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Mothers' knowledge, Attitudes, and Practices in the Management of Childhood Fever in Hebron Pediatric Clinics

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Thesis Approval

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Dedication

First and foremost, this work is dedicated to my husband /Dr. Raed Amro, for all of his support through my educational endeavors. He helped throughout the process, not only with his calming abilities, but through his suggestions. I thank my parents, for their insight into the therapeutic process as well as their encouragement. This work is also dedicated to my sons and daughters for their tolerance and keeping them away from me for along period of time.

Declaration

I certify that this thesis submitted for the degree of master in Pediatric Nursing is the result of my own research, except where otherwise acknowledged, and that this thesis has not been submitted for a higher degree to any other university or institution.

Signed: ----------

Kifa' Mohammed Othman Daa's

Date: 7/ February / 2009

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Title: Mothers' knowledge, Attitudes, and Practices in the Management of childhood Fever in Hebron Pediatric Clinics

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Abstract

Background: Children mothers often seek medical evaluation for a child with fever, having misconceptions about fever being viewed as a disease rather than a symptom. The use of antipyretic medicine (Paracetamol, and Ibuprofen) is frequent in many countries, and seems to be growing. Fever is a common reason for pediatric emergency visits, mothers' misconceptions about it lead to unnecessary use of antipyretics, especially during the first year of life, and that may lead to devastating consequences.

Objectives: The purpose of this study is to identify mothers' knowledge, attitude, practices and methods of fever management of children attending pediatric clinics in Hebron area. The specific objectives are to assess mothers' knowledge of, and attitudes toward fever affecting their children. To explore their practices regarding fever in terms of using antipyretics and antibiotics. To identify mothers' believes of the harmful effect of fever. Also to identify mothers' practices of measuring temperature for a child with fever.

Study justification: This study is the first in Palestine, as there is no studies done concerned with mothers attitude toward children's fever, which is the most common cause of referral to health care centers. Studies that done in Arab countries such as Kuwait, Iraq, and Saudi-Arabia have proven that mothers have unjustified fears regarding harmful effects that could happen to children because of fever, as mothers deal with fever as a disease itself and not a symptom of a disease.

Research methods: The study have utilized a descriptive, cross sectional approach to assess mothers' perception, attitudes and practices in the management of their children with fever in governmental and UNRWA pediatric clinics in Hebron city.
A questionnaire of 37 closed and open-ended items were administered to 250 mothers before health maintenance (medical checkup) at both settings. The questionnaire items included knowledge, attitude, and fever management, in addition to information regarding fever reduction techniques, frequency of temperature monitoring, and fever management at home. Data collections were done over a period of two months, and analyzed using SPSS version 16.

Results: The findings indicate that (53.2%) of the respondents' main source of information about fever were their own experience, (34.8%) considered a temperature of 38-39C° to be a high fever, (45.2%) seek medical attention as soon as possible when the child has fever, (9%) thought temperature could rise up to 43.0C° if left untreated.
The majority, (94%) of mothers believed that a fever could cause harmful effects; 40% listed meningitis, (31.6%) brain damage, and (30%) listed convulsion. Regarding their practices to manage fever, (50.8%) would awaken the child at night to give antipyretics, (65.6%) of mothers gave inappropriate dose of antipyretics for the child to decrease temperature. (28%) still preferred intramuscular injections to decrease temperature, and (20%) used Ibuprofen. (81.6%) of mothers used sponging with cold water, and (5.2%) bath the child with cold water. (62%) of mother reported giving antibiotics at home and upon their own responsibilities such as: Ogmin, Jeflex, and Zinnat. (50%) of them did not know the name of antibiotic they gave, and (66%) determined the dose of antibiotics according to their own experience.

Conclusion: The study results is not different from other studies conducted in Arab and other countries, and revealed that Palestinian mothers still having misconceptions and wrong beliefs about fever. This reflects the lack of knowledge and awareness of the mothers within the Palestinian community which needs active health education in our community to decrease mothers' fear and anxiety, and promote more appropriate fever management at home.

Recommendations: Future studies needed to identify knowledge, beliefs, and fever management practices of all health professionals (doctors and nurses) caring for febrile children or advising mothers on the care of a febrile child. In addition, further studies needed to explore the concept of fever and fever management in other areas in Palestine and comparing it to this study results in Hebron.

Health education programs should be launched within the community to increase public health awareness about fever in children through media including pamphlets, and internet.

العنوان: مفهوم، معرفة، وطريقة علاج الأمهات للحرارة عند الأطفال

إعداد : كفاء محمد دعاس

إشراف: د.حاتم خماش

ملخص الدراسة

خلفية الدراسة: إن أمهات الأطفال يسعين دائما لطلب المعونة الطبية للطفل الذي يعاني من الحرارة، كما وان لديهن بعض المعتقدات الخاطئة عن الحرارة، وفي الحقيقة ينظرن لها كأنها المرض نفسه وليس عرض للمرض.
إن استخدام خافض الحرارة مثل الباراسيتامول والبروفين يستعمل كثيرا في عدة دول، واستخدامه في ازدياد مستمر، فالحرارة العالية لدى الأطفال هي السبب الرئيسي لزيارة الأطفال عيادات الطوارئ. وهذا الاعتقاد الخاطئ لدى الأمهات قد يسبب الاستعمال الزائد لخافض الحرارة خصوصا خلال السنة الأولى من حياة الطفل والتي قد تسبب مضاعفات للجسم.

أهداف الدراسة: إن الهدف العام لهذه الدراسة هو تحديد معرفة مواقف وممارسات وأساليب علاج الأمهات للحرارة عند الأطفال الذين يراجعون عيادات الأطفال في منطقة الخليل. وتتمثل الأهداف الخاصة بتقييم معرفة الأمهات للحرارة التي تصيب أطفالهن، معرفة الممارسات التي يقمن بها في علاج الحرارة عند الأطفال، معرفة مدى استخدامهن للأدوية خافضة الحرارة و مدى استخدامهن للمضادات الحيوية، وأيضا معرفة اعتقادهن بأثر ومضار الحرارة على الأطفال بالإضافة إلى معرفة طرق قياسهن للحرارة.

مبررات الدراسة: إن هذه الدراسة هي الأولى من نوعها في فلسطين، حيث انه لا يوجد دراسات مشابهه في فلسطين تعنى بموقف الأمهات من الحرارة عند الأطفال. حيث أن الحرارة عند الأطفال هي من أكثر الأسباب لمراجعة المراكز الصحية، حيث أثبتت الدراسات التي أجريت في الدول العربية مثل الكويت، السعودية، والعراق، أن لدى الأمهات مخاوف غير مبررة عن المضار التي ممكن أن تحصل للأطفال من الحرارة المرتفعة وأنهن يتعاملن مع الحرارة كمرض وليس كعرض للمرض.

منهجية الدراسة: تعتبر هذه الدراسة دراسة وصفية مقطعية لمعرفة رأي وممارسات الأمهات في علاج الحرارة عند أطفالهن في عيادات الأطفال التابعة لعيادات الصحة الحكومية والتابعة لوكالة الغوث في الخليل.
وقد استخدم استبيان مكون من 37 سؤال ما بين أسئلة مفتوحة وأسئلة مغلقة حيث تم جمع المعلومات من250 أم قبل الدخول للعلاج في كلا الموقعين. وقد اشتمل الاستبيان على أسئلة تعنى بمعرفة، مفهوم، طرق علاج الحرارة، بالإضافة إلى معلومات تعنى بالطرق التي تستخدمها الأمهات لتنزيل الحرارة عند الأطفال، وتكرار مراقبة الحرارة وعلاجها في البيت. تم جمع المعلومات خلال شهرين وتم تحليلها باستخدام برنامج SPSS نسخة رقم 16.

النتائج الرئيسية: أظهرت نتائج الدراسة أن مصدر الأمهات للحرارة عند الأطفال هي من أفراد العائلة ومن خبرتهن الخاصة (53.2%). وان (34.8%) يعتبرن درجة الحرارة من 39-38 درجة مئوية هي درجة عالية.
(45.2%) يلجأن للمشورة الطبية بسرعة عندما يكون لدى طفلهن حرارة. (9%) اعتقدن أن الحرارة قد ترتفع لتصل 43.0 درجة مئوية إذا لم تعالج.
معظم الأمهات (% 94) يعتقدن أن الحرارة عند الأطفال قد تؤدي إلى مضار عديدة ذكرن منها: (40%) التهاب السحايا، (31.6%) تلف الدماغ ، و (% 30) ذكرن تشنج.

أما فيما يتعلق بممارستهن وطرق علاجهن للحرارة: (50%) يقمن بإيقاظ أطفالهن في الليل لإعطاء خافض الحرارة، (65.6%) من الأمهات يقمن بإعطاء كمية غير صحيحة وغير مناسبة من الدواء خافض الحرارة للطفل لتنزيل الحرارة. (28%) لا يزلن يفضلن الإبر بالعضل لتنزيل الحرارة ، و(20%) يفضلا استخدام التروفن.

(81.6%) من الأمهات يستخدمن الكمادات بالماء البارد، (5.2%) يقمن بعمل حماما بالماء البارد. (62%) منهن أشرن إلى إعطاء المضاد الحيوي في البيت على مسؤوليتهن الخاصة مثل Zinnat, Jeflex Ogmin .
(50%) لا يعرفن اسم المضاد الحيوي الذي يقمن باعطاؤه و (66%) يقررن الكمية من المضاد الحيوي على مسؤوليتهن الخاصة.

الخلاصة: إن نتائج هذه الدراسة لا تختلف عن نتائج الدراسات الأخرى التي أجريت في الدول العربية والأجنبية، والتي أشارت إلى أن فهم الأمهات الفلسطينيات للحرارة عند الأطفال لا يزال مفهوم غير كامل ولم يطرأ عليه تحسن ملحوظ منذ سنوات عدة، والذي يعكس نقص المعلومات والمعرفة لدى الأمهات في المجتمع الفلسطيني والذي يحتاج للتوعية الصحية للتخفيف من قلق الأمهات من الحرارة ومساعدتهن للوصول إلى أفضل الطرق للتعامل مع الحرارة في البيت.

التوصيات: توصي الباحثة بإجراء دراسات أخرى لدى الطواقم الطبية (أطباء وممرضين) ومن يتعامل في مراكز العناية بالأطفال الذين لديهم حرارة. وبإجراء دراسات أخرى في مناطق ومدن أخرى في فلسطين ومقارنتها بنتائج هذه الدراسة في منطقة الخليل. كما وتوصي الباحثة بضرورة تقديم المشورة للأمهات فيما يتعلق بالحرارة من خلال تقديم البرامج الخاصة بهذا الأمر في المستشفيات والمراكز لتوعية المجتمع ككل عن الحرارة وطرق علاجها الصحيحة، وذلك عن طريق عرض أساليب متنوعة من نشرات طبية في غرف الانتظار، وعن طريق وسائل الإعلام المختلفة من تلفزيون وانترنت.

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Abbreviations

F	Fahrenheit
°C	Degrees centigrade
Dr.	Doctor
ED	Emergency department
HCP	Health care provider
AAP	American academy of pediatrics
UNRWA	United nation relief and work agency
Nr	Nurse
Min.	Minute
Thermo.	Thermometer
Temp.	Temperature
NSAIDs	Non-steroidal anti-inflammatory drugs
≈	Approximately
PHC	Primary Health Care
MOH	Ministry of Health
MCH	Mother child health
TM	Tympanic membrane
NGOs	Non Governmental Organizations
CNS	Central nervous system
TIPH	Temporary International Presence in Hebron

Chapter 1
Introduction

1.1 Background

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1.1 Background

Having a sick child is an anxious time for mothers who are frequently very concerned about their child and have difficulty assessing the severity of the illness. Most of mothers consider fever to be harmful and a disease itself (Crocetti, et al.2001). Mothers often feel disempowered when their child is ill and not caring appropriately for their child if they do not treat fever (Balagangadhar, 2005).

Mothers often seek medical evaluation for a child with fever, having misconceptions about fever and, in fact, tend to view it as a disease rather than a symptom (Michaell.et al, 2001). A mothers' knowledge and perception of fever may determine the degree of her anxiety and fear, and reflect on the way the fever is managed at home. So, the anxiety and fear on the part of mothers and sometimes the physicians and nurses so much so it was labeled by Schmitt and others "Fever phobia" (Schmith,1980).

The use of antipyretics is mainly in the hand of mothers. Mothers' views about the use of antipyretics will be influenced by their attitudes toward fever. Studies have revealed that mothers' knowledge about fever may be incorrect, and that their worries about fever may be historically deep–seated across generations (Lagerlov, 2003). Our understanding of mothers' attitudes may help to improve the home management of fever by correcting unrealistic beliefs. Mothers are scared when their child develops fever, and much of this comes from not understanding that fever is a body's natural and healthy response to infection or illness, and that fever itself may improve the body's immune defense against infection (Crocetti, 2001).

Fever

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,1998).

Fever must be distinguished from other types of elevated body temperature such as heat stress and heat illness. Fever is a characteristic feature of many diseases, both infectious and noninfectious.

Fever is an integral part of the inflammatory response and, has a role in fighting infection. During fever, core temperature rise is the deliberate result of a regulated operation of active thermogenic effectors. It is believed to be a host defense response to invasion from exogenous pyrogens (temperature-raising chemicals released by inflammatory cells) including microbial pathogens, such as bacteria, viruses, mycobacteria and fungi as well as non-microbial antigens, such as inflammatory agents and drugs (Blatteis, 2003).

Normal body temperature

Normal body temperature varies over the course of the day (circadian rhythm) and is controlled by the thermoregulatory center located in the anterior hypothalamus as indicated in figure (1.1). The body normally is able to maintain a steady temperature because the hypothalamic thermoregulatory center balances heat production, derived primarily from metabolic activity in the muscles and the liver, with heat dissipation from the skin and lungs. However, when faced with environmental extremes, humans cannot maintain body temperature within these normal limits without the aid of clothing and / or protective environments (Moran, 2007).

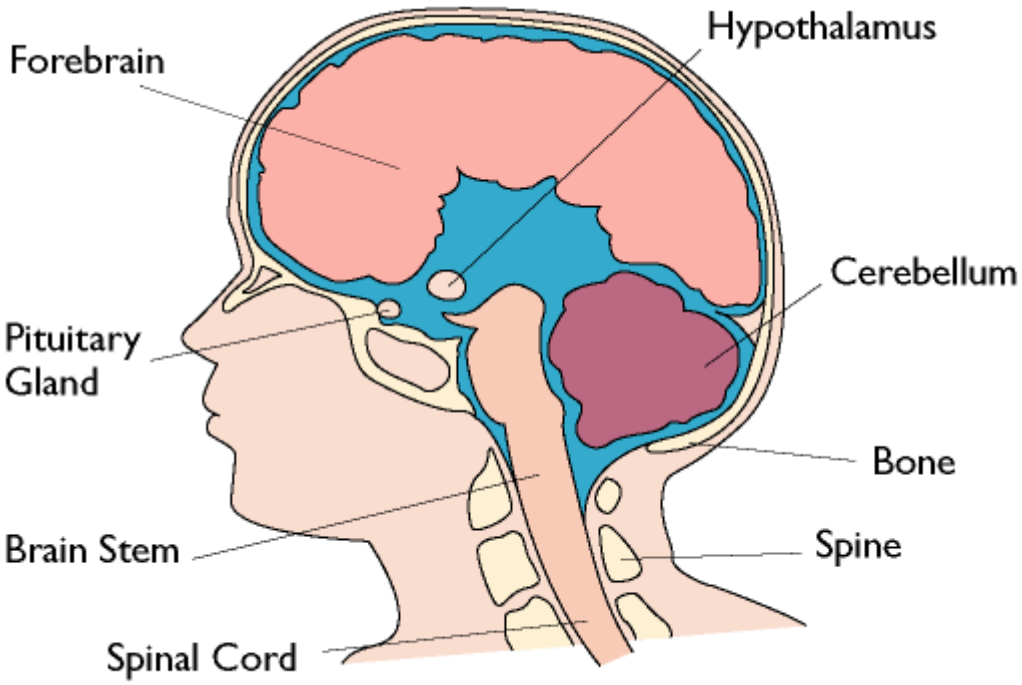

Figure 1.1: The site of hypothalamus

Adapted from: Up-To-Date journal, September (2007).

Oral temperature is generally 0.6 ºC (1.0 ºF) lower than rectal temperature because of mouth breathing, which is particularly important in patients with respiratory infections and rapid breathing, and tympanic membrane (TM) temperature readings are also close to core temperature (Moran ,2007).

Normal daily temperature variation is typically 0.5ºC (0.9ºF). However, in some individuals recovering from a febrile illness, this daily variation can be as high as 1.0ºC. During a febrile illness, daily low and high temperature readings are maintained, but at higher than normal levels. Beyond the newborn period, infants and young children generally have higher body temperatures than do older children and adults. This relates to the greater surface area to body weight ratio and the higher metabolic rate of infants and small children. One study found that the average peak rectal temperature of 18-month-old children to be 37.6ºC (99.8ºF); peak temperature exceeded 37.8 ºC (100 ºF) in one-half of the children (Wallis, 2005).

Hyperthermia

Hyperthermia involves an unregulated rise in body temperature in which pyrogenic cytokines are not directly involved and against which standard antipyretics are ineffective. It represents a failure of thermoregulatory homeostasis, in which there is uncontrolled heat production, inadequate heat dissipation, or defective hypothalamic thermoregulation (Mackowiak, 1998).

When humans are in a thermoneutral environment, febrile rises in body temperature tend to range from 0.5C to 3.0C with most infections producing fevers between 38.5C° and 40.5C° with an average fever of 39.5C°. Mechanisms involved in temperature regulation may lie in the intrinsic properties of the neurons in the rostral hypothalamus or the release of endogenous antipyretic substances that antagonize the effects of the pyrogens on these neurons (Mackowiak 2000).

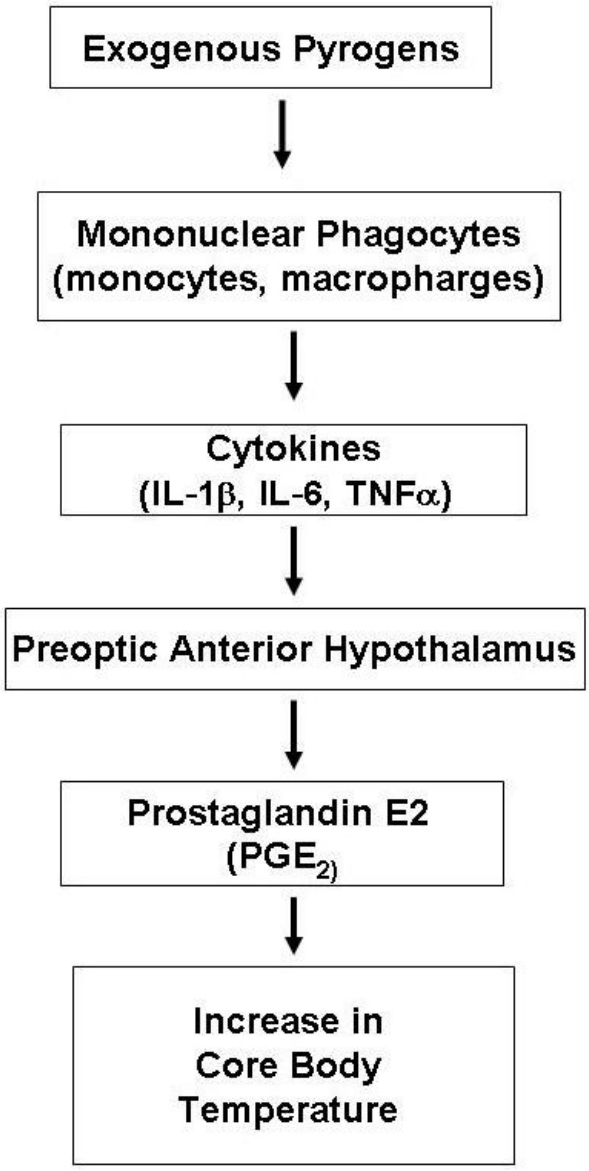

Figure: 1.2: Mechanism of infectious fever induction

Modified from Blatteis, C. (2006) "Endotoxic fever"

Figure1.2, explains the pathogenesis of fever. Various infectious, immunologic, or toxin-related agents (exogenous pyrogens) induce the production of endogenous pyrogens by host inflammatory cells. These endogenous pyrogens are cytokines, such as interleukins (IL-1B, IL-1α, IL-6, and tumor necrosis factors TNF-α). Endogenous pyrogens induce fever within 10-15 minutes, while the febrile response to exogenous pyrogens (endotoxins) has a delayed onset requiring the syntheses and release of pyrogenic cytokines. Endogenous, pyrogenic cytokines directly stimulate the

hypothalamus to produce prostaglandin E2 indicated in figure (1.3) which then resets the temperature regulatory set point, then neural transmission to the periphery leads to conservation and generation of heat, thus raising core body temperature.

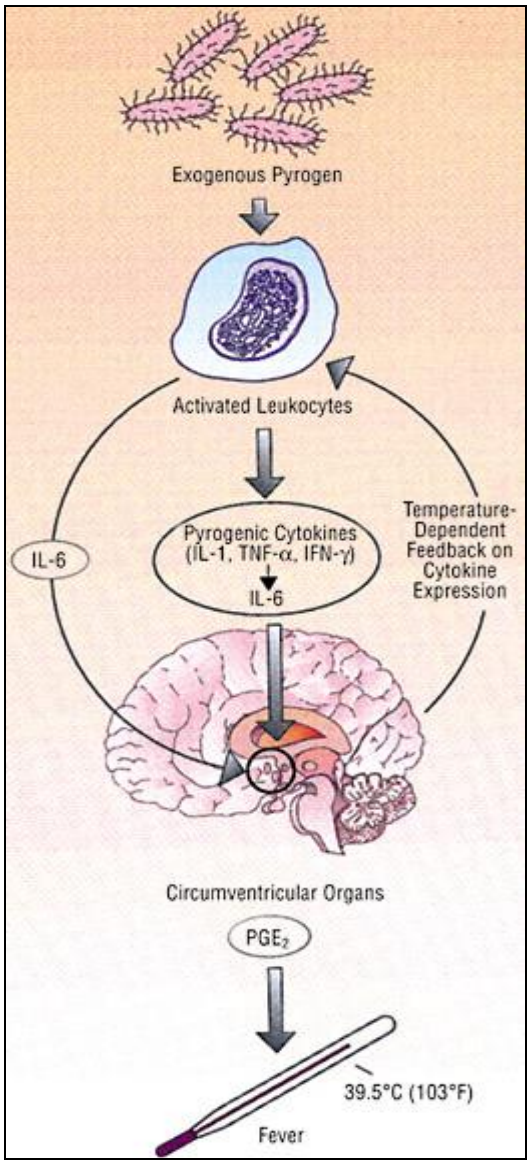

Figure 1.3: Pathophysiology of fever. Adapted from: Mark A. Ward. (2008).

Phases of Fever

(Connell, 1997) has identified three phases of fever. The cold phase begins when the set-point is reset to a higher level. This phase lasts approximately 10 to 40 minutes during which all heat-producing mechanisms are activated and there is a rapid steady rise in temperature. Heat production increases oxygen demands by three to five times normal resting levels contributing to a hypermetabolic state. In this state there are associated increases in heart and respiratory rates and thirst. Vasoconstriction causes the skin to look pale with cyanotic nail beds and to feel cool and dry.

During the hot phase the body has reached a new set-point and maintains the body temperature at this new higher temperature. The length of this phase depends on the time it takes to eradicate the pyrogenic cytokines responsible for the raised set-point. Higher temperatures in this phase are maintained through a balance in heat production and heat loss. Skin is flushed and warm and the individual feels hot.
Basal metabolic rate remains high so tachycardia and thirst continue. Other symptoms associated with this phase include drowsiness, headache, photophobia, reduced activity and appetite, feelings of weakness and/or restlessness and sometimes convulsions. This phase ends when the underlying cause of fever has been treated and/ or eliminated by the body resulting in a decrease in set-point to normal.

The defervescence phase, the dramatic breaking of the fever occurs when there is a sudden decline in circulating pyrogenic cytokines and resetting of the hypothalamic set-point back to normal. Heat loss mechanisms take over and heat production is inhibited. The skin feels warm and is flushed due to vasodilatation and sweating, which can exacerbate existing dehydration. Finally the temperature returns to normal.

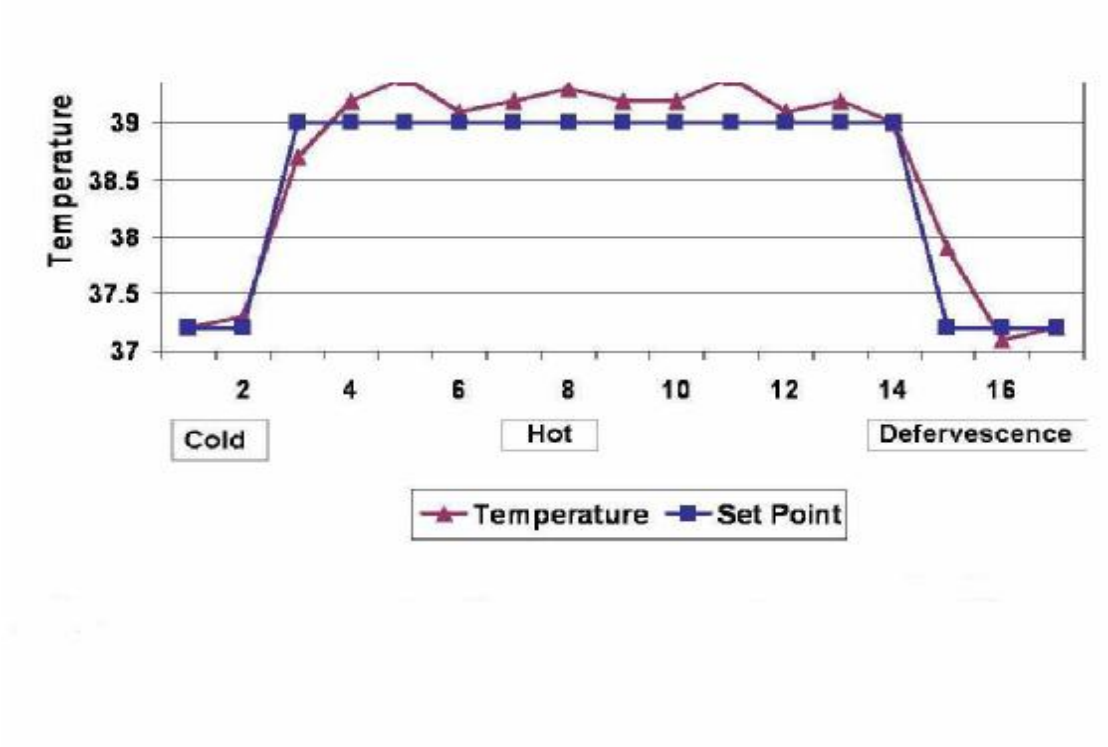

Figure: 1.4: Diagrammatic representation of the phases of fever.
Adapted from Holtzdaw (1992).

Control of body temperature

Body temperature is controlled by an elaborate thermoregulatory system that modulates heat production and heat loss so that the core temperature is maintained within a narrow range. Elevated body temperature is one of the most common reasons why mothers seek medical attention for their children and is the primary complaint of about 30 to 50 % of children seen by pediatricians (Balagangadhar, 2005). This is mostly due to fever but can be due to hyperthermia. Fever is a regulated rise in core temperature, with a rise in the set- point of the hypothalamic thermostat, in response to a physiologic threat to the host, whereas hyperthermia is an elevation of core temperature without elevation of the hypothalamic set-point due to disturbances in thermoregulatory mechanisms. Thermoregulation during fever is generally described in terms of a change in the level of the reference signal in the control system. Fever is medically defined as a rectal temperature of 38.0°C or (100.4°F). A fever itself is not life threatening unless it is extremely high, such as greater than 41.6°C (107°F). A fever may indicate the presence of a serious illness, but usually a fever is caused by common infections (Balagangadhar, 2005).

1.2 Significance of the problem

Managing child's fever depends on the different age group of children. Mother's concerns about the harmful effect of fever have been reported for more than two decades. These concerns remain despite successful educational interventions (Pusic, 2007).

Fever is the most frequent signal of childhood illnesses serving as the chief complaint for as many as one third of all pediatric consultation in general practice. The use of antipyretic medicine (Acetaminophen, and Ibuprofen) is frequent in many countries, and the use seems to be growing (Pusic, 2007).

Paracetamol is an over– the–counter (OTC) medicine, and the use is therefore mainly in the hands of the mothers. Mother's views about the use of Paracetamol will probably be affected by their attitude to fever. In managing mothers' misconceptions of fever, it is recommended that we as nurses listen more to the concerns and beliefs of mothers about their children's illnesses and fever.

This study is conducted because there are no documented studies discussing this issue in Palestine. Mothers have been shown to have unrealistic fears of the harmful effects of fever in their children, and they generally see it as the main component of an illness (Al-Nouri, 2005). Mothers are unable to define fever accurately, tend to overestimate its dangers, and make inappropriate telephone calls and unnecessary clinic visits, leading to excessive utilization of health care services (Al-Nouri, 2005).

Several studies in developed countries have documented that a significant percentage of children are given inappropriate doses of antipyretics, which predictably result in incomplete lowering of temperature. This also leads to unnecessary use of healthcare providers and is an important issue for health professionals and policymakers. Fever is a common reason for pediatric emergency department visits. Although in a large number of cases it is benign and self-limiting condition, mothers are often concerned about the perceived risks of convulsions and severe diseases. Mother's misconceptions about fever as a disease with potentially devastating consequences lead to unnecessary use of antipyretics, especially during the first year of life (Al-Eissa, 2000). Fever is perceived as more meaningful to them than other symptoms that the child may be exhibiting. In turn, this may prevent mothers from observing the potentially more serious manifestations of a child's illness, such as lethargy and

dehydration, which warrant medical attention. Mothers who are unable to assess their child's heath status may be delaying appropriate care for their child or using health care services unnecessarily (Al-Nouri, 2005).

Mothers' fear of fever is so significant that children are common users of health services. For example: it was estimated by the United Kingdom (UK) office for National Statistics that between 1990 and 2001, of the 14 million annual attendance at accident and emergency departments in England and Wales, approximately 3.5 million were children.

1.3 Problem statement

Fever is one of the most common reasons that parents especially mothers seek medical attention for there children. Parental concern arises in part because of the belief that fever is a disease rather than a symptom or sign of illness and it is going to cause damage and illness if untreated. Mothers always complain of many hours of sleep deprivation due to fever phobia or fear of harming the child if they did not treat fever. In addition to the lack of local research conducted on parental fever beliefs and attitudes toward fever in childhood.

1.4 Subject area

This study was conducted in Hebron governmental pediatric clinics and United Nations Relief and Works Agency (UNRWA) pediatric clinics. Hebron city is located in the southern region of the west bank of Palestine, 30 km south of Jerusalem. One hundred villages and two refugee camps surround Hebron: Al-Fawar, and Al-Aroub. Today Hebron is the largest industrial city in the West Bank with over 170,000 inhabitants." Temporary International Presence in Hebron". (TIPH, 2006).

1.5 Study setting

There are 20 pediatric clinics in Hebron owned and supervised by Ministry of Health (MOH). All of these clinics provide immunization and well child health care. In addition to Phenylketonuria (PKU) test for newborns. These clinics have specialized clinic with one doctor and one nurse, and distributed as follows:

Five in the city (Al-Karanteena, Ein-Sarah, Haret-Al-Sheish, Al-Hawooz and Al-Masharqa).

The other fifteen clinics distributed in the villages of; (Doora, Beit Awa, Deer Samit, Tarqumia, Sorrif, Beit Omar, Al-Shoyokh, Al-Thahrya, Beni-Neem, Al-Samooa, Beit –Kahel, Kharass, Ethna, Seir, Yatta, and Halhul. (Ministry of Health Annual Report, 2004).

UNRWA is responsible for providing health care services for the refugee population including Al-Aroub camp, Al-Fawar camp, Tarquomia, Doora, and Al-Ramadeen clinics, which play a distinguished role in the vaccination program in cooperation with MOH. Its clinics provide growth monitoring, breast-feeding, immunization, and counseling.

1.6 Study objectives

1.6.1 General objective

The study aims at identifying mothers' knowledge, attitude, practices and methods of fever management of children attending pediatric clinics in Hebron area.

1.6.2 Specific objectives

- To assess mothers' knowledge and attitude toward fever affecting their children.
- To explore mothers' practices regarding fever of young children.
- To explore mothers' use of antipyretics in treating fever of young children.
- To explore mothers' use of antibiotics in managing children fever.
- To identify mothers' beliefs of the harmful effect of fever.
- To identify mothers' methods of measuring temperature for a child with fever.

1.7 Study questions

1) What do mothers know about fever in young children?
2) What are mothers' beliefs about fever in young children?
3) How do mothers measure temperature in young children?
4) How do mothers manage fever in young children?
5) What is the harmful effect of fever as believed by the mothers?

6) What is the mothers' interpretation of fever?
7) How do mothers use antipyretic medications in fever management?

1.8 Research hypotheses:

1-Hebron mothers have misconceptions toward fever in children.

2-Mothers misuse the antipyretic and antibiotics in managing children fever.

1.9 Study limitations:

- The study findings may not be generalized to all Palestinian population, because the sample is small.
- Some mothers may not answer the questionnaire because of the serious case of her child (1.6%).
- Mothers did not have time to answer the questions.
- Presence of caregiver other than the mother.

1.10 Thesis structure

This thesis is presented in 6 chapters, listed as follows:

Chapter one contains the background and significance of the study, problem statement, and study justification, objectives, research hypothesis, research questions, and study limitation .

In addition, it contains fever information including benefits of fever, methods of fever measurements, and fever management. Chapter two, includes the international studies reviewed, related to this study concerning fever and fever management in Arab countries and foreign countries. Chapter three explains a conceptual framework that explains mothers' knowledge and beliefs toward fever in children and the factors that may influence or has an effect on their attitudes and management methods. Chapter four, includes the study methods, population, sampling, ethical consideration, the way data was collected, and analyzed. Chapter five represents the results of the study including frequencies and percentages, association between the studied variables, and finally, chapter six explains the discussion, conclusion, and future studies, recommendations also included.

Chapter 2

Literature review

2.1 Introduction

This chapter provides an overview of literature related to mother's knowledge of, attitudes toward practices of fever management. It begins by introducing the reader to the definition and explanation of childhood fever and mothers' fever management beliefs and practices, febrile convulsion and its influence on mothers' management of fever through a historical background and literature review of what have been done until now regarding this issue.

2.2 Mothers and childhood fever

Different quantitative studies have described the knowledge, beliefs and practices of mothers with febrile children seeking medical assistance from emergency departments, pediatric clinics, hospitals or community clinics (Blumenthal, 1998, Al-Eissa et al. 2002, Sarrell et al.2002).

This study provides a broad picture of mothers' beliefs, attitudes, and management of fever as believed by Hebron district mothers in Palestine, as compared with these previous studies conducted in other countries.

Internationally, little has changed in mothers' concerns, beliefes, and management of childhood fever since Schmitt (1980) coined the term 'fever phobia'. Mothers continue to reduce fever to prevent febrile convulsion and brain damage and recently to prevent discomfort and improve general well-being of the child (Crocetti et al.2001, Karwowska et al .2002).

2.3 Mothers' attitude

Mothers' concern and inappropriate treatment of childhood fever are well documented (Schmitt 1980), and are multifactorial and caused by past personal experience with febrile children, cultural influence, health care professionals influence and other sources (Poirier et al 2000). A lot of mothers were reported as believing fever to be harmful and very worried about the perceived harmful effects, despite many medical reports about benefits of mild and moderate fever (Porter et al 2000).

2.4 Febrile convulsion

Febrile convulsions, the most common seizure disorders during Childhood, generally have an excellent prognosis but may signify serious underlying acute infectious disease, sepsis or bacterial meningitis.

Febrile seizures are age dependant, and are rare before 9 month. The peak age of onset ≈ 14-18 month of age, with incidence of 3-4% of young children. A strong family history of febrile convulsions in siblings and parents suggests genetic predisposition. Therefore, each child with seizure associated with fever must be carefully examined and investigated for the cause of fever (Kliegman, et al. 2007).

2.5 Treatment of febrile seizures

Management of infant or child with febrile seizures includes careful search for the cause of fever, and reassurance and education of parents. Although antipyretics have not been shown to prevent seizures recurrences, active measures to control the fever, including the use of antipyretic, may reduce discomfort and are reassuring (Kliegman, et al. 2007).

Febrile convulsion is a frightening experience for mothers; many of them think their child is dying (Baumann, 2001). Fears of the possibility of febrile convulsion have not only led to overaggressive treatment of fever by mothers, but have also increased mothers' anxiety and placed additional stress on already limited community and acute health care resources through unnecessary emergency care visits during day and night (Sadovsky,2002).

Antipyretics

Reports of mothers alternating antipyretics, paracetamol and ibuprofen, when fever is not reduced or returns to normal are becoming more frequent, particularly over the past decade.

In 2006 three studies were reported (Erlewyn-Lajeunesse et al., 2006; Nabulis et al., 2006; Sarrell, Wielunsky, & Cohen, 2006). These studies used different alternating methods, dosages and frequencies of medication administration. (Erlewyn-Lajeunesse et al., 2006) compared giving a combination of paracetamol and ibuprofen with

paracetamol or ibuprofen alone. Combined administration resulted in significantly greater temperature reduction than paracetamol alone 0.35C° but not the ibuprofen alone 0.25 C°.

Another study by (Nabulis et al., 2006) compared alternate-therapy with mono-therapy, an initial administration of ibuprofen 10mg/kg was followed by either ibuprofen 10mg/kg (mono-therapy) or paracetamol 15mg/kg (alternate-therapy). The study findings indicated that similar temperatures at four hours after the initial ibuprofen dose 37.5C° in alternate therapy group, and 37.7C° in the mono-therapy group. Over an eight hour period there was similar maximum temperature reduction of 2.2C° ± 0.7C° in the alternate therapy group and 2.1C° ± 1.2C° in the mono-therapy group. The third study by Sarrell (2006) where they conducted over a three day period used loading doses followed by different alternating doses and frequencies. In this study there was a 1.0C° additional reduction in temperature in the alternating medication group. Overall in these studies the additional temperature reduction was between 0.3C° and 1.0C° (Erlewyn-Lajeunesse et al., 2006; Nabulis et al., 2006; Sarrell et al., 2006).

2.6 Benefits of fever

Blatteis (2006), Mackowiak (2000) concluded that fever is beneficial. The growth or survival of some pathogenic bacteria or viruses is impaired at temperatures in the range of 40ºC (104 ºF). They further added; many pathogenic bacteria require iron for their growth, and fever is associated with a decrease in serum iron and a simultaneous increase in the iron-binding protein, ferritin, resulting in low levels of free iron in the blood. Because these bacteria have an enhanced need for iron at high temperatures, it has been suggested that this response is a coordinated host defense mechanism designed to deprive bacteria of free iron when they need it most.

Evidence for fever's beneficial role is found in the enhanced resistance of animals to infection associated with increases in body temperature within a physiologically safe range (Blatteis, 2006; Mackowiak, 2000).

2.7 Disadvantages of fever

Fever is associated with an increased metabolic rate, increased oxygen consumption, increased carbon dioxide production, and increased demands on the cardiovascular and pulmonary systems. For the normal child, these stresses are of little or no consequence. However, for the child in shock or for the child with a pulmonary or cardiac abnormality, these increased demands may be significantly detrimental and may offset any immunologic benefit from the fever.

Fever can have other undesirable effects, and very often makes children uncomfortable. Fever can precipitate febrile convulsions in children between six months and five years of age. While such seizures generally do not appear to cause any permanent neurologic damage, they are disturbing, and may lead to invasive procedures such as lumbar punctures as well as to considerable expense (Blatteis, 2006).

2.8 Treatment of fever

Fever does not always need to be treated, and when treated, body temperature does not always need to be restored completely to normal. The following are reasonable guidelines for treating fever: Increased metabolic stress and oxygen demand, patients with poor cardiac reserve, patients with poor pulmonary reserve, lowering the "seizure threshold, promote patient comfort, and parent comfort (Meremikw, 2002). A systematic review of 12 trials (1,509 patients) of acetaminophen versus placebo or sponging for treatment of fever concluded that there was insufficient evidence to show whether or not acetaminophen influenced the risk of febrile convulsions (Meremikwu, 2002).

When treating fever symptomatically, the choice of therapy should be based upon several considerations. As fever is the result of an elevation of the set-point in the hypothalamic thermoregulatory center; therefore, the most rational way to treat fever is to restore this set-point to normal with the use of drugs such as aspirin, acetaminophen, and ibuprofen. The association of aspirin with Reye syndrome has led to the abandonment of this drug for antipyretic therapy in infants and children. This association with Reye syndrome is not shared by either acetaminophen or ibuprofen (Perrott,.et al 2004).

Efficacy - Ibuprofen is somewhat more effective and has a moderately longer duration of action than acetaminophen. Despite studies showing a somewhat greater and more prolonged reduction of fever with ibuprofen compared to acetaminophen, it is not clear that this difference is clinically important. Furthermore, there are no published studies with a rescue strategy; that is, there are no published data to show whether or not patients who fail to respond to acetaminophen respond to ibuprofen. (Perrott, et al 2004).

Combined therapy with acetaminophen and ibuprofen is a common practice (Mayoral, 2000). However, there are few data about the efficacy of this approach. Published studies have used different thresholds for fever, different dosing regimens, and different periods of observation. Sarrell, et al (2006) in Israel studied children with rectal temperature 38.4ºC found that alternating acetaminophen (12.5 mg/kg) and ibuprofen (5mg/kg) every four hours for three days was more effective than single agent therapy with acetaminophen (12.5 mg/kg per dose every 6 hours) or ibuprofen (5mg/kg per dose every 8 hours). However, the dosing interval for acetaminophen and the dose of ibuprofen in the single agent groups were different from those typically recommended for these agents.

In another study, 70 febrile children (rectal temperature >38.8ºC) were randomly assigned to receive a single dose of ibuprofen (10mg/kg) followed four hours later by acetaminophen (15mg/kg) or placebo (Nabulsi,et al 2006). Rectal temperature was measured hourly beginning at four hours. A higher proportion of children in the combined antipyretic group than in the ibuprofen group were afebrile at six hours (83 versus 58 percent). The mean maximum decline in temperature was similar between groups (approximately 2.1ºC), but the combined antipyretic group had longer duration effect of antipyretic (7.3 versus 5.7 hours). Gastrointestinal, hepatic, and renal adverse effects were not noted (Erlewyn, et al.2006).

2.9 Mechanical cooling

It is sometimes appropriate to use external cooling with tepid sponging to reduce body temperature, either in addition to or instead of antipyretic drugs. External cooling is recommended with tepid water rather than cold water. External sponging is advisable in any situation in which there is concern that the cause of the elevated temperature may be heat illness rather than fever. (Axelrod, 2000).

Sponging with ice water is more rapid and more effective, but is also more discomforting, and is appropriate only when treating heat illness. Sponging often is useful in patients with neurologic disorders, because many of these children have abnormal temperature control and respond poorly to antipyretic agents. Sponging is preferable to antipyretic agents in children with hypersensitivity to these agents and in patients with severe liver disease.

Sponging should be done with comfortably warm or tepid water (generally around 30ºC [85 ºF]). Alcohol should not be used, because its fumes are absorbed across the alveolar membrane and possibly across the skin as well, resulting in (Central nervous system) CNS toxicity (Axelrod, 2000).

2.10 Historical review

Dr. Barton Schmitt in the (1980s) conducted a number of studies concerning the childhood fever and fever management by parents. In one of his studies, he asked 81 parents about fever and found that they had many misconceptions. About 94 percent of parents believed that fever could cause serious harm, including permanent brain damage. A significant percentage believed that if fever left unchecked, a child's temperature could rise to 43.4°C (110°F) degrees or higher. More than half of parents started treatment at temperature less than 39.0°C (100.4°F), with either fever reducers or sponge baths of ice cold water or alcohol. Many woke their child up to do so. Most parents were unduly worried about low-grade fever with temperature of 38.9°C or less. 52% believed that fever with a temperature of 40.0°C or less can cause serious neurological side effects, and 18% believed that a fever of 39.0°C or higher causes brain damage.

Regarding their beliefs of fever treatment, 85% gave antipyretic medication before the temperature reached 38.9°C. 68% sponged the child before the temperature reached 39.5°C. Schmitt coined the term "fever phobia" to describe this state of worry and mismanagement (Schmitt, 1980).

Misconceptions about fever continue to persist 28 years later, and are frequently noted in parents of school-age children, in parents of higher socioeconomic status, and among experienced emergency care pediatric nurses. Pediatricians themselves may have undue anxiety over fever in their patients and may contribute to the misconceptions and fever phobia of parents.

Many studies support the study of Schmitt which was conducted before 28 years, and implies that there is still bad knowledge and attitudes regarding fever.

Luay Al-Nouri (2005) conducted a study in Al-Mansour Children Hospital in Iraq-Baghdad, which aimed to determine the knowledge and attitude of Iraqi mothers about fever in their children with the view of relieving their fears and unrealistic believes, and management of fever. A sample of 100 Iraqi mothers of different educational levels from illiteracy 13% to college education 7% using open ended questionnaire which included: what may cause fever?, what are the effects of fever?, and how soon they seek professional help?. According to this study results, 96% of mothers believed that fever is related or caused by infection without any relation to the presence or influence of bacteria or virus.

However, 92% of mothers believed that fever can be caused by exposure to cold environment. The majority 89 % of mothers believed that increased fever could lead to or cause convulsions. Death according to 60% of mothers can be caused by high fever in children if it is not treated either by antipyretics or by antibiotics whatever the cause is, and because of these beliefs, 60% of mothers used antibiotics haphazardly. This concludes and explains the mothers' fears about their children with fever which led to mismanagement of fever and the misuse of antibiotics and antipyretics.

This study supported by another cross-sectional survey conducted by Crocetti et al (2001), which was conducted to 340 caregivers in two urban pediatric clinics in Maryland. The limitation of this study that it was conducted in two urban hospital – based clinics, the results can not be generalized to other patients' population. Caregivers were asked about their concerns and home management of fever reduction techniques, and frequency of temperature monitoring. Portion of his open ended study questionnaire were modeled from Schmitt's study information regarding definition of fever, concerns about fever, fever management, home fever reduction techniques, and frequency of temperature monitoring were elicited and modified where it was necessary to do.

The results supported the previous mentioned studies about the mothers' lack of knowledge about fever management at home, and that fever is a defense mechanism against infections. 44% of study participants considered temperature of 38.9°C

(102°F) to be a high fever; 7% thought that a temperature could rise to 43.4°C (110°F) or more if left untreated. Furthermore 91% believed that fever could cause harmful effect; 21% believed that fever could cause brain damage; and 14% listed death as a serious harmful effect of fever if untreated with antipyretics, paracetamol and other medications.

Mothers, in the study of Lagerlov (2003), used Paracetamol without physician prescription in order to relief their anxiety regarding child's fever. His study was conducted to prove the misuse of paracetamol during childhood illnesses. 991 Norwegian parents of pre-school aged children were interviewed by open ended questionnaire about their perceptions of fever, its impact on the family, the use of paracetamol and source of medical information.

Most of mothers believed that fever should be treated to counteract illness, as they didn't have the information of controlling body temperature by the hypothalamus which increases body temperature as a sign of body defense mechanism. As the mothers answered in the interview, they feel anxious and anger during their child illness and fever, and this anxiety which called "fever phobia" by (Schmitt, 1980), could be inherited from the medical professionals, doctors and nurses.

Blumethal (1998) supported Al-nouri's study, where he concluded that 95% of mothers, used antipyretics and 65% used antibiotics that reflect the mother's fears about their babies and the improper definition of fever and misuse of antibiotics and antipyretics.

In this study, he aimed at surveyed 392 parents who attended pediatric clinics at the Royal Oldham hospital about their attitudes and concerns regarding fever, and their knowledge about the use of mercury thermometers.

Most parents defined high fever at temperature around 39.0°C (Schmitt,1980). Although recently some parents reported temperatures between 39.0°C and 40.0°C as a high fever.(Al-Eissa et al. 2000). Al-Eissa randomly selected parents of 560 Saudi children who attended emergency rooms in Riyadh pediatric clinics. Mothers were interviewed using open ended questions.

Al-Eissa study results were consistent with the study of Schmitt and Al-Nouri, which revealed that 95% of parents demonstrated undue fear of serious body damage

including brain damage, convulsion, blindness and even death. 70%of parents did not understand the definition of fever, while 25% of parents considered temperature less than 38 °C to be a fever, 64% stated that fever of less than 40.0 °C could be dangerous to a child, and 23% believed fever could rise to 42.0°C if not treated.
A comparison between 101 Jewish and 100 Bedouin parents of children aged 0-5 years with fever regarding their fears and misconceptions of fever. This study was conducted in the pediatric emergency unit in Soroka Hospital in Beer Al-Saba in Israel, which was conducted by Tessler et al. (2008). The researchers conducted the study to test the hypothesis "undue parental concern about fever is less in traditional than in Western cultural –ethnic groups ".

In this study, nine items of "fever phobia" scale were used according to Schmitt 1980, concerning the Jewish and Bedouin groups who live side by side in the same geographic region in the Negeve (southern Israel). The majority of parents treated fever with antipyretics (acetaminophen and/or ibuprofen) and with tepid water sponging. 4% of the Jewish and 10% of Bedouin parents did no use a thermometer to assess their children's temperature, at the same time only one Jewish and two Bedouin children were not given antipyretic medication. In addition, 17% of Jewish and 19% of Bedouin parents used different plants, sponged the feet or the whole body with alcohol or vinegar or overdressed or undressed the child.
The two groups share approximately the same concerns regarding the harmful effect of fever, the lowest temperature at which fever may cause harm, and how soon they treat fever. But more Bedouin than Jewish parents believed that fever may cause brain damage or death and more Jewish than Bedouin parents believed that high fever can lead to seizures.

As the result of their study and the effect of ethnicity on parents' beliefs, concerns and management of fever, they recommended that health care providers must translate instructions from doctors to patients whenever necessary and consider the patients culture and perspective. The limitation of this study was that some parents were very anxious in the interview and had an effect on the results, because they were concerned about their sick child with fever, compared with other parents who attended the pediatric clinic for check up or who attended the primary health care clinics, which make the study results to be less generalizable.

Similar findings have come from studies in other countries such as the UK Purcell(2008), who conducted a study using the questionnaire of Crocetti et al. (2001). 181 parents of children between the ages of 1-6 years were interviewed for the aim of identifying their views about fever and to examine parental beliefs and behavior about fever by benefits and costs of fever – related behavior. 65% of parents' first fear was of fits as a result of high fever. The next more common fears were dehydration by 22%, and 25% fear of vomiting. 10% believed that fever could lead to death. 17% of parents believed that a temperature of ≤ 38°C considered a lowest temperature that could cause harms to the child, 23% considered temperature of < 39 °C to be harmful to the child, and 24% considered temperature of < 40 °C is a harmful temperature.

About parent's level of concerns of the harmful effects of fever might cause, 35% were little worried, 85% were quiet worried, and 18% were very worried. In addition, and regarding to how often parents measure temperature when a child has fever, 10% measure the temperature every two hours, 34% measure temperature hourly and 14% measure it every four hours.

Study findings revealed that 15% of parents used paracetamol as a treatment for fever more than any other medication compared with Ibuprofen which was used by 26%, and no one reported using no treatment at all. When parents asked about the frequency of antipyretics administration, most of them reported every 4 hours, and 49% wake their child to give antipyretic compared with 43% didn't wake their child.

The researcher compared his findings with the recommendations of the British National Formulary for Children and found that 35% of parents reported giving antipyretic drugs more frequently than recommended.

It was interesting to know that 84% of parents reported that increase fluid intake was important. 42% of parents reported using a combination of paracetamol and Ibuprofen together and that result is higher than that of Crocetti et al 2001 which was 27%. The limitation of this study is that it was carried out in one setting only of clinic and in one hospital, for this reason, it was impossible to generalize the findings of the study to the whole population.

A study demonstrated to a sample of 520 mothers of feverish children in the capital health area of Kuwait by Abd-Aljalil et al. (2007), for the aim of surveying mothers about their knowledge concerning fever, management at home, and fears of fever. The study also correlated the relationship between mothers' knowledge and fear with the educational level and number of children.

The researcher used a structured questionnaire in Arabic and excluded the mothers who couldn't read Arabic from the study, and this is the limitation of this study. The mothers were asked about the questionnaire while sitting in the waiting rooms.

The results of this study revealed that, of the total 520, 63.7% were mothers educated to the diploma level, and 36.3% were educated to high school level or less.

34.8% of mothers recognize that child has fever by his general appearance, while 32.6% of mothers recognize fever by touching the child. 62.7% of mothers used digital thermometers, while 15.7% used mercury thermometers and 21.6% of mothers used the forehead strip.

About the site of measuring the child temperature less than 3 years, 57.3% measure temperature from the axilla, 19.2% from ears, 17.5% from the anus and 6.1% from the mouth. In addition, and as a result of the mothers concern and fear about fever, 74.8% of mothers measured and monitored temperature excessively every 4 hours or less.

The most harmful effects of fever as mothers thought were mainly convulsions which were more apparent among the less educated mothers and those with more children. This study concluded that those mothers' fears and concerns are translated to their children reflected in wakening their children many times at night for temperature monitoring and giving antipyretics.

A quasi experimental, pretest and post test study were conducted by (Murphy et al. 2001) to determine if a fever education program reduces parent fever anxiety and if this program increase parents fever home management and reduces parents return to pediatric emergency clinics.

Eighty seven parents from Philadelphia of a lower socioeconomic group who use the Emergency department (ED), participated in this study and their children aged 3 months to 5 years presenting with fever > 38.4C°. Parents were screened to participate in the study if they were able to read, speak and understand English and if they had a telephone access for follow up.

The researcher used a lickert Anxiety Face Scale for parents before getting the medical advice for the physician, and a large color-coded, safety educational, non toxic mercury thermometer called safety thermometer with reliability +0.2°F.
Each parent was assigned for fever education program and received the standard fever education program that included fever pamphlet with detailed information about how to take temperature, how to manage fever, and the medical evaluation for the child with fever. After that parents were post tested again using the same lickert Anxiety Face Scale. The sample consisted of 87 parents, 43 in the control group and 44 in the intervention group.

The result of this study revealed that the control group and the intervention group were approximately equal as they had no thermometer at home, and the most frequent thermometer type used were glass (44%control and 52% intervention). The most frequent method for measuring temperature was rectally (42% control and 39% intervention group). 74% of the control group reported giving medications to treat fever compared with 48% in the interventions group. 26% used acetaminophen to treat fever in the control group compared with 41% in the intervention group.

Two parents gave ibuprofen and one parent administered amoxicillin alone as it was already in the home. About the ability to read a thermometer, 35% of control group and 16% of intervention groups were not able to read a thermometer correctly.
But regarding the treatment and management at home, 63% of the control group and 61% of the intervention group reported sending the child to the ED. 28% of control and 16% of intervention reported using sponges for treating fever while 3 parents in the control and one in the intervention group reported giving the child an alcohol bath.
But regarding fever anxiety, 40% of parents in each group reported moderate to high level of anxiety related to fever in their children.
After the education program intended by the researcher, parents in both groups reported a reduced anxiety level of fever (82% in the control group and 85% in the intervention group).

A study conducted by Sarrell et al (2003) in Israel, to evaluate the impact of active single–session educational program for parents on the approach to transient febrile illness in their child.

The sample consisted of 155 consecutive parents of children visited the pediatrician during the period of 1999- 2000 for treatment of low-grade fever < 38.5°C. The study samples were derived from a population of 1000 parents of children aged 3 months to 18 years. The parents were given a reinforced explanation by the pediatrician about the management of fever at home. The standard explanation consisted of five points: " (a) fever as friend or foe (enemy); (b) non–necessity to treat children with a fever of less than < 38.5°C without any signs of infection; (c) non-necessity to awaken the child in the middle of the night to administer antipyretics; (d) the need to use a thermometer to confirm suspected fever because measuring fever by hand touches unreliable; and (e) calculation of antipyretic dose". Sarrell et al (2003).

The parents answered questionnaire without any assistance, just that the pediatrician explained the definition of high fever, and the definition of low grade fever to differentiate between them.
After 3-7 days, the parents return back to the pediatrician another time for follow up, and answered the questionnaire another time who finally judged on the answers to the questionnaire. Then the responses on the second questionnaire were compared to the first to determine the effect of the reinforced explanation.

The results of this study revealed that, after attending the reinforced education, 75% of parents correctly defined the low grade fever as > 38.5°C compared to 46% before the session. 68% would initiate treatment for a temperature above 38.5°C compared to 30% before the session. 39% of parents still thought hand contacts were accurate method to measure temperature compared to 54% before the session, and 96% of the parents responded to the item of non-pharmacological treatment of the febrile child compared to 50% before the session. The study concluded that parental anxiety about fever in children, inappropriate use of antipyretics, and over –utilization of health care services can be improved by a brief reinforced educational sessions.

Broome (2003) conducted a study for the purpose of examining the effectiveness of fever education programs in increasing parent/grandparent fever management knowledge and practices. The study sample were 216 parents and grandparents with a mean age of 21.8, participated in a randomized prospective repeated measures trial conducted in six different sites, which included two private clinics and ambulatory

clinics in three children hospitals and one ambulatory clinic in an academic medical center.

The researcher divided the sample into control group and provided them with video and brochure as they left his office, while the education group provided and shown the video and brochure in the office before seeing the Health Care Provider (HCP).

The researcher used the CALM method which means: (C-check the temperature, A-Assess for other symptoms, L-lower the temperature, M-monitor the child's behavior) and video program designed to enhance communication between parents/grandparents and health providers about how to manage fever in the child.

All parents /grandparents who cared for a child from 3 months to 6 years of age and who spoke English included in the study, and any child with history of febrile seizures or chronic illnesses were excluded from the study.

The researcher collected the data in the clinic, at 24 hours to 72 hours, 1, 3, and 6 months after the visit by telephone. This is done for seasonal variations in febrile illnesses.

The brochure-contained information about what fever is, how to manage fever, the symptoms that need special parents' attention and these information based on American Academy of Pediatrics (AAP). Guidelines and the video reinforce the information provided in the brochure.

The results of this study revealed that knowledge of parents /grandparents in education group were higher than in control group, at 48 hours and 1 month post visit. Also the knowledge and practices of parents /grandparents who received video and brochure were different from control, as well as their comfort and satisfactions were high. In conclusion, educating parents/ grandparents about fever management using brochures and video have increased fever knowledge and improve their practices, and the study supported the previous study (Sarrell, 2003). Also the effectiveness of using educational programs increase parents fever information and knowledge, decreasing their fear regarding fever management and decrease the utilization of health services and revisit of parents to the health clinic.

The way the researcher separated the groups may lead to experimental bias as the control group and the education group may talk about the issue in the waiting room and affect the results of the study.

Another study conducted in France by Boivin (2007) aimed at investigating the parents level of knowledge about child's and infant fever, a sample of 2600 classified into three categories according to the socio-economical conditions of parents, three institutions at city center (high socio-economical condition), 18 sub-urban institutions (intermediary conditions) and 8 institutions located in priority education zone (unfavorable socio-economical conditions). One thousand thirty-eight questionnaires were exploited 40%: 176 in the city centre, 634 in suburban area and 228 in priority education zone. The study revealed that the use of paracetamol is frequent more than ibuprofen and the use of aspirin is less common.
The higher socio-economic condition, the more anxiety and more recurrence visit to a doctor and the management of fever of children by parents. The study concluded that health providers should concentrate on updating information for parents through educational programs related to fever management.

Stuijvenberg (1999) interviewed 181 parents to explore their beliefs about fever and febrile seizures affecting their children. The children were aged between 1 and 4, and they had one or more risk factors for febrile seizure recurrence. The researcher defined risk factors as: positive family history of febrile seizures; an initial seizure of the multiple types; a temperature below 40 C° of the initial febrile seizure recurrence.

The investigator provided information about fever and febrile convulsion when the child visited the special febrile seizure out patient's clinic. The researcher used a structured and semi structured questionnaire which included the following issues: the parents general perception of fever, the methods used to measure temperature, how do parents perceived fever when their child have febrile convulsion at the first time and how they perceive it now. Group one of population n=100, were afraid of fever and group two n=81 were more afraid of fever. Parents who were more afraid of fever considered a temperature to be high if it reached 39.0C° and parents who were less afraid considered a temperature of 39.5C° as high fever.
Parents' who were more afraid have more frequently measured temperature per day during fever, taking extra measures, sleep in the same room with the child, and remains awake during the night.

Regarding parents' main source of information about fever, 64%of parents answered that their main source of information is the hospital, 8% from the general practitioner, 2% from the child health centers, and 26% from others.
A negative independent association was found with initial febrile status epilepticus, which indicate that parents' who have a child suffered from an initial febrile seizure were less frequently thought their child was dying. 41% of parents considered febrile seizures were harmful and concerns about the possible lack of oxygen to the brain during febrile convulsion. The researcher concluded that half of the parents were afraid of fever because they were afraid of febrile seizures.

Fhkam et al (1999) interviewed 159 Chinese parents of children under the age of 14 to investigate how parents define, assess, and manage fever in their children.
Two third of the study respondents were between age 30-39 and 79.9% had tertiary educational level.

When parents asked about the way they use to check temperature, 15.7% of respondents replied that by touching the child's fore head, hands or feet, and (67.9%) used thermometer to measure temperature.
Regarding parents definition of fever, 54.7% define fever correctly and 20.1% were incorrect. And about managing child with fever, 25.1% replied that antibiotics should be given regardless of the cause of fever while 27% replied that sponging for a child with fever should be avoided.
When parents asked about their definition and assessment of fever in children, 67.9% of parents would use a thermometer, while 15.7% by touching the child's forehead and hands. The researcher concluded that still Chinese population's knowledge on assessment and management of childhood fever is still inadequate and recommended continued parental education through verbal and written instructions.

Parmer et al. (2001) have studied the Netherlands parent's knowledge, attitude and practices regarding their children with febrile convulsions. The researcher interviewed 140 parents using retrospective questionnaire in the tertiary care center in a metropolitan city, the parents were interviewed at the time of discharge from the hospital after 24-48 hours of observation. Questions were asked to assess parents'

information about their awareness about complications of seizures and their perception regarding relationship between fever and febrile convulsion.

Of the total 140 parents interviewed, 85% did not have thermometer at home, of 15% who had thermometer, 23.8% didn't know how to use it, and most of them measure temperature from the armpit, 15% of the total 140 parents could use a thermometer correctly, 20% only knew the normal range of body temperature. 77.9% of parents didn't know that febrile convulsion can occur due to fever, the more concern were on the convulsion itself, it's occurrence and future epilepsy occurrence. The researcher concluded that fear of fever and febrile convulsion was of much concerns of the family life.

Another study conducted by Impicciatore et al. (1998), with the aim of examining mothers' knowledge, attitude, and management of fever in their children. The researcher interviewed mothers' of preschool children in Italy by using a structures questionnaire.

The studies were conducted in public areas, such as shopping centers and parks, and who had at least one child between age 6 months and 6 years. The mothers were asked if they had received information in the past from their physician concerning fever management. The researcher used 8-item questionnaire distributed by trained persons out side the medical field and mothers were given no help answering the questions.

The questionnaire contained questions about the characteristics and management of the febrile episode in the children during the previous month. The sample consisted of 1,237 mothers of preschool children. 57% with previous episode of fever during the past month, fever was a common occurrence in 13% of the respondents, the main cause of fever were influenza 44%, and 30% upper respiratory tract infection.79% of mothers used the rectal site for measuring temperature. The majority of mothers considered 37.5C° as a high rectal temperature, and 37.0C° for axiallry measurement. Eight percent of mothers considered a rectal temperature below 38.0C°, and 2% an axillary temperature below 37.2 5C° to be a high fever. Fifty nine percent reported they were concerned about the fever, 17% were very worried, 34% of mothers did not take any action in the start of fever, and 48% gave their children antipyretics, while 18% called the physician immediately.

During the febrile episode, 88% of mothers gave their children antipyretic drugs, 38% of mothers administered drugs upon their own responsibility and without any medical prescription, and 62% return to physicians. Of all antipyretics, 93% of drugs mostly given are paracetamol. And when mothers asked if they had received fever management information from their physicians, 30% had been informed during a control visit, 46.5% had been informed during a previous febrile episode in their children. 11.5% had received no information and 12% did not remember. One-third of the febrile children received non pharmacological treatment other than antipyretics.

2.11 Summary

Fever is a common event in childhood causing significant concern for parents especially mothers. This concern has resulted in the over use of antipyretic and antibiotics therapy to reduce fever and as mothers believed to prevent febrile convulsion and brain damage.

Based on the literature above, many studies concerned with this issue and aimed at identifying mothers believes, attitudes, and management of childhood fever. Most of those studies concluded that there is until now misunderstanding and interpretations of fever besides the misuse of antipyretics and antibiotics. In addition, mothers believed of harmful effect of high and moderate temperature with concern of febrile convulsion, and brain damage.

Chapter 3
Conceptual framework

3.1 Introduction

Through this chapter, the fever management and health educational literature were revised to identify an appropriate conceptual framework to explore the determinants of mothers' fever management practices. It was seemed appropriate to examine the determinants of mothers' intentions as their practices could be situation specific.

Attitudes and believes about fever management are influenced by mothers' past personal experiences with febrile children Poirier (2000). Additional factors include the cultural influences, information provided by the family, friends, other written materials, internet, and traditional thoughts and beliefs of the harmful effect of fever such as convulsion, brain death, paralysis, and even death (Alloteyet al., 2004).

After reviewing theories that explains fever, and fever management, taking into consideration the study's aim and objectives, the researcher developed the conceptual model for the study describing mother's management of children's fever. Mother's beliefs, values and thoughts, which may be influenced by the mother's age, level of education, place of residency, number of children she has, and her occupation are taken into consideration within this model.

3.2 Conceptual framework

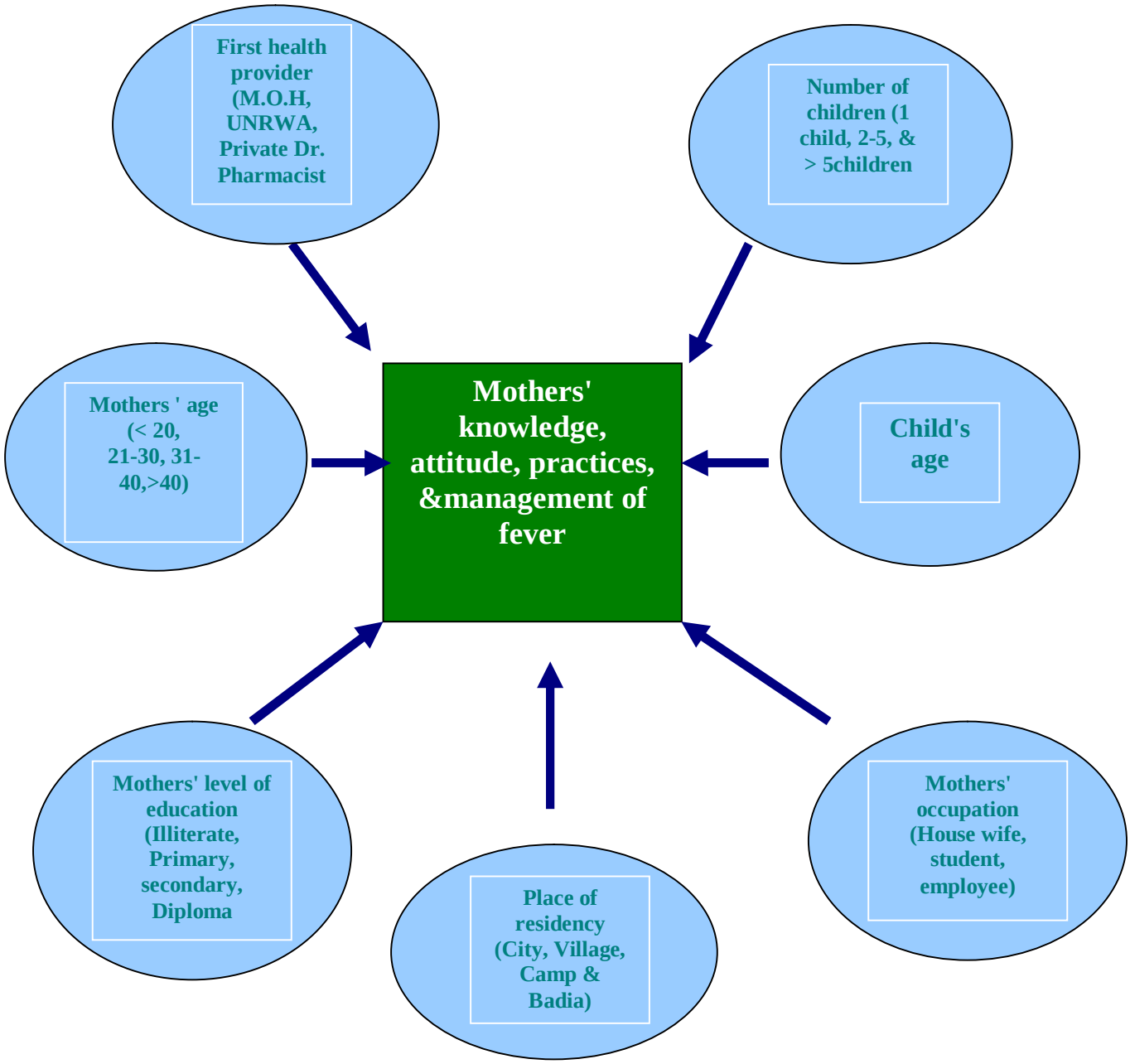

Figure 3.1: Conceptual framework for the influences on mothers' knowledge, attitude, practices, and management of fever in children

The model in figure (3.1) presents the influence of the independent variables (mothers' age, place of residency, number of children, child's age, mothers' occupation, level of education, and the primary health care provider), and it's influence on the dependent variable (mothers' knowledge, attitude, practices, and management of children fever).

Several studies reported an association between socio-demographic variables on mother's management of fever, as discussed by Al-Eissa, Al-Nouri, and Abd-Aljalil. They found that there was a significant association between level of education and mothers' methods of measuring temperature, including the site of taking temperature for a feverish child, the way of measuring temperature including the use of mercury thermometer, digital thermometer or by touching.

Also there was a significant association between level of education and the perceived need of antibiotics, and the perceived consequences of fever such as convulsion, meningitis and death. On the other hand, there was a significant association between number of children and the perceived consequence of fever in the study of Abd-Aljalil.

3.3 Definition of variables

Mothers' age

The number of years of mothers' life completed, the age of mothers in years at the time of data collection

Operational definition of mothers' age

It was categorized into four categories (in years): Less than 20 years, 21-30, 31-40, and more than 40.

Mothers' occupation

The principal activity in the life of women that she does to earn money.

Operational definition of mothers' occupation

It was categorized into Housewife, student, employee, and others.

Childs' age

The number of years of child's life completed

Operational definition of child's' age

Was measured by counting the number of months lying within the period between the month of birth of the child and the month of data collection.

Level of education

Educational categories whereby students are at the elementary grade level, middle school level, high school level, undergraduate or graduate level.

Operational definition of mothers' level of education

It was categorized into illiterate (who did not read or write), Primary, secondary, high school, diploma, and university level.

Place of residency

The specific area where the women lives with the intent to indefinitely stay there.

***Operational definition of mothers' place of residency*:** composed of four categories: The city, village, camp, and Badia.

Number of children

The number of living children at the time of data collection.

***Operational definition of number of children*:** It was categorized into three groups: One child, 2-5 children, and more than 6 children.

Primary health care provider

The first health care provider the mother comes into contact at the time of child's fever.

***Operational definition of primary health care provider*:** It was divided into: the governmental primary health centers, the UNRWA health care centers, a private doctor, the pharmacist, and others.

3.4 Definition of fever terms

Temperature

Is the degree of hotness or coldness of a body or environment (corresponding to its molecular activity). Temperature is a physical property of a system that underlies the common notions of hot and cold; something that is hotter generally has the greater temperature. WorldNet (2008).

Fever

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, 1998).

Antibiotics

Substances derived from a microorganism that is able to inhibit or kill another microorganism. A term used to describe a range of drugs which are used to treat conditions involving bacteria.

Antipyretics

Are drugs that reduce body temperature in situations such as fever. However, they will not affect the normal body temperature if one does not have fever. Antipyretics cause the hypothalamus to override an interleukin-induced increase in temperature. The body will then work to lower the temperature and the result is a reduction in fever.

Children

A child is a human being between the stage of birth and puberty. The legal definition of "child" generally refers to a minor, otherwise known as a person younger than the age of majority (The American Heritage, 2000).

Fever phobia

Dr. Barton Schmitt defined parents numerous misconceptions about fever and their beliefs about fever is a disease rather than a symptom or sign of illness as fever phobia.

3.5 Summary

The conceptual model used in this study was developed by the researcher. It illustrated the influence of mother's age, place or residency, number of children, occupation, and the primary health care provider on the mothers' knowledge, attitude, practices, and management of childhood fever, and linked these factors together directly or indirectly.

Chapter 4
Methodology

4.1 Introduction

This chapter describes the research designs, sample, ethical considerations, instrument development and data collection methods for this thesis. Data preparation and methods of analysis are also discussed.

This study was authorized by Al-Quds University graduate studies. Permission to conduct the study was obtained from Palestinian ministry of health office, which enabled the researcher to enter the pediatric clinics and interview the mothers attending these clinics in Hebron city, villages, and Badia.

Another permission was obtained from UNRWA headquarter office, which helped the researcher to interview the mothers attending all UNRWA clinics in Hebron area including clinics in the city, villages, camps and Badia.

The questionnaire that was constructed based on study objectives; it was validated by expertise and piloted before using it to gather information about mothers' knowledge, attitude, and practices in the management of childhood fever in Hebron pediatric clinics.

4.2 Purpose of the study

The purpose of this research was to identify the mothers' knowledge, attitude, and fever management practices. Because the study participants came from different geographical localities, city, village, camp, and Badia, the researcher chose not to perform direct statistical comparisons on the findings but rather to describe the mothers believes and practices toward fever.

The study was carried out at governmental and UNRWA pediatric clinics in Hebron area, including the city, villages, camps and badia to include all residential areas.

4.3 Study design

Between December 2007 and February 2009, a single descriptive, cross sectional study research have been conducted, which aimed at describing and documenting mothers perception, attitudes and practices in the management of children fever in governmental and UNRWA pediatric clinics in Hebron city.

This type of study design used to determine the frequencies and percentage of some phenomena by describing it. A descriptive cross sectional study design is one in which the primary goal is to assess a sample at one specific point in time without trying to make inferences or causal statements. This type of data can be used to assess the prevalence of acute or chronic conditions in a population (World Net, 14, March 2009).

4.4 Study sample

There was a total of 25 clinics, with a sample size of 250 participant mothers, distributed on the number of the clinics, therefore 10 mothers were included from each clinic, by taking the first 10 mothers attending each clinic at the day of data collection . The respondents interviewed in the clinics waiting area before entering to get medical advice or care after registration.

A convenient random sample of mothers and clinics was used to target mothers coming to pediatric clinics in Hebron. Recruitment was conducted over a 2-month period during June and February 2009. Two hundred fifty mothers were interviewed in the registration room after registration and before entering to the nurses' room for getting vital signs, and then to the doctor clinic room, as no one of the mothers will know about the questions asked by the researcher.

The mothers may know about it in the waiting room to see the doctor, but after answering the questionnaire to emphasize that mothers were not influence each others beliefs and ideas. Interviews were conducted on different days of the week depending

on the pediatric (children) day of the clinic of each village, camp, town or Badia. Caregivers other than the mother were excluded from the study (1.6% caregivers).

4.5 Questionnaire

The questionnaire used consisted of 37 open and closed ended questions divided into 5 parts:

The first part, the socio-demographic characteristics, which included age of mothers, level of education, mothers' occupation, place of residency, number of children, and the first heath care provider.

The second part of the questionnaire included questions regarding mothers' knowledge about children fever, such as: mothers' main source of information about fever in children, mothers' knowledge of the degree of normal temperature of a child.

The third part of the questionnaire included items regarding the mothers practices regarding way of measuring temperature for a child, like: the site of measuring temperature for a child less than 3 years, and the time duration for reading a temperature for a child when taken rectaly.

The forth part included questions on mothers' practices regarding their management of fever at home such as: the type of drug they used to decrease fever in children and the methods they used at home other than drugs like herbal substances. The fifth part included questions identifying mothers' attitudes toward fever in terms of its benefits and harmful effects on children.

The validity of the questionnaire was obtained after the revision and discussion with five consultants including: Dr.Amin Thalji "Pediatrician, Neonatologist", Dr.Anwar Dudin "Pediatrician, Pediatric neurologist". Dr. Nahed Miki "Pediatrician", Dr.Sumaya Sayej "RN. MSN. Ph.D.Assistant Professor in Al-Quds University", and Dr. Anni Dudin "Pediatrician and Pediatric dermatologist" who approved the final questionnaire.

Part of the questionnaire was obtained from the study conducted by Dr. Luay Al-Nouri at Al-Mansour children Hospital–Baghdad, after getting the permission through e-mail (A copy of his permission through e- mail was attached in appendix 5).

Mothers were personally questioned by the researcher, and on average, the interview required 15 minutes.

Questions used were open ended and close-ended questions. The questionnaire was translated into Arabic language for better understanding by the mothers and administered before health maintenance or acute care visits at those clinics concerning the mother's general beliefs about fever and its harmful effect, as well as their treatment behaviors and sources of information.

4.6 Pilot testing of the questionnaire

The questionnaire was pilot-tested at the beginning of the study to identify and eliminate problems before actually collecting data from the target sample. The questionnaire was pre-tested by 20 mothers. It was carried out prior to initiating the formal study with 45 questions, but the mothers reported that the questions were too long, so the questions were reduced to 37 questions to cover the main objectives of the study. The twenty pilot tests were not included in the study analysis.

4.7 Data collection

Interviews were administered during regular clinics working hours in June and July 2008. Prior to data collection process, face–to-face meetings were conducted with clinics directors at each site to explain the study purpose and obtain permission to recruit children mothers, supported by the permission granted from their superiors from Ministry of Health and UNRWA.

Subjects were recruited while they waited for well childcare visits or for medical care in clinics. An explanation for questions was maintained by the researcher, and a range of possible answers was offered only when an issue was not clearly understood.

4.8 Ethical consideration

Ethical approval was obtained by the committee of school of nursing in Al-Quds University.

All potential subjects present for a given clinical session were asked to participate in the study and participation was voluntary. Verbal informed consent was obtained.

A Written permission was taken also from the director of governmental clinics in Hebron area, and from the director of UNRWA clinics.

A written consent was attached to each questionnaire, explaining the aims and objectives of the study, importance and confidentiality. (A copy of the English informed consent is available in appendix1, and an Arabic consent form is available in appendix 2).

4.9 Methods of data analysis

Data were analyzed using SPSS Version 16 (SPSS, 2004). Demographics were examined for frequency and distribution.The descriptive statistics, frequencies and percentages, were used to describe socio-demographic characteristics.

The open questions (8 questions) were analyzed manually by the researcher, which included: How do mothers know that the child has fever ?, Name of antibiotic used by mothers, dose of antibiotics, role of husband in fever management, role of mother in-law in treating fever, what are benefits of fever, and what are the harmful effect of fever?

4.10 Study limitation

The data, which were collected, described mothers' knowledge, attitudes and practices in fever management. Similar findings have been found in a number of different countries and cultures. However, in most studies data were collected from concerned parents seeking medical assistance for their children with fever or injury. Therefore the findings might not be generalizable.

We cannot generalize the results of the study to all Palestinian population.

- Some mothers could not answer the questionnaire because of their worries on their sick child.
- Mothers didn't have time to fill the questionnaire.
- Presences of caregiver other than the mother, so any one other than the mother were excluded (1.6%).
- Mothers' knowledge, attitudes and practices could change over time, as their child ages and with the birth of subsequent children.

4.11 Summary

Data was collected in 2 months period, according to the study objectives, using a convenient sample of 250 mothers attending Governmental pediatric clinics and UNRWA pediatric clinics in Hebron city, villages, camps and badia, to explore mothers' knowledge, attitude, practices and management of children fever.

The questionnaire was piloted after it was reviewed by specialists, and translated into Arabic language, ensuring understanding by respondents, and introduced by the researcher to all mothers (250) attending Hebron pediatric clinics. Data were analyzed using the statistical analysis SPSS, version 16.

Chapter 5

Results

5.1 Introduction

5.2 Characteristics of the study population

5.3 Knowledge about fever

5.4 Methods of measuring fever

5.5 Methods of fever management

5.6 Harmful effect of fever

5.7 Description of mothers' knowledge within age

5.8 Summary

5.1 Introduction

The main objective of this study was to identify the knowledge, attitude, and perception of childhood fever and its management among mothers attending pediatric clinics in Hebron area.

The results of the data obtained will be presented in this chapter. Data were obtained from 250 mothers through an open and close-ended questionnaire conducted by the researcher through face-to-face interview. Descriptive statistics were used, which included frequency distribution, percentage, frequency count, and simple descriptive statistics.

In this chapter, the basic characteristics of the study population included mothers' age, child's age, mothers' level of education, occupation, place of residency, number of children, and the respondents' primary health care provider are described and analyzed. The descriptive analysis were done for the mothers' knowledge, practices and management of fever, besides the harmful effect of fever as thought by mothers.

5.2 (Part 1) Descriptive results analysis

5.2.1: Characteristics of the study population

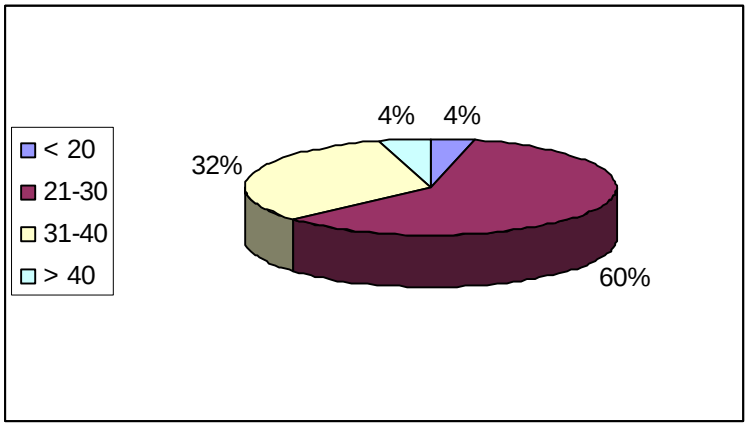

Figure 5.1: Distribution of mothers' age

The majority of the respondents (92%) were between ages 21-40 years, (4%) were over 40 years, and (4%) less than 20 years.

Table 5.1: The mean age and weight of children of mothers participated in the study

	Mean
Age of children (year)	1.6
Weight of children (Kg)	8.5

The mean age of children attending the pediatric clinics during data collection was 1.6 years, and the mean weight of those children was 8.5 Kg. This was done by weighing each child to get weight and asking each mother about the age of her child.(Refer to Appendix 5 for the details of children weight and age).

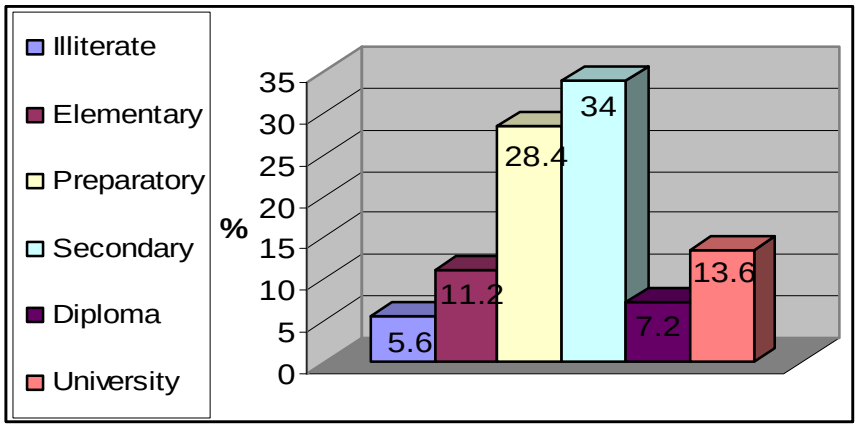

Figure 5.2: The respondents' level of education

Although the researcher perceived the population during data collection as illiterate, only 14 (5.6%) of the respondents had no formal schooling. (11.2%) of the respondents had some primary schooling, (28.4%) had some preparatory schooling, 85 (34%) had secondary schooling, 18 (7.2%) had diploma education, and (13%) had university education. The mothers' educational level plays a role in understanding and reading the instructions given by the health care providers and help in reading and understanding the medication pamphlets and health posters in clinics.

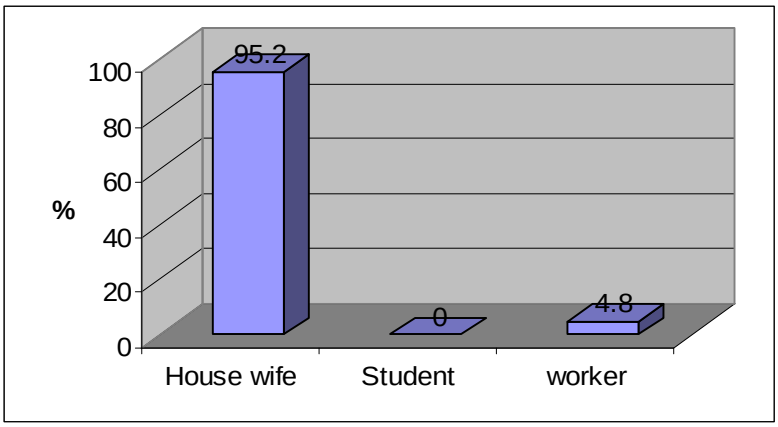

Figure 5.3: The respondents' occupation

The vast majority of the respondents 238 (95.2%) were house wives, while only 12 (4.8%) were workers.

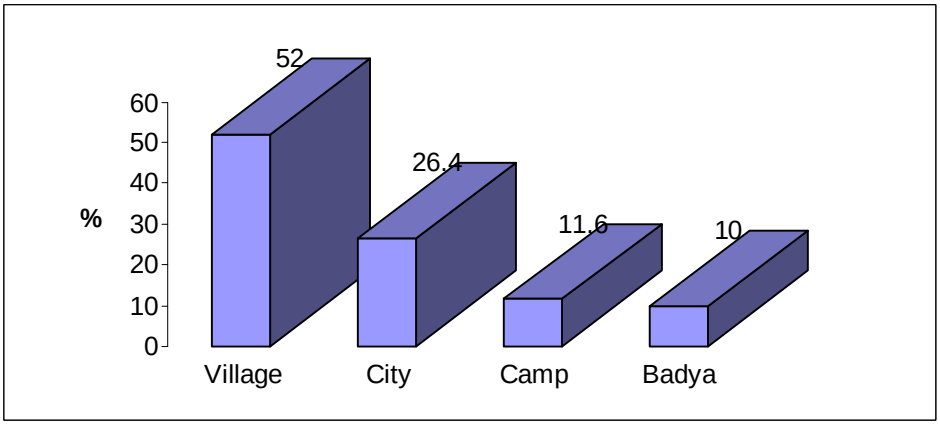

Figure 5.4: The respondents' place of residency

The distribution of mothers' place of residency shows that the majority of the sample 130 (52%) lived in village, while 66 (26%) lived in city, 29 (11.6%) only lived in camp, and 25(10%) lived in Badia (Al-Ramadeen).

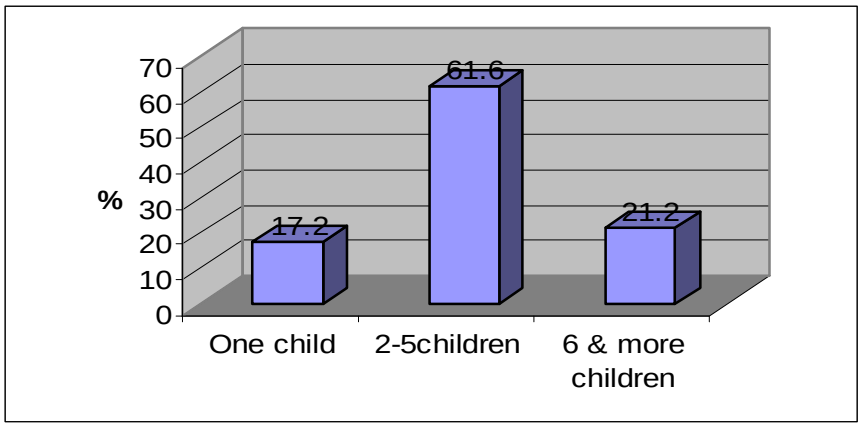

Figure 5.5: The respondents' number of children

The majority of mothers (61.6 %) have 2-5 children and (21.2 %) of mothers have six and more children, while only (17.2%) of mothers has just one child.

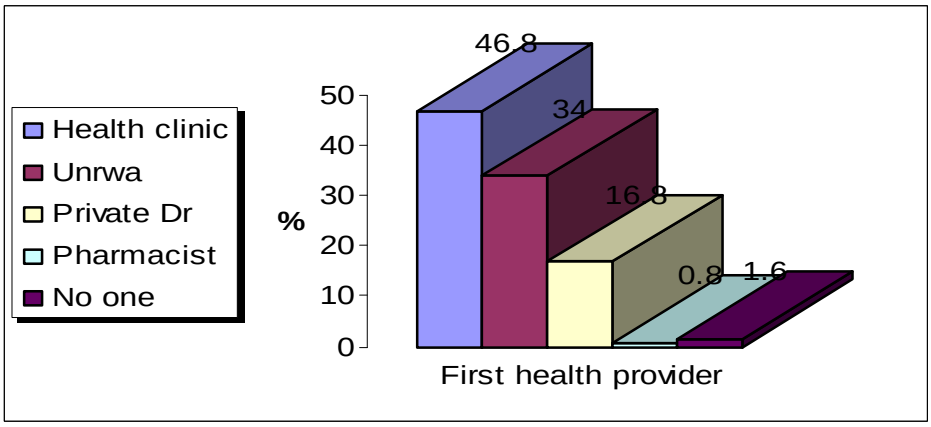

Figure 5.6: The respondents' primary heath care provider

The study shows that the majority of the respondents (46.8%) depended mostly on the Ministry of Health clinics, (34%) indicated that their child received care from UNRWA as primary health provider, while (16.8%) of respondents rely on the private physician. Only (0.8%) of mothers rely on the pharmacist in treating fever without returning to any health care provider, and (1.6%) of mothers did not seek help from any health care provider.

5. 3 (Part 2): Mothers knowledge about fever

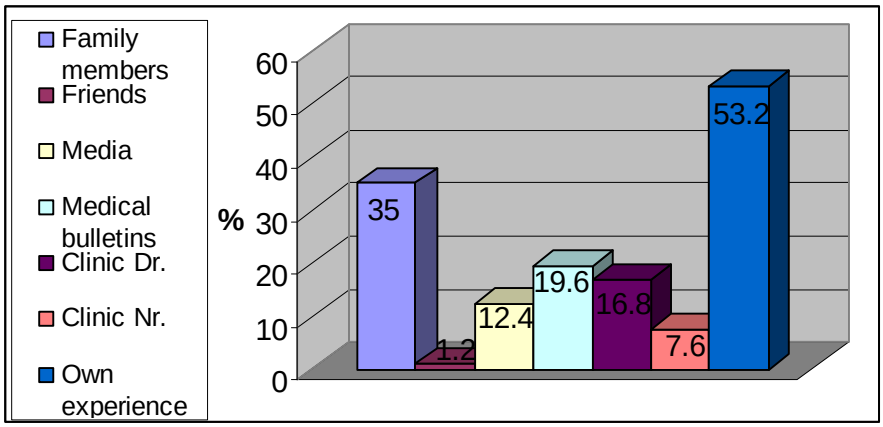

Figure 5.7: The respondents' main source of information about fever.

About half of the respondents (53.2%) depended on their own experience about information and methods of management of childhood fever, followed by (35%) of mothers rely on information from family members, (19.6%) rely on information and guidance from medical bulletins, and (12.4%) on media. While (16.8%) depended on the clinic doctor and (7.6%) on the clinic nurse and very small portion of mothers (1.2%) rely on friends.

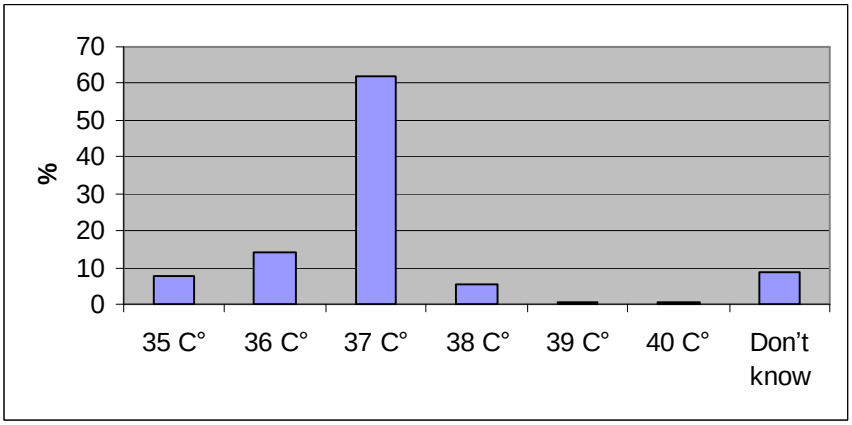

Figure 5.8: Mothers beliefs of the normal temperature of a child

Around two third of mothers (62.4%) thought that the normal temperature of the child is 37C°, (7.6%) thought that the normal temperature of the child could be 35C°, and (0.8%) of mothers thought that the normal temperature is 39C° and 40C°. The other (8.8%) did not know what the normal temperature of the child is.

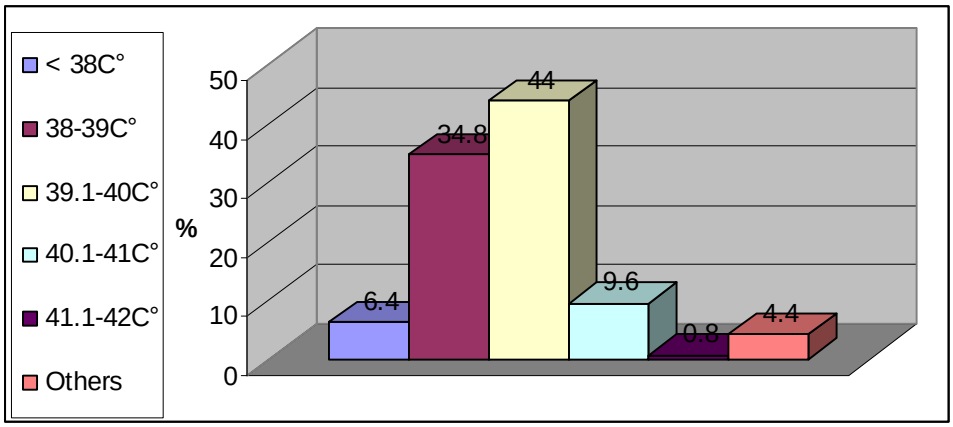

Figure 5.9: The temperature the mothers consider as high

This table shows that the majority of mothers (44%) considered 39.1- 40 C° as a high temperature, and (34.8%) thought that 38-39C° as high temperature, while (6.4 %) of mothers thought that a temperature of less than 38.0C° is a high fever, and (0.8%) thought 41.1-42.0C° is a high temperature.

From others (4.4%); six mothers (2.4%) did not know any thing about temperature of the child, one mother said the temperature could rise to 45.0C°, one mother said it may reach 26.0C°, and two mothers reported it could reach 20.0C°.

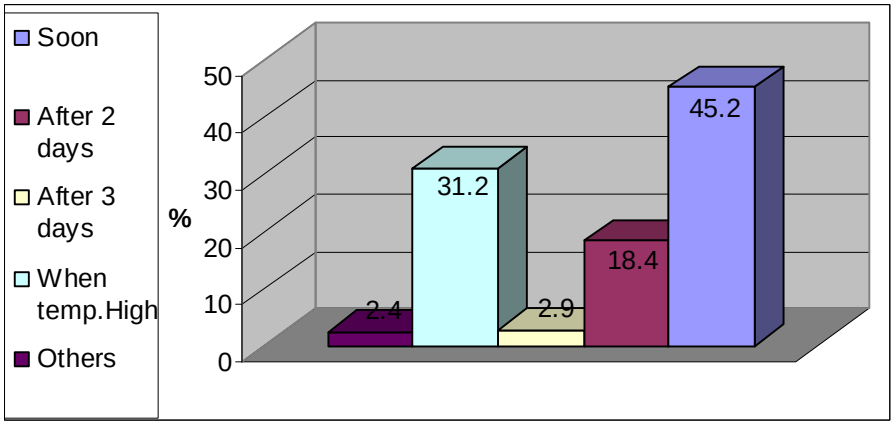

Figure 5.10: Time when mothers seek medical advice for a child with fever

The majority of respondents (45.2%) return to seek medical advice as soon as possible when their child has fever, (31.2%) of mothers can seek medical advice just when temperature is high, while (18.4%) of mothers return to physician after 2 days of elevated child temperature, and (2.9%) after 3 days of increased temperature.

The other 6 (2.4%), 3 of them did not go to health providers unless temperature didn't decrease after their treatment at home, and the last 3 of them didn't seek any help from health providers and didn't go to any one.

Table 5.2: Symptoms associated with fever

Symptom	Frequency (n)	Percent (%)
Reduced appetite	14	5.6
Reduced activity	126	50.4
Excessive crying	25	10
Redness of face	64	25.6
Excessive sweating	51	20.4
Increased skin temperature	62	24.8
Shivering	20	8

When mothers were asked about their observations of the symptoms associated with fever in the question, (What are the symptoms associated with fever?). The majority of mothers gave reasonable answers regarding symptoms associated with fever including decreased appetite (5.6%), decreased activity (50.4%), excessive crying (10%), redness of face (25.6%), excessive sweating (20.4%), increased skin temperature (24.8%), and shivering (8%).

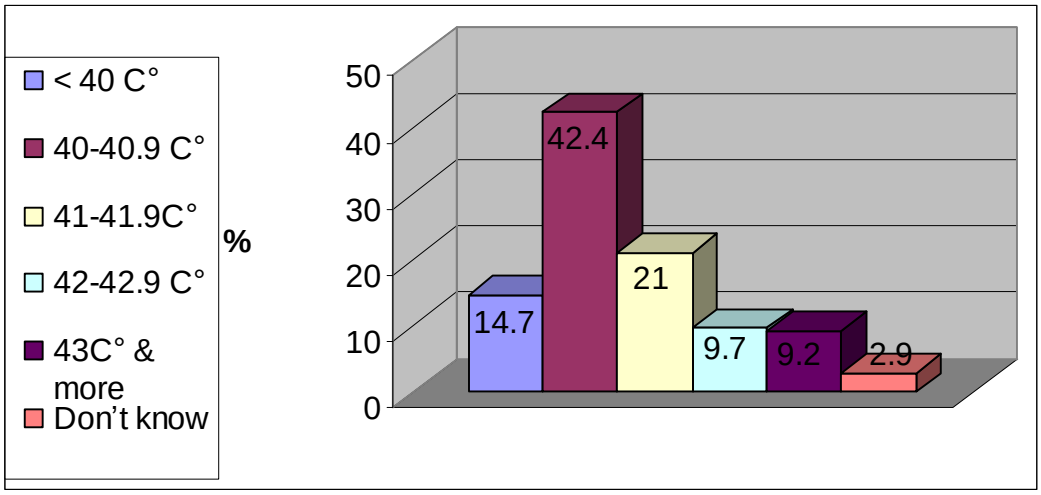

Figure 5.11: To what extent does temperature rises in a child if it is not treated?

When mothers were asked: to what extent temperature could rise if not treated? (42.4%) of mothers reported that temperature could rise up to 40-40.9C° if not treated, (21%) reported temperature could rise up to 41-41.9C°. (14.7%) reported up to< 40C°, (9.7%) thought it could rise to 42-42.9C°, and (9.2%) thought it could rise up to 43C°, while (2.9%) did not know.

5.4 (Part 3):Methods of measuring temperature

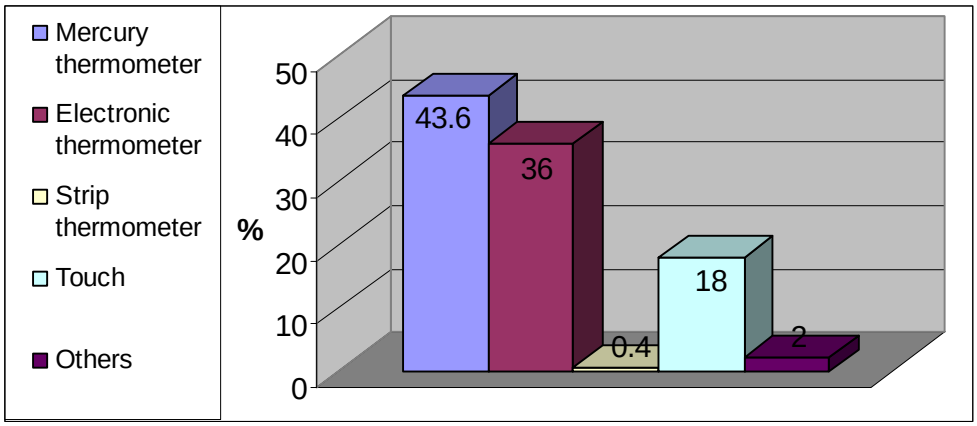

Figure 5.12: Methods of measuring temperature used by mothers

This figure shows that about half of the mothers (43.6%) measure temperature of their children by mercury thermometer, and (36%) used the digital (electronic) thermometer, while (18%) of mothers (which is considered slightly high percent) recognize fever by touching the child, and only (0.4%) used the fore-head-strip to measure temperature. The remaining five (2%) did not know how to measure temperature at all.

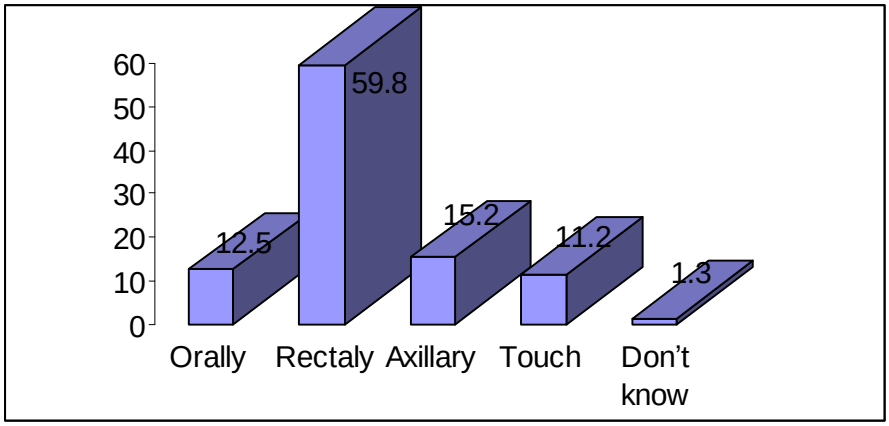

Figure 5.13: the most common site used to measure temperature of a child less than 3 years

The most common site that mothers used for measuring temperature for a child less than 3 years of age is the anus (59.8%). Followed by the axilla (15.2%), mouth (12.5%), and the less common site is by touching the skin of the child's body (11.2%), while (1.3%) of mothers did not know how temperature could be measured for a child less than 3 years.

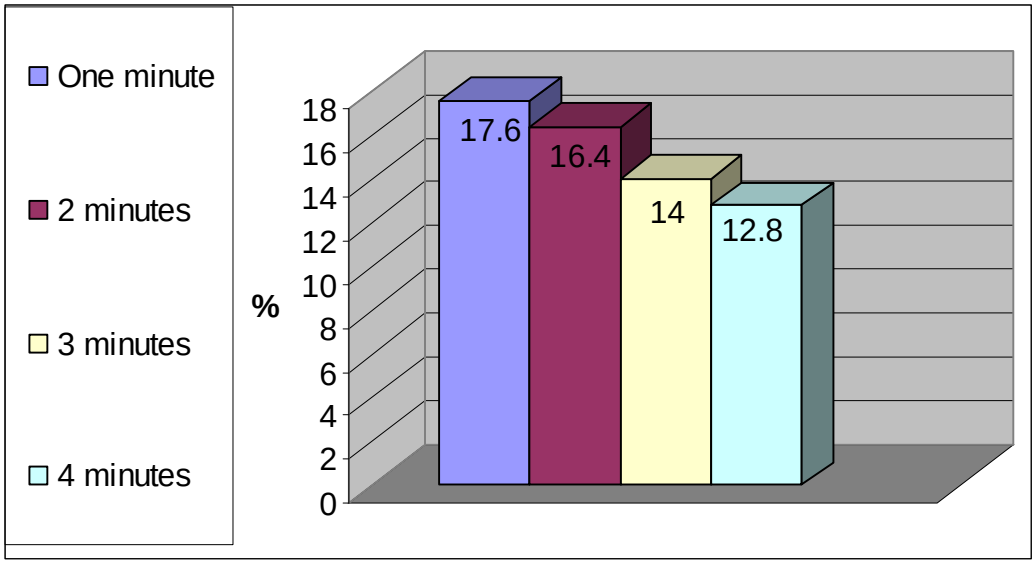

Figure 5.14: Duration of time of measuring rectal temperature

When mothers were asked about the time duration of measuring rectal temperature, (17.6%) reported one minute, (16.4%) 2 minutes, (14%) 3 minutes, and (12.8%) 4 minutes.

Sixty (24%) mothers keep the digital thermometer until it starts beeping, 3 of mothers reported that they can keep the thermometer for 10 minutes, 9 (3.6%) keep thermometer when the mercury mark stop rising. 47 (18.8%) did not use thermometer at all, and 24 (9.6%) did not know the time duration of keeping the thermometer in the rectum.

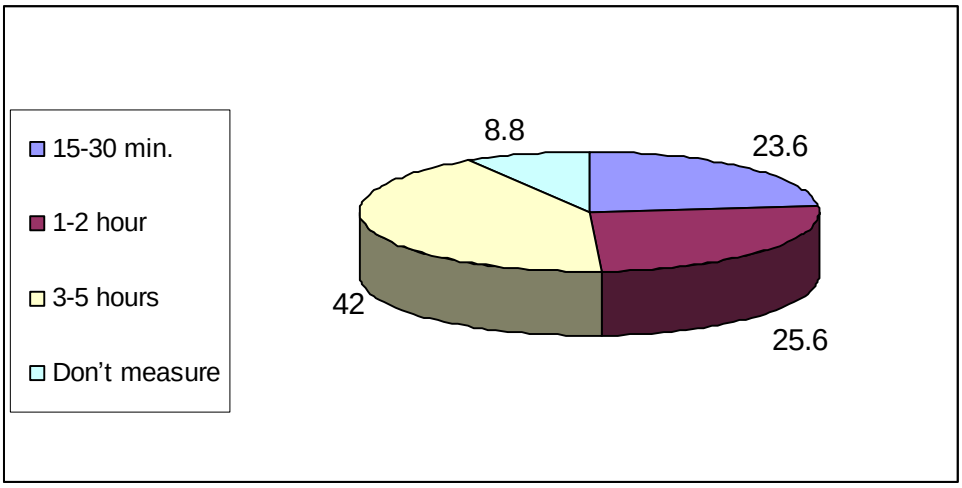

Figure 5.15: How often do mothers check temperature when a child has fever?

Less than half of the respondents, (42%) return to check temperature of a child after 3-5 hours, (23.6%) after 15-30 minutes, and (25.6%) after 1-2 hours, while (8.8%) did not return to check temperature of a child at all .

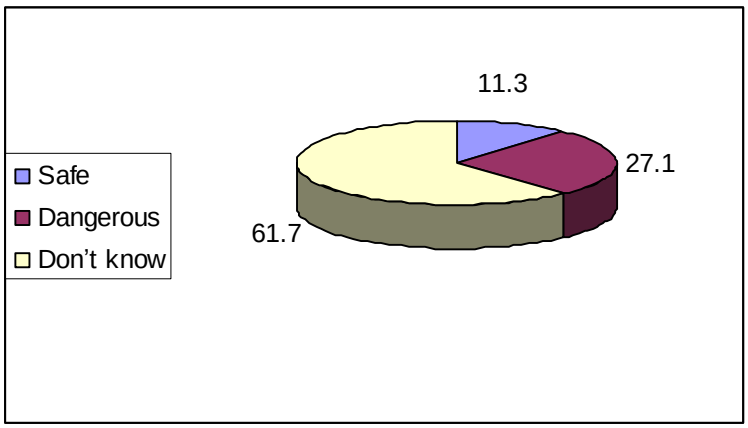

Figure 5.16: Mothers awareness of mercury poisoning

When mothers were asked about awareness of mercury poisoning, (61.7%) of mothers did not know if mercury is safe or not if a thermometer is broken, (27.2%) of mothers thought mercury is dangerous, and only (11.3%) believed mercury is safe.

5. 5 (Part 4): Methods of fever management at home

Table 5.3: Methods mothers used to decrease fever

Methods to decrease fever	Frequency (n)	Percent (%)
Add more clothes	4	1.6
Reduce clothes	24	9.6
Cover the child with blanket to end fever	0	0
Bathing with cold water	13	5.2
Sponging with cold water	204	81.6
Bathing with warm water	128	51.2

Mothers' fever management practices ranged from sponging with cold water (81.6%) and bathing with warm water (51.2%). In addition, 4 of mothers (1.6%) add more clothes, 24 (9.6%) of mothers reduce clothes, while 13 (5.2%) bath the child with cold water. No one of mothers used the method of covering the child with blanket to end fever.

Table 5.4: Antipyretics and analgesic drugs mothers used to decrease fever at home.

Type of antipyretics/analgesics	Frequency (n)	Percent (%)
Paracetamol syrup	187	74.8
Ibuprofen	53	21.2
Aspirin	0	0
I.M Injection by Dr.	70	28.0
Paracetamol Suppositories	204	81.6
Others	7	2.8

Rectal suppository is the most commonly used antipyretic and analgesic drug at home practice (81.6%), followed by paracetamol syrup (74.8%), and (21.2%) of mothers used Ibuprofen to decrease fever. However, about (28%) reported that a doctor has

given their children (intramuscular) I.M injection to decrease fever, and the other 7 (2.8%) did not use drugs; they use other methods like Helba and other herbal substances.

Table 5.5: Dosage of paracetamol suppository given to a child by mothers

Drug dose	Frequency (n)	Percent (%)
80 mg	13	5.2
100 mg	7	2.8
150 mg	94	37.6
300 mg	74	29.6
Don't know	62	24.8

Regarding the dosage of antipyretics, (37.6) of mothers reported using 150mg of paracetamol suppository despite the age and weight of the child to be in the safe side as they mentioned. (29.6%) used 300mg, (5.2%) gave 80 mg, and (2.8%) 100 mg. (24.8%) did not know the dose of paracetamol suppository they used.

Table 5.6: Antipyretics doses given by mothers

Type of antipyretics	Increased dose		Appropriate dose		Decreased dose		Doesn't know the dose	
	N	%	N	%	N	%	N	%
Antipyretic doses	164	65.6	43	17.2	20	8	23	9.2
Ibuprofen dose	38	15.2	40	16	15	6	157	62.8

Antipyretic and Ibuprofen doses given by mothers were analyzed by calculating every dose each child received from antipyretics and Ibuprofen in relation to his age and weight (each dose was compared with the ideal dose the child should take according to his age and weight). This table shows that (65%) of mothers used antipyretics with excess amount in relation to the child's age and weight, (17.2%) of mothers used the appropriate dose for the child's fever, (8%) used decreased doses of antipyretics,

while (9.2%) of the total mothers used antipyretics without knowing the dose to give their children .

And according to the use of Ibuprofen dose, (62.8%) of the total mothers used Ibuprofen to decrease fever without knowing how much to give their child, (15.2%) of mothers used increased dose, (16%) used an appropriate dose, and (6%) used decreased dose according to the child's age and weight.

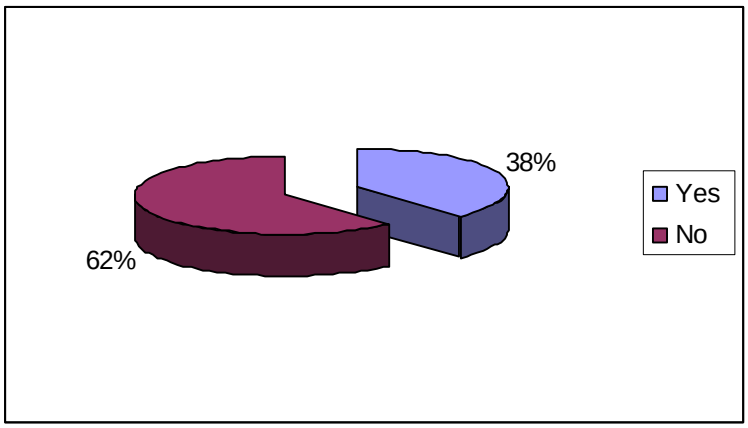

Figure 5.17: Mothers' self-prescription of antibiotics.

When mothers were asked about giving antibiotics to their child, (62%) of mothers reported that they gave febrile child antibiotics on their own and without referring to a physician, while (38%) did not.

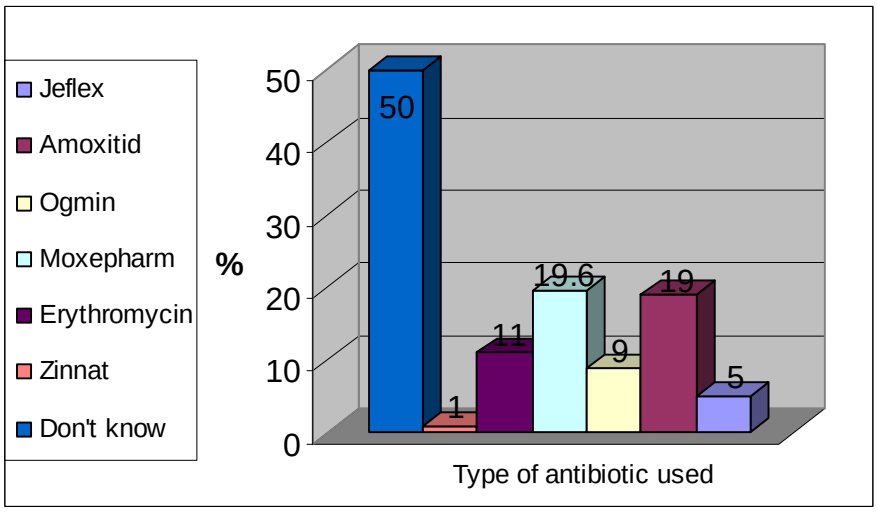

Figure 5.18: Type of antibiotic used

Mothers were asked about the type of antibiotics they used, they reported as follows; half of the respondents (50%) reported giving Jeflex in case of fever, (19%) reported giving Amoxitid, (9%) giving Ogmin, (11%) giving Erythromycin, (50%) giving antibiotics but didn't know the name of the drug they used, and (1%) giving Zinnat and Moxepharm.

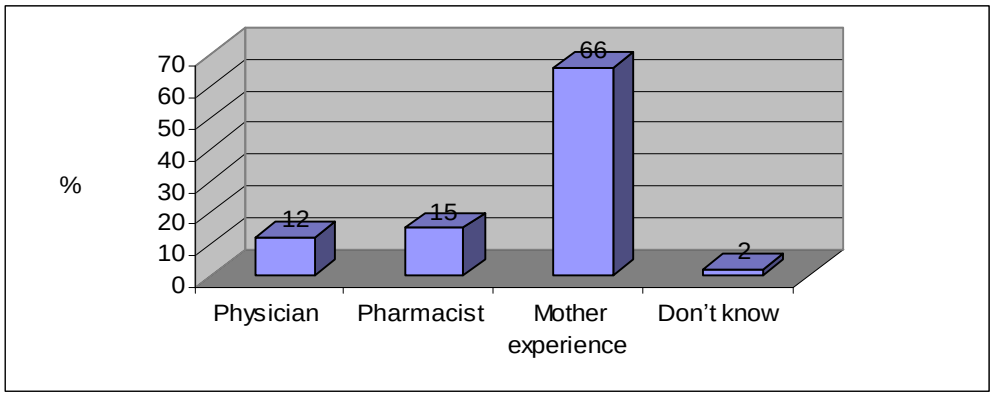

Figure 5.19: Determination of antibiotic dose

More than half of mothers (66%) used antibiotics for their children in case of high temperature depending on their own experience, while (15%) of mothers depended on the pharmacist in determining the dose of antibiotic. Only (12%) of respondents return back to physician in determining the dose of antibiotic, and (2%) of them did not know how much to give.

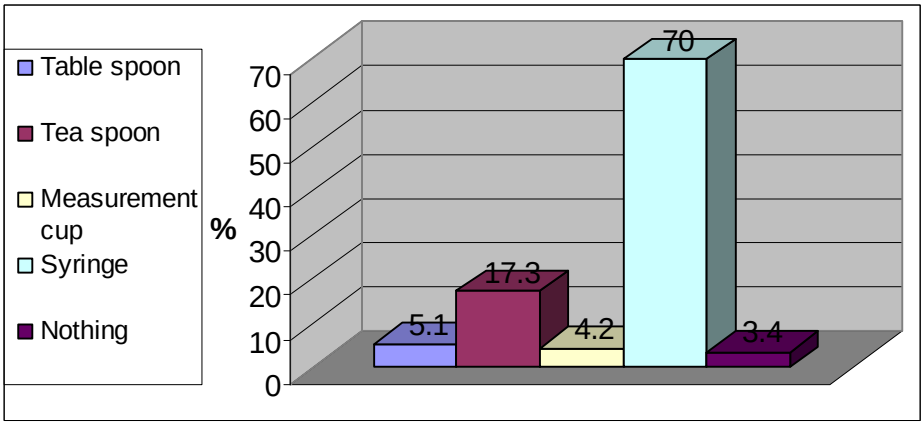

Figure 5.20: Methods of measuring drug dose

Most of the respondents (70%) reported that they used the syringe for measuring the drug dose, while (17.3%) measured the dose of medication using teaspoon, (5.1%)

reported using tablespoon, (4.2%) using the medication measurement cup, and (3.4%) did not measure the dose by any thing.

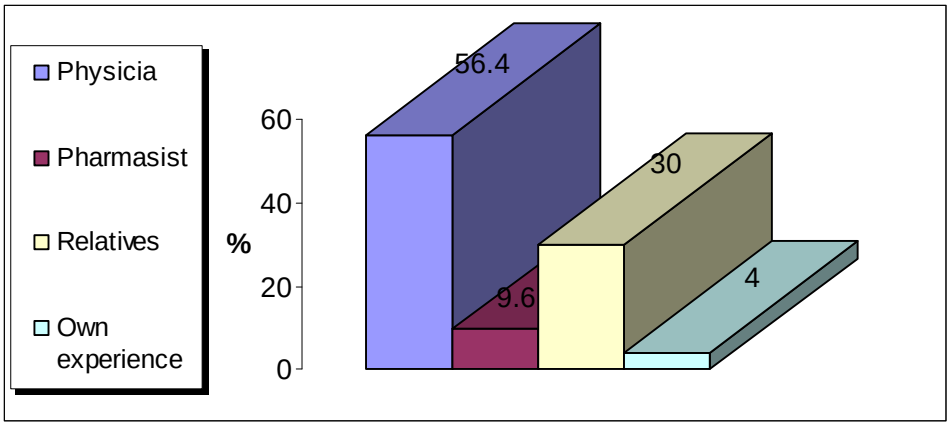

Figure 5.21: Determination of antipyretics dose

This figure shows that (56%) of mothers who used antipyretics to treat fever, depended on the physician to prescribe the dose, but (30%) depended on their relatives to determine how much of antipyretics to give the child, (9.6%) depended on the pharmacist, and (4%) on their own experience.

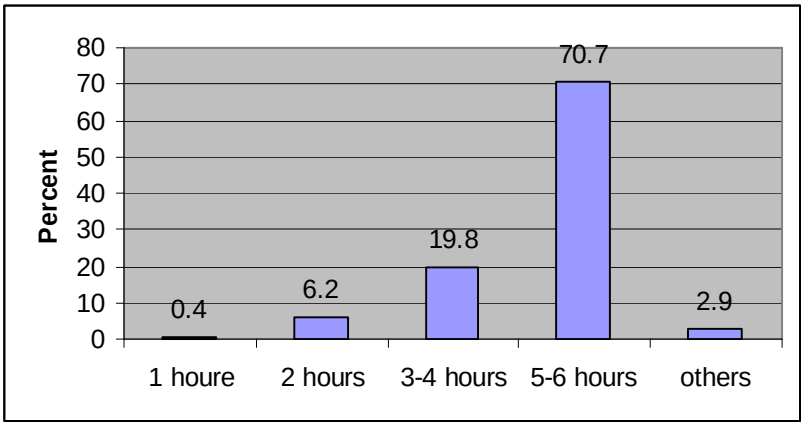

Figure 5.22: Time duration of giving antipyretics

In response to the question regarding frequency of medication administration, (70.7%) of mothers reported administering antipyretic at 5-6 hours interval, (19.8%) reported 3-4 hours interval, (6.2%) reported 2 hours interval, and (0.4%) reported an interval of one-hour duration between doses of antipyretic. The other (2.9%) reported different answers about the time duration, of those 11 (4.4%) mothers reported giving

antipyretic every 8 hours duration, 5 of them reported giving antipyretic whenever the child has fever even if less than one hour duration .

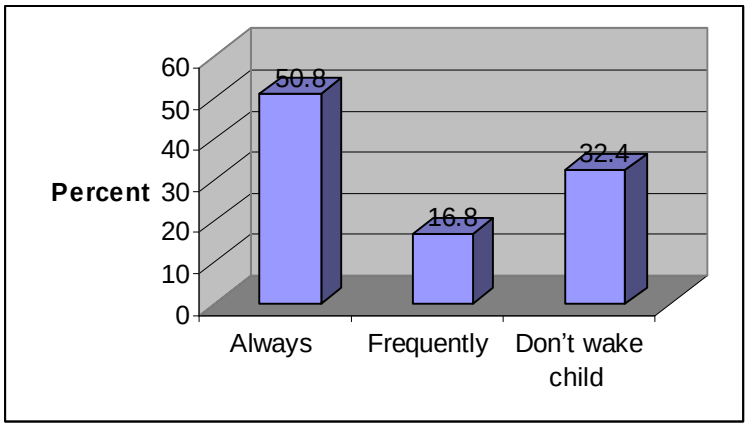

Figure 5.23: Waking up feverish child to give antipyretic

This figure shows mothers' fears about fever, (50.8%) of mothers thought that every child with high temperature should be awakened from sleep to take antipyretics always, (16%) frequently awaken the child from sleep, and (32.4%) never awaken the child from sleep to give antipyretics.

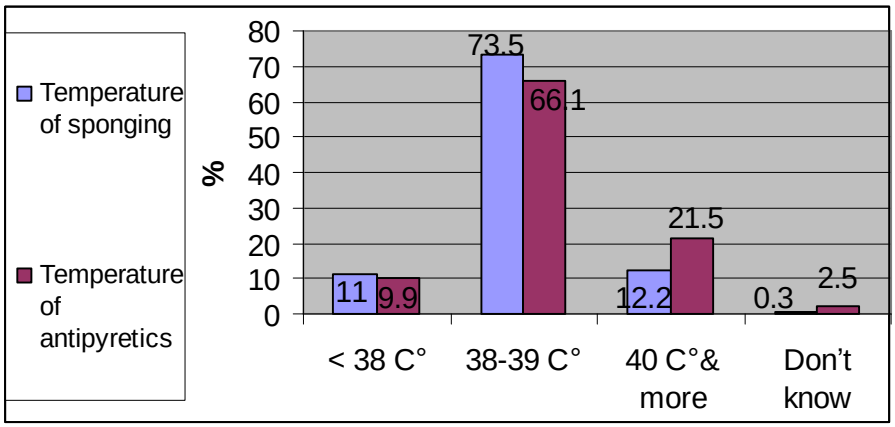

Figure 5.24: At what temperature mother use sponging and antipyretics

When mothers asked, "at what temperature they used sponging and antipyretic for their children?" (73.5%) of them reported using sponging at temperature of 38-39C°, and (66.1%) reported using antipyretics at the same temperature. (21.5%) of mothers used sponging at temperature of 40.0C° and more, while (21.5%) of them used

antipyretics at temperature of 40.0C° and more. (11%) sponging the child at < 38C°, while (9.9%) used antipyretics at the same temperature.

When mothers were asked about the role of their mothers in-laws or husbands in dealing and managing increased temperature in their children, (82%) of them reported that their mother in-law have no role in managing temperature, as a result of living away from her, or not being alive. While (62.4%) of mothers reported that their husband has no role in managing temperature of a child. However (13.6%) of respondents reported that their mother in law help them in bathing the child, giving medication and advice her, while (35%) of them reported that husband help her in giving medication, measuring temperature, and bathing the child.

5.5 (Part 5):Harmful effects of fever

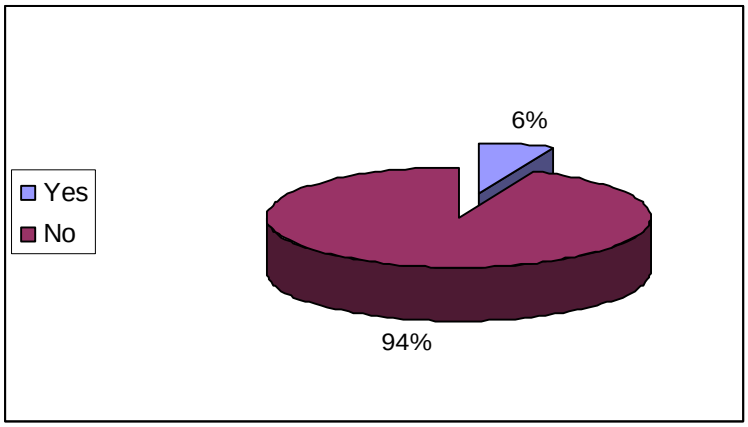

Figure 5.25: Mothers' opinion of the benefits of fever

Regarding the beliefs of the benefits of fever as mothers thought, (94%) of the respondents believed that fever has no benefit to the child's body, while only (6%) of them believed otherwise. Six mothers reported that fever can increase the child's body immunity; eight mothers reported that fever is an indication or a signal that the child is ill, and three mothers believed that fever benefit is as an indication that the immunization dosage is effective.

Table 5.7: Harmful effects of fever

Harmful effect	N	%
Convulsion	75	30
Death	23	9.2
Paralysis	57	22.8
Mental retardation	24	9.6
Epilepsy	1	0.4
Meningitis	100	40
Blindness	25	10
Brain damage	79	31.6
Don’t know	19	7.6
Dehydration	16	6.4
Hearing loss	36	14.4
Deformities	24	9.6

The type of harm that mothers thought their children would suffer from was mainly meningitis (40%), one third of mothers thought that fever can lead to convulsion and brain damage. (22.8%) thought fever can lead to paralysis, (14%) hearing loss, (10%) blindness, (9.6%) mental retardation, (9.6%) physical deformities, and (9.2%) thought that fever may lead to death.

Summary

The study results were divided into five parts, according to the study objectives and questionnaire: Part one: included results of the mothers' sociodemographic characteristics. Part two: included the mothers' knowledge and believes of the child's fever. Part three: described the results of the mothers knowledge regarding practices of fever measurements. Part 4: included results of mothers' practices of fever management. And part five: described the results of mothers' believes of the benefits and harmful effect of fever.

Sixty percent of mothers were between ages 21-40, the mean age of the children in this study was 1.6 year, and the mean weight was 8.5Kg.
The highest percentages of them were educated to secondary level (34%), and most of them were housewives (95.2%).
The respondents replied that their own experience and the family members were the main source of information on fever, and most of them reported that 37.0C° is the normal temperature of a child.
Regarding their methods of measuring temperature, (43.6%) reported using the mercury thermometer and (59.8%) measure temperature from the anus in a child less than 3 years of age.

And when mothers were asked about the methods of fever management at home, (81.6%) used sponging with cold water, and (5.2%) bathe the child with cold water.
In addition, mothers used antipyretics and antibiotics to treat fever at home, some of them gave medication with medical prescriptions, and others did so upon their own responsibility. Some of them preferred giving I.M injection to decrease fever as urgent as possible, and other used a combination of antipyretics and antibiotics and on their own responsibility.

Finally, and regarding the harmful effect of fever, (94%) of mothers' reported that fever is harmful, and there is no benefit from it.
The main harmful effects of fever as mentioned by the mothers were with decreasing frequency: Meningitis, brain damage, convulsion, paralysis, hearing loss, blindness, deformities & mental retardation, death, dehydration, and epilepsy.

Chapter 6

Discussion, Conclusion and recommendations

6.1 Introduction

6.2 Summary of the study findings

6.2.1 Socio-demographic factors

6.2.2 Mothers' knowledge about fever

6.2.3 Methods of measuring temperature

6.2.4 Methods of fever management at home

6.2.5 Harmful effect of fever

6.3 Conclusion

6.4 Recommendations

6.5 Advices for mothers when caring for a child with fever

6.1 Introduction

This study is the first in Palestine to assess mothers' knowledge, attitude, and practices in the management of childhood fever which was conducted in Hebron district. The sample consisted of 250 mothers attending pediatric clinics in governmental and UNRWA clinics. This study is a descriptive cross-sectional study. Because the sample were different according to age, level of education, place of residency, and occupation, besides the small sample size, the researcher chose not to perform direct statistical comparison and association between the different variables. It does have limitation of inability to generalize its results to the Palestinian population, as it was conducted in Hebron area and its sample size is small.

In this study, the results revealed that mothers continue to manifest signs of fever phobia as Schmitt (1980) first described this issue. Mother's anxiety about potential harmful effects of fever may be heightened by the lack of knowledge and information about the benefits of fever to the child's body immune system and defense against microorganisms and infection. In addition to the beneficial effect of fever, febrile response is a homeostatic process, and mothers are unaware of this, and believed that temperature will continue to rise up to 43.0C° and more if not treated.

Small percent of mothers (9.7%) thought temperature could rise to 42-42.9C°, and (9.2%) thought it could rise up to 43C°, or above if not treated compared with 16% in Schmitt's study.

Mothers, who have these beliefs, continue to treat fever as a life-threatening illness, and give antipyretics at a low-grade fever level. (66%) of respondents gave antipyretics at temperature of 38-39C°, and (9.9%) at temperature less than 38C°, and this result is less than Schmitt's study in which a high percentage (85%) of his study sample gave antipyretics before temperature reached 38.9C°.

Sixty five percent of mothers used an increased dose of antipyretics for their children compared with the child's weight, which is similar to Al-Nouri study in which 60% of his sample used antipyretics haphazardly. In addition, (15.2%) of mothers used increased doses of Ibuprofen.

Inappropriate dosing of acetaminophen and Ibuprofen and incorrect interval places the children at a risk for toxicity.

In this study, (60%) of mothers used antibiotics on their responsibility to treat fever in children which was higher than Fhkam study's where (25%) of his study respondents reported that antibiotics should be given regardless of the cause.

About (24.4%) of mothers still rely on the information from medical professions (Nurses and doctors) regarding fever management, therefore, pediatric health care providers have a unique opportunity to make an impact on mothers understanding of fever and its role in illness.

6.2 Summary of the study findings

6.2.1 Socio-demographic factors

The socio-demographic factors in this study included mothers' age, educational level, occupational status, number of children, and primary health care provider. Most of the respondents were between ages 21-40 years, which is the childbearing age (60%). (34%) of them had secondary schooling and only (13%) had university education.

The vast majority of the respondents 238 (95.2) were housewives, while only 12(4.8) were workers. The majority of mothers (61.6 %) have 2-5 children and (21.2 %) of mothers have 6 and more children. (46.8%) of mothers depends mostly on the ministry of health clinics, (34%) indicated that their child received care from UNRWA as first health provider.

6.2.2 Mothers' knowledge about fever

In this study, mothers used different sources of information about fever. Half of the respondents (53.2%) rely on their own experience with fever in their previous children, and, (35.2%) reported that other family members are the main source of information for them. While small percent (16.8%) referred to the doctor, (7.6%) of them refer to the clinic nurse in getting information in dealing with children fever, which is similar to Schmitt's findings.

In addition, mothers showed little understanding of the degree of normal range of body temperature of children and demonstrated inadequate knowledge of what is considered a fever or high fever.

About (34.8%) of mothers identified high fever as a temperature of 38.0 to 39.0C° and (6.4%) reported that 38.0C° or less as a high fever. In total, about (85.2%) of mothers identified high fever as 40C° and less. (18%) of total mothers indicated that untreated fever could reach 42.0C° to 43C° and above. This indicates the misconceptions of mothers concerning fever, which led to aggressive treatment of fever at home as discussed also in Al-Nouri study.

Despite that (43.6%) of mothers used mercury thermometer, (59.2%) of mothers didn't know the risk of mercury if the thermometer had broken, while only (26%) replied that it is not safe.

6.2.3 Methods of measuring temperature

Regarding methods of measuring temperature (43.6%) of mothers recognize fever in the child by using mercury thermometers, and digital thermometers (40%), and (18%) recognize fever by non-measurement methods which were observing the child's general look or touching him, similar to the findings of Abd-Aljalil study which was conducted in Kuwait.

Chaturvedi (2003) concluded that detecting temperature by touch is not a valid screening test for fever, and measuring temperature is the most accurate method to detect fever, thus caregivers and mothers should be motivated to use thermometers to measure temperature.

Mothers seem to prefer mercury thermometers (43.6%), and digital thermometers (40%). The rectal site was the preferred one for (53.6%) of the total mothers for temperature measurement of a child less than 3 years of age. (13.6%) of mothers preferred axillary site for a child less than 3 years. Although axillary temperature measurement is easy to obtain, it does not reflect the core temperature and has different variability (Bernardo, 1999).

In response to frequency of temperature measurement during periods of high fever, (23.6%) reported that they would do this every 15 to 30 minutes, (25.6%) measured their child's temperature every one to two hours. Only (42%) stated that they would

measure the temperature four hourly, and (50.8%) of mothers said that they would awaken their child to give antipyretics during a febrile illness. This excessive monitoring highlighted the hidden concerns and fears of mothers about fever, as well as their practices could consider excessive and discomforting for the child. These results are approximately similar to Crocetti et al (2000).

Table 6.1: Comparison of this study & Crocetti study about frequency of measuring temperature.

Time	This study N=250	Crocetti et al (2000)N=305
15-30 minutes	23.6%	20%
1-2 hours	25.6%	23%
3-5 hours	42%	31%

6.2.4 Methods of fever management at home

In the current study, (81.6%) of Palestinian mothers sponged their children in case they have fever, and (51.2%) used warm bath to decrease body temperature, while (10.8%) of the total mothers sponged a child at a temperature less than 38.0C°, and (72%) sponged at 38-39C°. Only (12%) of total mothers used sponging when temperature is 40C° and above.

The majority of mothers (64%) said that they would give antipyretics for temperature 38-39C° witch constitute a high percent when compared with other studies like Crocetti et al (25%), and Al-Essa et al (12.9%). But this study percent is similar to Schmitt's findings of 85%.

As mothers so occupied with fears and concerns about febrile seizures, they would give antipyretics to reduce fever in a short time. They tend to send the child to doctors to give I.M injection. (28%) of mothers preferred giving I.M injection medication to decrease fever as urgent as possible.

In this study, paracetamol suppositories are the most commonly used antipyretics and analgesic drugs to decrease fever by mothers (81.6%). Followed by paracetamol syrup (74.8%), while (21%) of mothers used Ibuprofen to decrease fever.
57 of the total mothers (22.8%) reported using other methods of fever management at home:
26 of mothers used Chamomile for the child to drink, 5 mothers said that they use Chamomile as sponging over the chest of the child (as they thought), 4 mothers used Barley water with al-Kina after boiling it for the child to drink every time temperature rises, 3 of them bath a child with water diluted in Apple vinegar, 8 mothers used Castor oil for sponging over the forehead, and finally, 7 mothers used Helba for the child to drink.

When mothers asked about using antibiotics, 95 of mothers (38%) reported that they used antibiotics depending on their own experience and without returning back to medical professions in determining the type or the drug dose, while (62%) didn't give antibiotics to their children on there own responsibility. 20% of mothers used antibiotics but didn't know the name of the drug, just they request the old bottle from the pharmacist and start giving the child. 7.6% of mothers used Amoxitid, 4.4% used Erythromycin, 3.6% used Ogmin, 2% used Jeflex, and 0.4% used Zinnat and Moxepharm

The majority of mothers, who give antibiotics to a child, determine the dose according to their own experience and give 4-6 cc of any type of drug to any age of their children (26.4%), while only (4.8%) refer to the doctor to determine the type and dose of drug. These findings are approximately similar to the study of Blumethal (1998) in which (65%) of mothers used antibiotics to treat fever in their children.
This proves the two hypothesis of this study, the first one (Hebron mothers have misconceptions toward fever in children). And the second one (Mothers misuse the antipyretic and antibiotics in managing children fever).

As a result of those fears and misconceptions of mothers about the harmful effect of fever, they tend to act vigorously in response to fever, and accordingly, they misuse antipyretics and antibiotics. So, it very important here to concentrate on teaching mothers about the benefits of fever to the child's body, and instruct them when to seek

medical attention. Through this study, the researcher summarized advices for mothers, concerning the management of fever at home, and about the proper use of antipyretics.

6.2.5 Harmful effect of fever

Mothers in this study believed that fever could have life-threatening or lethal effects. (40%) of respondents listed meningitis as number one harmful effect of fever and (31.6%) listed brain damage as a second harmful effect, followed by convulsion (30%), and this is similar to Crocetti and Abd-Aljalil study's findings.

But more serious ill effects included paralysis (22.8%), mental retardation (9.6%), blindness (10%), hearing loss (14.4%), deformities (9.6%), and as many as (9.2%) of mothers thought that fever can lead to death. The results of this study about the harmful effect of fever are similar to the results of Crocetti et al, and different in percentages with Al-Nouri & Basheer, and Abdel Jalil et al studies. For example (89%) of Iraqi mothers in Al-Nouri study reported convulsion as the most common harmful effect of fever, while (60%) of Kuwaiti mothers in the study of Abdel Jalil said that fever could lead to convulsion. But the fear from death was (9.2%) in this study, while it was much more stated by Iraqi mothers (60%), Saudi-Arabia (18.4%), USA (14%), but it was less in Kuwait (2.7%).

Table 6.2: The harmful effect of fever (A comparison between different studies)

Harmful effect	This study Palestine (2009) N=250	Abdel Jalil et al (2007) Kuwait N = 520	Crocetti et al (2001) USA N=340	Al-Nouri & Basheer (2005) Iraq N=100	Schmitt (1980) Britain N=81	A-Eissa et al (2000) Saudi-Arabia N=560
Convulsion	30	60	32	89	15	69.3
Death	9.2	2.7	14	60	8	18.4
Paralysis	22.8	-	-	18	1	-
Mental retardation	9.6	-	-	17	-	-
Epilepsy	0.4	-	-	17	-	-
Meningitis	40	-	-	12	-	-
Blindness	10	-	1	5	3	3.2
Brain damage	31.6	1.8	21	5	46	35.9
Don't know	7.6	-	9		-	-
Dehydration	6.4	-	4	-	4	18.8
Hearing loss	14.4	-	-	-	-	-
Deformities	9.6		-	-	1	-

6.3 Conclusion /Summary

After reviewing the literature and according to the study results, the researcher concluded that mothers understanding of fever in children is often incorrect and incomplete, and has not improved significantly until now. In particular, antipyretic treatment methods continue to be used incorrectly, thereby increasing the risk of toxicity. Mothers must be educated by physicians and nurses about the physiologic usefulness of fever and the appropriate use of antipyretics.

Fever phobia persists, pediatric health care providers have a unique opportunity to make an impact on mothers understanding of fever and its role in illness because mother's anxiety about the potential harmful effects of fever may be heightened by the lack of knowledge regarding fevers role in illness.

And according to figure (5.29), most of mother relied on their own experience, family members and friends, and lack of getting information from the health care

professionals. The highest percent located in the age group of over 40 years, and those who were less than 20 years.

6.4 Recommendations:

According to the study findings, mothers have a limited understanding of fever and little or no information about its beneficial role in disease, and this concern by mothers lead to the increased use of antipyretics as happened in this study finding.

- There is an urgent need to educate mothers about evidenced–based fever management and their unnecessary antipyretic use. They must be encouraged to delay antipyretic administration using them to reduce pain rather than fever.

- Future studies should examine the efficiency and cost effectiveness of fever management educational programs for parents using different presentation methods in multiple settings.

- Teaching proper care of their febrile child and appropriate use of antipyretics, and providing a list of serious signs that warrant medical attention. Thus, informing consumers with accurate and consistent information has direct implication for changing practice in the hospitals and community.

- Educating mothers about fever, improving access to health insurance and primary care, and insuring that families have thermometers at home may enhance appropriate use of health services and improve outcomes for febrile children.
- Further studies are recommended to assess nurses and doctors about knowledge of fever consequences.
- We need to remind families that fever is a symptom that helps us identify a disease, and it is a normal wonderful physiologic response to an insult in the body. Therefore, a fever is a symptom that can point to a disease.
- Evidence-based educational interventions are the best way to treat and prevent fever phobia, and reduce the unnecessary use of health services. This information is best delivered during routine health checks, as mothers' anxiety

may interfere with their understanding of facts presented when their child is sick.

- Randomized controlled educational interventions need to be developed, implemented and evaluated in pediatric hospitals and units, child health clinics and maternity hospitals as well as child care centers, kindergartens and preschools. It is important to include fathers in these programs as partners are a significant a source of unsupportive norms which make attitudes less favorable.
- And as mothers reported that their main source of information about fever is the family members and their own experience, it is worth to encourage mothers to return back to the medical professionals to gather information about fever.
- And finally, future studies need to identify the knowledge, beliefs, and fever management recommendations of all health professionals caring for febrile children or advising parents on the care of a febrile child.

6.5 Advice for mothers when caring for a child with fever

(Adapted from Curtis, et al 2000).

- Mild to moderate fever is beneficial and supports the immune system

- Observe the child; focus on the child's well –being rather than temperature

- Mothers' should be encouraged to delay antipyretic administration for fever reduction, and only use analgesics to relieve pain associated with febrile illnesses.

- Make the child comfortable.

- Light blanket for children who are cold or shivering.

- Antipyretics should be used with indications, like other drugs.

- Selectively reduce fever with medication when fever is:

  - Greater than 39.0C° and associated with discomfort
  - 40C° or higher and in all children who are irritable, or appear to be in pain

- Medication dosage for children up to 6 years :
    - Paracetamol 15 mg /kg every 4 hours up to 4 times a day, maximum1 g /day
    - Ibuprofen 10 mg/kg 3 to 4 time a day, maximum of 1.2 g/day

        -Always administer with food or milk.

        - Not for use in children under 6 months of age.

- Do not continue giving regular medication for more than 48 hours without having the child assessed by a doctor.

Seek medical attention if there is no improvement in 48 hours or if the child

- Is febrile and under 6 months of age.
- Looks sick, pale, lethargic or weak.
- Suffers severe headache, neck stiffness or light hurts their eyes.
- Has breathing difficulties.
- Refuse to drink.
- Persistently vomits.
- Shows signs of drowsiness.
- Suffers pain.
- Has a rash of red –purple spots.

Evidence-based practice (EBP) guidelines are aimed at parents and health care professional interventions to reduce or manage fever in children, adopted from (Overand,K 2007). They are as follows:

- Remove excessive clothing or blankets.

- Encourage fluids to promote hydration.

- Only use sponging or bathing in tepid water if it is a comfort to the child.

- Remember that distress can elevate temperature.

- A single dose of an antipyretic can reduce temperature and make the child more comfortable.

- It is not advisable to give antipyretics for mild or moderate fever unless it will alleviate discomfort.

- Always check correct dosages prior to administering medications.

- Closely monitor the child who is vomiting or not adequately hydrated, especially when administering medications.

- Reduce environmental temperature.

- Know the signs and symptoms of dehydration.

- Seek medical care when the child's' condition is not improving, the child is becoming irritable, or has other signs and symptoms that might indicate a more serious illness or condition.

- Never use aspirin in infants or children.

- Infants ages 3 months and younger with a fever should be evaluated by a physician as soon as possible.

- Reduce environmental stimuli and promote rest.

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Appendices

Appendix 1: English copy of consent form

Dear mothers

I am a graduate student from Al – Quds University and invite you to participate in a study to explore mothers' knowledge, attitudes, and practices in the management of childhood fever in Hebron pediatric clinics.

This study is being conducted as a partial requirement toward the completion of a masters' degree in nursing

The attached questionnaire is designed to obtain information regarding your knowledge about fever and methods of fever management. Results of this study will be reported in term of group data only, and no information will be released or published, in which your name or any identifying information will be given

Your participation in this study is purely voluntary, and you may withdraw at any time. No adverse consequences will result from either dealing to participate or discontinuing participation .There are no known risks or benefits involved.

The completion of the questionnaire will take approximately 10 minutes.

If at any time, you have questions, or any information, or want a copy of the summary of the study, please contact Kifa Daas. RN, BSN,at 0598311689

Thank you very much for your assistance and cooperation.

Appendix 2: Arabic copy of consent form

عزيزتي ألام/ الأمهات

أنا طالبة دراسات عليا من جامعة القدس - أبو ديس. وادعوكن إلى المشاركة في إجراء دراسة للتعرف على رأي الأمهات ومعرفتهن والممارسات في مجال معالجة الحرارة عند أطفالهن في عيادات طب الأطفال في مدينة الخليل.
هذا ويجري إعداد هذه الدراسة كمتطلب جزئي لإنهاء شهادة الماجستير في التمريض.

الاستبيان المرفق يهدف للحصول على معلومات فيما يتعلق بعلمك عن حمى الأطفال وأساليب إدارتها ، وأية معلومات ستنشر لن يتم فيها نشر اسمك .
مشاركتك في هذه الدراسة هو طوعي محض ، ويمكنك أن تسحبي اشتراكك في أي وقت. اشتراكك في الدراسة لن يؤدي إلى عواقب وخيمة سواء من التعامل أو وقف المشاركة. كما ولا توجد أية مخاطر أو فوائد قد تنطوي على مشاركتك في الدراسة .

إكمال الاستبيان سوف يأخذ حوالي 10دقائق.

إذا كان لديك أي معلومات أو استفسارات يمكنك الاتصال ب كفاء دعاس في أي وقت على الرقم 0598311689

شكرا جزيلا لمساعدتكن وتعاونكن .

Appendix 3: English copy of the questionnaire

Al-Quds University

College of health science

Pediatric Nursing

The following is a list of questions that the researcher will ask the mothers regarding the attitude, knowledge, and practice management of their children fever. Your answers will be kept in privacy.

Demographic data

1. Age of the child ----------

2. Weight of the child ----------

3. Age of mother

a. <20
b. 21-30
c. 30-40
d. > 40

4. Mother's level education attained:

a. Illiterate.
b. Primary/secondary school.
c. High school/some university.
d. University graduate and above.

5. Current mother's occupation

a. Housewife.
b. Student.
c. Employee.

d. Others.

6. Place of residency:

a. Village
b. City
c. Camp
d. Badia

7. Number of children:

a. 1 child
b. 2-5
c. ≥ 6

8. Who is your first health provider?

a. Ministry of health clinics
b. UNRWA clinics
c. Private doctor
d. Pharmacist
e. Others

9. What is your resource for fever information?

a. Family members
b. Friends and relatives
c. Media
d. Medical bulletins
e. Clinic doctor
f. Clinic nurse
g. Own experience

10. What do you think is the normal body temperature of a small child?

a. 35°C
b. 36°C

c. 37°C
d. 38°C
e. 39°C
f. 40°C
g. Don’t know

11. What is the temperature considered as high fever?

a. < 38 .0°C
b. 38.0-39.0°C
c. 39.1-40.0°C
d. 40.1-41.0°C
e. 41.0 -42°C
f. Others

12. How soon after the start of fever you will consult a doctor or a medical center?

a. In less than a day
b. In less than two days
c. After two days
d. When the temperature is very high

13. What are the symptoms associated with fever?

---

14. How high could temperature go without treatment?

a. < 40 C°
b. 40-40.9 C°
c. 41-41.9 C°
d. 42-42.9 C°
e. 43.5 C°
f. Don’t know

15.How you detect the presence of fever?

a. A glass thermometer
b. A Battery (electronic) thermometer
c. A forehead fever strip
d. By touch
e. Tympanic thermometer

16.When you take the temperature of a child under three years, which is the best place?

a. The mouth
b. The rectum (bottom)
c. The armpit (axilla)
d. Touching forehead
e. Don't know

17. A rectal temperature should be read after how many minutes?

a. One minute
b. Two minutes
c. Three minutes
d. More than four minutes
e. Others

18. How often temperature checked when child has fever (time/minutes)

a. 15-30 minutes
b. 1-2 hours
c. 3-5 hours
d. Don't measure
e. Others

19. When mercury from a broken glass thermometer spills on the floor, would you regard that mercury as:

a. A safe

b. A dangerous substance
c. Don’t know

20. How do you manage a febrile episode on your own home?

a. Add more clothes
b. Reduced clothing and expose more of the child's skin to the air
c. Cover the child with blanket on the assumption that sweating will end fever
d. Use cold water
e. Sponging(Tap water , alcohol)

21. What types of drugs you use to treat fever at home?

a. Paracetamol syrup
b. Ibuprofen
c. Aspirin
d. I.M injection
e. Paracetamol suppositories

22. What is the dose of paracetamol you give to your child?

a. 80 mg
b. 100 mg
c. 150mg
d. 300mg
e. Don’t know

23. What is the dose of Ibuprofen you give to your child?

a. 1-3 cm
b. 4-5cm
c. Others

24. Did you ever use antibiotics on your responsibility?

a. Yes
b. No

25. What is the name of antibiotic you use?

---

26. What dose of antibiotics you give your child?

---

27. How you decide the antibiotic dose/

a. Doctor opinion
b. Pharmacist
c. Own experience
d.

28. How you measure the dose of drug you give your child.

a. Table spoon
b. Tea spoon
c. measurement cup
d. syringe
e. Don’t use
f. Others

29. According to whom you decide the dose of paracetamol and Ibiprofen ?

a. Doctor opinion
b. Pharmacist
c. Own experience
d. Others

30. What is the frequency of giving the drug for your child?

a. One hour
b. 2 hours
c. 3-4 hours
d. 5-6 hours
e. Others

31. When your child has a fever, do you wake your child from sleep so that fever treatment can be given?

a. Always
b. Never
c. Sometimes

32. What is the threshold temperature for bathing / sponging?

a. < 38 .0°C
b. 38.0-39.0°C
c. ≥ 40.0°C
d. Don't know

33. What is the threshold temperature for giving an antipyretic?

a. < 38.0 °C
b. 38.0-39.0°C
c. ≥ 40.0°C
d. Don't know

34. What is your mother in-law role in treating your child's fever?

---

35. What is your husband's role in treating your child's fever?

---

36. What do you think the benefit of fever to the child?

---

37. What are the harmful effects of fever?----------

Appendix 4: Arabic copy of the questionnaire

مفهوم حرارة الأطفال عند الأمهات فيما يلي مجموعة من الأسئلة التي ستقوم الباحثة بسؤال الأمهات عنها لمعرفة رأيهن وطريقة تعاملهن مع الحرارة عند الأطفال . سوف تكون أجوبتكن ضمن السرية التامة. **الرجاء وضع دائرة حول ما ترينه مناسبا لك**	
البيانات السكانية	
1. ما عمر طفلك : ----------	
2. ما وزن طفلك:----------	
3. ما عمرك : 1. اقل من 20 2. من 21-30 3. من 31-40 4. أكثر من 40	
4. ما تحصيلك العلمي:1. غير متعلمة 2. ابتدائي 3. إعدادي 4. ثانوي 5.معهد 6. جامعي	
5. ما عملك: 1. ربة بيت 2. طالبة 3. موظفة 5. غير ذلك/حددي----------	
6. أين تسكنين : 1. قرية 2. مدينة 3. مخيم 4. بادية	
7. ما عدد الأطفال لديك : 1. طفل واحد 2. من 2-5 3. 6 فأكثر	
8. من هو الراعي الصحي الأولي(الجهة الأولى التي تذهبين إليها لعلاج طفلك) الذي تعالجين طفلك عنده؟ 1. عيادة الصحة 2. عيادة الوكالة 3. طبيب خاص 4. الصيدلي 5. غير ذلك--------	
معلوماتك عن الحرارة	

9.ما مصدر معلوماتك الرئيسي عن الحرارة ؟ ---------- 1.أفراد العائلة (ألام والحماة) 2. الأصدقاء والأقارب 3. وسائل الإعلام 4. النشرات الطبية 5. طبيب العيادة 6. ممرضة العيادة 7.التجربة والخبرة السابقة	
10. ماذا تعتقدين درجة الحرارة الطبيعية للطفل ؟ ---------- 1. 35 درجة مئوية 2. 36 درجة مئوية. 3. 37 درجة مئوية 4 . 38 درجة مئوية 5. 39 درجة مئوية 6 . 40 درجة مئوية 7. غير ذلك	
11. ما درجة حرارة الطفل التي تعتبرينها عالية ؟---------- 1. اقل من 38 درجة مئوية 2.من 38-39 درجة مئوية 3 . من 39.1-40 درجة مئوية 4. من 40.1-41 درجة مئوية 5. 41.1 -42 درجة مئوية 6. غير ذلك----------	
12. متى تلجئين للمشورة الطبية عندما تكون حرارة طفلك مرتفعة ؟----------21 1. حالا في نفس اليوم 2. بعد يومين 3. بعد ثلاثة أيام 4. عندما تكون الحرارة عالية جدا 5.غير ذلك ----------	
13.كيف تعرفين أن طفلك مصاب بالحمى (أعراض الحرارة عند الطفل) ؟ 1.---------- 2. ----------3.----------4.---------- 5.----------	
14. إلى أي درجة ممكن أن تصل الحرارة عند الطفل إذا لم تعالج؟---------- 1. اقل من40 درجة مئوية 2. من 40 -40,9 درجة مئوية 3. من 41-41.9 4. 42-42.9 درجة مئوية 5. 43 درجة مئوية فأكثر 6. لا اعرف	
طريقة قياسك للحرارة	
ما الطريقةريقة التي تستخدمينها لقياس درجة الحرارة عند طفلك ؟---------- 1. ميزان الحرارة الزئبقي 2.ميزان الحرارة الالكتروني 3. الشريط اللاصق 4. بلمس جلده في أي جزء من جسم الطفل 5. جهاز عن طريق الأذن 6. غير ذلك----------	
16 . ما هو المكان الذي تقيسين منه الحرارة إذا كان طفلك اقل من 3 سنوات ؟ ---------- 1. الفم 2.الشرج 3. تحت الإبط 4. لمس الجبين 5. لا اعرف	

17. إذا استعملت ميزان الحرارة في فتحة الشرج , بعد كم دقيقة تقرأ ينه ؟---------- 1 دقيقة واحدة 2. دقيقتين 3. 3 دقائق 4. 4 دقائق واكثر	
18. متى تقيسين درجة حرارة طفلك عندما يكون مصابا بها ؟ ---------- 1. كل ربع - نصف ساعة 2. كل ساعة - ساعتين 3. كل 4-5 ساعات 3. لا أقيسها 4. غير ذلك	
19..إذا كسر ميزان حرارة زئبقي على الأرض هل تعتقدين أن مادة الزئبق؟ 1. آمنة 2. خطرة 3. لا اعرف	
علاجك للحرارة عند طفلك	
20 . ما الوسائل التي تتبعينها لتنزيل حرارة الطفل في البيت ؟---------- 1. تضيفين أغطية أخرى للطفل 2 . تقللين أغطية الطفل 3. تغطين الطفل بحرام صوفي اعتقادا منك بان هذا سوف ينهي الحرارة أو يقللها 4. تستعملين مغطس ماء باردا مثلجا 5. تستعملين الكمادات مع ماء بارد أو كحول 6. تستعملين مغطس ماء فاتر 7. غير ذلك/حددي ----------	
21. ما الأدوية التي تستخدمينها لتنزيل الحرارة ؟ ---------- 1. مركبات الباراسيتمول(اوتامول, فبرامول, أكمول) 2. مركبات أيبوبروفين(ايزوفن, الترافين, تروفين) 3. مركبات الاسبرين 4. إبرة من قبل الطبيب 5. تحاميل شرجية 6. غير ذلك----------	
22. أ. ما هي الجرعة التي تستخدميها في إعطاؤك الباراسيتامول (السائل) لطفلك؟---------- **ب. ما هي الجرعة التي تستخدميها في إعطاؤك الباراسيتامول (تحميلة شرجية) لطفلك؟----------** 1. 80 mg 2. 100mg 3. 150mg 4. 300 mg 5. لا أعرف----------	

	23. ما هي الجرعة التي تستخدمتنها في إعطاؤك البر وفن لطفلك؟----------
	24. هل تعطين طفلك مضاد حيوي في البيت عند ارتفاع درجة الحرارة ؟ 1. نعم 2. لا إذا كان جوابك نعم :أجيبي عن الأسئلة رقم **25 , 26 , 27, 28**
	25. ما اسم المضاد الحيوي الذي تستعملينه؟----------
	26.ما الجرعة التي تستخدمينها من المضاد الحيوي ؟----------
	27. كيف تحددين الجرعة من المضاد الحيوي التي تعطينها لطفلك؟ ---------- 1. حسب رأي الطبيب 2. حسب الصيدلي 3. حسب خبرتك الشخصية
	28ماذا تستعملين لإعطاء الدواء لطفلك؟ 1. ملعقة كبيرة 2. ملعقة صغيرة 3. وعاء طبي مدرج 4. حقنة مدرجة 5. لا أستعمل العيار 6. غير ذلك
	29. على ماذا تعتمدين في تحديد الجرعة من مركبات الخافضة للحرارة (الباراسيتامول او التروفين)؟ 1. رأي الطبيب 2. ما يحدده الصيدلي 3. رأي الأقارب 4. تجربة سابقة 5. غير ذلك
	30. ما الفترة التي تعتمدينها بين كل جرعة وجرعة من الدواء ؟ 1. ساعة واحدة 2. ساعتين 3. 3 -4 ساعات 4. 5 -6 ساعات 5. غير ذلك
	31. هل توقظين طفلك ليلا لإعطائه دواء للحرارة ؟ 1. دائما 2 . أحيانا 3. لا أوقظه أبدا 4 . غير ذلك ----------
	32. عند أي حرارة تستخدمين الكمادات أو الحمام للطفل ؟ ---------- 1. اقل من 38 درجة مئوية 2. من38 -39 درجة مئوية 3. 40 فأكثر 4 . لا اعرف ----------

33 . عند أي حرارة تستخدمين خافض الحرارة ؟---------- 1. اقل من 38 درجة مئوية 2. من38 -39 درجة مئوية 3. أكثر من 40 درجة مئوية 4. لا اعرف ----------	
34. ما دور حماتك أو أمك في معالجة حرارة الطفل العالية ؟---------- ----------	
35. ما دور زوجك في معالجة حرارة الطفل العالية؟---------- ----------	
أضرار الحرارة	
36. إذا كنت تعتقدين أن هناك فوائد للحرارة عند الطفل , فما هي ؟ 1.---------- 2.----------3----------. -4---------- 5 . لا يوجد	
37. ما تأثيرات وأضرار الحرارة على الطفل ؟ 1 .---------- 2. ---------- 3. ---------- 4. ----------	

الباحثة: كفاء دعاس
جامعة القدس

Appendix 5: The weight and age of children of participated mothers

Child number	Child weight	Child age
1.	kg 12	6 years
2.	8 kg	1 6/12
3.	12 kg	6 years
4.	12 kg	3 y 6/12
5.	7kg	9 months
6.	5kg	4 months
7.	5kg	4months
8.	28 kg	10 y
9.	12 kg	1 3/12
10.	12kg	1 5/12
11.	Kg12	2 years
12.	10, 800gm	2years
13.	16 kg	4years
14.	10,500gm	1year
15.	28kg	7years
16.	29kg	11years
17.	9kg	1 year
18.	8kg	9 month
19.	9kg	1year
20.	9 kg	11 month
21.	12 kg	2 6/12
22.	12kg	2 month
23.	14 kg	2 3/12
24.	9,500gm	11 month
25.	11 kg	1 10/12
26.	6 kg	4 month
27.	12KG	1Year
28.	9,500gm	1 5/12
29.	3kg	9 days
30.	10 , 600gm	1 10/12
31.	7, 300gm	8month
32.	9, 300gm	1 1/12
33.	8kg	1 2/12
34.	7kg	5 month
35.	3 kg	1 month
36.	11, 200	11 months
37.	4 kg	1 month
38.	2, 500	1 month

39.	7kg	7 months
40.	4,600	1 month
41.	5kg	2 months
42.	7kg	4 months
43.	7kg	4 months
44.	7,500	6 months
45.	5kg	1 month
46.	5, 200	2 months
47.	7, 500	5 months
48.	9 kg	2 2/12
49.	11 kg	2 2/12
50.	10 kg	1 6/12
51.	10 kg	1 1/12
52.	9 kg	1 3/12
53.	7 kg	1 6/12
54.	15 kg	4 years
55.	11 kg	3 2/12
56.	6, 500gm	4 months
57.	10 kg	1 3/12
58.	4, 800gm	1 month
59.	10 kg	1 1/12
60.	7 kg	6 months
61.	4 kg	2 months
62.	5,500gm	2 months
63.	7, 500gm	9 months
64.	6kg	4 months
65.	5, 800gm	2 months
66.	4 kg	2months
67.	6 kg	4 months
68.	3 kg	One week
69.	6 kg	6 months
70.	3, 500gm	2 months
71.	15 kg	3 years
72.	5 kg	2 months
73.	15 kg	5years
74.	4 kg	2 months
75.	8kg	4 months
76.	12 kg	2 6/12
77.	11 kg	1 3/12
78.	12 kg	2 7/12
79.	9 kg	9 months
80.	10 kg	1 3/12

81.	6 kg	5 months
82.	8 kg	1 2/12
83.	8 kg	9 months
84.	12 kg	2 4/12
85.	8, 500gm	7 months
86.	5,500gm	2 months
87.	10 kg	1 1/12
88.	9 kg	1year
89.	5 kg	1 3/12
90.	11 kg	2 6/12
91.	7 kg	9 months
92.	15 kg	2 11/12
93.	8 kg	9 months
94.	12 kg	3 years
95.	10 kg	3 years
96.	12 kg	1 3/12
97.	10,500gm	1 4/12
98.	7 kg	6 months
99.	10 kg	9 months
100.	9kg	8 months
101.	5 kg	2 months
102.	8 kg	9 months
103.	12 kg	1 8/12
104.	11 kg	1 3/12
105.	9 kg	9 months
106.	8 kg	10 months
107.	4 kg	2 months
108.	6 kg	5 months
109.	10 kg	2 10/12
110.	15kg	3years
111.	11 kg	11 month
112.	9 kg	9 months
113.	8, 500 gm	9 months
114.	3,400 gm	4 days
115.	8,500gm	9 months
116.	9 kg	9 months
117.	7 kg	9 months
118.	4,300gm	4 months
119.	12 kg	1 8 /12
120.	14 kg	2 9/12
121.	10 kg	1 3/12
122.	10 kg	1 3/12

123.	10 kg	2 8 12
124.	9 kg	9 months
125.	3 kg	1 month
126.	8 kg	9 months
127.	3 500	10 days
128.	12 kg	1 year
129.	7 kg	4 months
130.	10,200gm	9 months
131.	6 kg	7 months
132.	10 kg	2 6/12
133.	13 kg	3 years
134.	11 kg	2years
135.	8 500	9 months
136.	10 kg	2years
137.	11 kg	1 6/12
138.	10 kg	1 8/12
139.	12 kg	2 6/12
140.	9,700gm	1 3/12
141.	7 kg	8 months
142.	9 kg	6 months
143.	8 kg	1 3/12
144.	10 kg	9 months
145.	5,450gm	3 months
146.	10, 800gm	2years
147.	14 kg	1 2/12
148.	8 kg	1 year
149.	10 kg	1 year
150.	11 kg	1 3/12
151.	12 kg	1 10/12
152.	10 kg	1 7/12
153.	4 kg	1 month
154.	6 kg	2 months
155.	8 kg	11 months
156.	14 kg	3 years
157.	13 kg	3 years
158.	8,6oogm	1 3/12
159.	5 kg	2 months
160.	9,500gm	10 months
161.	12 kg	3 6/12
162.	15 kg	4 years
163.	9 kg	6 6/12
164.	7.5kg	6 months

165.	10 kg	9 months
166.	11 kg	1 3/12
167.	25 kg	9 years
168.	13 kg	3years
169.	8, 600gm	7 months
170.	15 kg	4 years
171.	7 kg	6 months
172.	13 kg	4 years
173.	7, 500gm	7 month
174.	10 kg	2 years
175.	8 kg	1 3/12
176.	4 kg	1 month
177.	7 kg	6 months
178.	15 kg	5 years
179.	30 kg	9 years
180.	10 kg	2 years
181.	30 kg	8 years
182.	11 kg	1 6/12
183.	12, 500gm	2years
184.	11 kg	1year
185.	8 kg	9 months
186.	7 kg	1 4/12
187.	12 kg	4 years
188.	3 kg	4 days
189.	7 kg	8 months
190.	10 kg	1 year
191.	8 kg	1 2/12
192.	9 kg	10 months
193.	11 kg	1 9/12
194.	10 kg	1 1/12
195.	6 kg	1 months
196.	12 kg	3 years
197.	6 kg	7 months
198.	7 kg	9 months
199.	4,500gm	2 months
200.	10 kg	2 years
201.	46.5oo gm	11 years
202.	6 kg	1 3/12
203.	7 kg	6 months
204.	5, 500gm	2 months
205.	14 kg	3 6/12

206.	12 kg	3 1/12
207.	8 kg	1 6/12
208.	2 kg	6 years
209.	26 kg	12 years
210.	20 kg	10 years
211.	2,010gm	3 months
212.	3 kg	3 months
213.	10kg	2 5/12
214.	6, 500gm	7 months
215.	6,500gm	7 months
216.	12 kg	3 years
217.	5 kg	6 months
218.	6 kg	5 months
219.	5 kg	2 6/12
220.	6 kg	4 months
221.	7 kg	6 months
222.	7 kg	4 months
223.	4 kg	1 months
224.	12 kg	2 years
225.	22 kg	8 years
226.	9 kg	1 10/12
227.	14 kg	1 10/12
228.	22 kg	10 years
229.	3,500gm	2 months
230.	10 kg	3 years
231.	10 kg	3 years
232.	8 kg	6 months
233.	9 kg	1 6/12
234.	7 kg	8 months
235.	12 kg	3years
236.	6 kg	5months
237.	11 kg	1year
238.	3,500gm	2months
239.	6 kg	7months
240.	5 kg	4 6/12
241.	11,500gm	1 6/12
242.	8 kg	1 6/12
243.	7 kg	6 months
244.	5 kg	1 months
245.	9 kg	8 months
246.	8 kg	8 months
247.	8 kg	7 months

248.	5 kg	2 months
249.	13 kg	4 years
250.	21 kg	5 years

Appendix 6: Letter sent to Dr.Luay Al-Nouri

kifa daas <kifadaas@yahoo.com> wrote:

Salam alekum

I m astudent nurse studying in al quds university in palestine , second year in pediatric nursing program . I m now preparing for my research proposal , which is about studying the palestenian mothers perception of fever . and i red your study similar to this issue , i dont know if it is allowed to send to me the full text of the study because it will help me so much .

thank you

kifa daas

Alaykum alsalam

please find attached the full text of the paper

Dr.Luay Al-Nouri

Appendix 7: The questionnaire adopted by Dr. Luay Al-Nouri

مفهوم الامهات للحمى

التسلسل التاريخ اسم الطفل

- التحصيل العلمي للام؟ = لا يوجد- دورة محو الأمية – ابتدائية – متوسطة – ثانوية – معهد – كلية

-كيف تعرفين أن طفلك مصاب بالحمى = لمس جلده فى اى جزء من جسمه؟
باستعمال المحرار الز ئبقى – هل تعقمين المحرار 0 كيف؟
اين تضعينه فى الفم ام الشرج ام تحت الابط؟
ما هى درجة الحرارة الطبيعية ؟
هل تستعملين المحرار الالكترونى؟
هل تستعملين شريط على الجبهة ؟

- ما الذى هو سبب للحمى عند طفلك ؟ 1 - 2 - 3- 4- 000

-ما هى الاعراض التى يمكن ان تسببها الحمى ؟1- 2- 3- 4- 000

-ما هى اضرار الحمى ؟ 1- 2- 3- 4- 5- 000

اذا اصيب طفلك بالحمى بالمنزل فماذا تفعل
هل تخففين ملابسه ام تزيديهاو هل تزيدى اغطية فراشه ام تقلليها ؟

هل تستعملين الكمادات = قطع ثلج او ماء مثلج او ماء بارد ام ماء مثلج او كحول ام حمام بارد او دوش بارد ؟

هل تستعملين ادوية لتخفيض الحمى ؟ اسبرين او باراسيتول او غيرها ؟ عتى هيئة مشروب او حمالة للمقعد ؟

هل تستعملين مضادات حيوية ؟ ما هي ؟ من يصفها ؟ كيف تعرفين الجرعة المطلوبة ؟
هل للادوية تعاملات جانبية ؟ ما هى =1- 2- 3- 4-
متى تاخذين طفلك المصاب الحمى الى الطبيب او المركز الصحى او المستشفى(ساعات ؟ ايام ؟)

Appendix 8: The letter sent to the ministry of health office with their permission

Al- Quds University
Faculty of Health Professions
Nursing Department
Jerusalem-Abu Dies

جامعة القدس
كلية المهن الصحية
دائرة التمريض
القدس-أبوديس

بسم الله الرحمن الرحيم

التاريخ : 2008/05/6
الرقم : 2008/04/88

حضرة السيدة نجاة دويكات المحترمة،
رئيسة التمريض – في وزارة الصحة
فاكس : 092384777

الموضوع : السماح باجراء بحث استقصائي

تحية طيبة وبعد،

نطلب من حضرتكم السماح لطالبة الماجستير كفاح دعمس بالدخول الى عيادات الصحة الانجابية لاجراء بحث استقصائي حول ادراك الامهات لمفهوم الفجوة لدى اطفالهن وذلك لتلبية متطلبات التخرج لدرجة الماجستير تمريض الامراض.

اسماء العيادات :-

الخليل – عين سارة

الكرمة ، الخاور ، الخرم ، السموعة ، بيت كاحل ، بيت أولا ، عارورس ، برقوميا ، أدنا ، حمريعة ، بيت امر ، حلحول ، دورا ، الظاهرية ، بطا ، بني نعيم ، الشيوخ.

وتفضلوا بقبول فائق الاحترام والتقدير ،،،

الدكتورة سهى صايح
منسقة برنامج الدراسات العليا
كلية المهن الصحية

نسخة/ الملف

Tel : - 02 2799753
Fax : - 02 2791243

تلفون : 2799753
فاكس : 2791243

Appendix 9: The letter sent to the UNRWA office with their permission

جامعة القدس
كلية المهن الصحية
دائرة التمريض
القدس-أبوديس

بسم الله الرحمن الرحيم

Al- Quds University
Faculty of Health Professions
Nursing Department
Jerusalem-Abu Dies

الرقم: ت ت/ع 15/ 2008/4
التاريخ: 2008/4/29

حضرة الدكتور أمية خماش المحترم

المدير الطبي لوكالة الغوث بالضفة الغربية

الموضوع: الطالبة كفاء دعاس

تحية طيبة وبعد،

نرجو من حضرتكم السماح للطالبة كفاء دعاس بالدخول الى عيادات الوكالة في الخليل لاجراء بحث استقصائي حول ادراك الأمهات لمفهوم حرارة الجسم وذلك لتغطية متطلبات التخرج لدرجة الماجستير تمريض الأطفال.

وتفضلوا بقبول فائق الاحترام،،

منسقة الدراسات العليا لكلية المهن الصحية

د. سمية الصايح

نسخة: الملف

تلفون: 02-2799753
فاكس: 02-2791243

Tel: 02-2799753
Fax: 02-02791243

UNITED NATIONS RELIEF AND WORKS AGENCY
FOR PALESTINE REFUGEES IN THE NEAR EAST

West Bank Field Office, P.O. Box 19149, Jerusalem

Telephone: (02)5890400 • Facsimile: (02)5322714

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13 أيار 2008

مدح/

حضرة الدكتورة سمية الصايج المحترمة
منسقة الدراسات العليا – كلية المهن الصحية
جامعة القدس – ابو ديس

تحية طيبة وبعد،،

نعلمكم بأنه لا مانع لدينا من قبول الطالبة كفاء دعاس بالدخول الى عيادات الوكالة في الخليل لإجراء بحث استقصائي حول إدراك الأمهات لمفهوم الحرارة لدى أطفالهن وذلك ضمن أنظمة وقوانين وكالة الغوث على أن تلتزم بالأنظمة وتوقع على التعهد المطلوب. ولقد أوعزنا للدكتور يوسف سعدي مدير منطقة الخليل لسماح للطالبة كفاء دعاس.

وبناء على ذلك الرجاء الاتصال بالدكتور يوسف سعدي مدير منطقة الخليل و السيدة وسيلة الرشماوي مسؤولة التمريض في منطقة الخليل.

وتفضلوا بقبول فائق الاحترام،،،،

DR. UMAIYEH KHAMMASH
CHIEF FIELD HEALTH PROGRAMME
WEST BANK

مدير برنامج الصحي في الضفة الغربية

DEPT. OF HEALTH
HEBRON

Appendix 10: Advices for mothers when caring for a child with fever

نصائح للأمهات للاعتناء بالطفل أللذي لديه حرارة

- § الحرارة الخفيفة إلى المعتدلة هي مفيدة وتدعم جهاز المناعة لذلك لا يستحسن إعطاء دواء حرارة للحرارة الخفيفة أو المعتدلة إلا إذا كانت تريح الطفل وتخفف من معاناته.
- § يجب مراقبة الطفل، والتركيز على راحته بدلا من التركيز على درجة الحرارة.
- § تغطية الطفل ببطانية خفيفة فقط للأطفال الذين هم درجة حرارتهم باردة أو يرتجفون وفي الحالات الأخرى يجب إزالة الألبسة أو الاغطيه الكثيرة .ومن المفيد أيضا تخفيض درجة حرارة الغرفة.
- § تشجيع إعطاء السوائل للطفل لمنع الجفاف.
- § الأطفال حديثي الولادة أو الذين لم تتجاوز أعمارهم 3 أشهر وعندهم حرارة ينبغي تقييمهم من قبل الطبيب في أقرب وقت ممكن.
- § استخدام المسح أو الاستحمام في مياه فاترة وفقط إذا كان ذلك مريحا للطفل.
- § التذكر أن كل حركه زائدة للطفل ترفع الحرارة.
- § ينبغي استخدام أدوية الحرارة عند اللزوم فقط كغيرها من الأدوية .

يجب خفض حرارة الطفل باستعمال الدواء في الحالات التالية:

1- عندما تكون درجة الحرارة أكثر من 39 مع عدم راحة الطفل منها.

2- في كل الحالات التي تكون فيها الحرارة أعلى من 40 .

3- في جميع الحالات التي يكون الطفل متعكر المزاج ، أو يبدو متألما.

4- يجب دائما التحقق من الجرعة الصحيحة قبل إعطاء الدواء.

الجرعة الصحيحة للأطفال حتى 6 سنوات هي كما يلي :

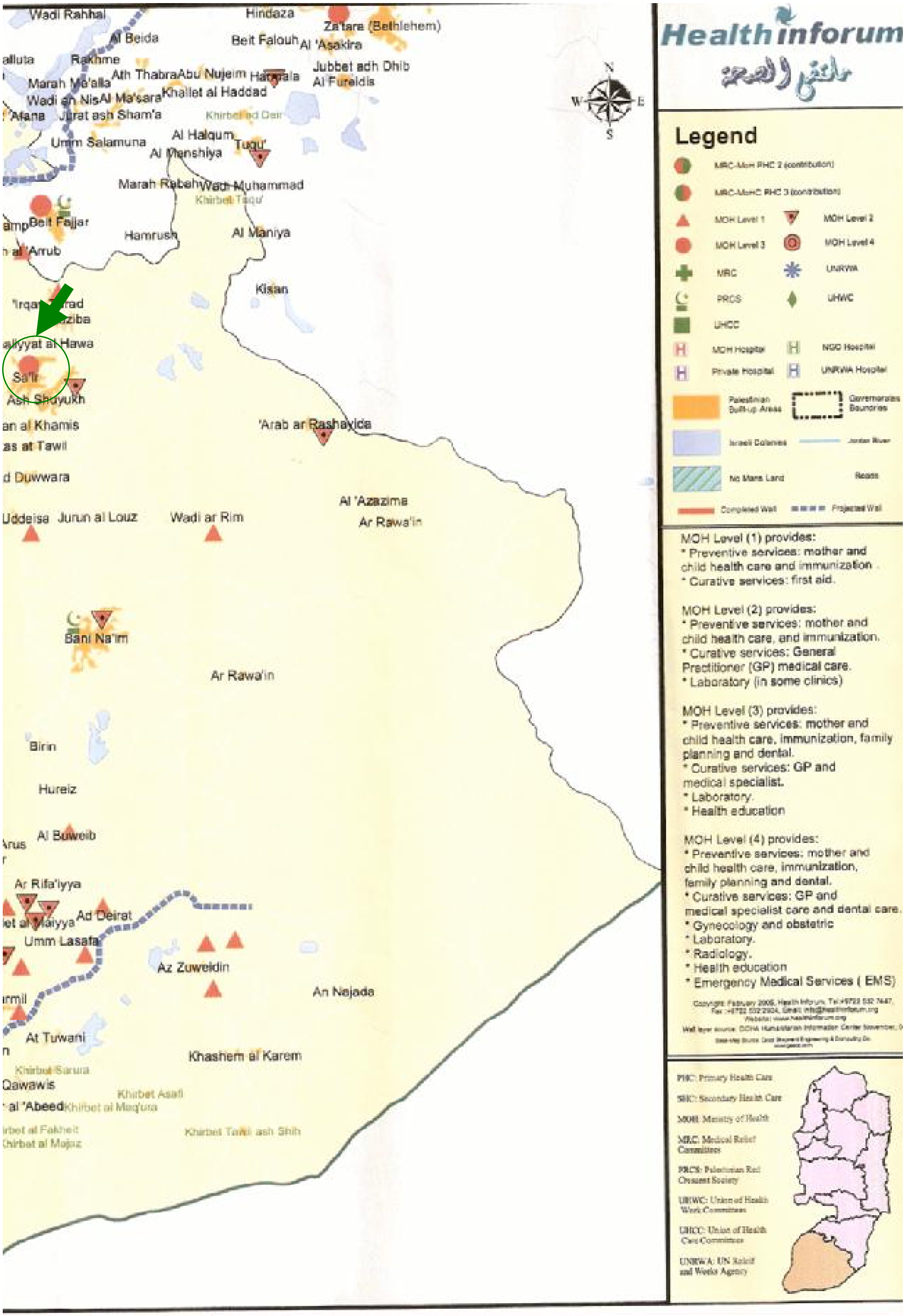
- § الباراسيتامول: 15 ملغرام لكل كيلوغرام من وزن الطفل كل 4 ساعات حتى 6 مرات في اليوم.
- § ايبوبروفين: 10 ملغرام لكل كيلوغرام من وزن الطفل من 3 إلى 4 مرات في اليوم مع الحليب أو الطعام.
- § يمنع إعطاء دواء الأسبرين للأطفال.

يجب الرجوع للطبيب إذا لم يحصل تحسن في حالة الطفل خلال 48 ساعة أو في الحالات التالية:

- § إذا كان الطفل يبدو شاحبا متعبا أو يميل إلى النعاس أو هناك صعوبة في إيقاظه من النوم.
- § يعاني صداع حاد ، أو تصلب الرقبة أو يشعر بالضيق من الضوء الموجود في غرفته.
- § عنده صعوبات في التنفس.

- يرفض الشرب.
- يستمر في التقيؤ .
- يعاني من الألم.
- عند ظهور بقع على الجلد.
- علامات وأعراض للجفاف.

Appendix 11: The map of governmental clinics distribution in Hebron


Wadi Rahhal
Hindaza
Za'tara (Bethlehem)
Al Beida
Beit Falouh
Al 'Asakira
Rakhme
Ath Thabra
Abu Nujeim
Harmala
Jubbet adh Dhib
Al Fureidis
Marah Ma'alla
Wadi an Nis
Al Ma'sara
Khallet al Haddad
Jurat ash Sham'a
Umm Salamuna
Al Halqum
Al Manshiya
Tuqu'
Marah Rabah
Wadi Muhammad
Beit Fajjar
Hamrush
Al Maniya
Kisan
Sa'ir
Ash Shuyukh
'Arab ar Rashayida
Al 'Azazima
Ar Rawa'in
Jurun al Louz
Wadi ar Rim
Bani Na'im
Birin
Hureiz
Al Buweib
Ar Rifa'iyya
Ad Deirat
Umm Lasafa
Az Zuweidin
An Najada
At Tuwani
Khashem al Karem
Qawawis
Khirbet Asafi
Khirbet al Maq'ura
Khirbet Tawil ash Shih
N
S
W
E
Healthinforum
ملتقى الصحة
Legend
MOH Level 1
MOH Level 2
MOH Level 3
MOH Level 4
MRC
UNRWA
PRCS
UHWC
UHCC
MOH Hospital
NGO Hospital
Private Hospital
UNRWA Hospital
Palestinian Built-up Areas
Governorates Bounderies
Israeli Colonies
Jordan River
No Mans Land
Roads
Completed Wall
Projected Wall
MOH Level (1) provides:
* Preventive services: mother and child health care and immunization .
* Curative services: first aid.
MOH Level (2) provides:
* Preventive services: mother and child health care, and immunization.
* Curative services: General Practitioner (GP) medical care.
* Laboratory (in some clinics)
MOH Level (3) provides:
* Preventive services: mother and child health care, immunization, family planning and dental.
* Curative services: GP and medical specialist.
* Laboratory.
* Health education
MOH Level (4) provides:
* Preventive services: mother and child health care, immunization, family planning and dental.
* Curative services: GP and medical specialist care and dental care.
* Gynecology and obstetric
* Laboratory.
* Radiology.
* Health education
* Emergency Medical Services (EMS)
PHC: Primary Health Care
SHC: Secondary Health Care
MOH: Ministry of Health
MRC: Medical Relief Committees
PRCS: Palestinian Red Crescent Society
UHWC: Union of Health Work Committees
UHCC: Union of Health Care Committees
UNRWA: UN Relief and Works Agency