BMR, muscle activity, and the impact of thyroid hormones, adrenaline, and norepinephrine are all factors that influence the rate of heat production in the body (Jansen *et al*., 2015)(as show in fig 2-1).

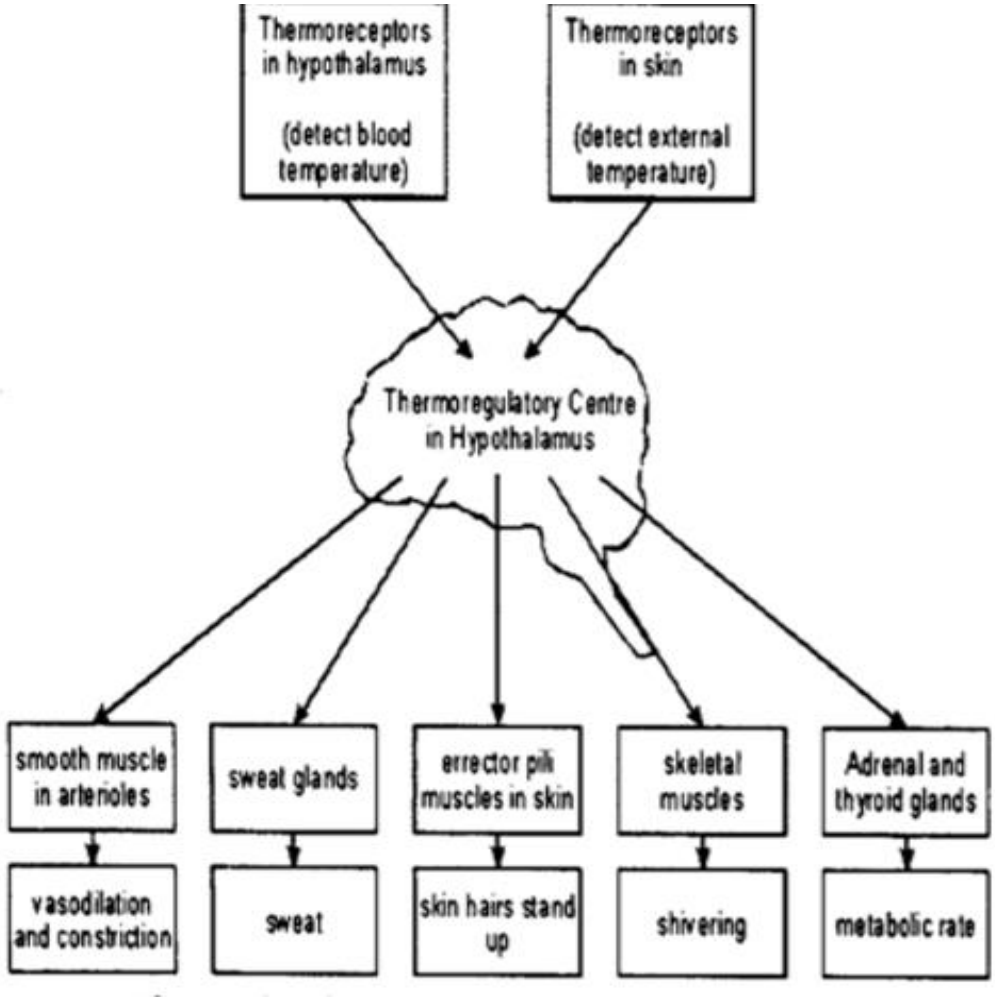

Fig. 2-1: Action of thermoregulation center in hypothalamus (Nazari et al., 2020).

Mechanisms through which the body regulates the temperature are listed below: (Chilambarasan, 2020).

Heat loss

1. Radiation: Loss of heat from body in the form of infrared rays.
2. Conduction: Heat is conducted from body to objects in contact, e.g. chair, bed, etc.
3. Convection: Heat is lost from body through air currents.
4. Evaporation: Evaporation of water from body surface in the form of sweat
5. Vasodilation.

   (As show in fig. 2-2)

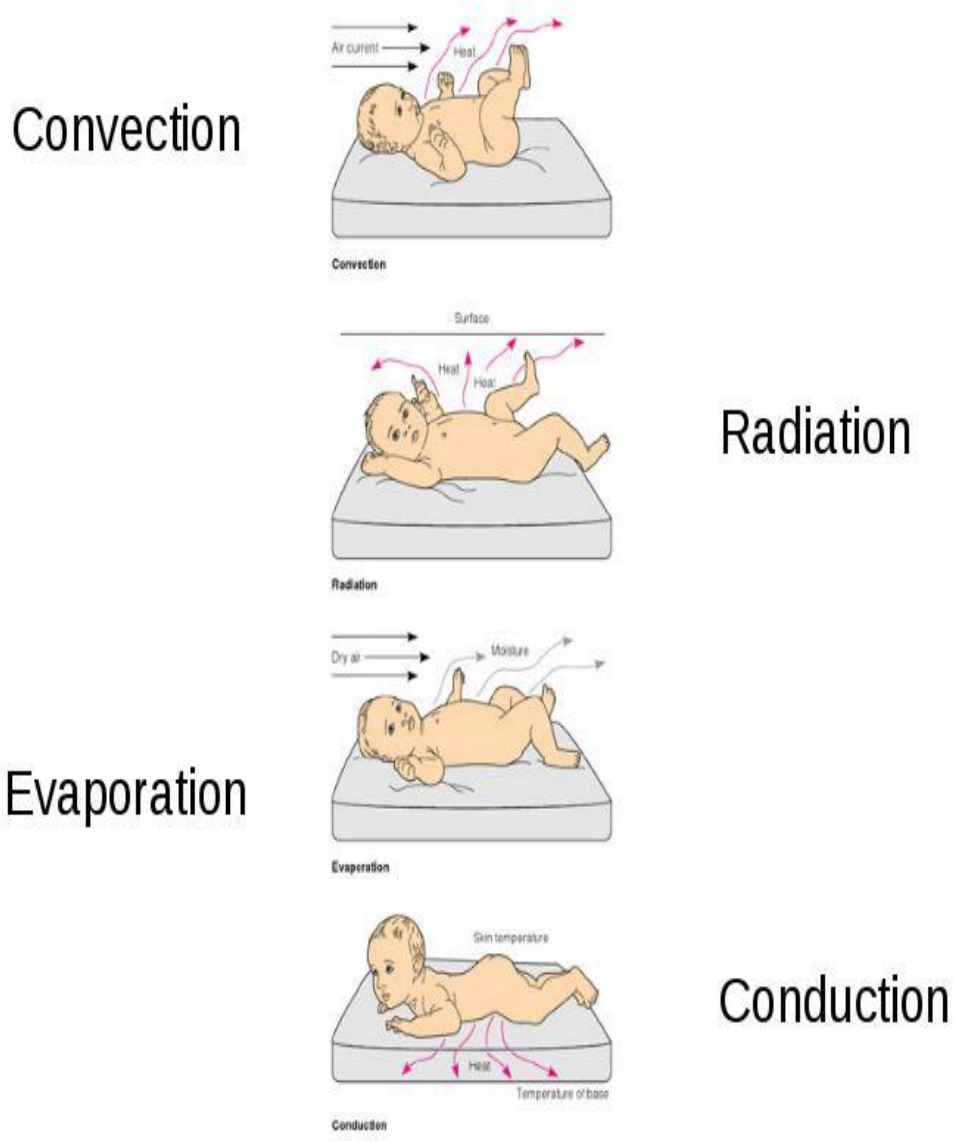

Fig.2-2: Heat loss (Flagg & Pillitteri, 2018).

Heat production (Chilambarasan, 2020).

1. Increased cell metabolism
2. Muscle activity
3. Involuntary shivering
4. Heat conservation
5. Vasoconstriction.

   (As show in fig.2-3)

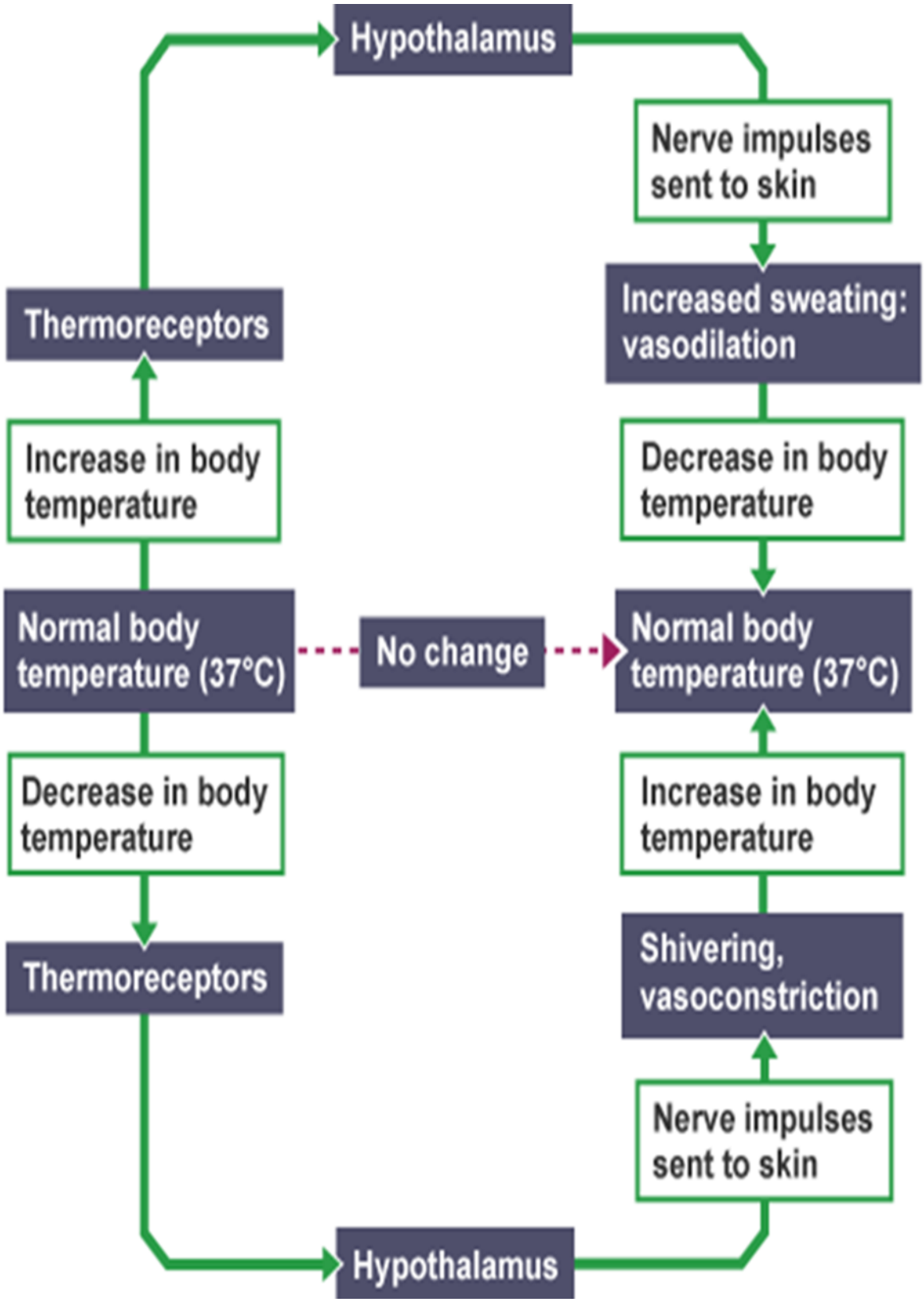

Fig.2-3: Heat loss and Heat production (Tan and Knight, 2018).

2.6.Definition of Fever

Fever is defined as a state of raised core temperature that is often, but not always, part of multicellular organisms' (host) defensive responses to the invasion of live (microorganisms) or inanimate substances recognized as pathogenic or alien by the host (Mackowiak, 2013).

Fever, also known as pyrexia, is a condition in which the body's temperature rises over its normal range due to an increase in the temperature set point. There is no universally accepted upper limit for normal temperature in humans, with sources citing temperatures between 37.2 and 38.3 °C (99.0 and 100.9 °F) (Kluger, 2015).

Hyperthermia is defined as an increase in body temperature over the temperature set point caused by either excessive heat generation or insufficient heat dissipation. It is not considered a fever. The terms hyperthermia and hyperpyrexia are not interchangeable (which is a very high fever). It is critical to distinguish between fever and hyperthermia in the clinic since hyperthermia can be fatal and does not respond to antipyretic drugs. In an emergency, though, the distinction can be difficult to make, and it's often determined by identifying plausible causes (MC, 2018).

Increased muscular contractions and a feeling of cold or chills are caused by an increase in set point. As a result, more heat is produced and more heat conservation attempts are made. When the set point temperature returns to normal, a person will feel hot, flushed, and possibly sweat. A fever can occasionally cause a febrile seizure, which is more common in young children. Fevers rarely exceed 41 to 42 °C (105.8 to 107.6 °F)

(Huether and McCance, 2014).(As show in table 2-2)

Table 2-2:Temperature classification (Cuesta-Frau *et al*., 2018).

Temperature classification		
	(rectal, etc.)	Core
Hypothermia	<35.0 °C (95.0 °F)	
Normal	36.5–37.5 °C (97.7–99.5 °F)	
Fever	>37.5 or 38.3 °C (99.5 or 100.9 °F)	
Hyperthermia	>37.5 or 38.3 °C (99.5 or 100.9 °F)	
Hyperpyrexia	>40.0 or 41.0 °C (104.0 or 105.8 °F)	

Normal temperature values in children are the same as in adults: axillary, 97.6° F (36.5° C); oral or tympanic, 98.6° F (37.0° C); and rectal, 99.6° F (37.6° C) (Flagg and Pillitteri, 2018).

2.7.Causes of Fever

Fever can be caused by a variety of medical disorders, from minor to life-threatening. Influenza, the common cold, meningitis, urinary tract infections, appendicitis, COVID-19, and malaria are examples of viral, bacterial, and parasite illnesses. Vasculitis, deep vein thrombosis, connective tissue disease, drug or vaccination side effects, and cancer are all non-infectious causes. It differs from hyperthermia in that hyperthermia is characterized by an increase in body temperature over the temperature set point as a result of either excessive heat generation or insufficient heat dissipation (Mahadevan and Garmel, 2012; Rodriguez *et al*.,2020).(As show in fig.2-4)

Fig.2-4: Causes of fever (kristina, 2022)

2.8.Types of fever

Various patterns of measured patient temperatures have been discovered, some of which could indicate a specific medical illness:

1. Continuous fever (e.g., bacterial pneumonia, typhoid, infective endocarditis, tuberculosis, or typhus), in which the temperature remains above normal throughout the day and does not fluctuate more than 1°C in 24 hours.
2. Intermittent fever is a type of fever in which the temperature rises for a short time before returning to normal (e.g., in malaria, leishmaniasis, pyemia, sepsis, or African trypanosomiasis).
3. Remittent fever, characterized by a temperature that remains above normal during the day but swings by more than 1 degree Celsius in a 24-hour period (e.g., in infective endocarditis, or brucellosis).
4. Pel–Ebstein fever is a cyclic fever that is uncommon in Hodgkin's lymphoma patients.
5. Brucellosis-related undulant fever.

6. Typhoid fever is a type of continuous fever that has a distinct step-ladder structure, with a rapid rise in temperature followed by a high plateau (Ogoina, 2011).

2.9.Phases of Fever

The fever usually progresses through four phases. Not all patients, however, progress through all four stages. The stages are outlined here:

1. The prodromal stage is the first stage of the disease. Fatigue, moderate headaches, general malaise, and bodily soreness are some of the non-specific symptoms that the patient may exhibit.
2. Second stage: The child's skin may appear pale, and he or she may experience generalized shaking, chills, and a feeling of being chilly. The symptoms of vasoconstriction and piloerection are prevalent.
3. The third stage, or flush, causes the child to get overheated as cutaneous vasodilation causes the skin to become warmer and flushed.
4. Defervescence The child's body temperature returns to normal, and sweating marks the end of the stage (Chilambarasan, 2020).(As show in fig.2-5)

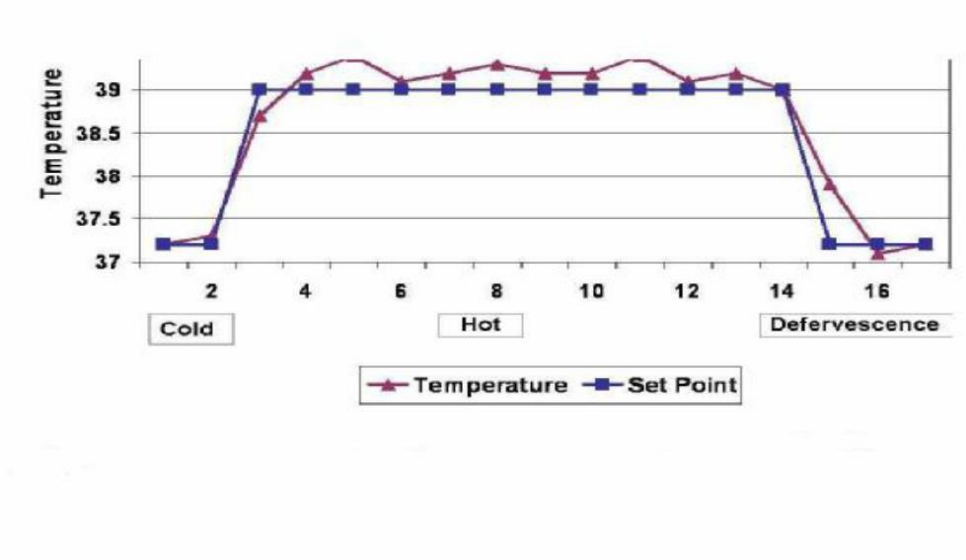

Fig 2-5: Diagrammatic representation of the phases of fever (Oh *et a*l., 2021).

2.10.Pathophysiology of the Febrile Response

The typical thermoregulatory processes that accompany exposure to cold temperatures are similar to the development of the febrile response. In fever, however, the thermal balancing point is reset to a higher level, and normal peripheral and central body temperatures are now detected by the thermoregulatory circuitry as frigid temperature signals. As a result, fever differs from heat stroke and hyperthermia, in which the body temperature rises without the thermal balancing point rising as well. The creation of fever, like thermoregulation, appears to be the result of numerous distinct afferent and efferent pathways, depending on the place, kind, and intensity of inflammation. The following section discusses the many biological substances involved in the production of the febrile response, as well as the pathways implicated in these responses (Chilambarasan, 2020).

The body's defensive response to an infectious disease appears to be the mechanism of fever. One of the immune system's responses when bacteria or viruses infect the body and cause tissue harm is to release pyrogens. These molecules travel through the bloodstream to the brain, where they interfere with the hypothalamus's ability to control body temperature. The pyrogens suppress heat-sensing neurons and activate cold-sensing neurons, fooling the hypothalamus into thinking the body is cooler than it is. As a result, the hypothalamus raises the body's temperature over normal, resulting in a fever (Walter *et al*., 2016).

The mechanism of fever, according to Anochie, is as follows: Substances that generate fever are referred to as "pyrogens." Exogenous and endogenous pyrogens are the two types of pyrogens. Exogenous pyrogens are those that originate outside the body, such as bacterium toxins. Endogenous pyrogens are pyrogens produced by the body's own cells in reaction to an external stimulation (such as bacterium toxins) (Anochie, 2013).

Pyrogen is a fever-inducing chemical. These can be either endogenous (from within the body) or exogenous (from outside the body). Exogenous pyrogens include the bacterial compound lipopolysaccharide (LPS), which is found in the cell walls of several bacteria. All endogenous pyrogens are cytokines, which are chemicals produced by the innate immune system. They are produced by phagocytic cells and cause an elevation in the hypothalamic thermoregulatory set-point. Interleukin 1 (alpha and beta), interleukin 6 (IL-6) and tumor necrosis factor –alpha are the most common endogenous pyrogens. Interleukin-8, tumour necrosis factor alpha, tumour necrosis factor beta, macrophage inflammatory protein-alpha, macrophage inflammatory protein-beta, interferon-alpha, interferon-beta, and interferon-gamma are all minor endogenous pyrogens (Walter *et al.,* 2016).

These cytokine factors are released into the general circulation, where they migrate to the brain's circumventricular organs due to better absorption caused by reduced filtration action at the blood-brain barrier. The cytokine factors subsequently engage with local microglial cells or endothelial receptors on vessel walls. The arachidonic acid pathway is initiated when these cytokine factors bind. LPS, a gram-negative bacterium cell wall component, is one model for the mechanism of fever generated by exogenous pyrogens (Anochie, 2013).

Lipopolysaccharide binding protein (LBP) is an immunological protein that binds to LPS. The LBP-LPS complex then attaches to a neighboring microphage's CD14 receptor. Various endogenous cytokine factors, such as interleukin 1 (IL-1), interleukin 6 (IL-6) and tumor necrosis factor-alpha, are synthesized and released as a result of this binding. Exogenous factors, in other words, cause endogenous factors to be released, which then activate the arachidonic acid pathway. The arachidonic acid pathway produces prostaglandin E2 (PGE2). The enzymes phospholipase A2 (PLA2), cyclooxygenase-2 (COX-2), and prostaglandin E2 synthase are in-

volved in this process (as it relates to fever). PGE2 is synthesized and released by the action of these enzymes. The final mediator of the febrile response is PGE2 (Walter *et al*., 2016). (As show in fig.2-6)

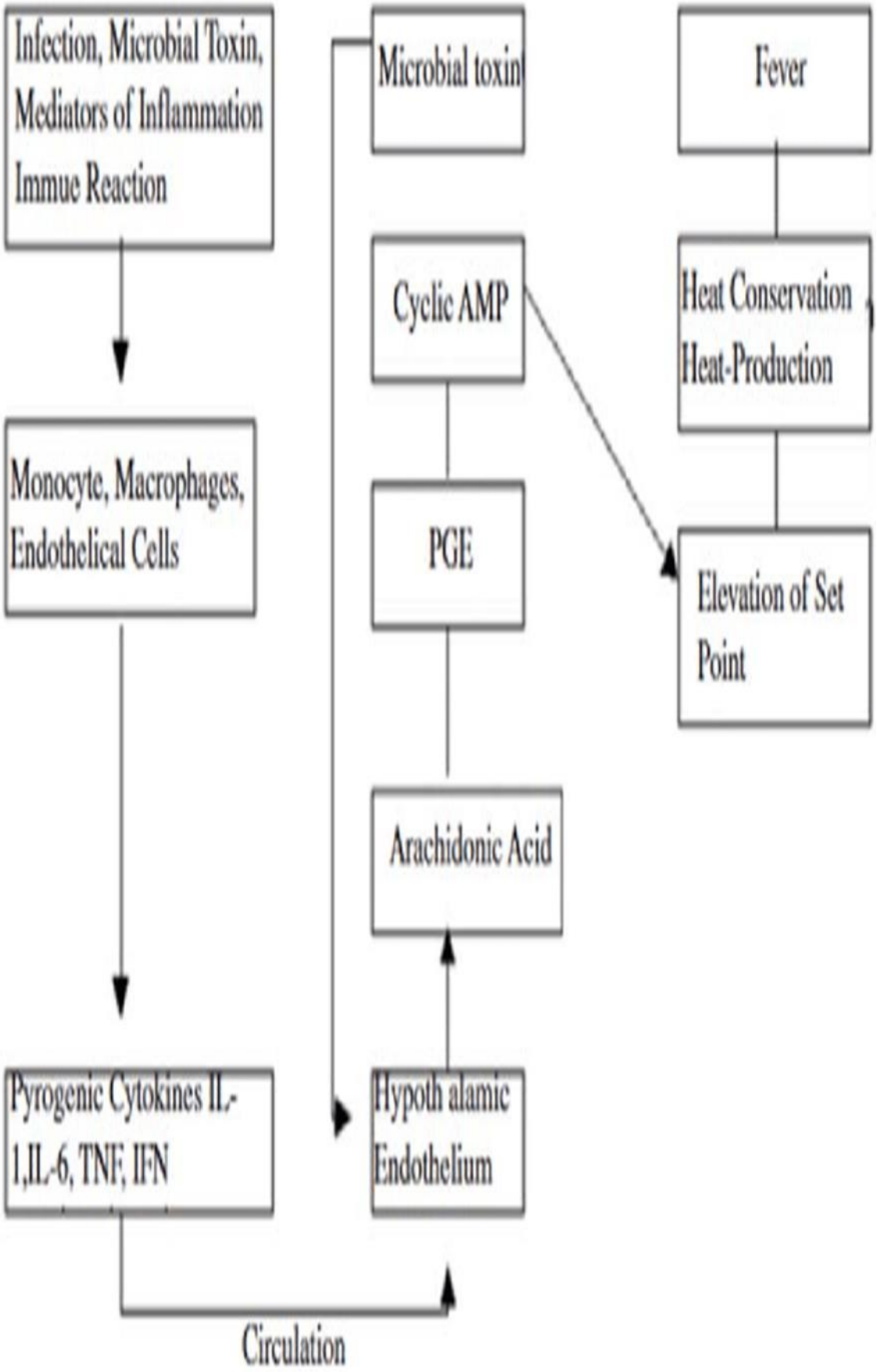

Fig 2-6: Pathogenesis-of-fever (El-Radhi, 2018).

2.11.Fever: The Role of Pyrogens and Cryogens

The pyrogenic and anti-pyretic capabilities of numerous exogenous and endogenous chemicals are required for the initiation, symptoms, and modulation of the fever response. Unlike pyrogens, which cause fever either directly or indirectly, cryogens prevent excessive temperature rise. The height and duration of the febrile response to every immunological challenge are determined by the balance of interactions between pyrogens and cyrogens (Leon, 2002).

2.11.1.Pyrogens

Pyrogens are categorised as exogenous (made outside the host) or endogenous (made inside the host) pyrogens depending on where they are made. Exogenous pyrogens are essentially microorganisms or their products, such as poisons, in part or whole. The exogenous pyrogen lipopolysaccharide (LPS), a component of gram negative cell walls, is still the most commonly researched exogenous pyrogen, and most of the existing data on the febrile response is based on studies utilizing LPS as the pyrogenic agent. Muramyl dipeptidase, a component of cell walls, and enterotoxins of Staphylococcus aureus, group A and B Streptococcus, together known as super antigens, are other clinically significant endogenous pyrogens (Thorn *et al.*, 2021).

Pyogenic cytokines such as interleukins (IL) 6, IL-1, interferon gamma (INF-), ciliary neurotropic factor (CNTF), and tumour necrosis factor (TNF) are examples of endogenous pyrogens. TNF, on the other hand, can have both pyrogenic and antipyretic effects depending on the experimental settings. Immune cells such as neutrophils, macrophages, and lymphocytes, as well as endothelial cells, astrocytes, and glial cells, create endogenous pyrogens in response to external pyrogens. Endogenous pyrogens, such as antigen-antibody complexes, inflammatory bile acids, com-

plements, and a variety of lymphocyte-derived compounds, can act as pyrogens without the need for external pyrogens (Dinarello, 2015).

2.11.2.Cryogens

Anti-inflammatory cytokines (e.g. IL-10), hormones (e.g. -melanocyte stimulating hormone, corticotrophin, and corticotrophin releasing hormone), and a variety of other neuroendocrine products (e.g. neuropeptide Y, bombesin, and thyroliberin), as well as cytochrome P-450 (P-450), are examples of cryogens. They reduce heat loss via decreasing pyrogenic cytokine synthesis (e.g. glucocorticoids), blocking cytokine receptors (e.g. IL-1 receptor antagonist), and increasing heat loss by raising sensitivity of warm sensitive neurons (e.g. bombesin), among other methods. These endogenous antipyretic systems protect the body against the harmful effects of uncontrolled fever (Roth and Blatteis, 2014).

2.12.The Fever Pathways

Fever signals delivered by exogenous and endogenous pyrogens eventually lead to the thermoregulatory circuitry being reset via two fundamental pathways: humoral and neuronal (Hopkins, 2007).

2.12.1.The humoral pathway

Fever signals are transmitted in this system by pathogen associated molecular patterns (PAMPS) or pyrogenic cytokines, which are components of microbial products. Microorganisms' circulating PAMPS, such as gram negative LPS, have been shown to bind toll-like receptors 4 (TLR-4) on different cells. They cause the release of prostaglandin E2 (PGE2) from the arachidonic acid pathway in cytoplasmic membranes by binding to and activating TLR-4 on the fenestrated capillaries of the circumventricular organ in the blood brain barrier. Prostaglandin E2 is a tiny molecule that easily crosses the blood-brain barrier, attaches to specific PGE2 receptors (EP3 receptor) in the preoptic area, and subsequently stimulates thermal neurons in the anterior hypothalamus, bringing the body's temperature closer to

equilibrium. It's uncertain if microbial agents cause the thermal balance point to rise by obtaining direct access to the brain via the BBS disturbance (Hauser *et al*., 2012).

An early quick phase and a delayed late phase distinguish the febrile reaction. According to research conducted in animal models with polyphasic LPS-induced fever, the first phase of the febrile response is mediated by PGE2 generated in the liver and lungs before migration to the brain, while the latter phases are mediated by centrally synthesized PGE2. As a result, whereas peripherally generated PGE2 may trigger the febrile response, centrally synthesized PGE2 may play a major role in maintaining it (Steiner *et al*., 2016).

Circulating pyrogenic cytokines control the second humoral pathway. They use both indirect and direct channels to send fever signals to the thermoregulatory circuitry. Pyogenic cytokines function indirectly outside the brain by binding and activating cytokine receptors on the circumventricular organ's fenestrated capillaries, resulting in the production of PGE2. Circulating cytokines break the blood-brain barrier and obtain direct access to cytokine receptors on vascular, glial, and neuronal components of the brain in the direct pathway. The brain's activation of these central receptors induces additional PGE2 synthesis or enhances de novo cytokine creation (Hauser *et al*.,2012).

Although PGE2 is still important in the febrile response, cytokines and a variety of other inflammatory mediators can also trigger the reaction. The hyperpyrexia seen in CNS infections and haemorrhages – the latter often known as central fever – may be caused by direct PGE2-independent stimulation of the thermal neurons by cytokines. The anti-pyretic capabilities of the CNS are compromised in these circumstances, resulting in an uncontrolled rise in body temperature. Bradykinin, corticotrophin releasing hormone, nitric oxide, MIP-1, IL-6, and IL-8, preformed pyrogenic factors

(PFPF), substance P, and endothelin-1 are examples of inflammatory mediators other than PGE2 that may reset the thermal balance point independently of PGE2 (Murphy and Weaver, 2016).

2.12.2.The neural pathway

Peripheral fever signals, such as cutaneous sensory nerves and the vagus nerve, can communicate with the CNS via peripheral nerves. Another mechanism thought to be involved in the quick onset of fever is the activation of the neuronal pathway (Amarasekara, 2012).

It's been proposed that localized PGE2 production at regions of inflammation contributes to fever generation by stimulating cold-sensitive cutaneous nerves, which then relay fever signals to the brain's fever-generating areas. The transmission of fever signals through the vagus nerve is more complicated. Circulating pyrogens, such as LPS, activate complement, which stimulates Kupffer cells in the liver to release endogenous mediators, such as pyrogenic cytokines. These cytokines stimulate the hepatic branch of the vagus nerve, which sends fever signals to the nucleus of solitary tract via the central projection of the vagus nerve (NST). The signal travels from the NST to the preoptic and hypothalamic areas via the ventral noradrenergic bundle, causing norepinephrine to be released intrapreoptically (Munezero, 2019).

The vagal circuit is mediated by norepinephrine, which causes different core temperature elevations. The first is mediated by alpha (1) adrenoceptors, has a rapid onset, and is PGE2-independent, whereas the second is mediated by alpha (2) adrenoceptors, has a delayed onset, and is PGE2-dependent (Roth and Blatteis, 2014).

Experimental research in rats indicated that surgical vagotomy resulted in reduction or full abortion of febrile responses to pyrogenic signals, indicating that vagal afferents play a role in fever formation. Recent research has cast doubt on this theory, blaming the lack of a feverish re-

sponse to pyrogenic signals on vagotomy side effects such starvation. When such vagotomy side effects are avoided, experimental studies in rats show that total or partial vagotomy does not stop the febrile response to pyrogenic signals such intravenous PGE2 (Madden and Morrison, 2019).

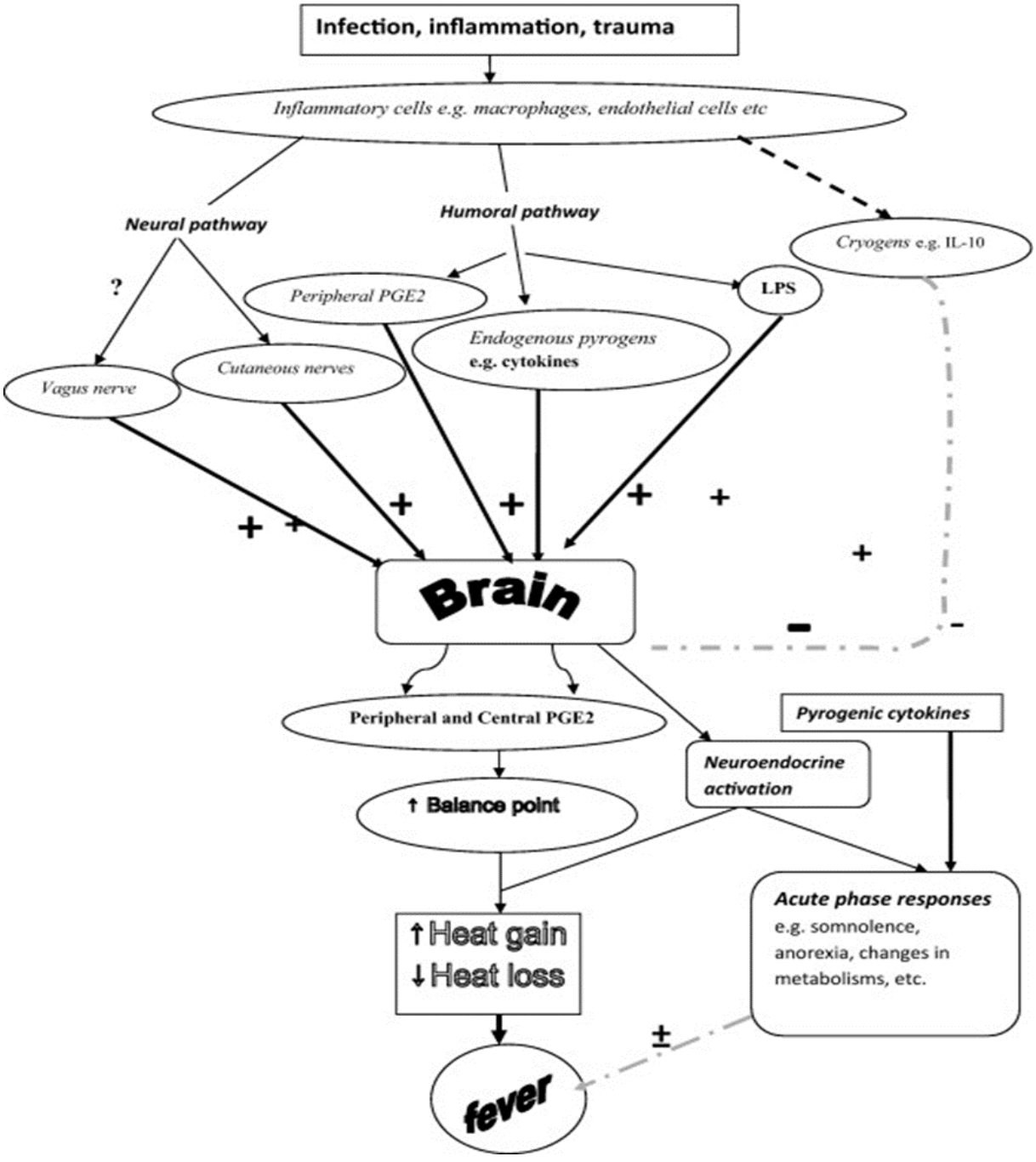

Fig.2-7: Gives a summary of the pathways leading to fever and associated acute phase responses (Ogoina,2011)

2.13.Symptoms of Fever

The above-mentioned reset of the thermal balance point to a higher level by humoral and neural fever signals triggers a feedback loop that results in a series of clinical and behavioral manifestations that define the feverish response. 1. chills (Heat loss is reduced by skin vasoconstriction) 2. oxygen desaturation (behavioral processes such as taking a fetal position to lower body surface area), 3. Rigors (increased muscular contraction Various heat acquisition mechanisms, 4. Crying, 5. Abnormal skin or mucosal colour (for example pallor or cyanosis) 6. Poor feeding, 7. Rash (blanching or non-blanching), 8. Abnormal respiratory rate, pulmonary (lung) crackles and other sounds, 9. Vomiting common symptoms of fever (Rodriguez-Morales *et al*., 2020; Liu *et al*., 2021).(As show in fig.2-8)

Fig 2-8: Symptom of fever(Meenakshy,2022)

2.14. Fever Advantages

That fever is good for you. Some harmful bacteria and viruses have a hard time growing or surviving at temperatures above 40 °C (104. F). They went on to say that many pathogenic bacteria need iron to grow, and fever is linked to a drop in serum iron and an increase in the iron-binding protein ferritin, resulting in low amounts of free iron in the blood. Because these bacteria require more iron at high temperatures, it's been hypothesized that this response is a coordinated host defensive mechanism designed to deprive bacteria of free iron when they're most needed. The increased resistance of animals to infection associated with rises in body temperature within a physiologically safe range provides evidence for fever's positive significance (Wrotek *et al*., 2021).

2.15. Fever Disadvantages (Complication)

Fever is linked to a faster metabolic rate, more oxygen intake, more carbon dioxide production, and more demands on the cardiovascular and respiratory systems. These pressures have little or no impact on a typical child. These additional demands, however, may be hazardous to a child in shock or a child with a pulmonary or cardiac problem, and may negate any immunologic gain from the fever (Muhammad, 2009).

Fever can have a variety of negative consequences, and it is very common for childhood to be uncomfortable. In children aged six months to five years, a fever can cause febrile convulsions. While such seizures do not appear to cause permanent brain damage, they are distressing and may necessitate invasive procedures such as lumbar punctures, as well as a significant financial outlay (Lim et al., 2018).

Many parents are concerned that a high fever could lead to death. Fever is rarely hazardous on its own, and it normally stays below 41C° (105.8F°). Temperatures above 90F° can be harmful, but they are Uncom-

mon. Dehydration can occur as a result of a fever (too little fluid in the body) (Chiappini *et al*., 2017).

2.16.Management of fever

Fever is simply one of numerous nonspecific acute phase responses to infection, as previously mentioned. Although fever may have some benefits in terms of decreasing the length of sickness by producing an unfavorable host environment for the infecting bacterium, the increased metabolic requirement and pain for the child usually outweighs this benefit. Parents should not focus primarily on the height of the temperature, but fever should be treated if the kid becomes uncomfortable or cannot be assessed clinically (Wrotek *et al*., 2021).

2.16.1. Non-pharmacological methods(Role of Mother)

1. Bathing reduces body temperature in febrile children; warm, and alcohol were utilized in the intervention. Bathing with warm or cold water, on the other hand, has been questioned due to its ineffectiveness in lowering prostaglandins and causing pain in infants with chills and tremors. Furthermore, bathing promotes a significant drop in temperature (Salgado *et al*., 2016).
2. Encourage fluid intake: Children lose a lot of water when they have a fever. When a child's fever lasts for a long time, he or she is at risk of dehydration. As a result, youngsters should be urged to drink more water. Breast milk should be offered more frequently to youngsters who are exclusively breastfed (Patricia *et al.*, 2014).
3. Remove unnecessary clothing, sheets, and blankets: By enabling heat escape through irradiation, excess clothing, sheets, and blankets gave comfort to feverish youngsters. It is critical to keep febrile newborns with their heads uncovered because this allows excess heat to escape (McDougall *et al*., 2014).

4. Ventilation of the environment: window opening and fan use were used to ventilate the environment. The use of fans to cool the atmosphere was thought to be advantageous as long as the patients did not have tremors and the central temperature did not rise (Thompson,2011)

2.16.2.Pharmacological Methods

Antipyretics are usually used to lower the child's body temperature and make him or her more comfortable while sick. Antipyretic therapy, on the other hand, has some drawbacks, including the loss of fever as a useful diagnostic signal, the occurrence of allergic or idiosyncratic reactions, the risk of toxicity if dosed inappropriately, and the loss of fever's immune system effects. Acetaminophen and nonsteroidal anti-inflammatory medications (NSAIDs) are the most often used antipyretics. They function by blocking the enzyme cyclo-oxygenase, which transforms arachidonic acid to prostaglandin. Despite the fact that the interleukin-mediated phases of the febrile response continue to raise the hypothalamic set point, the consequences of lower prostaglandin production and release overwhelm that response. Antipyretics work by lowering the set point. Only in the febrile condition does this impact appear (Sullivan and Farrar, 2011).

Antipyretics have additional therapeutic effects, such as analgesia, which may help to improve their total clinical effect. Regardless of the exact mechanism of action, many doctors continue to recommend antipyretics, believing that the majority of the benefits are due to improved comfort, which leads to increased activity and feeding, less irritability, and a more accurate sense of the child's overall clinical condition. Because these are the most essential benefits of antipyretic medication, it's critical that parental counseling emphasizes activity monitoring, looking for indicators of serious sickness, and drinking enough water to stay hydrated (Cinar *et al*., 2014)

The advantages of antipyretic therapy are well known, and it is widely accepted that improving patient comfort is a desirable therapeutic goal. Furthermore, there is no indication that temperature lowering should be the primary target of antipyretic therapy at this time (Prymular *et al*., 2009).

2.16.2.1.Acetaminophen

A 10 to 15 mg/kg of acetaminophen taken orally every 4 to 6 hours is typically considered safe and effective. Antipyretic effects usually appear within 30 to 60 minutes, and roughly 80% of children will see a reduction in fever within that time frame (Sullivan and Farrar, 2011).

Although different dosing regimens have been proposed, there is no clear evidence that using an initial loading dose by oral (30 mg/kg per dose) or rectal (40 mg/kg per dose) administration increases antipyretic efficacy. The greater rectal dose is frequently utilized during surgery, although it is not advised for routine clinical care. Higher loading doses in clinical practice would increase the chance of dosage confusion, which could lead to hepatotoxicity; as a result, such doses are not indicated (Ward *et al*., 2019).

2.16.2.2.Ibuprofen

Ibuprofen is becoming more popular as a fever reliever because it appears to have a longer therapeutic effect in terms of reducing body temperature. Ibuprofen and acetaminophen have showed varied outcomes in studies comparing their effectiveness. Both medications are more effective than placebo in lowering fever, and ibuprofen (10 mg/kg per dose) is at least as good as, if not better than, acetaminophen (15 mg/kg per dose) in reducing body temperature. When any drug is given as a single or recurring dose, the temperature should be kept at a certain level (Sullivan and Farrar, 2011). (As show in table 2-3)

Table 2-3: Antipyretic Information

Variable	Acetaminophen	Ibuprofen
Decline in temperature, °C	1–2	1–2
Time to onset, h	1<	<1
Time to peak effect, h	3–4	3–4
Duration of effect, h	4–6	6–8
Dose, mg/kg	10–15 every 4 h	10 every 6 h
Maximum daily dose, mg/kg	90 mg/kg	40 mg/kg
Maximum daily adult dose, g/d	4	2.4
Lower age limit, mob	3	6

Sullivan and Farrar (2011)

Ibuprofen or any other NSAID interferes with prostaglandins' renal actions, reducing renal blood flow and potentially precipitating or worsening renal impairment. Children with dehydration, cardiovascular disease, previous renal disease, or concomitant use of other nephrotoxic drugs are at the highest risk of ibuprofen-related renal damage. Infants younger than 6 months may also be at risk due to probable abnormalities in ibuprofen pharmacokinetics and developmental differences in renal function (Imani *et al.*, 2014).

2.17.Mothers Knowledge ,Attitude and practices toward fever management.

2.17.1. Mothers Knowledge

The study conducted in Netherlands on 1000 participants showed that most parents (88.3%) knew the correct definition of fever which is temperature >38°C. (De Bont *et al.*, 2014).

In other hand, the study conducted in Ireland on 23 parents revealed that temperatures that parents associated with fever range from 37.5 to 39 °C, in this study also parents reported a range of temperatures to be defined as normal temperature :between 36 and 38 °C (Kelly *et al.*, 2016).

In urban India, more than one third of the parents (38.9%) did not know the correct temperature for fever; 47.9% parents considered fever to be present if the temperature exceeded 100 degrees F (Thota *et al*., 2018). In Saudi Arabia, 250 parents participated in the study where 54% identified normal temperature, 64% defined fever correctly.56% attained to identify high fever whereas 47% could not (AlAteeq *et al*.,2019).

In Kenya the study conducted among 250 caregivers showed that, one hundred and eighty eight (75.2 %) of the caregivers defined fever correctly as the generalized body hotness, while24.8% gave an incorrect response (Koech, 2014)

The study conducted in Pakistan revealed that about 37% of parents don‟t know about causes of fever, only 10% of parents stated that malaria causes fever, 17% of them reported that diarrhea causes fever in children while remaining 37% of those parents replied that infection is responsible for causing fever(Khan *et al*., 2013).In India, the infection was identified as the most common cause of fever, while a few number of parents attributed it to seasonal changes (Thota *et al*., 2018).

Outcomes of fever among children under five years were identified in different studies: In Saudi Arabia ,the following fever outcomes where identified by parents :convulsions were stated by 74% of parents, loss of consciousness and dehydration by 40% of parents, 32% of parents for brain damage, hearing loss by 27% and organ damage by 13% (AlAteeq *et al*.,2019).

In Saudi Arabia, Mohammed and his colleagues in their study showed that most of the parents 82% measured their children temperature by their touching the forehead; 68% use oral thermometer,63% use axillary thermometer , almost quarter use rectal thermometer and 60% took their children to the health care center and emergency department to measure their temperature. Concerning the level of knowledge, in Saudi Arabia,

parents showed poor knowledge and practice in regard to parents management of febrile children, overuse of non-prescribed fever medication (AlAteeq *et al*.,2019).

The use of thermometer is the only way to determine accurately whether a child is febrile and armpit temperatures are adequate means for clinical screening of fever (De Bont *et al*., 2014). In our study, unsatisfactory knowledge was (47.5%), while it was fair knowledge (36%), while good knowledge was only (16%), these results came in the above studies, and is considered worrisome in the management of children with fever. Another, given the importance of mothers' knowledge in managing children's fever, suggest that informing mothers on the definition, consequences, and treatment of fever can significantly improve their confidence in managing fever, as reflected by fewer requests for physicians' visits (Gunduz *et al*., 2016).

Increased information about fevers geared towards the caregivers of children, particularly mothers, would prevent the unnecessary treatment of children, as well as minimizing delayed and insufficient responses to fever (Arica *et al*., 2012). This study in Bushehr City Hospitals, who mentioned that the mothers need to be empowering knowledge by attending education sessions deals with management of childhood fever (Elbilgahy and Abd El Aziz, 2018).

2.17.2. Mothers Attitudes

Most parents (81.1%) acknowledged that they believed fever to cause discomfort for their children. Around one in five (18.4%) stated that they worried about health consequences of fever in general, and more than one in three indicated that they were afraid fever might cause dehydration (34.9%) or febrile convulsions (36.8%). Only 13.3% of parents were concerned that fever could cause brain damage (de Bont *et al*., 2014).

Another study done in Jordan revealed that 97% of parents believed that there is a potential harm from fever if left untreated (Athamneh, 2014) In Turkish, parents revealed also their beliefs about the harm of fever where 87% of them believed that fever had a bad outcome (Yavuz *et al*.,2017)In study conducted in Saudi Arabia by Mohammed and colleagues, they saw that almost all parents 95% of participants believed fever to be harmful to their children (AlAteeq *et al*., 2019).

2.17.3 Mothers practice

Nearly all parents (91.4%) indicated that they commonly treat their feverish child with antipyretics like paracetamol. Only 2.8% of parents indicated doing so at a temperature lower than 38˚C, and 86.9% would use antipyretics without consulting a doctor first (de Bont *et al*., 2014).

Al Baha City, Saudi Arabia About 88% of parents use a thermometer for fever, 89.6% apply cold compressions and 93.5% decide to take the child to hospital due to high fever. The most common difficulty faced in giving fever medicine was deciding the amount and frequency of dosing (Aburaida *et al*, 2021).

Bad practice was common in the age group 25-30, those having three or four children, urban residence and with decreased family income (Manal et al., 2021). Parents often misuse the antipyretics medications, incorrectly manage their child's fever, follow inappropriate practices to reduce fever, and generally have poor knowledge of basic information regarding fever (Athamneh et al.,2014).

According to the results of this study, mothers with low education levels required training to promote their performance and conceptions regarding fever in order for the effective management of this common symptom in children.(Talebi et al., 2016).

Inadequate mothers practices concerning fever children, findings from Kom Hamada city, Behira Governorate/ Egypt, which conducted among 384 mothers with a cases of fever children. Their findings demonstrated a bad practices and suggested that the mothers need to health education of mothers is needed to improve mother's practice (Manal et al., 2021).

Findings from Riyadh, Saudi Arabia illustrated findings that the mothers with poor practices related fever management due to low level of education (AlAteeq et al., 2018). The poor knowledge and practices due to lake of awareness. The use of educational intervention programs and mothers support group were influenced positively in improving mothers' knowledge, home management & attitude about fever child and its management; but still some mothers having inappropriate home management and negative attitude. Therefore, it is recommended further education in the pediatric clinic or via mass media (Elbilgahy & Abd El Aziz, 2018).

2.18.Previous Studies

Study one "Parental Knowledge, Attitude and Practices Regarding Fever in Their Children: A Hospital Based Observational Study". *Rajput et al. (2014)*

Objective: Before seeing a doctor, parents should assess their understanding of fever, its hazards, and treatment techniques.

Methods: The study comprised a questionnaire-based interview with parents who brought their febrile children under the age of six to the pediatric outpatient department. On the basis of current medical literature, the propriety of responses to questions was determined.

Results: The study comprised a hundred parents. By the second day of a fever, the majority of parents (84 percent) had sought medical advice,

and 92 percent had no idea what a normal body temperature was. Fever was a symptom for half of the parents, 21 percent thought it was a sickness, and 63 percent thought it would continue to climb indefinitely. Antipyretic medication was preferred by 51% of parents, and paracetamol was the most commonly used drug, with just 27% using it in the proper dose, 51% sponging, and 4% using antibiotics without a prescription. Convulsion was the most commonly feared risk (28%) and 10% believed that fever could lead to death. Doctors were the most prevalent source of fever information (59 percent). Conclusion: Parents have high expectations due to bad misunderstandings. Antipyretics and sponging with incorrect dose were used due to heightened fear and concern over growing fever. It would be a good idea to teach parents about fever management by giving them general instructions.

Study two "Mothers Knowledge, Perception and Management of Fever in children". ***Ayatollahi et al. (2014)***

Objective: The purpose of this study was to ask mothers about their knowledge, perceptions, and treatment of their children's fevers. Patients and procedures.

Methods: A 240 Mothers brought their feverish infants to Afshar Hospital in Yazd, Iran, for the study. The goal of this study was to analyze the mothers' knowledge, perceptions, and management of fever in their children by responses to a structured questionnaire.

Results: A liquid crystal forehead thermometer was utilized by 21% of the mothers in this study. Feverish children were treated with acetaminophen or ibuprofen in 46% of cases. If a kid has a fever, 58% of mothers believe there is a risk of convulsions if the fever is not treated. Fifty-five percent of mothers believe teething is the cause of fever.

Conclusion: Fever is thought to be detrimental and dangerous to children by the majority of Mothers. Furthermore, their understanding is

limited, and the temperature is not correctly measured. The absence of health education in our city is reflected in mothers' beliefs about fever.

Study three "Parents' knowledge, attitudes, and practice in childhood fever". *de Bont (2014)*

Objectives: To investigate parents' knowledge, attitudes, and practices about childhood fever in the general community. Design and setting: An online survey of 1000 parents from the general population of the Netherlands was conducted.

Method: A 26-item cross-sectional survey of parents with one or more children aged 5 years was done.

Results: A 63.4 percent and 43.7 percent of 625 respondents (average age 34.9 years) said they had ever visited their GP or GP's out-of-hours center with a feverish child, respectively: 55.2 percent correctly responded that antibiotics are useful in treating bacterial infections rather than viral infections, and 72.0 percent correctly stated that not every child with a fever need antibiotics or paracetamol treatment. When asked to rank the importance of different components of a doctor's visit, 53.6 percent said the physical examination was the most significant. Obtaining an antibiotic or antipyretic medication was deemed the least important.

Conclusion: Parents with young children had varying levels of knowledge, attitudes, and actions when it came to childhood fever. When dealing with a feverish child, parents typically expect a comprehensive physical examination and information, but not a prescription for medication (antibiotics or antipyretics). These expectations must be understood by GPs since they provide possibilities to improve consultations in general and prescription tactics in particular.

Study four "Knowledge, attitudes and beliefs of parents regarding fever in children: a Danish interview study". *Sahm et al. (2016)*

Objectives: The purpose of this study is to look into parents' knowledge, attitudes, and beliefs about fever in children under the age of five.

Methods: A convenience sample of parents was recruited to participate in this study between July and August 2014. The research was conducted in Copenhagen, Denmark. Prior to conducting semi-structured interviews, participants gave their verbal agreement. Using a constant comparison method, the results were analyzed thematically.

Results: A total of twenty-one parents took part in the research. Parental concern, help-seeking behavior, parental knowledge, and parent fever control practices and activities identified as five themes from the data. The most common subject in the interviews was parental anxiety. Parents obtained their knowledge on fever management from a variety of sources; however, due to concerns of confidence with these sources, reassurance was frequently sought from healthcare practitioners. Most parents wished for initiatives to be implemented that provide general information on how to control fever in children.

Conclusion: When their child became feverish, parents became highly concerned and instituted practices based on readily available information. The necessity for specific and credible information initiatives has been noted in this study as a means of minimizing parental concern and assuring evidence-based techniques for managing a fever-stricken youngster.

Study five "Knowledge, Attitude, and Practice in Management of Childhood Fever Among Saudi Parents". ***Hussain et al. (2020)***

A total of 1700 questionnaires were handed out to Saudi parents whose children were visiting a pediatric clinic. The majority of those who took part were mothers (77.4 percent). Fever was determined by 42 percent of participants as a temperature of 38.0 °C.

The majority of parents (80%) thought seizure was caused by an untreated high fever. According to 72.5 percent of respondents, the greatest temperature that can be achieved if left untreated is 40.7 to 43.20°C. For general knowledge, attitude, and practice scores, there was a statistically significant association between mothers and fathers. This survey found that many misconceptions about fever still exist, with more than 90% of parents expressing excessive concern of body harm as a result of fever, as well as believing that medications may lower high temperatures.

Study six "Scope of Mothers' Knowledge Regarding Child Fever Management in Ranya City, Iraq Kurdistan Region" ***Ameen et al. (2020)***

Objective: Caregivers for children all around the world are frequently unaware of the body temperature that suggests a fever. They sometimes deal with a feverish child in an erroneous or unsuitable manner. The goal of this study was to test mothers' knowledge on how to treat a fever in a kid under the age of five.

Methods: In the winter of 2018-2019, a quantitative descriptive research was conducted in Ranya, Iraq's Kurdistan Region. Initially, a purposive sample of 120 mothers from two Ranya Primary Healthcare Centers (Kewarash and Paparin) were chosen. Data was collected using a questionnaire, and descriptive and inferential statistical methods were employed to analyze the results.

Results: After excluding ten women from the study, a total of 110 Mothers took part. According to the data, 76 percent of participants had no idea which measurement is appropriate for measuring a child's temperature, 82 percent had no idea where to take a child's temperature, and 63 percent had no idea what degree is considered a fever. According to the findings, 72 percent of Mothers believe that a cold sponge or ice pack can help lower body temperature, and 87 percent of mothers are aware of the most com-

mon high fever consequence. There was a link between mothers' education and their knowledge of how to control their children's fevers.

Conclusions: While Mothers are aware of fever and how to treat it, they are unable to apply this knowledge effectively. To teach Mothers how to control their children's fevers, an educational program should be designed for mothers who visit primary healthcare centers.

Study seven "Knowledge, Attitude and practices of mothers towards fever and its home management among under five children in Kom Hamada City, Behira Governorate, Egypt". *Manal et al.(2021)*

Objectives: To determine mothers' knowledge, attitudes, and behaviors about fever and its care at home in children under the age of five, as well as some factors impacting maternal knowledge, attitudes, and practices.

Methods: In the Maternity and Child Health Care Center in Kom Hamada city, Behira Governorate, a cross-sectional study was conducted. The study comprised 384 mothers as participants. The study used a predesigned questionnaire sheet filled out by target Mothers during a direct interview to examine their knowledge, attitude, and practice regarding fever care of their children under the age of five.

Results: The majority of the mothers polled had good knowledge (62%) and a favorable attitude (59.9 percent). However, 39.3 percent and 38.8% of them, respectively, had unsatisfactory and fair practices. Bad behavior was widespread among people aged 25 to 30, who had three or four children, lived in a city, and had a lower family income.

Conclusion: The findings revealed that awareness was quite high. The study sheds light on a number of common misunderstandings about fever treatment. As a result, health education for Mothers is required in order to improve mothers' practices.

Chapter Three
Methodology

Chapter Three

Methodology

This chapter deals with the process, which begin with the official steps according to university standards which begin from the administrative arrangement till the limitations and strengths of the study.

3.1.Study Design

The descriptive analytical study design technique entails questioning individuals of the study population with the sole purpose of describing the examined phenomena in terms of its nature and degree of presence. The descriptive method entails questioning study participants about their knowledge, attitudes, and practices related to fever management.

The descriptive analytical study design is done through the limit includes the following:

1. The study's subject was limited to three variables: knowledge, attitudes, and practices.
2. The study's spatial limitations were limited to the Karbala Teaching Hospital for Pediatrics.
3. Time limits: The research took place over a period of 2021-2022.
4. Mothers of children with fever were the subjects of the study

3.2. Administrative Arrangements

Before collecting the study data, the following official clearances were sought from appropriate authorities:

1. The first permission was gained from the "Babylon University college of Nursing" to the Higher Education Committee through seminar presentation.

2. Approval from the University of Babylon/ College of Nursing Council for the study (Appendix A1).
3. Official permissions were also obtained from the Karbala Health Directorate (Training and Development Division) in order to formally access the hospital (Appendix A2).
4. Official permission has been obtained from Karbala Teaching Hospital for Pediatric (Appendix A3).

3.3.Setting of the Study

The study was carried out in Karbala Province, at Karbala Teaching Hospital for Pediatric. It provides medical and health services to all children, and from all Iraqi governorates, and displaced children.

3.4.Sample of the Study

The non-probability (purposive) sample was selected to carry out the study which consists of (200) mothers who are attended Karbala Teaching Hospital for Pediatric in wards. This sample is according to the following criteria including:

3.4.1. Inclusions criteria:

1. Mothers who had feverish child's.
2. Mothers who are agree to include in study sample.

3.4.2.Exclusion Criteria:

1. Mothers who selected to pilot study.
2. Mothers who disagree to take part or refused to participate in present study.

3.5.Study Instruments

The questionnaire is one of the means to help collect data that contribute to achieving the results expected by the study, so the researcher designed this questionnaire, which aims to clarify the study objectives and significance by obtaining answers to the study's questions.

So the questionnaire items was constructed by the researcher for the present study. The questionnaire based on extensive review of related studies and available literatures (Appendix B).

This questionnaire consists of two part include the followings.

Part I: This section composed of socio-demographic information which include: mothers age, education, occupation, residents, economic status, sources of information, number of children and child's age.

Part II: This section deals with KAP towards fever management and include the following:

A. Knowledge towards fever management: Which composed of (14-items) These items are rated according to three level Likert scale (I know, I'm not sure, I Don't know) and scored (3,2,1) with cut-off point = 2. .

B. Attitudes towards fever management: Which composed of (9-items) These items are rated according to three level Likert scale (Agree, neutral, disagree) and scored (3,2,1) with cut-off point = 2.

C. Practices concerning fever management: Which composed of (17-items) These items are rated according to three level Likert scale (always, sometimes, and never) and scored (3,2,1) with cut-off point = 2.

The researcher adhered to the rules of writing the questionnaire due to the importance of the type of information that the researcher is keen to be sufficient and comprehensive for all aspects of the problem and can be

relied upon and trusted. To vague and complex answers. The type of questions was of the closed type, which required answering with reference to what was appropriate.

3.6.Validity of the Questionnaire

The questionnaire's validity refers to its ability to measure what it was created to evaluate, while honesty refers to the questionnaire's inclusion of all aspects that must be included in the analysis on one side, and the clarity of its contents on the other. On the other hand, terminology must be understood by everyone who uses it.

To ensure the questionnaire's validity, it was submitted to 15 specialists in diverse departments of nursing .They are (7)faculty members from the college of nursing university of Babylon", (2) "pediatrician and faculty member from the college of medicine /university of Babylon", (2) pediatrician from the "college of nursing/ university of Baghdad", "(1) faculty member from the college of nursing university of Kufa", and lastly, "(2) from the college of of Karbala",(1) pediatrician and faculty member from the college of nursing/ university of Di kar. Suggestions and comments by the expertise was taken into account, see in the (Appendix C). Experts were invited to provide their thoughts and ideas on each study questionnaire item in terms of linguistic relevance, relationship to the dimensions of the study variables allocated to it, and applicability to the study community's setting.

The experts responses indicated that minor changes should be done to some items and it's were made according to their suggestions , then the final draft was completed to be ready for conducting the study.

3.7.Pilot Study

This preliminary study was carried out to determine the study tool's stability and credibility, as well as its clarity and efficiency, as well as the standard time required to collect data for each subject, which can be

estimated during the interview procedures, and to identify any difficulties that may arise.

The pilot study aimed to achieve the following objectives.

1. Adequacy of research tools development and testing
2. Evaluation of the instrument's viability.
3. Identifying any logistical issues that may arise as a result of the proposed methods.
4. Assessment of proposed data analysis approaches for the detection of potential issues.
5. The researcher's time estimate during data collecting.

Results of pilot study

1. The questionnaire is reliable.
2. The time required for answering the questionnaire ranged from (25-30) minutes.
3. The instrument items were clarify and understood the phenomenon underlying of the study (Table 3-1).

Before the questionnaire reached its final form, it went through the following stages:

1. Determining the data that will be collected through the questionnaire according to the study questions.
2. Determining the method and format of the questionnaire.
3. Determining the type of criterion that determines the type of answer in the questionnaire.
4. Presenting the questionnaire to the supervising to express his opinion and observations in developing the questionnaire and modifying it based on his observations.

5. Presenting the questionnaire to a number of panel of experts to express their opinion and observations in developing the questionnaire and modifying it based on what they submitted.
6. Conducting a reliability test on it by distributing the questionnaire to a sample of 20 Mothers.
7. Writing the questionnaire in its final form, then printing, reviewing and distributing it.

3.8.Reliability of the Questionnaire:

The reliability of the study instruments entails ensuring that the result will be almost identical if it is administered to the same persons multiple times at different times. The researcher applied it to a random exploratory sample of 20 Mothers as composed 10% of original sample. Where the members of this sample were later excluded from the original sample on which the final study was conducted. Reliability coefficient using the test coefficient of Alpha Cronbach as shown below.

Table3-1: Reliability of the Studied Questionnaire (*n=20*)

No. of items	Alpha Cronbach	Acceptable Value	Assessment
Knowledge 14-items	0.82	0.70	Pass
Attitude 9-items	0.78	0.70	Pass
Practices 17-items	0.86	0.70	Pass
Over all KAP 40-items	0.81	0.70	Pass

3.9.Ethical Considerations

Ethical obligations are one of the most important things that the researcher must follow and abide it when doing the study. Before the starting of collect the data from the community that has been identified for the study, the researcher should clarify the main purpose and desired goal of conducting this study for the sample to be including in the study, as well as adhere to the strict confidentiality of the data taken from the study sample and pledge to use it for scientific purposes related to the study only.

Before the starting of gathering the data from the sample who are participating in the study, the researcher given a brief explanation about the scientific background of the research and the purpose of conducting. Mothers were verbally informed about the study aims and were asked to participate and this participation were voluntary. After they consented to take part in the study, they were given an anonymous questionnaire to complete in order to protect the participants' privacy.

3.10.Methods of Data Collection

The data was carried out from 7th February 2022 to 8th March 2022 The questionnaire has been interviewed with study participants. After obtaining the approval of the Karbala Health Directorate and verifying the validity and reliability of the questionnaire. The researcher interviewee the participants (Mothers), explained the instructions, answered their questions regarding the form, urged them to participate and thanked them for the cooperation. The interview techniques was used on individual bases, and each interview (25-30) minutes after taking the important steps that must be included in the study design.

3.11.Methods of Statistics Data Analysis

In order to statistically analyze the data collected from the study sample to arrive at the results, the researcher used the *SPSS-20* and Microsoft Excel (2010) program to analyze this data and deal with it

statistically, to find the relationships between the variables, and obtain the final results of the research based on a set of statistical tests.

3.11.1.Descriptive approach

Descriptive statistics includes a set of mathematical and statistical methods that are adopted to describe the main features of a data quantitatively by using tables and charts. Descriptive statistics always aim to present and describe the data which is required to be processed, organized, summarized and categorized, as well as presenting them in a simple and clear manner that makes it easier for the recipient to recognize and understand its content. The analysis performed through use:

A. Statistical tables "Frequencies and percent" which are:

$$\% = \frac{\boldsymbol{Frequency}}{\boldsymbol{Sample\ Size}}\ x100$$

B. Statistical Mean "*M*±".

The average score can be calculated by using the following:

$$M.S = \frac{\sum \text{ri} = 1\text{Fi x Si}}{\sum \text{ri} = \ 1\text{Fi}}\ x100$$

The overall responses for Knowledge according to total mean of score which follow:

M= 14-23 refers to Poor knowledge.

M=24-32 refers to Fair Knowledge.

M=33-42 refers to Good Knowledge.

The overall responses for Attitudes according to total mean of score which follow:

M= 9-14 refers to Negative Attitudes .

M=15-20 refers to Neutral Attitudes.

M=21-27 refers to Positive Attitudes.

The overall responses for Practices according to total mean of score which follow:

M= 17-28 refers to Inadequate Practices.

M=29-39 refers to Moderate Practices.

M=40-51 refers to Adequate Practices.

C.Standard Deviation test ±*SD.*

$$SD = \sqrt{\frac{1}{n-1}\sum_{i=1}^{n}(Xi - \bar{\chi})^2}$$

D.It uses a correlational coefficient "Cronbach alpha" used in estimating the internal consistency of the study tool, which can be calculated by using the following:

$$\alpha = \frac{K}{K-1}\left[1 - \frac{\sum_{i=1}^{K}\sigma_{ii}}{\sum_{i=1}^{K}\sum_{j=1}^{K}\sigma_{ij}}\right]$$

3.11.2.Inferential approach

1. **Independent Sample t-test**

The sample that is unrelated The t-test compares the means of two independent groups to check if there is statistical evidence that the associated population means differ significantly.

$$t = \frac{\mu_A - \mu_B}{\sqrt{\left[\frac{\left(\Sigma A^2 - \frac{(\Sigma A)^2}{n_A}\right) + \left(\Sigma B^2 - \frac{(\Sigma B)^2}{n_B}\right)}{n_A + n_B - 2}\right] \cdot \left[\frac{1}{n_A} + \frac{1}{n_B}\right]}}$$

$(\Sigma A)^2$: Sum of data set A, squared (Step 2).
$(\Sigma B)^2$: Sum of data set B, squared (Step 2).
μ_A: Mean of data set A (Step 3)
μ_B: Mean of data set B (Step 3)
ΣA^2: Sum of the squares of data set A (Step 4)
ΣB^2: Sum of the squares of data set B (Step 4)
n^A: Number of items in data set A
n^B: Number of items in data set B

2. Analysis of Variance

For equality of means, is used (ANOVA test when the mean parameter varies).

Source of variance	Sum of square	d.f	Mean square	F
Between Groups	$SS_B = \sum \frac{(\sum xP1)^2}{n} - \frac{(\sum xP)^2}{n}$	$df_B = K\text{-}1$	$\frac{MS\beta}{MS\beta}$	
Within Groups	$SS_w = \sum \frac{(\sum xP1)^2}{N} - \frac{(\sum xP)^2}{N}$	$df_w = N\text{-}k$	$\frac{SSw}{DFw}$	$\frac{MSB}{MSW}$
Total	$SS_T = \sum \frac{(\sum xP1)^2}{N} - \frac{(\sum xP)^2}{N}$	$df_t = N\text{-}1$		

P-value (≤0.05)

3. Spearman's Correlation Coefficient

This test is used for qualitative variables

$$P = 1 - \frac{6 \sum d2\,i}{n\,(n2 - 1)}$$

4. Simple Liner Regressions

To investigate the effect of Knowledge on Practices .

The following are shortcuts for measuring important in comparison to the level:

1. NS: Non-significant when the probability-value is greater than 0.05.
2. S: Statistically significant at a probability value of 0.05.
3. H**S**: Highly *Significantly at probability-value <0.01*.

Chapter Four
Results of the Study

Chapter Four

Results of the Study

The finding of data analysis systematically in figures and tables , which are corresponded with the objectives of the study as follows:

Table 4-1: Descriptive Statistic of Socio-Demographic Variables (SDVs)

Table4-1-1: Age of Mothers

	Classification	Freq.	%
Age/years	<20 years old	48	24.0
	20-29 years old	**76**	**38.0**
(*M± SD= 26.58±7.186*)	30-39 years old	64	32.0
	≥40 years old	12	6.0
	Total	200	100.0

Finding show **Table4-1-1** participants age, the mean age is 26.58 (±7.186), the age 20-29 years old were recorded the highest percentage (n=76; 38%), followed by those who are age 30-39 years old (n=64; 32%), followed by those who are age <20 years and old *(*n=48; 24%) and those who are age ≥ 40 years old (n=12; 6%).

Table4-1-2: Mothers Education Level

	Classification	Freq.	%
Education Level	Illiterate	56	28.0
	Read & Write	40	20.0
	Elementary School	**60**	**30.0**
	Secondary School	20	10.0
	Institute and above	24	12.0
	Total	200	100.0

Finding show **Table4-1-2** In regard with education level, the mothers expressed the elementary school graduated (n=60; 30%), followed by those who are illiterate (n=56; 28%), followed by those who are read and write (n=40; 20%), followed by those who are institute and above (n=24; 12%) and those who are secondary school (n=20; 10%).

Table4-1-3: Mothers Occupation

	Classification	Freq.	%
Occupation	Employment	24	12.0
	Housewife	**176**	**88.0**
	Total	200	100.0

Finding show **Table4-1-3** Occupation related findings, the housewife mothers were predominated (n=176; 88%), as compared with those who are employment (n=24; 12%).

Table4-1-4: Mothers Residents

	Classification	Freq.	%
Residence	Rural	**116**	**58.0**
	Urban	84	42.0
	Total	200	100.0

Finding show **Table4-1-4** In terms of residents, more than half of participants were rural residence (n=116; 58%), as compared with those who are urban (n=84; 42%).

Table4-1-5: Mothers Monthly Income

	Classification	Freq.	%
Income/month	Sufficient	44	22.0
	To a certain limit	**108**	**54.0**
	Insufficient	48	24.0
	Total	200	100.0

Finding show **Table4-1-5** In regard with monthly income, mothers exhibit a certain limit enough income (n=108; 54%), followed by those who are insufficient (n=48; 24%) and those who are sufficient income (n=44; 22%).

Table4-1-6: Number of Children

	Classification	Freq.	%
Number of Children	1 child's	52	26.0
	2-3 child's	**100**	**50.0**
	>3 child's	48	24.0
	Total	200	100.0

Finding show **Table4-1-6** In terms of children number, mothers exhibit to had 2-3 child's (n=100; 50%) as compared with those who had 1 child's (n=52; 26%) and those who had more than 3 child's (n=48; 24%).

Table4-1-7: Child's Age

	Classification	Freq.	%
Child's Age	< 1 year	**84**	**42.0**
	2-3 years	80	40.0
	4-5 years	36	18.0
	Total	200	100.0

Child's age related findings **Table4-1-7**, the age <1 year old were highest (n=84; 42%), followed by those who are 2-3 years (n=80; 40%) and those who are 4 to 5 years (n=36; 18).

Table4-1-8: Sources of Information related to Fever Management

	Classification	Freq.	%
Sources of information	Family	**111**	**55.5**
	Internet	15	7.5
	Social media	11	5.5
	Health institutions	63	31.5
	Total	200	100.0

Concerning sources information **Table4-1-8**, the mothers were use their family a best sources for information about child's fever (n=111; 55.5%), followed by those who are use health institute (n=63; 31.5%), followed by those who are use internet (n=15; 7.5%) and those who are use social media (n=11; 5.5%),

Table 4-2. Mothers Knowledge related Management of Child's with Fever

List	Knowledge Items	Class	Freq.	%	*M.s ± SD*	*Ass.*
1	Do you know the average normal body temperature of a child is 37°C	Don't know	151	75.5	*1.44±0.806*	*Fail*
		Not sure	9	4.5		
		I Know	40	20.0		
2	Fever in infants and children is defined as an increase in body temperature above the normal limit ≥38ºc	Don't know	147	73.5	*1.48±0.826*	*Fail*
		Not sure	10	5.0		
		I Know	43	21.5		
3	Fever occurs as a natural response of the body to infection and have immunological benefits	Don't know	181	90.5	*1.17±0.553*	*Fail*
		Not sure	3	1.5		
		I Know	16	8.0		
4	Fever is a symptom of the disease	Don't know	112	56.0	*1.86±0.982*	*Fair*
		Not sure	4	2.0		
		I Know	84	42.0		
5	A viral infection mainly causes fever	Don't know	173	86.5	*1.26±0.666*	*Fail*
		Not sure	2	1.0		
		I Know	25	12.5		
6	A bacterial infection mainly cause fever	Don't know	187	93.5	*1.11±0.434*	*Fail*
		Not sure	4	2.0		
		I Know	9	4.5		
7	Complication of fever is convulsion	Don't know	97	48.5	*2.02±0.997*	*Fair*
		Not sure	2	1.0		
		I Know	101	50.5		
8	Dehydration is complication of fever	Don't know	192	96.0	*1.05±0.287*	*Fail*
		Not sure	5	2.5		
		I Know	3	1.5		
9	The most common complication of high fever in children if don't treat it is Febrile seizure	Don't know	95	47.5	*2.02±0.989*	*Fair*
		Not sure	5	2.5		
		I Know	100	50.0		
10	The best way to measure unwell child temperature is Electronic thermometer	Don't know	147	73.5	*1.47±0.813*	*Fail*
		Not sure	12	6.0		
		I Know	41	20.5		
11	The best place to take the temperature of a child under five years is auxiliary	Don't know	146	73.0	*1.51±0.856*	*Fail*
		Not sure	6	3.0		
		I Know	48	24.0		
12	Cold compress is good for lowering body temperature	Don't know	86	43.0	*2.11±0.981*	*Fair*
		Not sure	6	3.0		
		I Know	108	54.0		
13	The best drug to give to your unwell child for fever is paracetamol	Don't know	85	42.5	*2.14±0.989*	*Fair*
		Not sure	1	.5		
		I Know	114	57.0		
14	Instrument is best accurate to deter-mine the right dose of paracetamol syrup is Specific measures spoon/Syringe drugs	Don't know	84	42.0	*2.15±0.986*	*Fair*
		Not sure	2	1.0		
		I Know	114	57.0		

"(M) Mean, (SD) Standard deviation, Level of Assessment (Fail ≤1.66, Fair=1.67-2.33, Pass ≥2.34)"

In terms of statistical mean and standard deviation, this **table4-2** demonstrated that the mothers expressed a fail responses regards

knowledge related to management of child's with fever at all items of the scale (M ≤1.66) except, the items number (4, 7, 9, 12, 13 and 14) the responses were fair (M=1.67-2.33).

Table 4-2-1:Overall Mothers Knowledge towards Management of Child's with Fever

Mothers Knowledge	Freq.	%	*M ± SD*
Poor (*M=14-23*)	**95**	**47.5**	*22.81±8.084*
Fair (*M=24-32*)	72	36.0	
Good (*M=33-42*)	33	16.5	
Total	200	100.0	

M: Mean for total score, SD=Standard Deviation for total score

Findings **Table 4-2-1** demonstrated that the (47.5%) of mothers expressed a poor level of knowledge related to management of child's with fever (*M ± SD*=22.81±8.084).

Table 4-3. Mothers Attitudes related Management of Child's with Fever

List	Attitudes Items	Class	Freq.	%	*M.s ± SD*	*Ass.*
1	I believe that fever is a body temperature more than 38°C	Disagree	19	9.5	*2.35±0.648*	*Agree*
		Neutral	91	45.5		
		Agree	90	45.0		
2	I feel ,Fever if not controlled immediately, will affect health child	Disagree	15	7.5	*2.83±0.537*	*Agree*
		Neutral	3	1.5		
		Agree	182	91.0		
3	I think fever causes brain damage.	Disagree	61	30.5	*1.85±0.667*	*Neutral*
		Neutral	107	53.5		
		Agree	32	16.0		
4	I feel the fever is causing the phobia for the parents	Disagree	11	5.5	*2.87±0.469*	*Agree*
		Neutral	3	1.5		
		Agree	186	93.0		
5	I prefer to reduce temperatures non-pharmacologically as cold compression	Disagree	11	5.5	*2.83±0.499*	*Agree*
		Neutral	11	5.5		
		Agree	178	89.0		
6	I think every child with a fever needs antipyretic	Disagree	27	13.5	*2.69±0.695*	*Agree*
		Neutral	7	3.5		
		Agree	166	83.0		
7	The harmful outcomes associated with use antipyretic is Liver damage	Disagree	86	43.0	*1.60±0.557*	*Disagree*
		Neutral	107	53.5		
		Agree	7	3.5		
8	I think my child's fever will only go away with the use of antibiotics	Disagree	74	37.0	*1.73±0.631*	*Neutral*
		Neutral	106	53.0		
		Agree	20	10.0		
9	I believe in visiting a doctor when a child has a fever	Disagree	11	5.5	*2.86±0.481*	*Agree*
		Neutral	6	3.0		
		Agree	183	91.5		

"(M) Mean, (SD) Standard deviation, Level of Assessment (Disagree ≤1.66, Neutral=1.67-2.33, Agree ≥2.34)"

In terms of statistical mean and standard deviation, this **Table 4-3** demonstrated that the mothers agreed responses regards attitudes towards management of child's with fever at all items of the scale ($M \geq 2.34$) except, the items number (3 and 8) the responses were neutral (M=1.67-2.33), and mothers expressed disagreed that the harmful outcomes associated with use antipyretic is Liver damage *($M \leq 1.66$)*

Table 4-3-1: Overall Mothers Attitudes towards Management of Child's with Fever

Mothers Attitudes	**Freq.**	**%**	***M* ± *SD***
Negative (*M=9-14*)	11	5.5	*21.64±3.572*
Neutral (*M=15-20*)	30	15.0	
Positive (*M=21-27*)	**159**	**79.5**	
Total	200	100.0	

M: Mean for total score, SD=Standard Deviation for total score

Findings **Table 4-3-1** demonstrated that the (79.5%) of mothers expressed a positive attitudes towards management of child's with fever (M ± SD=21.64±3.572).

Table 4-4. Mothers Practices Concerning Management of Child's with Fever

List	Practices Items	Class	Freq.	%	*M ± SD*	*Ass.*
1	Measure temperature of child with fever.	Never	126	63.0	*1.70±0.935*	*Moderate*
		Sometime	8	4.0		
		Always	66	33.0		
2	Use a thermometer to measure temperature for the child	Never	166	83.0	*1.30±0.687*	*Inadequate*
		Sometime	8	4.0		
		Always	26	13.0		
3	Give the child plenty of fluid	Never	181	90.5	*1.17±0.540*	*Inadequate*
		Sometime	4	2.0		
		Always	15	7.5		
4	Use the cold compress to reduce fever	Never	137	68.5	*1.61±0.912*	*Inadequate*
		Sometime	4	2.0		
		Always	59	29.5		
5	Put cold compresses on the forehead	Never	177	88.5	*1.22±0.619*	*Inadequate*
		Sometime	2	1.0		
		Always	21	10.5		
6	Remove the baby's clothing when a child has a fever	Never	185	92.5	*1.13±0.473*	*Inadequate*
		Sometime	4	2.0		
		Always	11	5.5		
7	Use Antipyretic drugs consulting the pharmacist	Never	119	59.5	*1.79±0.973*	*Moderate*
		Sometime	3	1.5		
		Always	78	39.0		
8	Use the antipyretic syrup drug to reduce the temperature	Never	190	95.0	*1.06±0.302*	*Inadequate*
		Sometime	7	3.5		
		Always	3	1.5		
9	Measure the dose of the drug by Teaspoon	Never	118	59.0	*1.78±0.960*	*Moderate*
		Sometime	7	3.5		
		Always	75	37.5		
10	When a child has a fever, use Paracetamol suppositories	Never	163	81.5	*1.31±0.682*	*Inadequate*
		Sometime	12	6.0		
		Always	25	12.5		
11	Use antibiotics with prescription	Never	161	80.5	*1.35±0.734*	*Inadequate*
		Sometime	8	4.0		
		Always	31	15.5		
12	Use over the counter medication to reduce the fever	Never	113	56.5	*1.84±0.974*	*Moderate*
		Sometime	6	3.0		
		Always	81	40.5		
13	Wake the child up during the night for medication to reduce their fever	Never	112	56.0	*1.87±0.988*	*Moderate*
		Sometime	2	1.0		
		Always	86	43.0		
14	If the fever doesn't come down, I give frequent doses or a combination of Antipyretic	Never	111	55.5	*1.87±0.987*	*Moderate*
		Sometime	3	1.5		
		Always	86	43.0		
15	Provide a light feeding of the child, such as milk, soup.	Never	66	33.0	*2.11±0.874*	*Moderate*
		Sometime	45	22.5		
		Always	89	44.5		
16	Observe if there is any convulsion due to fever	Never	52	26.0	*2.30±0.857*	*Moderate*
		Sometime	35	17.5		
		Always	113	56.5		
17	Take the child to the doctor when the temperature is elevated	Never	41	20.5	*2.37±0.804*	*Adequate*
		Sometime	43	21.5		
		Always	116	58.0		

"(M) Mean, (SD) Standard deviation, Level of Assessment (Inadequate≤1.66, Moderate=1.67-2.33, Adequate ≥2.34)"

In terms of statistical mean and standard deviation, this **Table 4-4** demonstrated that the mothers expressed a inadequate responses regards practices concerning management of child's with fever at all items of the scale (*M ≤1.66*) except, the items number (1, 7, 9, 12, 13, 14, 15 and 16) the responses were moderate (*M=1.67-2.33*), and mothers expressed a adequate practices with their child's suffers of increased body temperature (*M≥ 2.34*).

Table 4-4-1: Overall Mothers Practices Concerning Management of Child's with Fever

Mothers Practices	Freq.	%	*M ± SD*
Inadequate (*M=17-28*)	109	**54.5**	*27.81±8.394*
Moderate (*M=29-39*)	69	34.5	
Adequate (*M=40-51*)	22	11.0	
Total	200	100.0	

M: Mean for total score, SD=Standard Deviation for total score

Findings **Table 4-4-1** demonstrated that the (54.5%) of mothers expressed a inadequate practices concerning management of child's with fever (*M ± SD=27.81±8.394*).

4.5. Differences in Mothers Knowledge, Attitudes and Practices towards Management of Fever with their Socio-demographic Variables

Table 4-5-1: Statistical Differences in Mothers KAP with their Age (*n=200*)

Age Variables	Source of variance	Sum of Squares	d.f	Mean Square	F	*p≤ 0.05*
Mothers Knowledge	Between Groups	15.405	3	5.135	19.752	.000 H.S
	Within Groups	50.953	196	.260		
	Total	66.358	199			
Mothers Attitudes	Between Groups	.316	3	.105	.664	.575 N.S
	Within Groups	31.040	196	.158		
	Total	31.355	199			
Mothers Practices	Between Groups	7.082	3	2.361	11.164	.000 H.S
	Within Groups	41.445	196	.211		
	Total	48.526	199			

d.f: Degree of freedom, F: F-statistic.

Findings **Table 4-5-1** demonstrated that there were highly significant differences in mothers knowledge and practices with regard their age groups *(p<0.01*); and there were no significant differences in mothers attitudes with their age groups (*p> 0.05*).

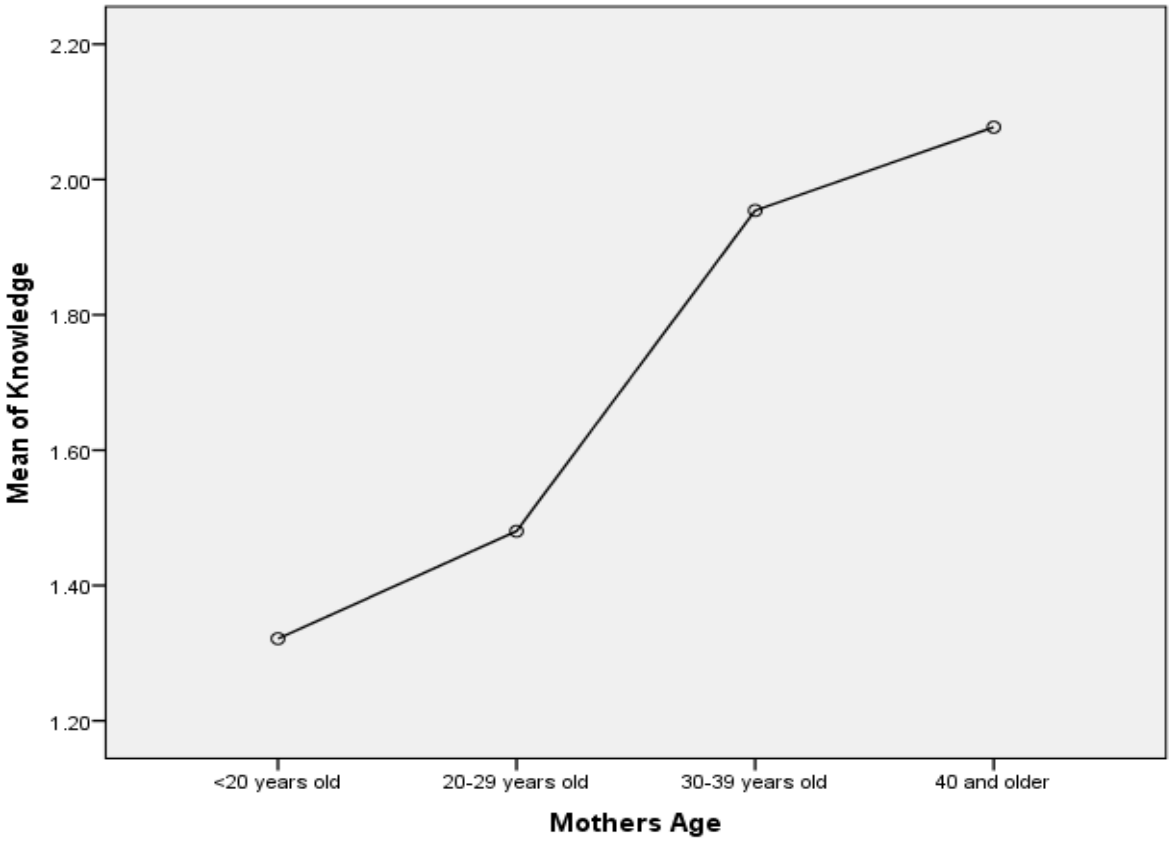

Figure 4-4. Distribution of Mothers Knowledge according to their Age Groups

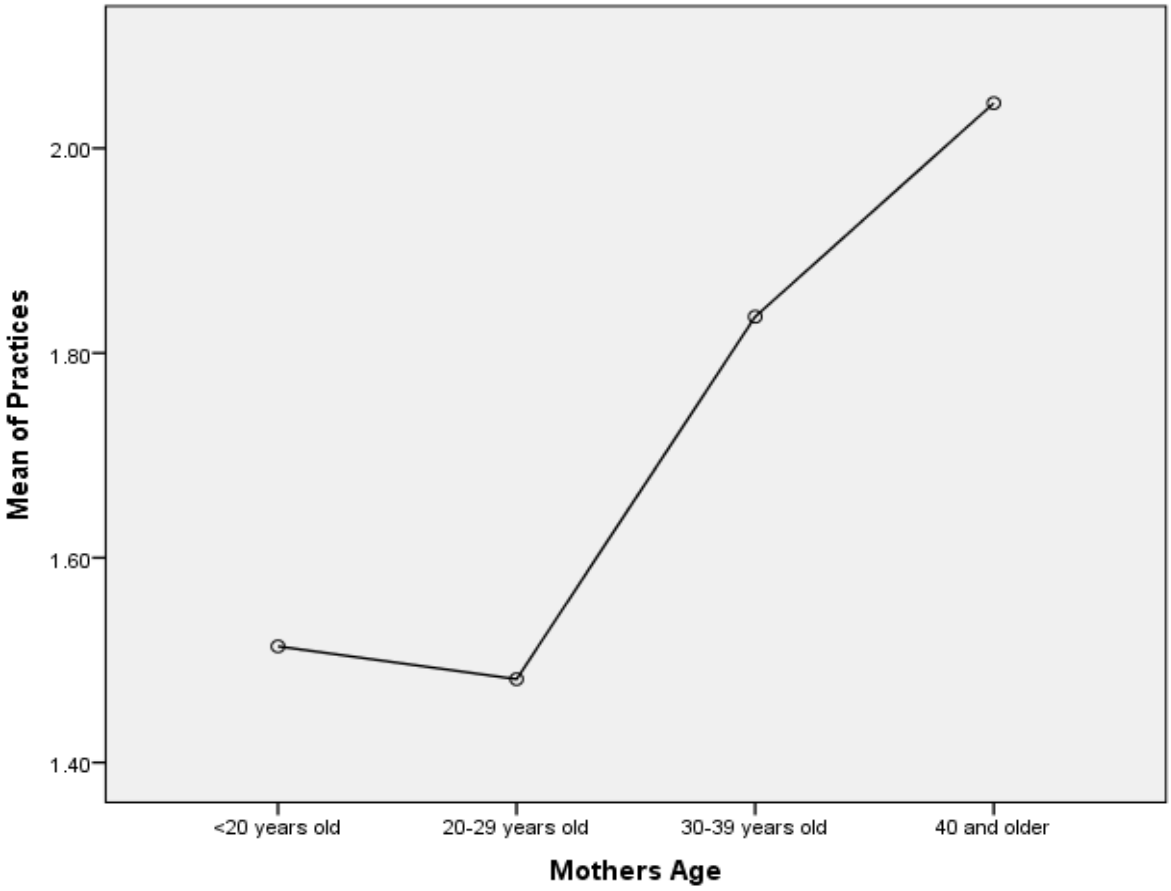

Figure 4-5. Distribution of Mothers Practices according to their Age Groups

Table 4-5-2: Statistical Differences in Mothers KAP with regards their Education Level (*n=200*)

Education Level	Source of variance	Sum of Squares	d.f	Mean Square	F	*p≤ 0.05*
Mothers Knowledge	Between Groups	3.150	4	.788	2.430	.049 S
	Within Groups	63.208	195	.324		
	Total	66.358	199			
Mothers Attitudes	Between Groups	.794	4	.199	1.267	.284 N.S
	Within Groups	30.561	195	.157		
	Total	31.355	199			
Mothers Practices	Between Groups	1.201	4	.300	1.238	.296 N.S
	Within Groups	47.325	195	.243		
	Total	48.526	199			

d.f: Degree of freedom, F: F-statistic.

Findings **Table 4-5-2** demonstrated that there were significant differences in mothers knowledge with regard education level ($p<0.05$); and there were no significant differences in mothers attitudes and practices with their education level ($p> 0.05$).

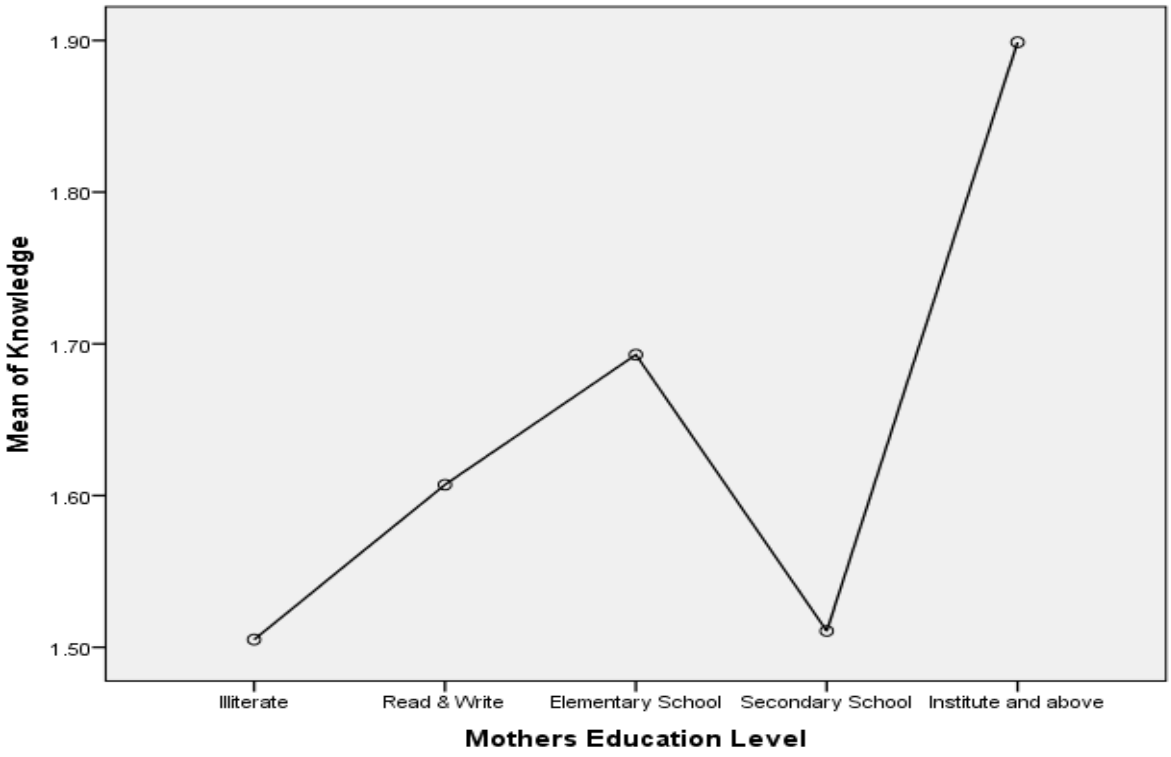

Figure 4-6.Distribution of Mothers Knowledge according to their Education Level

Table 4-5-3:Statistical Differences in Mothers KAP with regards their Occupation (*n=200*)

Variables	Occupation	Mean	SD	t-value	d.f	*p≤ 0.05*
Mothers Knowledge	Employment	1.82	.775	1.798	198	*.074*
	Housewife	1.60	.542			*N.S*
Mothers Attitudes	Employment	2.56	.397	2.184	198	*.030*
	Housewife	2.38	.392			*S*
Mothers Practices	Employment	1.60	.468	2.210	198	*.028*
	Housewife	1.84	.621			*S*

SD: Standard deviation, t: t-test, d.f: Degree of freedom, p: Probability value.

Findings **Table 4-5-3** demonstrated that there were significant differences in mothers attitudes and practices with regard their occupation *(*p<0.05); and there were no significant differences in mothers knowledge with their occupation (p> 0.05).

Table 4-5-4: Statistical Differences in Mothers KAP with regards their Residence (*n=200*)

Variables	**Residents**	**Mean**	**SD**	**t-value**	**d.f**	***p≤ 0.05***
Mothers Knowledge	Rural	1.58	.475	1.270	198	*.206*
	Urban	1.69	.692			*N.S*
Mothers Attitudes	Rural	2.40	.374	.007	198	*.994*
	Urban	2.40	.428			*N.S*
Mothers Practices	Rural	1.64	.443	.343	198	*.665*
	Urban	1.61	.558			*N.S*

SD: Standard deviation, t: t-test, d.f: Degree of freedom, p: Probability value.

Findings **Table 4-5-4** demonstrated that there were no-significant differences in mothers knowledge, attitudes and practices with regard those who are rural and urban residence (*p> 0.05*).

Table 4-5-5: Statistical Differences in Mothers KAP with regards their Monthly Income (*n=200*)

Income	Source of variance	Sum of Squares	d.f	Mean Square	F	*p≤ 0.05*
Mothers Knowledge	Between Groups	.138	2	.069	.205	.815 N.S
	Within Groups	66.220	197	.336		
	Total	66.358	199			
Mothers Attitudes	Between Groups	.972	2	.486	.152	.745 N.S
	Within Groups	30.383	197	.154		
	Total	31.355	199			
Mothers Practices	Between Groups	1.606	2	.803	3.372	.036 S
	Within Groups	46.920	197	.238		
	Total	48.526	199			

d.f: Degree of freedom, F: F-statistic.

Findings **Table 4-5-5** demonstrated that there were significant differences in mothers practices with regard monthly income *(p<0.05*); and there were no significant differences in mothers knowledge and attitudes with their monthly income (*p> 0.05*).

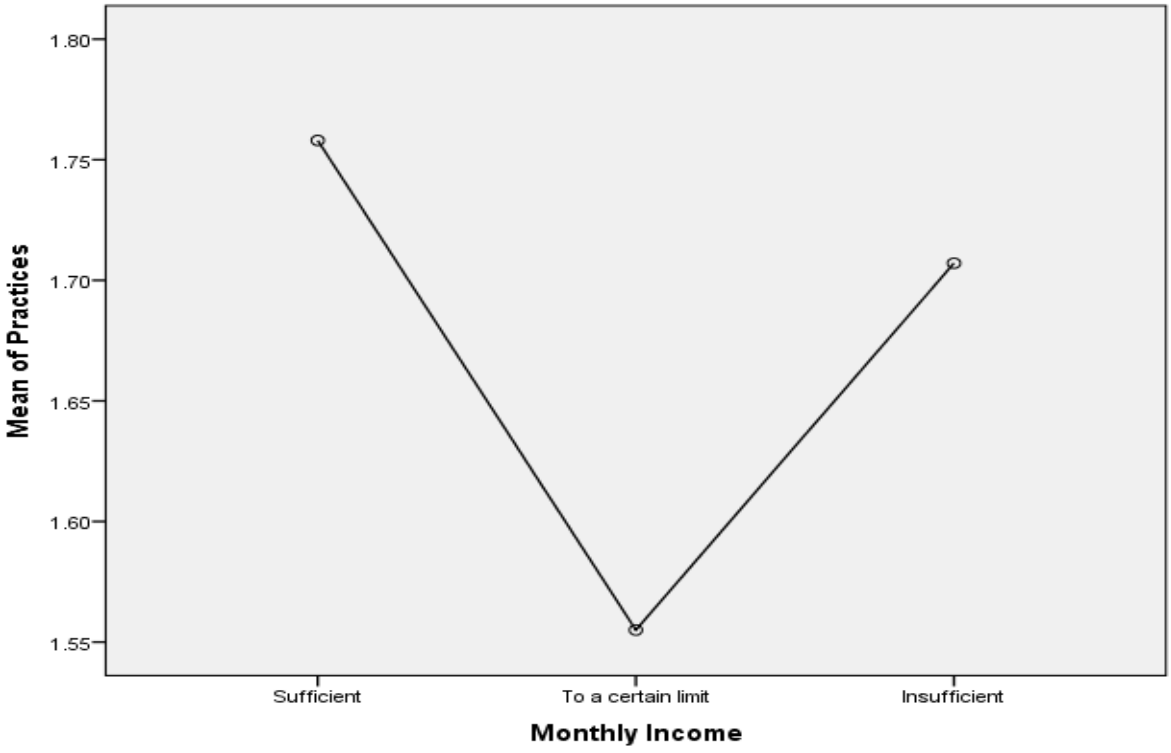

Figure 4-7. Distribution of Mothers Practices according to their Monthly Income

Table 4-5-6: Statistical Differences in Mothers KAP with regards their Number of Children (*n=200*)

No. Children	Source of variance	Sum of Squares	d.f	Mean Square	F	*p≤ 0.05*
Mothers Knowledge	Between Groups	.008	2	.004	.012	.988 N.S
	Within Groups	66.350	197	.337		
	Total	66.358	199			
Mothers Attitudes	Between Groups	.168	2	.084	.529	.590 N.S
	Within Groups	31.188	197	.158		
	Total	31.355	199			
Mothers Practices	Between Groups	.159	2	.080	.324	.724 N.S
	Within Groups	48.367	197	.246		
	Total	48.526	199			

d.f: Degree of freedom, F: F-statistic.

Findings **Table 4-5-6** demonstrated that there were no-significant differences in mothers knowledge, attitudes and practices with regard number of children (*p> 0.05*).

Table 4-5-7: Statistical Differences in Mothers KAP with regards their Child's Age (*n=200*)

Child's Age	Source of variance	Sum of Squares	d.f	Mean Square	F	*p≤ 0.05*
Mothers Knowledge	Between Groups	.966	2	.483	1.455	.236 N.S
	Within Groups	65.392	197	.332		
	Total	66.358	199			
Mothers Attitudes	Between Groups	.467	2	.234	1.490	.228 N.S
	Within Groups	30.888	197	.157		
	Total	31.355	199			
Mothers Practices	Between Groups	1.377	2	.688	2.876	.059 S
	Within Groups	47.150	197	.239		
	Total	48.526	199			

d.f: Degree of freedom, F: F-statistic.

Findings **Table 4-5-7** demonstrated that there were significant differences in mothers practices with regard their child's age ($p< 0.05$), and no significant differences in mothers knowledge and attitudes with regard their child's age (*$p> 0.05$*).

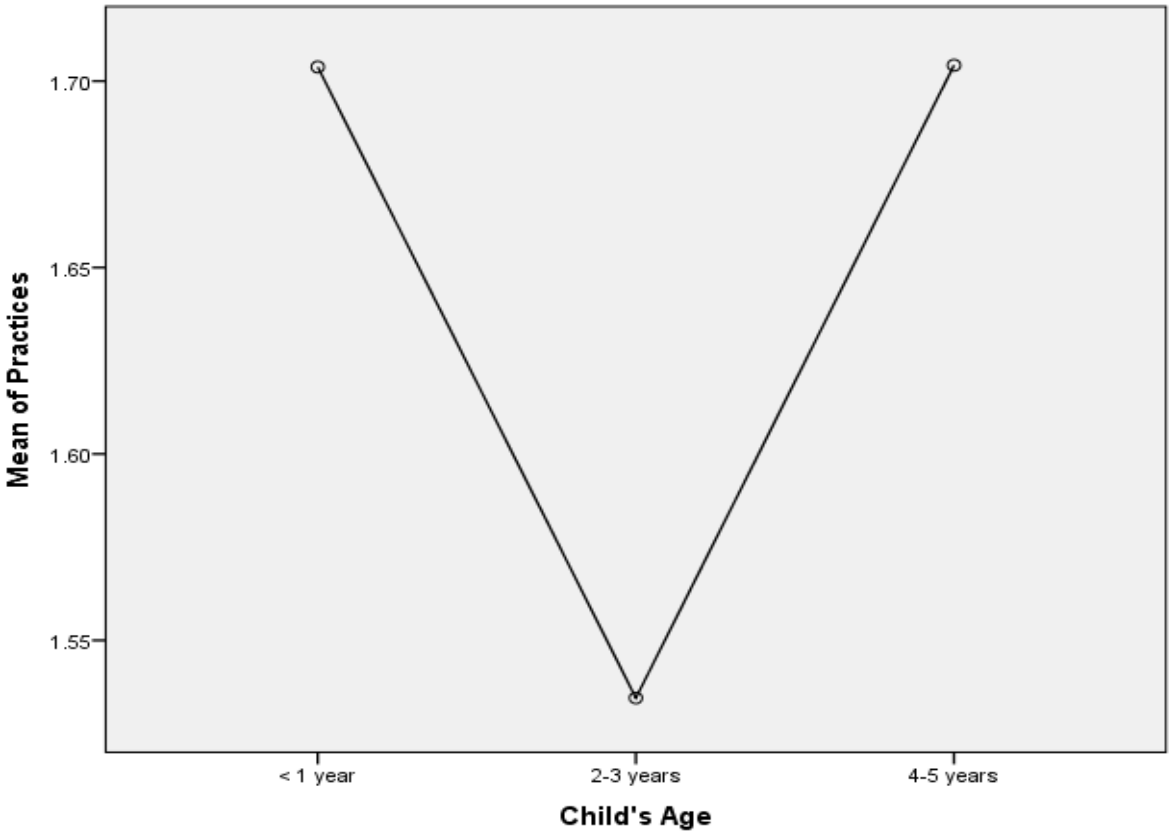

Figure 4-8. Distribution of Mothers Practices according to their Child's Age

Table 4-5-8: Statistical Differences in Mothers KAP with regards their Sources of Information (*n=200*)

Sources of Information	Source of variance	Sum of Squares	d.f	Mean Square	F	*p≤ 0.05*
Mothers Knowledge	Between Groups	6.147	3	2.049	6.670	.000 H.S
	Within Groups	60.211	196	.307		
	Total	66.358	199			
Mothers Attitudes	Between Groups	1.511	3	.504	.307	.221 N.S
	Within Groups	29.845	196	.152		
	Total	31.355	199			
Mothers Practices	Between Groups	.251	3	.084	.339	.797 N.S
	Within Groups	48.276	196	.246		
	Total	48.526	199			

d.f: Degree of freedom, F: F-statistic.

Findings **Table 4-5-8** demonstrated that there were highly significant differences in mothers knowledge with regard their sources of information ($p< 0.05$), and no significant differences in mothers attitudes and practices with regard their sources of information ($p> 0.05$).

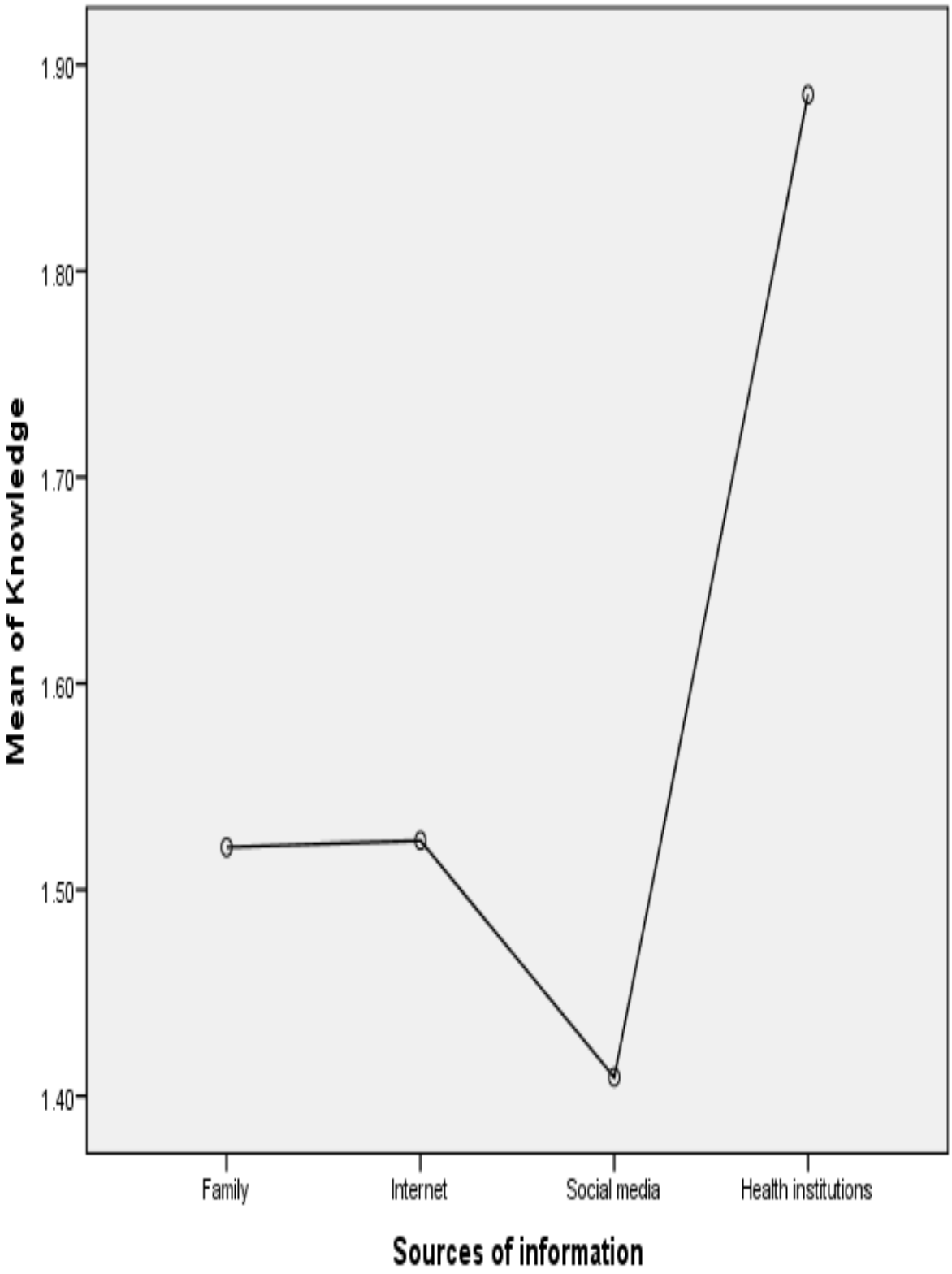

Figure 4-9. Distribution of Mothers Knowledge according to their Sources of Information

Table 4-6. Correlation between Mothers Knowledge with regards their Attitudes and practices towards Child's Fever (*n=200*)

	Mothers knowledge		
Mothers Attitudes	*Spearman's rho*	*.024*	No-Sig.
	Sig. (2-tailed)	*.740*	
	N	*200*	
Mothers Practices	*Spearman's rho*	*.626***	Positive-Sig.
	Sig. (2-tailed)	*.000*	
	N	*200*	

Findings **Table 4-6** exhibit there were no significant correlation between mothers knowledge and their attitudes (*r=0.024; p=0.740*); and there were strong positive correlation between mothers knowledge and their practices (*r=0.626; p=0.000*).

Table 4-7: Simple Liner Regression between Mothers Knowledge and their Practices related to Child's Fever (*n=200*)

Knowledge - Practices	Unstandardized Coefficients		Standardized Coefficients	T	*Sig.*
	B	Std. Error	Beta		
	.589	.051	.636	11.599	*.000*

Findings **Table 4-7** Simple linear regression test exhibit that the significant effect of mothers knowledge on their practices (*p=0.000*).

Chapter Five Discussion of the Study Results

Chapter Five

Discussion of the Study Results

Childhood fever is a frequent reason for health care visits. Parents are worried about fever and its complications and show variation between their knowledge about managing fever and real practice, which are affected by many factors and beliefs. This chapter extensively introduces the outcomes of the research in tables and these refer to the objectives of this report, which are as follows:

5.1.Socio-Demographic Characteristics of the Study Sample

5.1.1.Mothers Age

Finding show in (table 4-1-1) participants age, the mean age is 26, the age 20-29 years old were recorded the highest percentage, and those who are age ≥ 40 years old were recorded the lower percentage. Most of mothers were young due to those the most age groups who had children. From other side, the mothers age was considered a influencing factor of management of children with fever (Villarejo-Rodríguez and Rodríguez-Martín, 2019). The mean age of mothers who had fibril children is 26.85 (±5.12) in Pune, Maharashtra (Mallick *et al*., 2019). This may be due to young mothers age of early marriage, which made them have children at a young age.

5.1.2.Mothers Education Level

In regard with education level show in (table 4-1-2), the mothers expressed the elementary school graduated were high percentage, and those who are secondary school were recorded the lower percentage. These results are in contrast to the results of a study conducted in Saudi Arabia, a majority of women were college graduated (AlZweihary et al., 2021). in our country, especially in rural areas, some women cannot complete their study. While, Khartoum Province, most of women who had children with accessing educational institutions (Kheir et al., 2014).

5.1.3. Mothers Occupation

Occupation related findings in (table4-1-3) , the housewife mothers were predominated, as compared with those who are employment. This findings come in line with Hussain et al. (2020), who find one third of them being employed in the government sector and two third were housewife. The occupation status significantly associated with education level. Since the majority of the society is uneducated, so it made them a housewife.

5.1.4. Mothers Residence

In terms of residents(table 4-1-4)(4-1-5), more than half of participants were rural residents, as compared with those who are urban, as being the rural residents were more infection and prevalence of fever children. mothers who residents in rural exhibit a certain limit enough income, followed by those who are insufficient and those who are sufficient income. Most of them were from the rural areas with low income as described by Kheir et al (2014) in Khartoum Province. This is consistent with studies from other developing countries (Ofovwe and Ofovwe, 2007; Hashim and Ali, 2017).that may be due to low level education and don’t found work to elevate the income.

5.1.5.Mothers Children

In terms of children numberin (table 4-1-6), mothers exhibit to had one child's as compared with those who had 2-3 child's and those who had more than 3 child's, which makes mothers more of a burden to manage children. Those child's aged 2 to 3 years old were highest, followed by those who are <1 year and those who are 4 to 5 years. These results are in agreement with the results of a study conducted among Japanese women. The mothers in that study expressed a clear majority of (43.3%) who had one child aged preschool (Park and Kwon, 2017).

5.1.6.Mothers Sources of Information

The family was the best sources for information about child's fever, followed by those who are use internet and those who are use social media. This agreement with finding from Islamabad, the most of mothers use their friends / relatives as a main source of information related management of fever at home (DAS, 2019). That may be due to geographic and cultural factors and due to the mothers small age and not understand the dangerous of children fever.

5.2.Mothers Knowledge towards Management of Child's with Fever

Children's caregivers around the world are often unaware of the level of body temperature that indicates a fever. The way that they deal with a feverish child is sometimes incorrect or inappropriate. In current study findings that the (47.5%) of mothers expressed a poor level of knowledge related to management of child's with fever as indicated by low level of mean and standard deviation *22.81*(*±8.084*) (table 4-2-2).

This findings come in agreement with Ameen (2020), who find in Kurdistan Regional Government of Iraq, mothers unable to utilize this knowledge correctly. On those regards, educational program should be developed for mothers who attend primary healthcare centers to teach them about child fever management. Also, those finding higher than findings from Saudi Parents, more than 90% of parents demonstrated poor knowledge towards child's fever and undue fear of consequent body damage from fever and also believed antibiotics can reduce high temperature (Hussain *et al*., 2020).

An American study reported that 55% of parents indicated a poor knowledge related to fever and 17.5% aware the management of child's with fever (Poirier *et al*., 2010). However, the present study consisting many studies including a Moroccan study, which reported that 96.5% of the

studied parents indicated an incorrect definition of temperature (Rkain *et al*., 2014).

The use of a thermometer is the only way to determine accurately whether a child is febrile and armpit temperatures are adequate means for clinical screening of fever (De Bont *et al*., 2014). In our study, unsatisfactory knowledge was (47.5%), while it was fair knowledge (36%), while good knowledge was only (16%), these results came in the above studies, and is considered worrisome in the management of children with fever.

Another, given the importance of mothers' knowledge in managing children's fever, suggest that informing mothers on the definition, consequences, and treatment of fever can significantly improve their confidence in managing fever, as reflected by fewer requests for physicians' visits (Gunduz *et al*., 2016).

Increased information about fevers geared towards the caregivers of children, particularly mothers, would prevent the unnecessary treatment of children, as well as minimizing delayed and insufficient responses to fever (Arica *et al*., 2012).

The poor knowledge in current study sample might be due to several reasons; mother occupies herself only with raising her child, lack of sufficient awareness in the media in improving children health, majority of studied sample were from young who are unable to read and write. Health centers need to conduct more awareness sessions on managing children’s fever in homes, which may contribute to reducing the burden on hospitals. This response confirmed in Bushehr City Hospitals, who mentioned that the mothers need to be empowering knowledge by attending education sessions deals with management of childhood fever (Elbilgahy and Abd El Aziz, 2018).

5.3.Mothers Attitudes towards Management of Child's with Fever

Fever is one of the most common childhood symptoms. It causes significant worry and concern for parents. In current study findings showed that the (79.5%) of mothers expressed a positive attitudes towards management of child's with fever as indicated by higher mean and standard deviation 21.64 (±3.572) (table 4-3-2). These results are positive, but some mothers have negative attitudes towards "*harmful outcomes associated with use antipyretic is Liver damage*" as being lack of knowledge about antipyretic outcome (table 4-3-1). In general, the positive attitudes might be come because of the mother's fear for her child, which makes her always in positive situations, especially if it is related to fever.

In those regards, findings from Ireland mothers expressed a positive attitudes related to childhood fever due to fear those symptoms (Kelly *et al*., 2015). Parents were very concerned when their child was febrile (Sahm *et al*., 2016).

5.4.Mothers Practices Concerning Management of Child's with Fever

Findings demonstrated that the (54.5%) of mothers expressed a inadequate practices concerning management of child's with fever as indicated by low level of mean and standard deviation 27.81 (*±8.394*) (table 4-4-2), due to low level of education. In line with inadequate mothers practices concerning fever children, findings from Kom Hamada city, Behira Governorate/ Egypt, which conducted among 384 mothers with a cases of fever children. Their findings demonstrated a bad practices and suggested that the mothers need to health education of mothers is needed to improve mother's practice (Manal *et al*., 2021).

Findings from Riyadh, Saudi Arabia illustrated findings that the mothers with poor practices related fever management due to low level of

education (AlAteeq *et al*., 2018). The poor knowledge and practices due to lake of awareness. The use of educational intervention programs and mothers support group were influenced positively in improving mothers' knowledge, home management & attitude about fever child and its management; but still some mothers having inappropriate home management and negative attitude. Therefore, it is recommended further education in the pediatric clinic or via mass media (Elbilgahy and Abd El Aziz, 2018).

5.5.Socio-Demographic Variables Associated with Mothers Knowledge towards Child's Fever

There were only mothers age, education level and sources of information as a factors associated with their knowledge which are discussion as the following:

5.5.1.Mothers Knowledge and Age

Findings demonstrated that there were highly statistically significant differences in mothers knowledge with regard their age groups *(*p=0.000) (table 4-5-1). The age of studied sample considered influencing factors of knowledge about child's fever, the age group (≥40 years) were records high mean scores of knowledge, unlike the small age (<20 years) were records lowest mean scores (Fig. 4-4). Which means that the higher mothers age significantly associated with improved their knowledge towards management of child's with fever, while the youngest mothers is significantly associated with poor knowledge of child's fever.

This findings come in agreement with findings from Kwahu Government Hospital at Atibie, among 1034 case of mothers with children under five years fever, demonstrated findings that there were significant association between mothers knowledge and their age groups, young mothers expressed a less knowledge than those who are older (Anokye *et al*., 2018). That is, the mother's experience of managing children with fever

is related to their age (the older the age, the greater the knowledge). This was confirmed by Matziou *et al*. (2008), who are found a positive correlation between mothers' knowledge about fever management and the progression of mothers' ages.

5.5.2.Mothers Knowledge and Education Level

Findings demonstrated that there were significant differences in mothers knowledge with regard education level *(*$p<0.049$) (table 4-5-2). From the findings, the highest mean scores of knowledge were increased with those who are institute and above graduated. While, there were lowest mean scores of knowledge were associated with those who are illiterate (unable to read and write) and those who are elementary school graduated (Fig. 4-6). So, the educational level is an influential and important factor in knowledge, and the difference between an educated mother and an uneducated mother is great.

The study included the majority of those who unable read and write (28%) that the reason for the poor of knowledge in our study (table 4-1-2). This findings is supported by previous studies include a cross-sectional study involved neighborhood health center, and a private practice, confirmed that mothers knowledge significantly increased with higher education (Taveras et al., 2004). While, another study conducted in hospitals in Riyadh city, confirmed that the low level of education significantly associated with poor knowledge of home management of child's fever (Al-Eissa et al., 2010). As well as, findings among Women in Khartoum Province showed there were positive significant correlation between mothers knowledge and their education attainment as being the higher education associated higher knowledge (Kheir et al., 2014).

5.5.3.Mothers knowledge and its Sources of Information

Findings demonstrated that there were highly statistically significant differences in mothers knowledge of child's fever with regard

their sources of information (p< 0.000) (table 4-5-8). Mothers who are used health institute (physicians and nurses) as a sources of information towards management of child's fever is significantly increased their knowledge because this source specializes in that and gives correct knowledge regarding child fever, and on the contrary, those who use social media significantly associated with poor knowledge (Fig. 4-9).

Those findings come in line with those who are exhibited that the mothers knowledge significantly depends on nurses (Weiner *et al*., 2015). The mothers knowledge about fever in children significantly associated with those who are used health care providers as a sources of their information (Arica *et al*., 2012). The better sources of knowledge of mothers about management of children with fever is a primary health care centers staff (Chiappini *et al*., 2012).

5.6.Socio-Demographic Variables Associated with Mothers Attitudes towards Child's Fever

There were only mothers occupation as a factors associated with their attitudes which are discussion as the following:

With respect to the statistical mean, there were significant differences in mothers attitudes towards child's fever with regard their occupation *(*t=2.184; p=0.030) (table 4-5-3). There is a difference in attitudes between those who are employment (M ± SD=2.56±0.379), and those who are housewife (M ± SD=2.38±0.392). Through the average score, the employs mother has better attitudes because she is more informed due to mixing with her peers, so she is more likely to acquire positive attitudes. In those regards, findings come alone with Jordanian mothers depicted that the mothers occupation is a factor influencing their attitudes towards childhood fever (Athamneh *et al*., 2014).

5.7.Socio-Demographic Variables Associated with Mothers Practices Concerning Child's Fever

There were only mothers age, occupation, monthly income and child's age as a factors associated with their practices which are discussion as the following:

5.7.1.Mothers Practices and Age

Findings demonstrated that there were highly significant differences in mothers practices concerning child's fever with regard their age groups (p=0.000) (table 4-5-1). It is observed from the findings that the mothers who are aged (≥40) years old were significantly better practices than those who are smaller age (20-29 and <20) years respectively (Fig. 4-5).

So age has a importance role in the practices related to children's fever. The more age, the better the practices. Those decade confirmed by study conducted in Egypt, Which find the mothers practices significantly associated with their age (p=0.001) (Bad practice was common in the age group 25-30) (Manal *et al*., 2021).

5.7.2.Mothers Practices and Occupation

With respect to statistical mean, there were significant differences in mothers practices concerning management of fever children with regard their occupation *(*t=2.210; p=0.028) (table 4-5-3). From the findings, mothers who are housewife (M ± SD=1.84±0.468) are better practices than those who are employment (M ± SD=1.60±0.468).

Occupation is one of the factors affecting mothers' practices. In Saudi Arabia, the mothers who are housewife were improved practices, unlike employment mothers who give birth to their children in kindergarten (AlAteeq *et al*., 2018). Chi-square indicates a relationship between mothers' performance in managing fever and occupations (Arica *et al*., 2011).

5.7.3.Mothers Practices and Monthly Income

Findings demonstrated that there were significant differences in mothers practices with regard monthly income *(*p=0.036) (table 4-5-5). The certain limit income were significantly associated with lower average scores of practices (Fig. 4-6). The monthly income plays an important role in the practices related to child fever, as those who do not have sufficient income to provide the supplies they need and this was confirmed by previous studies, which found those who do not have enough income associated with mothers practices in management of childhood fever (Huda *et al*., 2007; Athamneh *et al*., 2022).

5.7.4.Mothers Practices and Childs Age

Findings demonstrated that there were significant differences in mothers practices with regard their child's age (p=0.059) (table 4-5-7). The differences were in favor of those who had children age <1 years and over 5 years unlike mothers who had child's aged 3-5 years significantly associated with low practices in regards children fever (Fig. 4-7). These results agreed with Doan *et al*. (2014), who demonstrated in their findings there were significant association between mothers practices related management of child's fever with regards children age (Abdinia and Khalilzadeh, 2017; Waly and Bakry, 2022).

5.8.Association between Mothers Knowledge with regards their Practices towards Child's Fever

There were strong positive correlation between mothers knowledge and their practices *(r=0.626; p=0.000)* (table 4-6). This positive correlation is interpreted as the more lack of knowledge towards management of child's with fever leads to inadequate practices. This means that practices rely heavily on knowledge, and these confirmed by simple liner regression exhibited that the significant effect of mothers knowledge on their practices (*p=0.000*) (table 4-7).

Also, findings of Waly and Bakry (2022), emphasized that the low knowledge of mothers of management of children with fever, the lower their performance and practices. As confirmed by Manal *et al*. (2021), the mothers practices of fever management significantly influenced by their knowledge.

In another, poor mothers knowledge significantly associated with poor practices in management of child's with fever (Kyprianidou, 2021). On other hand, the well-educated mother who was aware of body temperature had better practices and management. Working to improve knowledge greatly contributes to the management of children with fever (Elmohalem *et al*., 2020).

The results showed that mean knowledge of respondents was 22.81, mean attitudes was 21.64 and the practices was 27.81. Statistical significance correlation was found between mothers knowledge and practices (r=0.626; p=0.000). The study adds knowledge regarding health education. Further study is needed to explore other factors related to management of fever in children to prevent complication and reducing hospitals burdens.

Chapter Six
Conclusions & Recommendations

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Conclusions and Recommendations

6.1.Conclusion

In light of the results discussion and their interpretations, our study concludes that:

6.1.1. Knowledge in terms of management of children with fever, mothers expressed a poor level due to influenced by mothers age (knowledge significantly higher with introduced age), education level (knowledge significantly higher with mothers who are institute and above graduated) and sources of information (health institutions significantly higher knowledge scores).

6.1.2. Positive attitudes towards management of children with fever and influenced by mothers occupation (employment significantly better attitudes than those who are housewife).

6.1.3. Practices related study variables, the inadequate level among mothers affected by mothers age (age ≥40 years significantly improved practices), occupation (housewife significantly improved practices than those who are employment), monthly income (a certain limit enough was bad practices) and child's age (age of 2 to 5 years significantly associated with bad practices).

6.1.4. Mothers knowledge significantly associated with their practices (poor knowledge lead to poor practices).

6.2. Recommendations

The present study could recommend, based on the above stated conclusion, that:

6.2.1. Educational sessions can be designed and offered to mothers who attending primary health care centers and Hospitals, focusing on Protecting their children being Hyperthermic free of charge by specialized owners deals with management of children fever.

6.2.2. Encourage mass media to discuss topics related to management of children with fever.

6.2.3. A manual booklet of fever in children and how to manage it should be write in simple words and use meaning full pictures given to the mothers and family.

6.2.4. Further study is needed to explore other factors related to management of fever in children to prevent complication and reducing hospitals burdens.

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Appendices

University of Babylon
College of Nursing
Research Ethics Committee
Issue No:
Date: / /2021

جامعة بابل
كلية التمريض
لجنة اخلاقيات البحث العلمي

Approval Letter

To,

Rawaa Abase Fahdil

The Research Ethics committee at the **University of Babylon, College of Nursing** has reviewed and discussed your application to conduct the research study entitled **" Mothers knowledge, Attitude and Practices Toward Fever Management of their Children**

The Following documents have been reviewed and approved:

1. Research protocol
2. Research instrument/s
3. Participant informed consent

Committee Decision.

The committee approves the study to be conducted in the presented form. The Research Ethics committee expects to be informed about any changes occurring during the study, any revision in the protocol and participant informed consent.

Prof. Dr. Salma K. Jehad
Chair Committee
College of Nursing
Research Ethical Committee
18 /01 /2022

وزارة الصحة
دائرة صحة كربلاء
مركز التدريب والتنمية البشرية
لجنة البحوث

استمارة رقم ٢٠٢١/٠٣

قرار لجنة البحوث

درست لجنة البحوث في دائرة صحة كربلاء مشروع البحث ذي الرقم (٢٠٢٢٠٢٦/كربلاء) المعنون:

(معارف واتجاهات وممارسات الامهات نحو اجراءات الحمى لاطفالهن)

والمقدم من الباحثة (رواء عباس فاضل) الى وحدة ادارة البحوث والمعرفة في مركز التدريب والتنمية البشرية في دائرة صحة كربلاء بتاريخ ٢٠٢٢/٢/٩ وقررت:

قبول مشروع البحث اعلاه كونه مستوفيا للمعايير المعتمدة في وزارة الصحة والخاصة بتنفيذ البحوث ولا مانع من تنفيذه في مؤسسات الدائرة.

الدكتور
نعيم عبيد المشهداني
طبيب اختصاص
مقرر لجنة البحوث

09/02/2022

وزارة الصحة
دائرة صحة كربلاء
لجنة البحوث

المرفقات:

لا يوجد

ملاحظات:

- تم تخويل رئيس لجنة البحوث او مقرر اللجنة للتوقيع على هذا القرار استنادا الى النظام الداخلي للجنة البحوث.
- الموافقة تعني ان مشروع البحث قد استوفى المعايير الاخلاقية والعلمية لإجراء البحث والمعتمدة في وزارة الصحة، اما التنفيذ فيعتمد على التزام الباحث بتعليمات المؤسسة الصحية التي سينفذ فيها البحث.

Ministry of Higher Education and Scientific Research

University of Babylon
College of Nursing

وزارة التعليم العالي والبحث العلمي

جامعة بابل
كلية التمريض
لجنة الدراسات العليا

العدد : ٤٠٧
التاريخ : ٧ / ١١ / ٢٠٢٢

Ref. No. :
Date: / /

الى / دائرة صحة كربلاء / مركز التدريب والتطوير
م/ تسهيل مهمة

تحية طيبة :

يطيب لنا حسن التواصل معكم ويرجى تفضلكم بتسهيل مهمة طالبة الماجستير (رواء عباس فاضل) لغرض جمع عينة دراسة الماجستير والخاصة بالبحث الموسوم :

معارف واتجاهات وممارسات الامهات نحو اجراءات الحمى لأطفالهن

Mothers knowledge , attitude and practices toward fever management of their children

مع الاحترام ...

ا.م . د. نهاد محمد قاسم الدوري
معاون العميد للشؤون العلمية والدراسات العليا
٢٠٢٢/١١/٧

صورة عنه الى //
- مكتب السيد العميد للتفضل بالاطلاع مع الاحترام .
- لجنة الدراسات العليا
- الصادرة .

E-mail:nursing@uobabylon.edu.iq

STARS

وطني 07711632208
المكتب 009647711632208

جمهورية العراق

محافظة كربلاء المقدسة
دائرة صحة كربلاء المقدسة
مركز التدريب والتنمية البشرية
شعبة ادارة المعرفة
وحدة البحوث
العدد: ٢١٦
التاريخ / / ٢٠٢٢
٢ ٩

Holy Karbala governorate
Karbala Health Department
General manager's office
Training and Human Development
Center

إلى / جامعة بابل / كلية التمريض
الموضوع /تسهيل مهمة

دائرة صحة كربلاء المقدسة
قسم التدريب
والتنمية البشرية

تحيه طيبه....

كتابكم المرقم ٧٠٤ في ٢٠٢٢/٢/٧
نود إعلامكم بأنه لا مانع لدينا من تسهيل مهمة الطالبة (رواء عباس فاضل) دراسات عليا لإنجاز بحثها الموسوم حول: (معارف واتجاهات وممارسات الامهات نحو اجراءات الحمى لاطفالهن)في مؤسستنا الصحية/ مستشفى كربلاء التعليمي للاطفال وبأشراف الدكتور (عدي عبد الرضا مريعي) على ان لا تتحمل دائرتنا اي نفقات مادية مع الاحترام ٠

الدكتور
نعيم عبيد الشهداني
الدكتورة
تقوى خضر عبد الكريم
مدير مركز التدريب والتنمية البشرية
٢٠٢٢/ ٢ ٩

نسخة منه الى
مستشفى كربلاء التعليمي للاطفال لاجراء اللازم مع الاحترام ٠
مركز التدريب والتنمية البشرية مع الأوليات/ شعبة ادارة المعرفة/ وحدة البحوث مع الاوليات

Part I: Socio-demographic Information

1st part: Socio Demographical data

First: for mother

1- Age of mother: - ☐ Year

2.Level of education: -

Not Read and write ☐ Read and write ☐ elementary ☐ Secondary school ☐ Institutes and above ☐

3. Occupational Status:

Employ ☐ house wife ☐

4. **Residence: -**

.Rural ☐ Urban ☐

5. Number *of children*

1 child ☐ 2-3 child ☐ 4and more than

6. Economic state of family

Sufficient ☐ Sufficient to some extent ☐

In-sufficient ☐

7. Source of fever information:

Family members ☐ internet ☐ Media ☐

doctor ☐ nurse ☐

Second: for child

1.Age of child:

<1 year ☐ 1-3 year ☐ 3-5 year ☐

2nd part: Mother's Knowledge Toward Management fever

No.	items	I know	I am Not sure	I don't know
1	Do you know the average normal body temperature of a child is 37°C			
2	Fever in infants and children is defined as an increase in body temperature above the normal limit ≥38ºc			
3	Fever occurs as a natural response of the body to infection and have immunological benefits			
4	fever is a symptom of the disease			
5	A viral infection mainly causes fever			
6	A bacterial infection mainly cause fever			
7	Complication of fever is convulsion			
8	Dehydration is complication of fever			
9	The most common complication of high fever in children if don't treat it is Febrile seizure			
10	The best way to measure unwell child temperature is Electronic thermometer			
11	The best place to take the temperature of a child under five years is axillary			
12	Cold compress is good for lowering body temperature			
13	The best drug to give to your unwell child for fever is paracetamol			
14	Instrument is best accurate to deter-mine the right dose of paracetamol syrup is Specific measures spoon/Syringe drugs			

3rd part: Mother's Attitude Toward Fever Management

No.	Items	Agree	Neutral	Disagree
1.	I believe that fever is a body temperature more than 38°C			
2.	I feel ,Fever if not controlled immediately, will affect health child			
3.	I think fever causes brain damage			
4.	I feel the fever is causing the phobia for the parents			
5	I prefer to reduce temperatures non-pharmacologically as cold compression			
6	I think every child with a fever needs antipyretic			
7	The harmful outcomes associated with use antipyretic is Liver damage			
8	I think my child's fever will only go away with the use of antibiotics			
9	I believe in visiting a doctor when a child has a fever			

4th part: Mother's Practices Toward Fever Management

No.	Items	Always	Sometimes	never
1	Measure temperature of child with fever.			
2	Use a thermometer to measure temperature for the child			
3	Give the child plenty of fluid			
4	Use the cold compress to reduce fever			
5	Put cold compresses on the forehead			
6	Remove the baby's clothing when a child has a fever			
7	Use Antipyretic drugs consulting the pharmacist			
8	Use the antipyretic syrup drug to reduce the temperature			
9	Measure the dose of the drug by Teaspoon			
10	When a child has a fever, use Paracetamol suppositories			
11	Use antibiotics with prescription			
12	Use over the counter medication to reduce the fever			
13	Wake the child up during the night for medication to reduce their fever			
14	If the fever doesn't come down, I give frequent doses or a combination of Antipyretic			
15	Provide a light feeding of the child, such as milk, soup.			
16	Observe if there is any convulsion due to fever			
17	Take the child to the doctor when the temperature is elevated			

الاستبانه

معارف واتجاهات وممارسات الامهات نحو اجراءات الحمى لاطفالهن

الجزء الأول :المعلومات الديموغرافية

أولا:الام

١.عمر الام ☐ **سنة**

٢. المستوى التعليمي للام: -

لا تقرا ولا تكتب ☐ **تقرا وتكتب** ☐ **خريجة ابتدائيه** ☐

خريجة ثانويه ☐ **دبلوم فاعلى** ☐

٣.مهنة الام- :

تعمل ☐ **ربه بيت** ☐

٤. السكن- :

ريف ☐ **حضر** ☐

٥. عدد الاطفال: طفل واحد ☐ **٢-٣ اطفال** ☐ **٤واكثر اطفال**

٦.مستوى الدخل

يكفي ☐ **يكفي الى حد ما** ☐ **لا يكفي** ☐

٧.مصدر المعلومات عن اجراءات الحمى

أفراد العائلة ☐ **الانترنيت** ☐ **التلفزيون** ☐

الطبيب ☐ **الممرضه** ☐

ثانيا:الطفل

١.عمر الطفل : اقل ١ سنه ☐ ١-٣سنه ☐ ٣-٥ ☐

الجزء الثاني: تقييم معارف الأمهات اتجاه اجراءات الحمى

ت	الفقرات	اعرف	غيرمتاكد	لا اعرف
١	معدل درجه حرارة جسم الطفل الطبيعيه ٣٧درجه مئويه			
٢	تعرف الحمى عند الاطفال بانها زيادة في درجه حرارة الجسم اعلى من ٣٨درجه مئويه			
٣	تحدث الحمى كاستجابه طبيعيه للجسم الى العدوى وفائده مناعيه			
٤	الحمى عرض للامراض			
٥	الالتهابات الفيروسيه تسبب الحمى			
٦	الالتهابات البكتيريه تسبب الحمى			
٧	من مضاعفات الحمى التشنجات			
٨	الجفاف من مضاعفات الحمى			
٩	المضاعفات الاكثر شيوعا للحمى اذا لم تعالج هي نوبه الحمى			
١٠	افضل طريقه لقياس درجه حرارة الطفل المريض هو المقياس الالكتروني			
١١	أفضل مكان لقياس درجة حرارة الطفل دون سن الخامسةهو تحت الإبط			
١٢	الكمادات البارده مفيده لخفض درجه حرارة جسم الطفل			
١٣	افضل دواء تعطيه لطفلك المصاب بالحمى هو الباراسيتامول			
١٤	الملعقه او الحقنه الطبيه المرفقه مع العلاج اكثر دقه لتحديد الجرعه الصحيحه لشراب خافضات الحراره			

الجزء الثالث: تقييم اتجاهات الأمهات نحو اجراءات الحمى

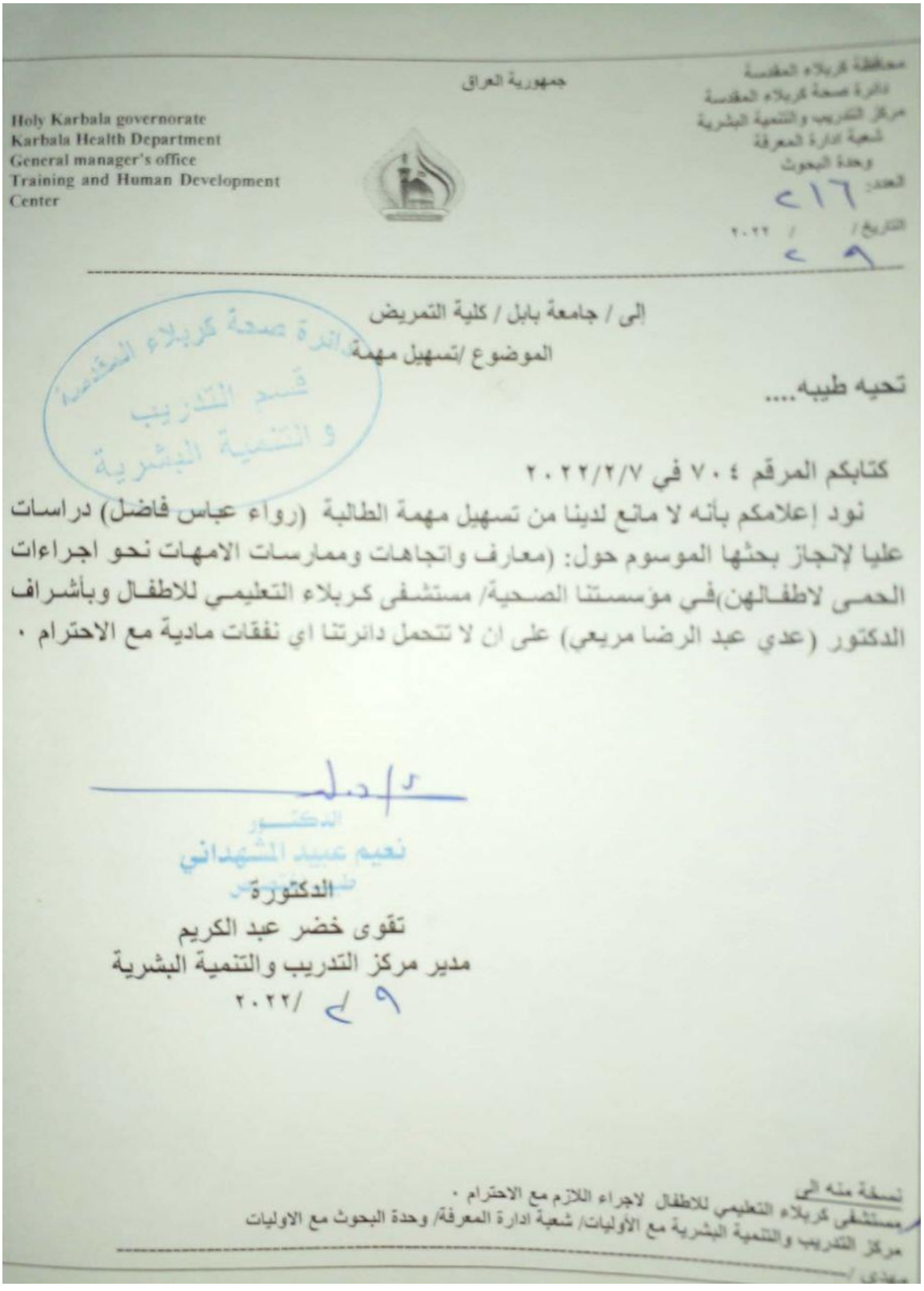
ت	الفقرات	اوافق	حيادي	لا اوافق
١	اعتقد أن الحمى هي درجة حرارة الجسم اكثرمن ٣٨ درجة مئوية			
٢	الحمى اذا لم تعالج ستؤثر على صحه الطفل			
٣	اعتقد ان الحمى تسبب تلف الدماغ			
٤	اعتقد ان الحمى تسبب رهاب اوخوف للوالدين			
٥	اعتقد افضل الاجراءات غير الدوائيه لخفض الحرارة هي الكمادات البارده			
٦	اي طفل عنده حمى يحتاج الى خافضات حرارة			
٧	التاثير الجانبي لخافضات الحراره هي تلف الكبد			
٨	اعتقد ان حراره طفلي لا تزول الا باستعمال المضادات الحيويه			
٩	اعتقد زيارة الطبيب افضل عندما يصاب الطفل بالحمى			

الجزء الرابع: تقييم ممارسة الأمهات اتجاه الحمى

ت	الفقرات	دائما	احيانا	ابدا
١	اقيس درجه حرارة الطفل المصاب بالحمى			
٢	استخدم المحرار لقياس درجه حراره الطفل			
٣	اكثر من السوائل عند ارتفاع درجه حرارة الطفل			
٤	استخدم الكمادات البارده لخفض الحرارة			
٥	اضع الكمادات البارده على جبين الطفل			
٦	اقلل ملابس الطفل عند ارتفاع حرارته			
٧	استشير صيدلاني لتحديد الدواء المناسب لخفض حرارة الطفل			
٨	استخدم دواء الشراب الخافض للحرارة لتقليل درجة الحرارة			
٩	اقيس جرعة الدواء الذي اعطيه للطفل بملعقه صغيره			
١٠	استخدم التحاميل الشرجيه لخفض الحراره للطفل			
١١	استخدم المضادات الحيوية بوصفة طبية			
١٢	استخدم الأدوية التي لا تستلزم وصفة طبية لتقليل الحمى			
١٣	التزم بالجرعات الدوائيه للطفل في الليل والنهار			
١٤	إذا لم تنخفض الحمى ، اقوم بإعطاء جرعات متكررة أو مزيج من خافض الحرارة			
١٥	اعطي الطفل طعام خفيف مثل الحليب والشوربه والسوائل			
١٦	الاحظ على الطفل اي تشنج بسبب الحمى			
١٧	اخذ الطفل الى الطبيب عند ارتفاع درجه حرارته			

خبراء تحكيم استمارة الاستبانة

ت	اسم الخبير	اللقب العلمي	مكان العمل	الاختصاص	سنوات الخبرة
1	د. أمين عجيل الياسري	أستاذ	جامعة بابل/كليةالتمريض	تمريض صحة االسرة والمجتمع	37
2	د. عبد المهدي عبدالرضا حسن	أستاذ	جامعةبابل/كليةالتمريض	تمريض الصحه النفسيه والعقليه	43
3	د. عفيفه رضا عزيز	أستاذ	جامعة بغداد/كلية التمريض	تمريض اطفال	40
4	د.سلمى كاظم جهاد	أستاذ	جامعة بابل/كليةالتمريض	تمريض صحة االسرة والمجتمع	39
5	د. يحيى عبد الشهيد عبدالله	أستاذ	جامعه بابل/كليه الطب	اختصاص طب اطفال	36
6	د.نهاد محمد الدوري	أستاذ	جامعةبابل/كليةالتمريض	دكتوراه تمريض اطفال	35
7	د.ناجي ياسر سعدون	أستاذ	جامعه بابل/كليه التمريض	دكتوراه تمريض صحه الاسرة والمجتمع	33
8	د. مضر حسن نور الاعرجي	أستاذ	جامعه بابل/كليه الطب	دكتوراه طب اطفال	30
9	د. سحر ادهم علي	أستاذ	جامعة بابل/كليةالتمريض	تمريض بالغين	27
10	د. ختام مطشر	أستاذ	جامعه بغداد/كليه التمريض	تمريض اطفال	24
11	د. شذى سعدي محمد	أستاذ	جامعه بابل/كليه التمريض	تمريض بالغين	23
12	د. خميس بندر عبيس	أستاذ	جامعةكربلاء/كليةالتمريض	تمريض اطفال	21
13	د. حسام عباس داود	أستاذمساعد	جامعة كربلاء/كليةالتمريض	تمريض بالغين	20
14	د.احمد عبد الله الحسيناوي	أستاذ مساعد	جامعة ذي قار/كليةالتمريض	تمريض اطفال	13
15	د. حيدر حمزه علي	أستاذ مساعد	جامعةالكوفه/كليةالتمريض	تمريض صحة االنفسيه والعقليه	12



محافظة كربلاء المقدسة
دائرة صحة كربلاء المقدسة
مركز التدريب والتنمية البشرية
شعبة ادارة المعرفة
وحدة البحوث
العدد: ٢١٦
التاريخ: / / ٢٠٢٢
٢ ٩

جمهورية العراق

Holy Karbala governorate
Karbala Health Department
General manager's office
Training and Human Development
Center

إلى / جامعة بابل / كلية التمريض
الموضوع /تسهيل مهمة

دائرة صحة كربلاء المقدسة
قسم التدريب
والتنمية البشرية

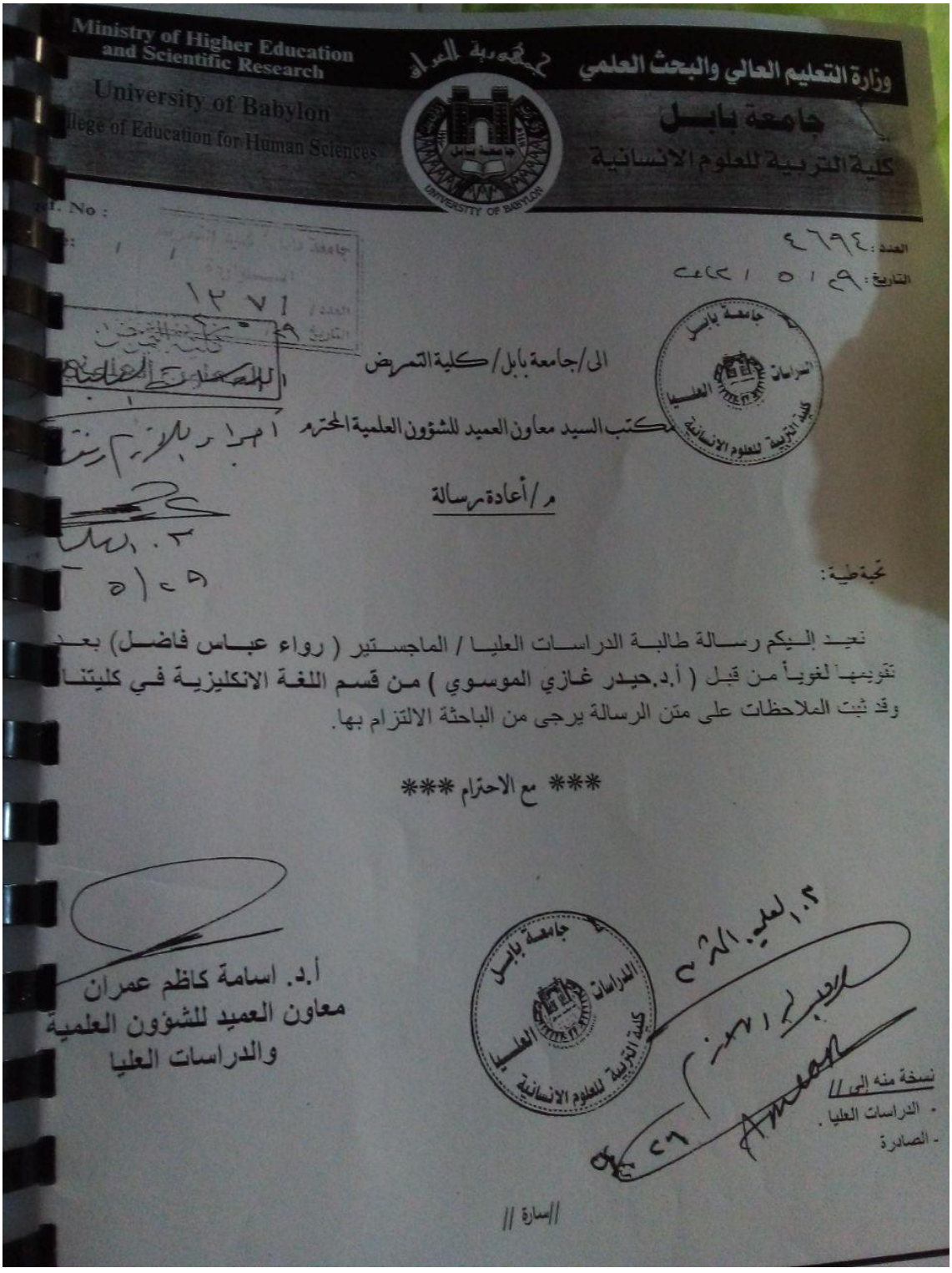
تحيه طيبه....

كتابكم المرقم ٧٠٤ في ٢٠٢٢/٢/٧

نود إعلامكم بأنه لا مانع لدينا من تسهيل مهمة الطالبة (رواء عباس فاضل) دراسات عليا لإنجاز بحثها الموسوم حول: (معارف واتجاهات وممارسات الامهات نحو اجراءات الحمى لاطفالهن)في مؤسستنا الصحية/ مستشفى كربلاء التعليمي للاطفال وبأشراف الدكتور (عدي عبد الرضا مريعي) على ان لا تتحمل دائرتنا اي نفقات مادية مع الاحترام ٠

الدكتور
نعيم عبيد الشهداني
الدكتورة
تقوى خضر عبد الكريم
مدير مركز التدريب والتنمية البشرية
٢٠٢٢/ ٢ ٩

نسخة منه الى
مستشفى كربلاء التعليمي للاطفال لاجراء اللازم مع الاحترام ٠
مركز التدريب والتنمية البشرية مع الأوليات/ شعبة ادارة المعرفة/ وحدة البحوث مع الاوليات



Ministry of Higher Education and Scientific Research
University of Babylon
College of Education for Human Sciences

جمهورية العراق
وزارة التعليم العالي والبحث العلمي
جامعة بابل
كلية التربية للعلوم الانسانية

Ref. No :

العدد: ٤٦٩٤
التاريخ: ٢٠١٥/٥/٢٩

الى/جامعة بابل/ كلية التمريض

م/أعادة رسالة

تحية طيبة:

نعيد إليكم رسالة طالبة الدراسات العليا / الماجستير (رواء عباس فاضل) بعد تقويمها لغوياً من قبل (أ.د.حيدر غازي الموسوي) من قسم اللغة الانكليزية في كليتنا وقد ثبت الملاحظات على متن الرسالة يرجى من الباحثة الالتزام بها.

*** مع الاحترام ***

أ.د. اسامة كاظم عمران
معاون العميد للشؤون العلمية
والدراسات العليا

نسخة منه إلى//
- الدراسات العليا.
- الصادرة

//سارة//

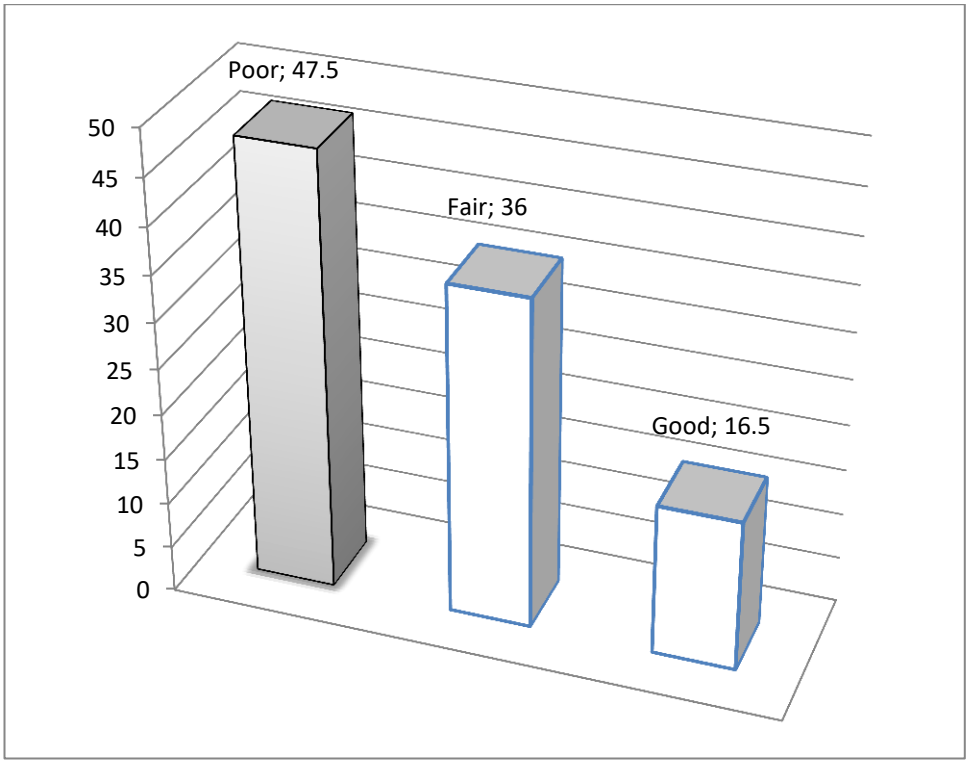


Figure4-1: Mothers Knowledge related to Management of Child's with Fever

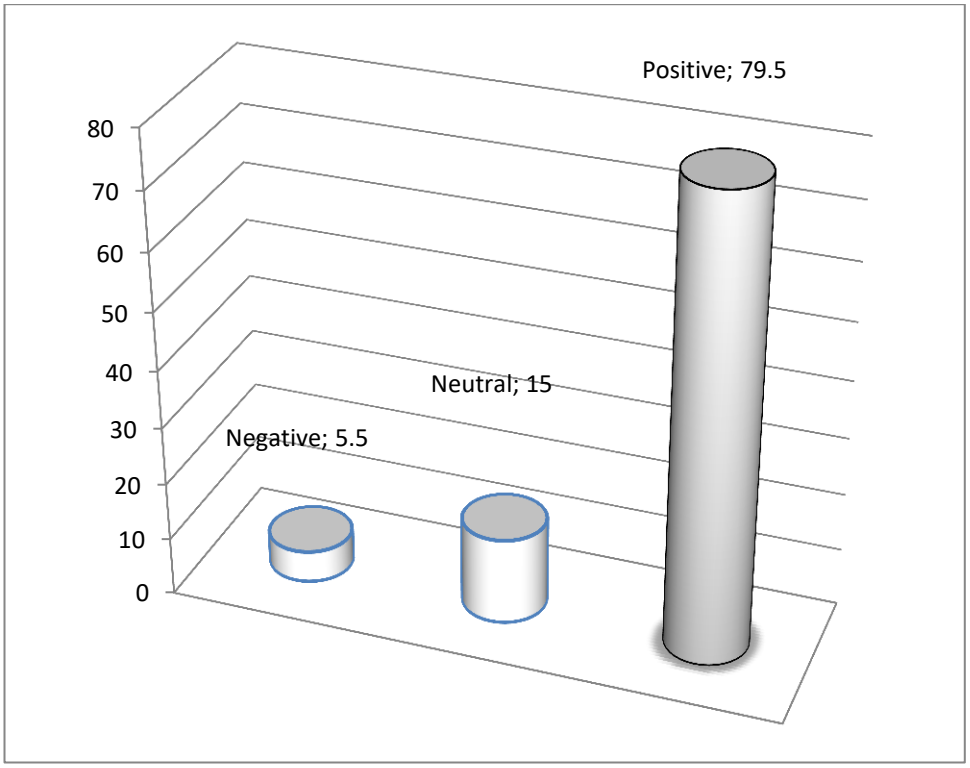


Figure4-2: Mothers Attitudes towards Management of Child's with Fever

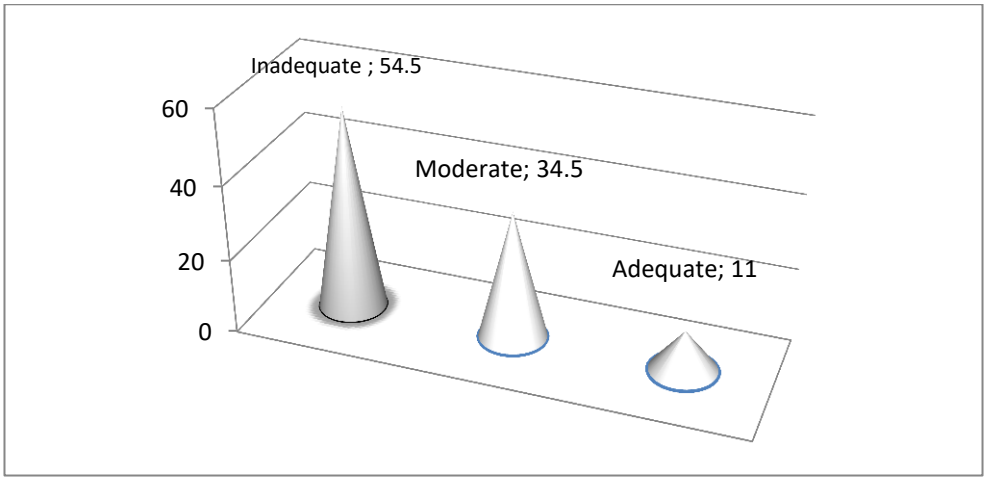


Figure4-3: Mothers Practices Concerning Management of Child's with Fever

الخلاصة

الحمى من أكثر أعراض أمراض الطفولة انتشاراً ،مما يولد الكثير من القلق في العائلات. تقريبا كل طفل يعاني من حمى٣٧,٨-٤٠,٨ درجة مئوية في مرحلة ما خلال طفولتهم.

تهدف هذه الدراسة إلى تقييم معارف واتجاهات وممارسات الأمهات حول إدارة حمى اطفالهن ، وتحديد المتغيرات الاجتماعية الديموغرافية والارتباط بينهم

اجريت دراسة وصفية على عينة غير احتمالية (غرضية) خلال الفترة من ٧فبراير ٢٠٢٢ - ٨ مارس ٢٠٢٢. أجريت هذه الدراسة على (٢٠٠) ام حضرن إلى مستشفى كربلاء التعليمي للأطفال. وقد أجريت الدراسه الاستطلاعية لاختبار ثبات الاستبانة وجرى صدق المحتوى من خلال (١٥)خبير .

الاستبانة تتألف من اربعة اجزاء: المعلومات الاجتماعية الديموغرافية ، إجمالي عدد العناصر التي شملها الاستبيان (١٤) فقرة للمعرفة ،(٩) فقرة للاتجاهات و (١٧)فقرة للممارسات.. جمعت البيانات باستخدام أسلوب المقابله واستخدام الإحصائي الوصفي والاستنتاجي في تحليل البيانات..

أشارت نتائج الدراسة إلى أن (٤٧,٥٪) من الأمهات أظهرن معارف ضعيفة، و (٧٩,٥٪) مواقف إيجابية، و (٥٤,٥٪) ممارسات غير كافية. كانت هناك فروق معنوية في المعرفة فيما يتعلق بعمر الأم ومستوى التعليم ومصادر المعلومات ، وفروق ذات دلالة إحصائية في المواقف تجاه مهنة الأمهات وفروق معنوية في الممارسات فيما يتعلق بالعمر والمهنة والدخل الشهري وعمر الطفل. كان هناك ارتباط إيجابي معنوي بين معرفة الأمهات وممارساتهن.

لخصت الدراسة أن المعرفة من حيث اتخاذ الاجراءات للأطفال الذين يعانون من الحمى ، وأعربت الأمهات عن مستوى ضعيف بسبب تأثيرالمعرفه بعمر الأمهات. اتجاهات الإيجابيةنحواتخاذ الاجراءات للأطفال الذين يعانون من الحمى والمتأثرةبعمل الأمهات. الممارسات من ضمن متغيرات الدراسه ، المستوى غير الكافي بين الأمهات المتأثرات بعمر الأم..أوصت الدراسة بإضافة المعرفة المتعلقة بالتثقيف الصحي.هناك حاجة إلى مزيد من الدراسة لاستكشاف العوامل الأخرى المتعلقة بإجراءات الحمى عند الأطفال للوقاية من المضاعفات وتقليل الأعباء في المستشفى.

جمهورية العراق
وزارة التعليم العالي والبحث العلمي
جامعة بابل
كلية التمريض

معارف واتجاهات وممارسات الأمهات نحو اجراءات الحمى لأطفالهن

رسالة مقدمة

من قبل

رواء عباس فاضل

الى

مجلـــس كلية التمريض جامعة بابل

كجزء من متطلبات نيل درجة الماجستير في علوم التمريض

بإشراف

ا.م .د. وفاء احمد أمين

أيار /٢٠٢٢ ميلادية *شوال/ ١٤٤٣ هجرية*