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Physicians and Nurses Knowledge, Attitude, and Practices in the Management of Childhood Fever in Hebron Pediatric Clinics

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Abstract
Fever is the most common reason for parents to seek medical health care. Most fevers are not serious, they are a local reaction to protect the host and preserve normal body functions; however, many physician and nurses report concern that their child's fever may cause convulsions or brain damage.
This issue may be more serious in the Palestinian healthcare context, where both traditional and western health practices are common and limited research findings are reported.
Other common practices believed to reduce body temperature include sponging, bathing or coin massage. International reports show that the fever management practices of parents are learnt from health care professionals. It is important to understand where they learn to manage fever and what information is provided to them in the community setting. This research focused on physician and nurses knowledge, beliefs and practice related to childhood fever management; therefore, it was also important to what factors Influenced their fever management practices. In order to address the problem of ineffective fever management practices and the misuse of medication to reduce Childhood fever, the Theory of Planned Behaviors (TPB) was used to identify the determinants of physicians and nurses' behavioral intentions in childhood fever management. cross-sectional survey was conducted .
Methodology: Quantitative Cross-sectional survey conducted, Questionnaire tool: pilot study were conducted to ensure the items were clear. Recruitment procedures for the convenience sample for the pilot study (N=5 physicians; 5 nurses) and cross-sectional surveys, Minor modifications were undertaken prior to conducting the surveys
Participants (N=35 physicians; 65 nurses) who works in 17 governmental and UNRWA Primary health clinics in Hebron District.
Result: the most age group more than 30 years old, the gender of participant report that 59 female and 41 male, the work place are 75 from government clinics and 25 work in UNRWA clinics, the year of work experience for them vary from 1 to more than 16 yearsIn some area of fever management Inconsistent knowledge about fever, non-evidence-based beliefs and practices among physicians and nurses were identified. Physicians and nurses reported negative beliefs about fever, using antipyretics and/or tepid sponging effects. Despite believing fever was a beneficial sign of illness and a response to fight infection, many parents and nurses perceived the use of antipyretics as necessary to prevent febrile convulsions. Many parents used antipyretics and tepid sponging to reduce a mild fever at a mean temperature of 38ºC.
Physician and nurses don't reported social approval for antipyretic administration and they don't accept receiving conflicting information about this practice.
Findings from this research program have provided evidence that physicians and nurses have good knowledge in area of detention of fever, antibiotic use and antipyretic and they have limited knowledge or non-evidence-based management for febrile children in part of the most common concern of fever is febrile convulsion and brain damage and parent's education. More importantly, parent's education so one of the first recommendation to focus on parent's education in area of all aspect related to fever. **Conclusion**, this study data suggests that implementation of educational programs and using guidelines regarding the proper management of the febrile child are needed. There were misconceptions about management and complications of fever. Conflicting results about fever in the literature also confirm these misconceptions. Physicians and nurses need consistent fever management information. There is a need for interventions to inform healthcare policy, practices and research development in relation to integration of the latest scientific evidence-based fever management.

1. Introduction

Fever in childhood, is one of the famous manifestations of diseases and it is the most common cause to seek health care provider and visit physicians (Sarrell et al. 2002), in general fever in childhood indication of viral infection rather than a bacterial infection or serious illness, Feverish occur in children when the body temperature is above 37°C (98.6°F) and It occurs when various infectious and noninfectious processes interact with the host's defense mechanism. In most children fever is either due to identifiable microbiologic agent or

occurs during exposure to excessive environmental heat or during heavy physical work (Knobel et al. 2002).

Feverish illness is very common in young children, with between 20% and 40% of parents reported fever in their children each year, So the childhood fever is The commonest reason and is the second most common reason for a child being admitted to hospital (NICE, 2013).

Fever in young children can be a diagnostic challenge for healthcare professionals because it is often difficult to identify the cause. In most cases, the illness is due to a self-limiting viral infection. However, fever may also be the presenting feature of serious bacterial infections such as meningitis or pneumonia. A significant number of children have no obvious cause of fever despite careful assessment. These children with fever without apparent source are of particular concern to healthcare professionals because it is especially difficult to distinguish between simple viral illnesses and life-threatening bacterial infections in this group. As a result, there is a perceived need to improve the recognition, assessment and immediate treatment of feverish illnesses in children (NICE, 2013)

2. Background

Fear and anxiety attached to fever by some physicians are so much that visit labeled 'Fever Phobia (Knobel et al.2002). Elevated temperature seen frequently by health care provider with infants and children, however, each year 100 infants aged one–12 months die from infection and it is likely this number could be reduced by improved recognition, evaluation and treatment of febrile (fever-related) illness (NICE 2013). In childhood, fever of 40°C or below mostly indicate adaptive response to the process of infection more than severity of illness (VandenBosch et al. 1993). Many health care provider including nurses and physician consider fever as harmful event and severity of illness measure by the degree of fever, more fever more severe illness (Knobel et al. 2002). Nurses and physician fever phobia continues to lead to the negative attitudes toward fever and this attitude remain unchanged (Sarrell et al. 2002). Strong evidence based support for the beneficial effects of mild fever has been available for 30 years (eg., (Lorin 1999, Knobel et al. 2002, Sarrell et al. 2002). Physicians Nurses have also expressed concern about fever management; however, their knowledge and practices are, to some extent, both incorrect and inconsistent (Blumenthal, 2000).

Hebron is the largest city in the West Bank and have a population of around 641.000 (PBCS report, 2012). These people are the target centers of the service offered by the primary health care centers operating in Hebron. In Hebron, there are governmental and UNRWA primary health centers that operates at high capacity to meet the population demands, the district divided to 3 area and have 3 major director of primary health care, north, middle and south Hebron.

Fever is defined as the elevation of body core temperature occurring as a defensive response to the entry of pathogenic agents into the body (Blatteis, 2006) or an elevation of body temperature higher than the normal daily variation (Mackowiak, 2006). Most infections cause a fever ranging from 38°C to 40.5°C with an average fever of 39.5°C (Mackowiak, 1998). American Academic of Paediatrics (AAP) defines fever as a temperature above 38°C and high fever at the temperature above 39°C indicating infectious illness (eg., urinary tract infection) (American Academy of Pediatrics, 1999). In daily clinical practice, fever is defined as a temporary elevation in the body's thermoregulatory set-point, in the posterior hypothalamus of the brain, by 1°C (1.8°F), or greater, above the mean temperature at the site of recording (e.g., mean axillary temperature is 36.4°C, fever is 37.4°C (El-Radhi, Caroll, & Klein, 2009). Therefore, in addition to considering age, the daily variation and infection types, it is also important to consider the temperature measurement site to determine fever.

The negative attitude of health professionals toward febrile over the past decade has been slightly changed (Monaghan, 2005). Health professionals still recommending fever reduction strategies to prevent febrile convulsions and brain damage, treat febrile child with low grade fever without other symptoms, waken sleeping febrile children for administer a different antipyretic to children still has fever for one hour following initial antipyretic treatment (Poirier, et al., 2000; Sarrell, et al., 2002). This is not surprising as the literature concerning the management of fever and febrile convulsions is not consistent. For example, based on the evidence over the past three decades many authors recommend supporting the role of fever in the immunological response to an invading organism (e.g., Atkins, 1982; Duff, 1986; Kluger, 1986; Lorin, 1990; 1994, 1999). Purssell (2000) advocates health education, comfort and recovery rather than much antipyretic therapy, and recommend nurses to educate parents for paracetamol administration to febrile children and to continue this four to six hourly while fever is present continue (e.g: Waterston, 2002). Health professionals contribute to Parents fever phobia when they learn fever management from health professionals concerns and misconceptions in addition to their overly aggressive treatment of it to parental fever phobia (Thomas et al., 1994).

Fever has beneficial effects in not only fighting infection but also reducing the likelihood of developing allergies. For example, children who had a febrile episode during their first year of life were less likely to develop allergies later in childhood than children who had not (Williams, Peterson, Ownby, & Johnson, 2004).

Uhari M, (1995) In a randomized controlled trial, 157 children who enrolled after their first febrile convulsion were followed for two years. In this study there was no evidence found that antipyretic treatment

reduced the risk of febrile convulsions.

Al-Eissa(2001), fever has beneficial effects and is good for the immune response, it seems that the negative perceptions of fever, like fears of febrile seizures and fever phobia, remain unchanged. Physicians continue to reduce low grade fever without other symptoms and recommend various kinds of antipyretics to feverish children despite initial treatment

According to (Crocetti, 2001) 90 % of pediatric illness admitted to the hospital complain of fever. Correct and adequate knowledge of relationship between fever and febrile convulsion, and its usual good prognosis are important for lessening the parental anxiety and apprehension associated with febrile convulsion. Many parents may even develop fever phobia and each febrile episode of the child can be a nightmare for the parents.

In Palestine Daa's(2009) studied mother's knowledge , attitude , and practices in the management of childhood fever in Hebron Pediatric clinics , and the result misconceptions and wrong belief about fever, and recommended to assess nurses and doctors about knowledge of fever consequences(daa's. 2009).

Helen (2012) Study about Fever management practices, identified varied decision making criteria and inconsistent practice influenced by many external variables., nurses perform a comprehensive assessment to make an informed decision. however, factors influencing their practice include medical orders, the child's temperament, a history of febrile convulsions, parental requests, colleagues and ward norms, nurses have a 'temperature' at which they consider a child febrile (37.2°C to 39.0°C) and many reported a 'temperature' at which they administered antipyretics (37.5°C to 39.0°C), antipyretics were administered to febrile children for pain relief, irritability, at parents' request and to settle a child for the night, administration was reported to be higher during the day and evening shifts, at medication rounds and when the ward is busy, at night, nurses are reluctant to waken a sleeping febrile child, preferring to observe them, and recommendations to promote consistent fever management practices are included.

3. Significant of the study

In Palestine Information about physician and nurses' knowledge and beliefs about fever or fever management are unknown . Nurses' actual practices for managing childhood fever and factors influencing their practices have not been investigated.

Internationally, the management of childhood fever is a complex behavior in which some myths and misconceptions exist among physician, nurses and parents (this behavior is described in more detail in literature review. Therefore, this study aimed to explore Palestinian physician and nurses 's in field of childhood fever to explore their attitude, knowledge, beliefs and practice of childhood fever management based on the Theory of Planned Behavior (TPB). In addition, the study explored health education provided to parent to assist them understand fever pathophysiology and managments.

4. Purpose of study

The purpose of this research was to investigate fever management practices among physicians and nurses in Hebron district. Information gained was used to identify physician and nurses' knowledge, attitude and practices related to childhood fever management.It is known that the triad of knowledge, attitudes and practices in combination governs all aspects of life in human societies, and all three pillars together make up the dynamic system of life itself (Kaliyaperumal K, 2004). These three components can be defined thus: Knowledge is the capacity to acquire, retain and use information; a mixture of comprehension, experience, discernment and skill (Kaliyaperumal K, 2004); Attitudes refer to inclinations to react in a certain way to certain situations; to see and interpret events according to certain predispositions; or to organise opinions into coherent and interrelated structures (Kaliyaperumal K, 2004); and Practices mean the application of rules and knowledge that leads to action (Kaliyaperumal K, 2004). Good practice is an art that is linked to the progress of knowledge and technology and is executed in an ethical manner.

5. The specific aims were to:

1. Identify Palestinian physician and nurses' knowledge of fever, concerns about fever, practices and underlying beliefs influencing their fever management.
3. Examine diversity in and determinants of Palestinian physician and nurses' knowledge of fever, beliefs about fever, febrile convulsions, and antipyretics use, and fever management practices.
4. Explore factors influencing physician and nurses' intentions toward fever management practice.
5. Assess level of healthcare providers' practice towards childhood fever and compare it to good evidence based practice.

6. Research questions:

This study aimed to address the following research questions:

1. What knowledge do physician and nurses have about fever?
2. How do physician and nurses manage fever?

7. Hypothesis

Nurses and physician have same knowledge regard childhood fever and fever management.
Null hypothesis there is no significant difference at level of 0.05 Nurses and physician have same knowledge regard childhood fever and fever management.
The level of knowledge, attitude and practice for nurses and physicians regard childhood fever is the same to good evidence based practice.

8. Research methodology

8.1 Research design: The study used a quantitative prospective cross sectional research design.

8.2 Sampling

Sampling involves selecting a group of people, events, behaviors, or other elements which to conduct a study. Hebron district governmental & UNRWA primary health clinics. The participant in this study chosen from 11 clinics in Hebron district (8 governmental and 3 UNRWA) including nursing and physicians in pediatric clinics.

8.3 Study Population

The study population comprised of physicians and nurses in pediatric clinics include governmental & UNRWA primary health clinics in Hebron districts. The study sample number was 100 physicians and nurse and sample selected according to inclusion criteria below.

Sample size was determined to enable the study to use hierarchical regression to determine the weighting effects of attitude, subjective norms, PBC, past behaviour and demographic factors on behavioural intentions. The sample size was calculated based on a rule of thumb concerning the relation between sample size and model complexity. Minimum sample size can be calculated in terms of the ratio of cases to the number of model parameters that require statistical estimates. An ideal sample size to parameters ratio of 10:1 to 20:1 is considered ideal with 20:1 the higher end.

(Kline, 2011). This study applied the ratio of 3:1 for nurses and 2:1 for physician due to the time limit for a project and availability of physician and nurses in clinics (target population).

8.4 The eligibility criteria were as listed below.

Inclusion Criteria

The sample of participant selected according to this criteria:

- Being physician or nurse
- Being work in Governmental or UNRWA clinics in Hebron district
- Being work in pediatric clinic or has roll in management of pediatric illness

Recruitment of Participants and Ethical Issues related to Sampling

In the first visited the administration of governmental primary clinics in Hebron, and they give me the name of the clinics in which pediatric clinics.

The recruitment took place in the 17 targeted clinics during regular subsequent children care appointments of eligible participants. Information about the study was given by the research to physician and nurses , their participation was voluntary, and no one should force them . They were also informed that they could withdraw at time even during filling questionnaire if they did not want to continue. The participant were also informed that the study would be used for scientific purposes and might be published. However, information would be kept confidential and no one in the team would expose information received to people who should not see it. They were informed that the questionnaire would be administered in privacy.

Location

- 8 Governmental primary health clinics in Hebron district including city and towns that include: Beit-Omar primary health clinics, Halhol primary health clinics, Noba primary health clinics, Karas primary health clinics, Beit-Ola primary health clinics, Soreif primary health clinics, Haram El-Rami primary health clinics, Ein Sara primary health clinics, Al-Karantina primary health clinics, Al-Hawooz primary health clinics, Yata primary health clinics, Al-Samoo primary health clinics, Dora primary health clinics Al-Dahriya primary health clinics

3 UNRWA primary health clinics in Hebron district including city and both camps. Al-Aroup camp primary health clinics, Al-Fawar camp primary health clinics. Dora UNIRWA primary health clinics.

8.5 Characteristics of the Data Collection Instrument

The structured questionnaire contained 33 items and was in English languages because it official medical language in Palestine.

This instrument investigated physician and nurses' knowledge, beliefs and practices and consisted of two sections. Section 1 targeted demographic information such as: Job title, age, gender, academic qualification and years of experience caring for children. Section 2 contained 27 multiple-choice items addressing physician and nurses' knowledge of and beliefs about fever and fever management adapted from Walsh et al. (2005) and validated by the literature.

8.6 Data Collection

A structured questionnaire was used to collect the data . The development of a formal questionnaire ensured that similar data were collected from all participants and it also ensured objectivity during the data collection process. In this study the participant filled the questionnaire them self and I answer any question from them.

8.7 Data Collection Process

Permission to conduct this research was granted by ministry of health and UNRWA health administration ; then the data collection process began. The data was collected from /2015 by the main investigator . The team was introduced to the clinics by district management and all necessary protocol was observed.
The clinics were visited either in the morning depending on the child clinic times of the facility and visits were done on stipulated clinic days.

8.8 Reliability of the Research Instrument

To ensure the reliability of the study, the following applied:
The use of a clearly worded structured questionnaire. All participants were asked the same questions and were required to choose among the same alternative answers.
Pilot study of 10 participant 5nurses, 5 physicians and some modification done.
The crombach alpha was: 0.707

8.9 Validity of the Research Instrument

Aspects of validity that can be measured are criterion-related validity, construct validity and content validity.
For this study, content validity was applied. The issue of concern under content validity is whether the items of the research instrument are representative of the content domain that the researcher intends to investigate. The questionnaire in this research was submitted to whose work involves the provision of Childhood care services and/or specialist in research and instrument development , pediatrician, researchers . The experts were asked on the relevance of the questions in the instrument and their feedback was used to make alterations to the questionnaire.

8.10 Ethical consideration

- take our ethical permission from committee of ethics in the university
- then from the ministry of health and from manager of primary health care in three part of Hebron district (North, south and middle)
- and from Manager of UNRWA for their clinics

The protection of the rights of the participants was a priority in this study. They were clearly informed about the purpose of the study, its risks and benefits, and that their responses would remain totally anonymous . In addition, respondents were asked to voluntarily participate or to drop out at any point if they wished to do so (Streubert, Speziale & Carpenter 2007:62). This ensured that their rights to self-determination and full disclosure remained protected. The participants were not subjected to any harmful effects.

The respondents were given all the details of the study.

They were re-assured of their anonymity, privacy and confidentiality of the data collected. The information collected was accessible to the researcher only.

Questionnaires and consent forms were kept separately, thus making it impossible to link the questionnaire to any respondent.

To ensure scientific honesty on the part of the researcher, no plagiarism was committed, and any source of information be it human or literature has been acknowledged. In addition, objectivity was applied during data collection.

9. Result

1. **Demographic Characteristics of participant:**

Profession

	Frequency	Percent
Nurse	**65**	**65%**
Physician	**35**	**35%**

Majority of respondent are nurses with 65% and 35% for physician.

Age

The majority of age group is 30 -40 years old and with 51% then 40 years and above with 30% at the last less

	Frequency	Percent
Less than 30 Yrs	19	19%
30-39 Yrs	51	51%
(40 Yrs and above.)	30	30%

than 30 years with 19%.

Gender

The female respondent more than male with 59% and 41% for male.

	Frequency	Percent
Male	41	41%
Female	59	59%

Work place

	Frequency	Percent
government clinics	75	75%
UNRWA clinics	25	25%

The majority of sample from government clinics with 75% and from UNRWA clinics with 25%.

Years of Experience

	Frequency	Percent
Less than one year.	5	5%
1-5 years	21	21%
6-10 years	25	25%
11-15 years	21	21%
Above 15	28	28%

Majority of participant has experience above 15 Years with 28% then from 11-15 years with 25% then 1-5 and 11-15 years with 21% at the last less than 1 years with 5%.

Academic degree:

	Frequency	Percent
Diploma	34	34%
Bachelor degree	28	28%
Master	3	3%
Specialized	11	11%
General practitioner	24	24%

Most of nurses participant has Diploma degree with 34% then Bachelor degree with 28% and master with 3%. And for physician most of them are general practitioner with 24% and specialized with 11%.

How you measure the temperature in your clinic?

	Frequency	Percent
Your hand	4	4%
Mercury thermometer	66	66%
Electronic thermometer	28	28%
Tympanic (Ear) thermometer	2	2%

Most of participant use Mercury thermometer with 66%, 28% of them use Electronic thermometer, 4% use their hands and 2% use Tympanic (Ear) thermometer.

2. When you take a temperature of a child, which is the best place?

	Frequency	Percent
The rectum	47	47%
The mouth	14	14%
The armpit (axilla)	39	39%

Most of participant consider the rectum is the best place to take temperature when they take a temperature of a child with 47% and the axilla with 39% then the mouth with 14%.

3. How often temperature checked when child has fever ?

	Frequency	Percent
Less than 15 minutes	36	36%
From 15 minutes to half an hour	6	6%
From half to one hour	15	15%
From one to two hours	16	16%
More than 2 the hours	27	27%

Majority of participant check temp every less than 15 minutes with 36% and every More than 2 the hours with 27%, 16% From one to two hours, 15% From half to one hour and 6% From 15 minutes to half an hour.

4. Do you take the temperature for each child enters the clinic?

	Frequency	Percent
Yes	40	40%
No	19	19%
A according to the case	41	41%

Majority of participant take temp according to case with 41%, 40% take temp for each child and 19% not take temp for each child.

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

	Frequency	Percent
A safe	9	9%
A dangerous substance	87	87%
Don't know	4	4%

The Majority regard that mercury as A dangerous substance with 87%, 9% consider it safe and 4% don't know.

6. Based on what of the following measures you consider giving a antipyretic drug to the child (you can choose more than 1 answer)

	Frequency	Percent
Weight	58	58%
Age	49	49%
Severity of fever	38	38%
Severity of illness	28	28%

Majority of participant consider giving a antipyretic drug to the child based on weight with 58%, 49% according to age, 38% according to Severity of fever and 28% according Severity of illness.

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

	Frequency	Percent
One minute	11	11%
Two minutes	29	29%
Three minutes	50	50%
More than four minutes	10	10%

The majority of participant says that rectal temperature should be read after three minutes with 50%, 29% after 2 minutes, 11% in one minutes and 10% more than four minutes.

8. What is the cut-off level to indicating fever in rectal temperature?

	Frequency	Percent
37.1-37.9 C	20	20%
38-38 .9 C	61	61%
39 -39.9 C	9	9%
40-40.9 C	4	4%
More than 41 C	6	6%

The majority of participant says that the cut-off level to indicating fever in rectal temperature is 38-38 .9 C with 61%, 20% 37.1-37.9 C, 9% with 39 -39.9 C, 6% More than 41 C, 4% 40-40.9 C.

9. What is the lowest rectal temperature for initiating an antipyretic?

	Frequency	Percent
<37.9	16	16%
*38.0	36	36%
*38.1-38.5	24	24%
*38.6-39.0	19	19%
>39.0	5	5%

Most of participant consider temperature of 38 C with 36% and 38.1-38.5 C with 24%.

10. What is the maximum?

	Frequency	Percent
<40.0	**8**	**8%**
40.0	**47**	**47%**
40.1-40.9	**24**	**24%**
41.0	**12**	**12%**
41.1-41.7	**7**	**7%**
42.0-43.0	**2**	**2%**

Most of participant consider temperature of 40C rectal temperature considered to be dangerous with 47% and 24% for temp of **40.1-40.9C.**

11. Complication of fever: (you can choose more than one)

	Frequency	Percent
Convulsions	**91**	**91%**
Brain damage	**63**	**63%**
Dehydration	**25**	**25%**
Death	**14**	**14%**

Majority of participant says that The convulsions is the most common complication of fever in childhood with 91% then brain damage with 63%, 25% says dehydration and 14% death.

12. The main purpose to give antipyretic therapy is: (you can choose more than one)

	Frequency	Percent
Prevent convulsions	**85**	**85%**
Prevent brain damage	**58**	**58%**
Make child feel comfortable	**48**	**48%**
Ease concern of parents	**13**	**13%**

Majority of participant says that the main purpose to give antipyretic therapy is Prevent convulsions with 85%, Prevent brain damage with 58%, 48% Make child feel comfortable and Ease concern of parents with 13%.

13. What type of antipyretic drugs you use in your clinic to treat fever?

	Frequency	Percent
Paracetamol	**97**	**97%**
Ibuprofen	**3**	**3%**

The majority of participant use Paracetamol as antipyretic drugs you use in your clinic to treat fever with 97%.

14. Dosage and administration intervals of paracetamol is?

	Frequency	Percent
***10-15mg/kg/dose every 4 hours**	**18**	**18%**
***10-15mg/kg/dose every 6 hours**	**80**	**80%**
-10-15mg/kg/dose every 8 hours	**2**	**2%**

The majority of participant conseder that **10-15mg/kg/dose every 6 hours** is the Dosage and administration intervals of paracetamol.

15. the route of antipyretic administration

	Frequency	Percent
Both oral and rectal	**55**	**55%**
Rectal	**17**	**17%**
Injection	**15**	**15%**
Oral	**13**	**13%**

Most route of antipyretic administration is Both oral and rectal with 55%

16. What you advice the mother to do when her child sleeping and has fever ?

	Frequency	Percent
Awake the child before the dose	**90**	**90%**
Let him sleep	**10**	**10%**

Majority of participant advice the mother to awake the child before the dose when her child sleeping and has fever.

18. What other means of reducing high temperature you advice the mother to use ?

	Frequency	Percent
Sponging and bathing	**59**	**59%**
Sponging	**11**	**11%**
Bathing	**30**	**30%**

Majority of participant advice the mother to reducing high temperature to use Sponging and bathing with 59%.

19. The recommended water's temperature for sponging you recommend the mother to use is ?

	Frequency	Percent
Warm water	38	38%
Tepid water	55	55%
Cold water	6	6%
Icy water	1	1%

Majority of participant advice the mother to use Tepid water for sponging with 55% and warm water with 38%

20. Education of parents regarding fever and its management include: (you can choose more than answer)

	Frequency	Percent
Dangers of fever	83	83%
Definition of fever	61	61%
When to treat fever	54	54%
Instruction on thermometer use	54	54%
Reasons for fever	50	50%
When to see physician	43	43%

Dangers of fever is the Majority subject participant educate mother about with 83% then Definition of fever with 61%, When to treat fever and Instruction on thermometer use with 54%, Reasons for fever with 50% and When to see physician with 43%.

21. What is the appropriate time for education of parents about fever?

	Frequency	Percent
Both visits	73	73%
Sick-child visits	16	16%
Well-child visits	11	11%

Majority of participant consider the appropriate time for education of parents about fever in both visits with 73%.

22. Above what temperature would you consider that child to have a fever?

	Frequency	Percent
38°C	75	75%
39°C	25	25%

Majority of participant consider above 38°C that child to have a fever with 75%.

23. How high could temperature rise without treatment?

	Frequency	Percent
37°C	22	22%
38°C	57	57%
39°C	5	5%
40°C	6	6%
41°C	9	9%
Treatment never given	1	1%

Majority of participant consider temp of **38°C** is the high could temperature rise without treatment.

24. At what temperature you will refer the child to hospital?

	Frequency	Percent
38°C	1	1%
39°C	12	12%
40°C	75	75%
41°C	11	11%
42°C	1	1%

Majority of participant consider above 40°C that temperature when will refer the child to hospital.

25. When the temperature is not going down, do you believe it is useful to give the child two or more drugs?

	Frequency	Percent
yes	57	57%
No	43	43%

Most of participant you believe it is useful to give the child two or more drugs with 57%.

26. You give an antibiotic drug for the child, if:

	Frequency	Percent
He/she has a fever	3	3%
You suspect an infection	79	79%
According to child condition	18	18%

Most of participant give an antibiotic drug for the child, if suspect an infection with 79%.

27. Do you think antibiotics should be prescribed to all children who develop high fever?

	Frequency	Percent
yes	10	10%
No	89	89%
I dont Know	1	1%

Most of participant don't accept antibiotics should be prescribed to all children who develop high fever with 89%.

T- Test between profession and these question to test hypothesis of that physician and nurses has the same knowledge level toward childhood fever

	df	P value
Do you think antibiotics should be prescribed to all children who develop high fever?	95.728	.087
Above what temperature would you consider that child to have a fever?	78.851	.556
Dosage and administration intervals of paracetamol is?	91.095	.396
What is the lowest rectal temperature for initiating an antipyretic?	79.064	.297
How often temperature checked when child has fever?	98	.062

In all of these question its not significant that nurses and physician have the same knowledge level so we reject the hypothesis and going toward the null hypothesis.

10. Discussion

1. Demographic Characteristics of participant:

Of the sample of 100 participant 65 nurses and 35 physicians, the most age group more than 30 years old, the gender of participant report that 59 female and 41 male, the work place are 75 from government clinics and 25 work in UNRWA clinics, the year of work experience for them vary from 1 to more than 16 years,

According for academic degree of nurses 34 of them have diploma degree, 28 have Bachelor degree and 3 have master. For physician 24 are General practitioner and 11 are specialized.

2. Discussion of result related to knowledge, perception and practice

Measurement of body temperature and measurement sites:

In result of this study the most of participant take temperature from the rectum and The evidence suggest that electronic thermometer in the axilla, chemical dot thermometer in the axilla, infra-red tympanic thermometer. Axillary measurement of temperature is recommended for routine clinical use, but staff should be aware that axillary temperatures are up to 1ºC lower than rectal temperatures. Rectal and oral temperatures are not recommended because of safety concerns and problems with acceptability. Healthcare professionals who routinely use disposable chemical dot thermometers should consider using an alternative type of thermometer when multiple temperature measurements are required. Forehead chemical thermometers are unreliable and should not be used by healthcare professionals. So this consider weak point in health care provider at this study.

Definition of fever:

Physician and nurses defined a temperature of 38.0°C or more rectally to be fever. The high percentage of nurses (61%) reporting these temperatures as fever is due to the common site for measuring temperature being the axilla and the definition of fever stated in a Pediatric Medicine textbook as a temperature of 37.5°C and above at the axilla or at 38°C and above at the rectal site (Hoang, 2007). However, in the latest Paediatric Clinical Practice textbook (Vu, 2011), the definition of fever is adapted from the recent international guideline on managing feverish illness in children and fever is defined as an elevation of body temperature above the normal daily variation (NICE, 2013). According to this clinical practice guideline, a temperature above 38°C can be considered fever but the clinician should also consider the daily variation and other physiological or environmental factors when they determine if a child is febrile (Vu, 2011). So Participant definition of fever correctly.

91% of participant believed that febrile convulsions were their main concern about fever. These findings are similar to global research studies conducted since the early 2000s (Poirier, et al., 2000; Sarrell, et al., 2002).

Evidence has shown that temperature reduction should not be a primary criterion of antipyretic administration (NICE, 2013; Watts, et al., 2003). However, in the current study, physician and nurses reported temp of more than 38°C is cut point for antipyretics administration similar to Edwards et al. (2001) but lower than the temperature of 38.6°C reported by Karwowska (2002). Many physician and nurses (57%) reported intention to administered antipyretics at more than 38°C. This finding is not unexpected in the context. Because doctors actively treat fevers of 38.5°C or above with antipyretics.

85% of participant consider that the main cause to give antipyretic is to prevent convulsion this against evidence that suggest Antipyretic agents do not prevent febrile convulsions and should not be used specifically for this purpose. (nice, 2013)

There have been no evidence that fever causes brain damage unless it reaches above 41°C , it is still a common misconception among physicians (Walsh AM et al, 2005). Fortunately, fever seen in children rarely reaches this high temperature. The most common side effects of fever are benign and include minimal dehydration, increased sleepiness, and discomfort In our study 63% of nurses and physicians stated that fever was a risk factor for brain damage.

In our study 9 % of nurses and participants agreed that a sleeping febrile child should not be disturbed. There are studies which show that parents , physicians and nurses awaken sleeping febrile children who have no other symptoms for antipyretic administration according to some pediatricians , sleeping febrile child should not be awaken for any reason, including medication (Al-Eissa YA ,et al. 2001).

In this study 41% of nurses and physicians preferred oral administration and 47% Preferred rectal administration but 55% use both oral and rectal administration and Some investigations show that oral acetaminophen is more effective than the rectal form (Leary PM et al, 1997), others found they had similar effects (Nabulsi M et al, 2005) so the comparison of antipyretic effect of rectal and oral acetaminophen has conflicting results. Use of rectal paracetamol is not recommended by the Italian Pediatric Society because of the risk of overdose. It is difficult to achieve precise dosage in rectal administration. It depends on the child's body weight rather than age (Bilenko N et al, 2006) .

Physician and nurses believed that fever causes febrile convulsions, and that it is important to reduce fever aggressively in children with a history of febrile convulsions (85%). These beliefs about febrile convulsions were more negative than discovered previously (Abdullah, et al., 1987; Poirier, et al., 2000; Thomas, 1995; Walsh, et al., 2005). Interestingly, while non-evidence-based beliefs associated with risk factors for febrile convulsions and family history of febrile convulsions were identified in Walsh et al.'s (2005) study.

Physician and Nurses' beliefs about antipyretic use were moderately inconsistent with recommended guidelines. Although evidence shows that antipyretics do not shorten illness and should not be used to reduce fever (NICE, 2013), most of participant in the current study disagreed that temperature alone is an indication for antipyretic administration, 90% of participant Beliefs about the need to wake sleeping children to administer antipyretics, as compared to the 39% of Australian nurses in the study by Walsh et al., (2005). Beliefs about the need to wake sleeping children to administer antipyretics were greater than those demonstrated in earlier studies (Blumenthal, 2000a; Sarrell, et al., 2002; Walsh, et al., 2005).

Most of the participant 80% answer that the Dosage and administration intervals of paracetamol is 10-15mg/kg/dose every 6 hours that is going with evidence that recommend dose for Paracetamol is 15mg/kg per dose given up to four-hourly up to a maximum of four doses each 24 hours. (Paracetamol Use, 2009).

There is often a wide perception among pediatricians that fever is dangerous. The majority (65%) of pediatricians in Massachusetts, USA, believe that fever itself could be dangerous to a child with seizures; death and brain damage being the most serious complications of fever if the temperature is 40 ℃ or greater (Sharber, 1997). Although most pediatricians agree that treatment of a febrile child with antipyretics is mostly for the relief of the symptoms of fever, many tend to prescribe antipyretics for any child with fever. Pediatricians may be contributing to fever phobia by prescribing antipyretics for children who are only mildly febrile or by recommending the use of paracetamol alternating with ibuprofen. The biological value of fever (i.e., whether it is beneficial or harmful) is disputed among physicians and it is being vigorously treated with the belief of preventing its complications.

Education of parents regard fever and fever management, only half of participant educate parents about cause of fever and treatment of fever this is important to them to reduce their fear and decrease fever phobia among parents, most of them educate parents in both visits of normal and sick child so there is weak and going far way from evidence based management of fever because parents Education is important core part of fever managements.

Health professionals should consider parental education as the of fever management with the objective to improve parental knowledge and anxiety and to reduce unnecessary use of health services. The following advice may be given: Fever is normal part of the body response to fight the infection; The body temperature is well controlled in the brain and does not rise relentlessly. This is in contrast to hyperthermia (e.g., heat stroke) where the body temperature may exceed 42.0 ℃ ; fever is not an objective of antipyretic treatment, but make the child comfortable is so; How sick the child looks (e.g. , drowsy, lethargic, not playful, not smiling) is more important than the level of the fever; The primary objective of any antipyretic intervention is to decrease the child's discomfort; Antipyretic drugs such as paracetamol should not be use automatically for any fever and their use needs to be balanced against any harm that might result from this intervention. They have side-effects and should be used cautiously and according to the instruction prescribed; Paracetamol is an effective antipyretic and analgesic and a long history of safety. It should remain the drug of choice to use for febrile children. Ibuprofen

has a significant potential side-effects; Sudden fever may cause a harmless "febrile seizures or convulsion in 3%-5% of those genetically susceptible children. The seizure does not cause brain damage. Fever-reducing medicines, even prophylactically, does not prevent further seizures.

Symptoms such as pain, discomfort, delirium, excessive lethargy. Antipyretics serve here to improve the child's well-being, allowing the child to take flid and reduce parental anxiety.

A situation associated with limited energy supply or increased metabolic rate (e.g., burn, cardiovascular and pulmonary diseases, prolonged febrile illness, young children, undernourishment, and postoperative state). Fever can increase the metabolic rate and exert a harmful effect on the disease.

Young children who are at risk of hypoxia because of acute respiratory condition such as bronchiolitis, since the presence of fever may increased oxygen requirement and worsen the disease (Thomas, S et al, 2009).

Fever is one of the most common clinical indicators of childhood illness in the first five years of life. Parents commonly seek medical attention when their child has a fever (Huynh, 2001 ; Karwowska, et al., 2002; Watts, et al., 2001). Physicians and Nurses are the primary source of communication with parents and care for febrile children in the clinics environment. In light of the limited research examining physcians and nurses' fever management in Palestine and the scant research applying methods identified physician and nurses' knowledge, beliefs, practices and the factors influencing their childhood fever management intentions. This research program included quantitate study (cross-sectional survey).

Conclusion

Most of The study result going against Hypothesis, and going toward the nullhypothesis that suggest Nurses and physician haven't same knowledge regard childhood fever and fever management.

The level of knowledge, attitude and practice for nurses and physicians regard childhood fever is different from last evidence based practice.

Nurses and physicians not give enough education and not include important subject related to fever such as fever cause treatment and management practice in same of evidence based practice.

This study data suggests that implementation of educational programs and using guidelines regarding the proper management of the febrile child are needed. There were misconceptions about management and complications of fever. Conflicting results about fever in the literature also confirm these misconceptions.

As a result, there is a perceived need to improve the recognition, assessment, and management of fever with underlying illnesses in children.

The low overall knowledge scores compared to Walsh et al.'s (2005) and Greensmith's (2013) studies indicated a deficiency in physician and nurses' fever management knowledge. physicians & Nurses were most knowledgeable about of the knowledge of antipyretics and then knowledge of fever management. The knowledge deficits of fever and fever management among the nurses studied was similar to previous studies conducted in England (Blumenthal, 2000a), Israel (Sarrell, et al., 2002) and Australia (Considine & Brennan, 2007)

11. Recommendation:

Findings from this research program have provided evidence that physicians and nurses have good knowledge in area of definition of fever, antibiotic use and antipyretic and they have limited knowledge or non-evidence-based management for febrile children in part of the most common concern of fever is febrile convulsion and brain damage and parent's education.

- Parent's education so one of the first recommendation to focus on parent's education in area of all aspect related to fever.
- The ministry of health should design training program to keep health care provider up to date with least evidence base practice.
- There is need more research about factors and determinant of childhood fever care.

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