ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCE

SCHOOL OF MEDICINE AND DEPARTMENT OF EMERGENCY MEDICINE AND CRITICAL CARE

ASSESSMENT OF KNOWLEDGE, ATTITUDE, PRACTICE AND FACTORS ASSOCIATED WITH CHILDHOOD FEVER MANAGEMENT AMONG NURSES WORKING IN PAEDIATRIC EMERGENCY AT GOVERNMENTAL HOSPITALS, ADDIS ABABA, ETHIOPIA, CROSS SECTIONAL STUDY

BY: GEBREMESKEL TUKUE (BSC)

A THESIS PROPSOSAL SUBMITTED TO DEPARTMENT OF EMERGENCY MEDICINE AND CRITICAL CARE IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF SCIENCE IN EMERGENCY MEDICINE AND CRITICAL CARE NURSING

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ADDIS ABABA, ETHIOPIA

ADDIS ABABA UNIVERSITY

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SCHOOL OF MEDICINE AND DEPARTMENT OF EMERGENCY MEDICINE AND CRITICAL CARE

MASTERS OF SCIENCE IN EMERGENCY MEDICINE AND CRITICAL CARE NURSING RESEARCH PROPOSAL SUBMISSION FORM

Name of principal investigator	Gebremeskel Tukue (BSC)
Name of primary advisor	Dr Finot Debebe (assistant professor)
Name of secondary advisor	Mr Kibatu Gebre (MSC, lecturer)
Full title of the research proposal	Assessment of knowledge, attitude, practice and factors associated with childhood fever management among nurses working in paediatric emergency at governmental hospitals, Addis Ababa, Ethiopia
Duration of the proposal	October 2019- June 2019
Study area	At Tirunesh Beijing hospital, Zewditu memorial hospital, Black lion hospital, Petros hospital, St Paul's hospital and Minilik II hospital
Total cost of the proposal	26,383 Ethiopian birr
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List of abbreviation

FMOH	Federal Ministry of Health
HCPs	Health Care Providers
NICE	National Institute of Clinical Excellence
SPSS	Statistical Package for Social Science

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Summary

Introduction

Background: Fever is a common childhood problem deals with medical practitioners, nurses and parents in both hospital and community settings**.** However, the nursing management of fever in children is often not based on research and remains inconsistent in practice. Ultimately reducing or preventing hospitalized children's suffering from fever through improved nursing practice is not clearly studied in Ethiopia.

Objectives; To assess the knowledge, attitude, practice and factors associated of childhood fever management among nurses working in paediatric emergency settings of six selected governmental hospitals, at AA city from October 28/2019 – June 21/2019.

Methods: Institutional based cross sectional study will be conducted on nurses at six governmental hospitals from April 1st /2019 – May 15/2019. From the selected governmental hospitals, the total 124 nurses will be involved as study samples i.e. survey method. A self-administer questioner adapted from a research conducted at Cairo city and Australia to collect data on nurses KAP to fever management of child.To ensure the validity, reliability of the data collection tool, pre-test will be done on 5% of the total out of being sampled at Yekatit 12 hospital.

The data will be coded, edited, entered, and cleaned by Epi-data manager version 4.2 then exported to SPSS version 20 for analysis with a p value <0.05 will be considered as statistically significant.

Work plan: The duration of study starts from title selection (October 2019) up to the theses defence (June 21/2019).every activities which are listed in the work plan will be performed according the given time period.

Budget: The total budget of the study will be costs around 26,383 Ethiopian birr, this total budget will be broken down into many activities.

Key words; knowledge, attitude, practice, emergency, child, fever, management and nurse

Chapter 1: Introduction

1.1 Background

It is well known that fever is part of the body's natural response to infections and inflammatory or immunological disorders. As it is still a cause of considerable concern for health care providers (HCPs) and parents, efforts have been made to provide guidelines for its management throughout the world (1).

For the past two decades many have argued the risks and benefits of fever and antipyretic use in fever management. Some scientists febrile defines as greater than 38.3°C, some advises that only fevers greater than 38.9°C are significant and advocates treating only fevers greater than 40°C. However, in the absence of nursing guidelines for fever management those recommends nurses to administer antipyretics for fevers greater than 38.3°C(2).

Many authors recommend supporting the role of fever in the immunological response to an invading organism advocates health education, comfort and recovery rather than much antipyretic therapy and recommend nurses to educate parents for acetaminophen administration to febrile children if fever continue up four and six hours. Fever is a common childhood problem deals with medical practitioners, nurses and parents in both hospital and community settings. 20% up to 40% of parents reported fever in their children each year(3).

Febrile convulsions are seizures that can happen because of a high fever. They occur in about 3% of children between the ages of six months and five years in Canadian report. Children almost always outgrow febrile convulsions by the age of 4-5 years(4).

Some studies show that the use of antipyretic drugs can in fact lengthen the duration of an illness. Simple physical cooling methods such as removal of excess clothing is acceptable treatment of fever, however fanning under dressing, tepid sponging or administration of antipyretic drugs, with the sole aim of reducing temperature is not recommended practice according to guide line National Institute of Clinical Excellence (NICE)(5). Management of febrile children is based on their responses to the febrile illness, and not on the temperature level itself. This includes maximizing the immunological benefits of fever, promoting comfort, preventing dehydration, conserving energy, aiding recovery, safe care of children during a febrile convulsion and educating parents in evidence-based fever management(6).

1.2 Statement of the problem

Fever is a sign of serious illness but in the majority of cases, it is caused by an infectious disease without any serious consequence(6). Children have higher metabolic rates and smaller surface area than adults. Therefore they exposed for higher temperatures(7). Global adherence to the guidelines was lower among the pediatric nurses than the other healthcare providers (odds ratio 0.875; 95% confidence interval 0.795–0.964) (1). International studies like Ireland have demonstrated that nurses' knowledge of fever is lacking and inconsistent in their fever management practices (4).

A study in Palestine indicates the most common side effects of fever are benign, minimal dehydration, increased sleepiness, discomfort and 63% of nurses stated that fever was a risk factor for brain damage(3). It is difficult to appropriately manage the febrile child if health care givers and parents have lack of knowledge(8).

Statistics from the Accident and Emergency Department of one large Australia urban paediatrics hospital indicated that more than 30% of visits included fever as part of the major complaint. However, the nursing management of fever in children is often not based on research and remains inconsistent in practice(9).

Misconceptions about fever are exacerbated by variations in knowledge and practices of pediatric nurses (10).Fever is one of the most common presenting complaints in pediatrics, general practice and is the cause of nearly 70% of all pediatric visits In morocco(11).

In Australia High toxicity from acetaminophen and ibuprofen has been reported in children with a febrile illness who are unwell. Recommends avoiding ibuprofen in children who are dehydrated as a result of diarrhea, fever or vomiting(12).

Some of the participants in Cairo (71.42%) mentioned that they have unsatisfactory knowledge about fever management(13). In Ethiopia, A community based cross sectional study is done in Bahir dar from the total prevalence of total under five children's illness, 10% was due to febrile illness in 2013(14).

As many study shows, despite high fever can cause damage of vital organs like brain, liver, kidney etc. the knowledge, attitude and practice of management of fever among nurses are limited internationally. Therefore, this study aimed to explore Ethiopian nurse's attitude, knowledge and practice in the field of childhood fever management, comprehensive health education of parents and nurses in emergency.

1.3 Significance of the study

Management of childhood fever is a complex behavior, with many studies globally identifying similar myths and misconceptions of nurses. In order to develop a better understanding of this complex issue, this chapter will review the research on fever management among nurses when caring for febrile children.

In Ethiopia Information about nurses' knowledge and attitudes about fever management are unknown. Nurses' actual knowledge for managing childhood fever and factors influencing have not been investigated. The findings of this study will be created awareness to nurses in management of fever for hospitalized children such as to prevent organ damage, convulsion, and mother's anxiety and comfort child.

The result of this study will be used as a reference for other researchers who have interest in the area for further investigation and will be helped to develop specific programs and guidelines that could enhance nurses' knowledge, attitude and practice of management for children visits emergency.

Chapter 2: Literature review

2.1 Concept of fever

Fever itself causes no harm unless it reaches at least 41.7º C. Fortunately; the brain thermostat keeps almost all untreated fevers due to infection < 41.7ºC (2). However, very high temperatures are harmful, when the rectal temperature is 41ºC for prolonged periods, some permanent brain damage results. When it's over 43ºC, heat stroke develops and death is common (15).

Endogenous pyrogenic, which are internal heat-producing substances preventing its rising too high (endogenous cryogens or internal heat-cooling substances). When activated by infection, such as interleukin-1α, interleukin-1β, interleukin-6 and tumor necrosis factor are produce. These substances initiate two main responses: the mobilization of the immune response and the local inflammatory response. The presence of endogenous pyrogenic in the blood circulation causes the thermoregulatory center in the anterior hypothalamus to secrete prostaglandins of the 'E' series; Prostaglandins are produced from a protein called arachidonic acid and one of the end-products of the cyclooxygenase metabolic pathway(16).

2.1.1Stages of Fever

Stages of fever are a cold, hot and effervescence stage. In the cold stage heat-producing mechanisms are activated resulting in a rapid increase in temperature and increased oxygen demands. The higher set-point is maintained during the hot stage, through a balance in heat production and heat loss. Skin is flushed and warm and basal metabolic rate remains high. Behavioral symptoms include drowsiness, headache, photophobia, reduced activity and appetite, feelings of weakness or restlessness and sometimes convulsions. During the final effervescence stage 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(7).

2.1.2 Management of Childhood Fever

It is recommended to reduce temperatures of 39.0ºC associated with pain or discomfort and all temperatures of 40.0ºC.However, it is important for parents to be watchful when administering antipyretics to dehydrated or severely malnourished children and those with hepatic or renal impairment. In a febrile, irritable, uncomfortable child Antipyretic is warranted in children with underlying neurological or cardiopulmonary disease(7).

2.1.3 Initial Assessment of childhood fever using the 'traffic light'

Low risk (green)	Intermediate risk(amber)	High risk(red)
Skin normal color	Pallor reported	Pale/mottled/ashen/blue
Responds to social cues Content/smiles Stays awake/awakens quickly Strong normal cry/not crying	Not responding to social cues Wakes only with stimulation Decreased activity No smile, Nasal flaring, Tachypnea Age 6-12 months >50 b/m Age >12 months >40 b/m Oxygen saturation ≤ 95% in air Crackles	No response to social cues Appears ill to HCP Unable to rouse/does not Stay awake Weak, high-pitched/continuous cry, Grunting, tachypnea >60 b/m Moderate/severe chest in drawing
Normal skin and eyes Moist mucous membranes	Tachycardia: > 160 beats/minute, age < 1 year > 150 beats/minute, age 1–2 years > 140 beats/minute, age 2–5 years Dry mucous membrane Poor feeding in infants CRT ≥ 3 seconds Reduced urine output Poor feeding in infants	Reduced skin turgor Age
None of the amber or Red symptoms or signs	Age 3–6 months, temperature ≥ 39°C Fever for ≥ 5 days Rigors Swelling of a limb/joint Non-weight bearing limb/not using an extremity	<3 months temperature ≥ 38°C Non-blanching rash Bulging fontanel ,Neck stiffness Status epileptics Focal neurological signs Focal seizures Bile-stained vomiting
Using the 'traffic light'		
All green, no amber or red	If any amber features and no diagnosis	Any red
Manage at home with advice, including when to seek help	Provide 'safety net' or refer to a pediatrics specialist	Refer child urgently to a pediatric specialist
The 'safety net' 1.Verbal or written information on warning symptoms and how further care can be accessed 2.Follow-up appointment at a certain time and place 3.Ensure direct access to a further assessment for their child		

Figure- 1 flow chart that represents traffic light of childhood fever assessment adapted from (Paediatric fever guidelines – the UK experience).

2.2. Knowledge of Nurses towards fever management

A comprehensive exploration of Australian nurses' knowledge about fever management identified average knowledge is 62% is not as desired. Interaction effects between group and time were found in overall knowledge (P 0.01), specifically knowledge of the physiology of fever (P 0.001). Those with between 1 and 4 years' experience were most knowledgeable. Specialized pediatric education and employment at higher level of practice reflected greater knowledge, specifically related to physiological aspects of fever(17).

A descriptive correlation study was conducted; the mean percent of correct responses for fever management was 51.3% among 114 nurses at Cho sun university Korea (10). A convenience study among 72 nurses at Hospital Cairo 78.1% had unsatisfactory knowledge about fever management. Statistically significant differences was illustrated between nurses place of work and their total percent score of knowledge (p-value =0.021). It was shown that nurses who worked at intensive care unit have satisfactory of total score of knowledge compared with the nurses who worked at intermediate care unit (34.5% and 23.1% respectively) (18).

A descriptive cross sectional survey conducted in Ireland. A Mann Whitney U test revealed no significant difference in the total knowledge scores of nurses who had a Higher Diploma in Children's nursing (median 10, n =74) and nurses who did not (Median 10, n=45, U=1627, z=0.208 and p= 0.836).Use of the Spearman's rho correlation co-efficient found a small positive correlation between total knowledge scores and length of experience as a children's nurse, rho =0.192, n =119, as $p < 0.05$ is significant (p =0.036) (5).

2.3 Nurses attitudes toward fever management

When Australian nurses' attitudes towards fever management were explored inconsistent attitudes. Nurses agreed febrile convulsions do not cause neurological damage (92%), fever must be reduced to prevent febrile convulsions (86%), initial febrile convulsions are not preventable (90%) and antipyretics have minimal preventative effect with recurrent febrile convulsions (72%). These findings influence inconsistent practices and when associated with inaccurate knowledge about fever management. Few attitudinal differences were related to experience, specialized paediatric education or level of practice. Attitude of the nurses towards evidence-based fever management is (P 0.05) (17).

Based on Findings in Irish hospital revealed both appropriate and inappropriate attitudes among nurses to fever management, appropriate attitudes are deemed more positive and are evidence based. For example in the current study most nurses (86%, n =102) correctly agreed that fever was the most common reason for parents to take their child to the doctor. Inappropriate attitudes towards fever management are deemed more negative and are not based on current evidence. (5).

Among Korean nurses both positive and negative attitudes were discovered. Pediatric nurses' in this study reported negative attitudes toward beneficial effects of fever and positive attitudes toward use of antipyretics to prevent febrile convulsions and reduction of temperatures as low as 38.3℃ (19). Australian literature shows 86% of nurses' believed it was important to treat fever aggressively to prevent febrile convulsions, particularly in children with a history of febrile convulsions (84%). Fifty-four percent of nurses believed febrile convulsions generally occur within the first 24 hours of an illness and that antipyretics have minimal effect in preventing them (50%). Some nurses' believed temperature alone was an indication for antipyretic administration (39%) and many identified fever phobia in nurses (56%) (2).

2.4 Nurses practice towards fever management

Crosses sectional study conducted in Khartoum university among 123 nurses only one fourth (24.6%) of them measure temperature correctly. Children between the ages of 6 months and 5 years are at increased risk of benign febrile seizures, whereas those with idiopathic epilepsy may have increased frequency of seizures as part of a nonspecific febrile illness(15).

This best practice implementation audit achieved an improvement in practice for pediatric fever management at children Hospital of Fudan University. There was an overall improvement in all criteria in line with best practice being achieved, with nearly 100%compliance rates across all items in the follow-up audit cycle(20).

Retrospective chart audits in Australia a number of interesting and unexplained practices were discovered. The mean temperature associated with antipyretic administration was 38.34°C (SD 1.02, range 35.9°C to 40.8°C).

More frequent use of antipyretics occurred during the daytime and temperatures were recorded more frequently during the night. Issues of knowledge and attitude included nurses' practices and decision make criteria in fever management, rationales for differences in fever management

practices by time of day and ways to improve fever management and record keeping in children hospitalized for a febrile illness(2).

A descriptive exploratory design study utilized in Cairo E1manial hospital with Observational checklists revealed that 100% of nurses assess fever initially by measuring temperature only; while no plan of fever management was observed in nurses' documentation. Nurses' implementation of fever management was confined to giving antipyretic medication and cold compresses occasionally for febrile patients. Evaluation of the effect of nursing interventions and antipyretics weren't evident in nurses' documentation. The majority of participants' opinions regarding their current fever management indicated that no specified protocol for fever management and less satisfaction with current management(13).

2.5 Factors affecting for childhood fever management

Studies conducted in Australia shows nurses who have above 1 years of experience are more knowledgeable of fever management. Specialized pediatric education and employment at higher level of practice reflected greater knowledge(17).Cross sectional study conducted at Ireland, use of the spearman's rho correlation co-efficient found a small positive correlation between total knowledge scores and length of experience as a children's nurse, as $p < 0.05$ is significant ($p = 0.036$) (5).

Cross sectional study conducted in China University directs nurse's practice affects with education of fever management and was no standard guideline to manage febrile child in the hospitals(20). A prospective cross sectional study conducted in Palestine shows factors influencing nurse's practice of febrile management includes medical orders, a child's temperament and history of febrile convulsion (3). A study conducted at chuson university Korea to identify the relationship between knowledge and attitude; there was no statistically significant correlation between knowledge and attitude related to fever management(10). A study conducted in Cairo there is no significant statistical correlation between total knowledge scores and clinical performance scores among studied sample ($r = -0.01$, $p = 0.9$)(13).

2.6 Conceptual frame work:

This conceptual frame work reviews from different literatures and arranged accordingly to fit this study

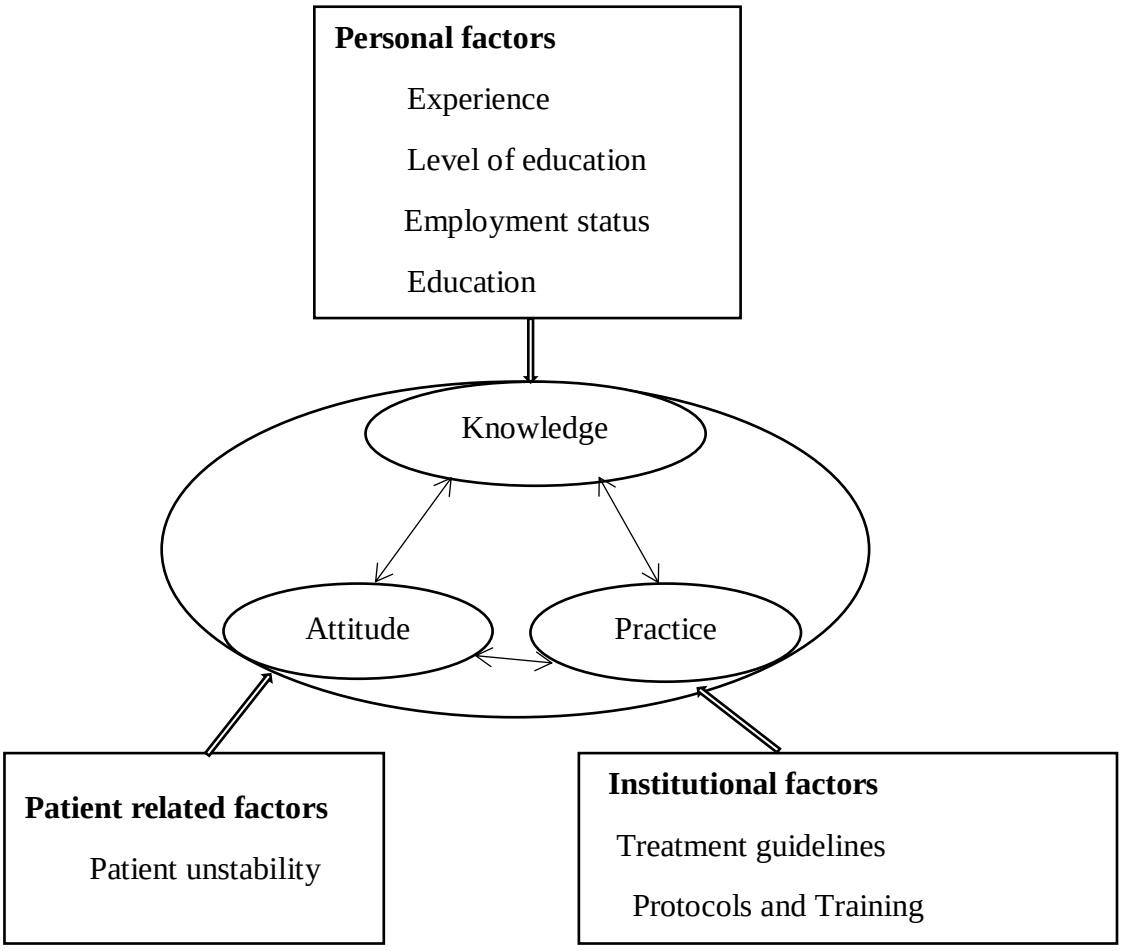

Figure-2- Relationship between KAP of nurses and factors affecting childhood fever management adapted and arranged accordingly from some literatures (17).

Chapter 3: objectives

3.1. General objective

To assess knowledge, attitude, practice and factors associated with childhood fever management among nurses working in paediatric emergency at governmental hospitals, Addis Ababa, Ethiopia, from October 1st – June 2019.

3.2. Specific objectives

To determine the level of knowledge of nurses towards childhood fever management at six governmental hospitals

To describe the level of attitude of nurses towards childhood fever management at six governmental hospitals

To determine the level of practice of nurses towards childhood fever management at six governmental hospitals

To identify factors affecting of nurses KAP on childhood fever management at six governmental hospitals

Chapter 4: methods

4.1. Study area and period

The study will be conducted in Addis Ababa city. The city's population counts as of 2017 are growing closure to 4 million. This city holds 527 square kilometers of area in Ethiopia. Addis Ababa has 52 hospitals, 12 of them state run and more than 40 private (20).only 7 governmental hospitals have service of pediatric emergency; those are Black lion hospital, Petros hospital, Zewditu memorial hospital, St Paul's hospital, Minilik II hospital and Tirunesh Beijing hospital. The seventh hospital, Yekatit 12 hospital will be used for pretest.

Black lion hospital is a tertiary teaching hospital and is the final destination of patient referrals from hospitals all over the country. The hospital's Emergency department gives services for more than 15,000 patients per year; it has more than 30 beds in pediatric emergency (21).

Zewditu Memorial Hospital is found in Addis Ababa city in Kirkose Sub City Woreda7. The hospital starts its service in 1963 E.C by the help of American Missionaries. The hospital has a total of 750 staff members and around 400 up to 500 clients visit per day to access these different services from Addis Ababa and other regions. There is around 20 beds and 17 nurses working in pediatric emergency (22).

Petros hospital is referral teaching hospital which is managing with FMOH. Which is giving service trauma and non-trauma patients. It has totally 158 beds and in emergency department has 34 beds (23).

Tirunesh Beijing hospital is found around 25 km south of the capital Addis Ababa. The state of art hospital named after tirunesh Dibaba, an Ethiopian female athlete won two gold medals 2008 Beijing Olympics was built chines government at a cost $12.7 m to promote Sino- china friendship (24).

St Paul's is in the process of growing from 3 to 250 faculty members in the last six years, and expanding teaching facilities. The college has more than 2800 clinical, academic and administrative and support staffs that provide medical specialty services to patients who are referred from all over the country, teaching medicine and nursing students and doing basic and applied researches. While the inpatient capacity is more than 700 beds, The College sees an average of 1200 emergency and outpatient clients daily (25).

The study will be conducted between April 1st/2019 to May 15/2019 at five governmental hospitals of Addis Ababa city

4.2. Study Design

An institutional based cross-sectional study design will be conducted.

4.3. Population

4.3.1. Source population

All Nurses who are working in pediatric emergency at governmental hospitals of Addis Ababa city.

4.3.2. Study population

All sampled nurses who are working in pediatric emergency at selected governmental hospitals at Addis Ababa city.

4.3.3. Eligibility criteria

4.3.3.1. Inclusion criteria

Nurses who are working in pediatric emergency of selected governmental hospitals during data collection period will be included in the study.

4.3.3.2. Exclusion criteria

Nurses who are new employees for these facilities with less than 6 months' work experiences, nurses on their leaves and free service nurses will be exclude from the study.

4.4. Sample size determination

The actual sample size for the study was determined by using single population proportion formula for single proportion population, $n_i = \frac{\left(\frac{za}{2}\right)^2 (p)(1-p)}{d^2}$

Where n_i = Initial estimated sample size Z = Confidence level (alpha, α)

P = prevalence

d = marginal error

Since there is no previous study in Ethiopia, the proportion of a nurse who has adequate knowledge, attitude and practice is estimated as 50%, p (0.5). With a 95% confidence level and margin of error (0.05) $n_i = \frac{(1.96)^2(0.5)(0.5)}{(0.05)^2} = 384.16 \approx 384$

Since the total population (nurses working in pediatric emergency of all hospitals) are 124 nurses, which are less than the desired sample. So, all nurses will be the study sample.

4.5. Sampling procedure

Numbers of nurses in each unit of six governmental hospitals are listed. Those are Tirunesh Beijing hospital= 14, Black loin hospital= 43, Petros hospital= 16, Zewditu memorial hospital= 17, Minilik II hospital=13, St Paul's hospital= 21. Then, all nurses who are working at pediatric emergency will be included for the study. I.e. survey sampling will be used.

4.6. Variables

4.6.1 Dependent variables

Knowledge of nurses related to fever management

Attitude of nurses related to fever management

Practice of nurses related to fever management

4.6.2 Independent variable

Socio-demographic factor

Age, sex, level of education, Work of experience, Employment status and education

Institutional factor: specific guide line, protocols and training

Patient related factor: patient instability

4.7. Data collection tools and procedures

A self-administered questioner adopted from a research conducted at Cairo city(18),Australia (12). It had been designed to include part I: as socioeconomic variables such as age, gender, educational level, position, years of experience and current work place (wards). Part II: contain questions that can measure the level of knowledge of nurses, part III: Contain questions that can measure attitudes of nurses for fever management part IV: Have questions that can measure practice of nurses for fever management and finally part V: Have questions of factors affecting childhood fever management.

Data collectors of two BSC nurses will be recruited for data collection and will be given one day training on data collection tools and techniques.

4.8. Data processing and Analysis

The data will be, then coded, edited, entered, cleaned by Epi-data manager version 4.2 and then exported to SPSS version 23 for analysis and cleaned and edited using simple frequencies and cross-tabulation before regression analysis. The results will be summarized and presented by tables, and charts, texts. Percentage, frequency and mean will be calculated.

The continuous data will be describing in terms of mean, for those have normal distributed data and median, and inter-quartile range for those have not normal distributed. The categorical data will be describing in terms frequency and percentage. Normality and outlier will be checked for those continuous variables using histogram and box plot graph respectively. Cross tabulation will

be done to see the association. The bi-variable logistic regression model will be used to test the association between dependent and independent variables. All variables with P value <0.25 in the bi-variable logistic regression model will be included in the multivariable regression analysis. Magnitude of association will be measured by using an odds ratio at 95% confidence interval. Statistical significance will be declared at P<0.05. Finally, the data are presented with texts and tables.

4.9 Data quality assurance

Self-administer Questionnaires, which fit with the context, will be prepared using expert in English. Training will be given to data collectors and supervisor. To ensure the validity, reliability of the data collection tool, pre-test will be done on 5% of the total sample size out of being sampled at Yekatit 12 hospital two weeks before the actual data collection and the questionnaire will be checked for its clarity, understandability and simplicity. After pre-test, the questionnaires will be review and reformatted based on the inputs and comments generated by seniors.

4.10. Ethical consideration

Ethical clearance will be obtained from Institutional Review Board of Addis Ababa University, College of health sciences and Addis Ababa public health research and emergency management directorate and official letter will be gain from Addis Ababa city health bureau. Letter of permission will be directed from administrative bodies of the hospitals to communicate with relevant bodies in the health institutions. All of the study participants' will be inform about the purpose of the study, about their right to participate or to terminate at any time if they want and respondents were ensured about the confidentiality of information obtained. Beneficence of the participants will be maintained throughout the study.

4.11. Dissemination plan

The result of the study will be submitted and presented to Addis Ababa University College of Health sciences. The result of the study will be submitted to selected governmental hospitals of Ethiopia, Addis Ababa public health research and emergency management directorate and Addis Ababa city health bureau. Finally, the result will be published in national and international journal for further use and also be presented in different conferences like health related seminars; especially on children's health care.

4.12. Operational definitions

Knowledge of childhood fever management: It is the awareness of the nurses about child fever management. It is measured by calculating the mean score of the 23 items and categorized as adequate (if participants scored ≥ mean score of the correctly answered questions) inadequate (if participants scored < mean score of the correctly answered questions).

Attitude of childhood fever management: The way a nurses thinks and behaves toward child fever management. It is measured by 8 questions with five point Likert's scale. All individual answers to attitudinal questions were computed to obtain total scores; then, mean score was calculated to categorize as having favorable (if participants scored ≥ mean score) or unfavorable (if Participants scored < mean score).

Practice of childhood fever management: The habitual nurses' involvement to prevent febrile illness. It is measured by 8 questions with four-point Likert's scale. All individual answers to practice questions were computed to obtain total mean scores and categorized as good practice (if participants scored ≥ mean score) or poor practice (if participants scored < *mean* score).

5. Work Plan

Table 1: List of Activities and Time Period to conduct cross sectional study of knowledge, attitude and practice of child fever management among nurses in four governmental hospitals Ethiopia, 2019.

No	Activities to be done	RP	2019																													
			October			November			December			Jan				Feb				March				April				May				June			
												Weeks				Weeks				Weeks				Weeks				Weeks				Weeks		
1	Topic selection, literature review	PI																																
2	1st draft Proposal submission	PI																																
3	2st draft Proposal submission	PI																																
4	Final Proposal submission	PI																																
5	Proposal defence																																	
	Obtaining ethical clearance	PI																																
	Data collection	PI																																
6	Data analysis and write up	P																																
7	Thesis submission	PI																																
8	Final Thesis defence	PI																																
9	Thesis correction and final submission	PI																																

N.B: PI =principal investigator, RP= responsible person

6. Budget break down

Table 2: List of costs to Conduct cross sectional study of knowledge, attitude and practice of child fever management among nurses in four governmental hospitals Eth. 2019.

No	Item	Quantity	Unit	Unit price (ETB)	Total cost	No days
1	Personnel					
	1.1. Data collectors	2	Per diem	200.00	11,200.00	28
	1.2. Supervisor	1	Per diem	300.00	8,400.00	28
	Sub-total				**19,600ETB**	
2	Material					
	2.1. Paper	4	Rim	250.00	1000.00	
	2.2. Photo-copy of format	1000	Each	1.00	1000.00	
	2.3. Pen	10	Each	5.00	50.00	
	2.4. Pencil	10	Each	2.00	20.00	
	2.5. Note book	8	Each	15.00	120.00	
	2.6. Binder	8	Each	35.00	280.00	
	2.7. Marker	8	Each	10.00	80.00	
	Sub-total				**1,550ETB**	
3	Utilities					
	Trainers	2	Per diem	400	800	1
	Trainee	3	Per diem	300	900	1
	3.1. Tea during training	4	Each	40.00	160.00	
	3.5. Transport cost	3	Double trip	120	360.00	
	3.6. Tea break	4	Each	40.00	160.00	
	Sub-total				**2,380 ETB**	
4.	Communication					
	4.1 e-mail &telephone use	5	Per week	100	500 birr	
	Grand total				**23,530** ETB	
				10% contingency Total budget	**2,353** ETB **26,383ETB**	

7. References

1. Genny Raffaeli AO, Monia Gambino, Walter Peves etal. Fever and Pain Management in Childhood: Healthcare Providers' and Parents' Adherence to Current Recommendations. Int J Environ Res Public Health 2016, 13,. 13 May 2016;499(13 May 2016):1-16.
2. Helen EE, Mary D. Courtney, Jennifer E. Wilson, Sarah J. Monaghan & Anne M. Walsh. Fever management practices: what paediatric nurses say.3(3):119-30.
3. Sayej4 MAZARAMMQS. Physicians and Nurses Knowledge, Attitude, and Practices in the Management of Childhood Fever in Hebron Pediatric Clinics. An International Peer-reviewed Journal. 2016;Vol.31(on 03 January 2017):105-20.
4. fever.https://raisingchildrennetau/babies/health-daily-care/health-concerns/fever. 11/19/2018(11/19/2018):1-5.
5. Greensmith L. Nurses' knowledge of and attitudes towards fever and fever management in one Irish children's hospital. sagepubcouk/journalsPermissionsnav. 2012;17(3) 305–16.
6. Haag/Niederlanden DCAHaD. Fever: Enemy or Friend?

A comparison of the perception and management of childhood fever between

parents in Germany, Luxembourg and the Netherlands. 12. Mai 2011(12. Mai 2011):1-222.

7. Walsh AM. Fever Management for Children. Australian Journal of Pharmacy april 2008;89(on 06 June 2014.):1-21.
8. Ahmet Komeagac M, RN,Murat Bektas, PhD, RN. Effect of the Evidence-Based Pediatric Fever Management Training given to Nursing Students. wwwinternationaljournalofcaringsciencesorg. May-August 2018;Volume 11(Issue 2):862-67.
9. Robin Watts JR, Gail Thomas and Review Panel. The Nursing Management of Fever in Children. First Published in 2001:1-54.
10. Chung Y-SK, Jin-Sun2). Pediatric Nurses' Knowledge and Attitudes toward Childhood Fever. April 2009;Vol.15(No.2):171-81.
11. M. Rkain IR, M. Safi, M. Kabiri, S. Ahid and B.D.S. Benjelloun. Knowledge and management of fever among Moroccan parents. 03/11/12;Vol. 20 No. 6 (2014):397-402.
12. Anne M. Walsh MHSc RN HEEPR, Mary D. Courtney PhD RN,Jenny E. Wilson BN RN,Sarah J. Monaghan BN RN. Fever management: paediatric nurses' knowledge, attitudes and influencing factors. Journal of Advanced Nursing. 7 May 2004;49(5)(2005):453–64.

13. Ali LAkMaNS. Critical Care Nurses' Knowledge and Practice of Fever Management at a University Hospital. jornal of american science. 2012;8(12)(on 11 July 2017):1545-53.

14. Awoke W. Prevalence of childhood illness and mothers'/caregivers' care seeking behavior in Bahir Dar, Ethiopia: A descriptive community based cross sectional study. Open Journal of Preventive Medicine. 25 February 2013;Vol.3, No.2,(8 April 2013):155-9.

15. K MMOEMBUo. Causes, Fever In Children Under 5Years Knowledge, Attitude and Practices of Mothers And Health Team Towards The Management of Acutely Febrile Children. (January 2004):1-102.

16. Harrison MR. Nurses' management of fever in children: rituals or evidence-based practice. (2000):262-3.

17. Helen Edwards AW, Mary Courtney, Sarah Monaghan etal. Improving paediatric nurses' knowledge and attitudes in childhood fever management. ournal of Advanced Nursing. August 2006;57(3(2007):257–69.

18. Amal kameel Garas Wasef, Ahmad Roshdy,Marzoka Abd El-Aziz Gadallah, YE. Assessment of Nurses' Knowledge and Attitudes toward Fever Management for Children at Assiut Children University Hospital. (2017):1-22.

19. Avner JR. Acute fever. 9 May 2014.;2009(30):5-13.

20. Zhou FHJZSSZ. Fever management in the emergency department of the Children's Hospital of Fudan University: a best practice implementation project. BI Database of Systematic Reviews and Implementation Reports. 2016(2016):358-66.

20. http://worldpopulationreview.com/world-cities/addis-ababa-population/

21. http://www.aau.edu.et/chs/tikur-anbessa-specialized-hospital/background-of-tikur-anbessa-hospital/

22. https://en.wikipedia.org/wiki/Zewditu_Hospital

23. http://etd.aau.edu.et/handle/123456789/1075

24. https://www.ethiogrio.com/news/20743-tirunesh-beijing-hospital-handed-over-to-ethiopia.html

25. https://sphmmc.edu.et/

Dummy tables

Table-1- Socio-demographic characteristics of respondents

Variable	Response	Frequency (n = 124)	Percentage (%)
Sex	Male Female		
Age (mean=------- SD=------)	20-30 31-40 41-50 >50yr		
Qualification attained	Diploma Degree Master		
Work experience	>6 m,<5yrs 5-10yrs >10yrs		
Employment status	Full time Part time		
Education on childhood fever management	Yes No		

Table-2- Knowledge of respondents on childhood fever management

Sno	Questions	Frequency(n=147)		Percentage (%)	
		Yes	No	yes	No
RX of fever	Acetaminophen or ibuprofen Give aspirin Enema to reduce heat Give fluid medicine No answer				
site of compress	Under the armpit Above the front Between the thigh No answer				
goals of caring	Reducing temperature Prevent dehydration Preventing convulsion No answer				
Nursing care to febrile patient?	Bath sponge lukewarm Leave him in light cotton clothes. Preserving the body's fluid level Note the appearance of any spasms on the child Measure input and output No answer				
Advices to parents	Remove baby clothes and leave with light cloth Increase the amount of water in the flask Provide light nutrition for the child No answer				
Dose of Pmcl.	10–15 mg/kg/dose up to a maximum of 90 10–15 mg/kg/dose up to a maximum of 120 10 mg/kg/dose per OS and 20 mg/kg/dose rectal No answer				
Dose of ibuprofen	5–10 mg/kg/dose up to a maximum of 60 5-10 mg/kg/dose up to a maximum of 120 5–10 mg/kg/dose per os up to maximum of 20 No answer				
Side effect of Pmcl	Gastritis Hepatotoxicity No answer				
Side effect of ibuprofen	Gastritis or gastrointestinal bleeding Renal insufficiency No answer				

Table-3- Bivariate and multi-variants predictors of childhood fever management related to knowledge of respondents

Character		Knowledge		Odds ratio(95% CI)			
		Inadequate Freq. (%)	Adequate Freq. (%)	COR (p<0.25)	p-value	AOR (P<0.05)	p-value
Employment status	Full time						
	Part time						
Qualification of respondents	Diploma						
	Degree and >						
Experience	>6m,>5yrs						
	5-10yrs						
	>10yrs						
Available Guideline	Yes						
	No						
Available protocols	Yes						
	No						
Patient instability	Yes						
	No						
Lack of training	Yes						
	No						
Attitude category	Unfavourable						
	Favourable						
Practice category	Poor practice						
	Good practice						

p <= 0.25, CI- 95 %(Confidence Interval), COR- crude odds ratio, AOR-adjusted odds ratio

Remained statistically significant (p < 0.05) in adjusted odds ratio

Table-4- Attitude of respondents towards childhood fever management

Question items	Strongly Agree Freq. (%)	Agree Freq. (%)	Uncertain Freq. (%)	agree freq. (%)	Strongly disagree freq. (%)
Do you imagine regular antipyretic administration could mask fever indicative of an infectious process?					
Do you suggest fever has benefits?					
Acetaminophen is necessary for all children with temperatures of 38.3 ° C and higher					
Temperature alone formed the basis for antipyretic administration					
Doctors only recommend antipyretics to reduce temperature					
Do you think Antitypic Causes temperatures to 'overshoot' into a subnormal range?					
How much you agree better to reduce temperatures non-pharmacologically?					
Do you suggest alternating the administration of ibuprofen and paracetamol?					

Table-5- Bivariate and multivariate predictors related to attitude of respondents

Character		Attitude		Linear regression(95% CI)			
		Unfavourable Freq. (%)	favourable Freq. (%)	COR (p<0.25)	p-value	AOR (P<0.05)	p-value
Employment status	Full time						
	Part time						
Qualification of respondents	Diploma						
	Degree and >						
Experience	>6m,<5yrs						
	5-10yrs						
	>10yrs						
Available Guideline	Yes						
	No						
Available protocol	Yes						
	No						
Patient instability	Yes						
	No						
Lack of training	Yes						
	No						
knowledge category	Inadequate						
	Adequate						
Practice category	Poor practice						
	Good practice						

p <= 0.25, CI- 95 %(Confidence Interval), COR- crude odds ratio, AOR-adjusted odds ratio

Remained statistically significant (p < 0.05) in adjusted odds ratio

Table-6, Participants' response of practice to childhood fever management

Question items	Never freq. (%)	Sometimes Freq. (%)	Almost always freq. (%)	Always freq. (%)
Do you assess for the febrile child?				
Do you identify priority patient nursing care plan				
Do you manage fever symptoms in children,				
Do you apply a lubricant to dried lips and keeping mucous membranes moist				
Do you record length of time treatment given?				
Do you reassess the temperature every 15 minutes?				
Do you observe antipyretic effect and treatment response?				
Do you measure/ recorded hydration status, like skin turgor and urine o/p				

Table-7- Bivariate and multivariate predictors with practice of respondents

Character		Practice level		Linear regression (95% CI)			
		Poor Freq. (%)	Good Freq. (%)	COR(p<0.25)	p-value	AOR(P<0.05)	p-value
Employment status	Full time						
	Part time						
Qualification of respondents	Diploma						
	Degree and >						
Experience	>6m, < 5 yrs.						
	5-10yrs.						
	>10 yrs.						
Available Guideline	Yes						
	No						
Available protocol	Yes						
	No						
Patient instability	Yes						
	No						
Lack of training	Yes						
	No						
Knowledge category	Inadequate						
	Adequate						
Attitude category	Unfavourable						
	Favourable						

p <= 0.25, CI- 95 %(Confidence Interval), COR- crude odds ratio, AOR-adjusted odds ratio

Remained statistically significant (p < 0.05) in odd ratio

Annexes

Annex I: **Approval of principal investigator**

Approval of principal investigator

The undersigned agrees to accept responsibility for the scientific ethical and technical Conduct of the research proposal and for provision of required progress reports as Per terms and conditions of the Research Publications Office in effect at the time of Grant is forwarded as the result of this application.

Name of student: Gebremeskel -Tukue – Gebrewahd (BSC)

Date ---------- signature ----------

Approval of the primary advisor

Name of the primary advisor: _____

Date:_____ signature _____

Annex II. Information sheet

Dear respondent**,**

My Name is Gebremeskel Tukue; currently I am a graduate student at department of emergency medicine and critical nursing, Collage of Health Sciences Addis Ababa University. I am conducting a study to assess the knowledge, attitude, practices and factors associated with fever management among nurses in pediatric emergency in Addis Ababa city governmental hospitals. The ultimate purpose of this study is to collect information necessary for developing protocol, guidelines for all nurses to manage fever for children of different age. To attain this purpose your honest and genuine participation is very important and highly appreciable. I, therefore, kindly request you to answer for all possible questions during the data collection as accurately and carefully as much as possible. Please be assured that all the information gathered will be kept strictly confidential and you do not need to write your name or any special identification that might disclose who you are, on any of the questionnaire page. Only the researcher has the access of the information and used it for the study purpose only. You have a full right not to participate in this study.

Data Collector,

Are you Volunteer to participate?

1. If yes continue

2. If no, stop

Name _____ Signature _____ Date _____

Supervisor, Name_____Signature_____Date_____

Annex III. Consent form

In signing this document, I am giving my consent to participate in the study entitled Assessment of Knowledge, Attitude, and Practice and associated factors with fever management among nurses in pediatric emergency at Addis Ababa city governmental hospitals, Ethiopia. I have been informed that the purpose of this research project and I understand that I am selected to participate in this study randomly. I have been informed that my participation in this study is willing full and voluntary even I have right to refuse or interrupt the filling of questionnaire and my name will not be mentioned on the questionnaire. I, undersigned, have understood the purpose of the study & fully agree to participate in the study

Signature of the participant---------- Date ----------

Thank you, have a nice day!

Name of investigator: Gebremeskel Tukue

Address of investigator: phone no- +251914133628

Email:gebremeskel.tu@gmail.com

Annex IV: Questionnaire

Fever management for emergency children

Date_____ code no. _____

Instructions: Read each question carefully and tick (√) against the option that best suits your response.

Part I: Socio demographic data

101. Sex: Male ☐ Female ☐

102. Age in complete years_____

103. Year of experience _____

104. Qualifications (tick that you apply)

Diploma in nurse ☐ BSC nurse ☐ MSc in nurse ☐

105. Employment status: Full time ☐ Part time ☐

106. Have you educated courses on how to treat fever at Children? Yes ☐ No ☐

PARET II: Questions related to what the nurses know about child fever management (>one answer is possible)

201 - A type of treatment of fever?

A. Acetaminophen or ibuprofen.☐ B - Give Aspirin ☐

C - An enema to reduce heat ☐ D- Give children liquid medicines, ☐ E. no answer ☐

202- Where is the application of compresses in the body?

A - Under the armpit ☐ B - above the front ☐ C - Between the thighs ☐ D. no answer ☐

203. The goals of caring for the patient fever?

A. Reducing temperature ☐ B. Preventing dehydration ☐

C. Preventing convulsions ☐ D. no answer ☐

204. Which of these nursing cares should be provided to a febrile patient?

A. Bath sponge lukewarm ☐

B. Preserving the body's fluid level drinking plenty of drinks for the child. ☐

C. Note the appearance of any spasms on the child and measurement of vital signs, ☐

D. Recording and measuring the input and output. ☐ E. no answer ☐

205. Advices should be given to the parents of a child with fever are

A. Remove the baby's clothing and leave him with light cotton clothes. ☐

B. To give the child cool and sweet drinks, to avoid physical wear ☐

C. Provide light nutrition for the child like yogurt, boiled potatoes and drinks☐ D. no answer☐

206. What dose of paracetamol do you use?

A. 10–15 mg/kg/dose up to a maximum of 90 ☐ B. 10–15 mg/kg/dose up to a maximum of 120 ☐

C. 10 mg/kg/dose per OS and 20 mg/kg/dose rectally ☐ D. no answer ☐

207. What dose of ibuprofen do you use?

A. 5–10 mg/kg/dose - a maximum of 60 ☐ B. 5–10 mg/kg/dose - a maximum of 120 ☐

C. 5–10 mg/kg/dose per os - a maximum of 30 mg/kg/dose ☐ D. no answer ☐

208. What is the main side effect of paracetamol?

A. Gastritis B. Hepatotoxicity C. no answer

209. What is the main side effect of ibuprofen?

A. Gastritis or gastrointestinal bleeding B. renal insufficiency C. no answer

Part III: Questions related to Nurses' attitude for fever management

Question items	Strongly - agree	Agree	Uncertain	Dis-agree	Strongly disagree
301. Do you imagine regular antipyretic administration could mask fever indicative of an infectious process?					
302. Do you suggest fever has benefits?					
303. Acetaminophen is necessary for all children with temperatures of 38.3 ° C and higher					
304. Temperature alone formed the basis for antipyretic administration					
305. Doctors only recommend antipyretics to reduce T^0					
306. Do you think Antitypic Causes temperatures to 'overshoot' into a subnormal range?					
307. It is better to reduce T^0 non-pharmacologically.					
308. Do you suggest alternating the administration of ibuprofen and paracetamol?					

Part IV: Questions of Practice to the nurses for fever management

Question items	Never	Sometimes	Almost always	Always
401. Do you assess for the febrile child?				
402. Do you identify priority patient nursing care plan				
403. Do you manage fever symptoms in children,				
404. Do you apply a lubricant to dried lips and keeping mucous membranes moist				
405. Do you record length of time treatment given?				
406. Do you reassess the temperature every 15 minutes?				
407. Do you observe antipyretic effect and treatment response?				
408.Do you measure/ recorded hydration status, like skin turgor and urine output				

Part V: Questions related to factors associated for proper fever management

Please indicate (√) whether or not an item affects your ability to manage fever of children on yes or no

501. Lack of specific guideline of fever management	Yes ☐ No ☐
502. Lack of Training of fever management	Yes ☐ No ☐
503. Lack of specific protocol of fever management	Yes ☐ No ☐
504. Patient instability	Yes ☐ No ☐

Thank you for your participations!