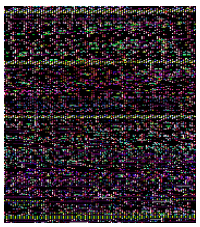

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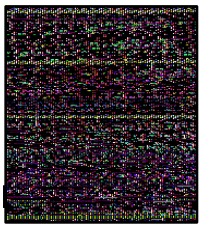

Research about:

Implementing Of Nonpharmcological Measures Program for Nurses to Reduce Fever in Kassala Pediatric Hospitals

A thesis submitted for fulfillment of Ph-D in Pediatric Nursing

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2018

الآية

قال تعالي

﴿قُلْ إِنَّ صَلَاتِي وَنُسُكِي وَمَحْيَايَ وَمَمَاتِي لِلَّهِ رَبِّ الْعَالَمِينَ﴾

سورة الانعام الاية (162)

صدق الله العظيم

Dedication

To my parents, to my dearest husband ‘Alnoor’ who supported my efforts spiritually and psychologically, to my beloved kids Amani, Rofida, and Assma, to the person who taught me to give without expecting ‘Dr. Mortada Mustafa, **to** anyone who inspired me and drew a smile on my face, to **my dearest brothers, sisters, students,** friends and colleagues

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List of abbreviation

Abbreviation	Term
C T	Core temperature
HHV	Human herpes virus
WHO	World health origination
U S A	United states A
C	Centigrade
F	Fahrenheit
A S L H A	American speech language hearing association
T M	Tympanic membrane
A A P	American academy of pediatrics
A CE P	American college of emergency physicians
A S A	Acetylsalucy acid

Abstract

Fever is a common medical problem in children, which often requires parents to seek immediate medical care. It forms part of the important causes of morbidity and mortality in children's hospitals.

The general objective is to implement non-pharmacological measures program for nurses to reduce fever in children's hospitals in kassala.

This quasi- experimental study was carried out in Kassala state in two children's hospitals from December 2013–March 2014 to evaluate the implementation non-pharmacological measures program to reduce fever in children and the extent of knowledge of nurses for this program and how to practice. The study included 57 nurses expertise's vary in child care. Data collected by pre-designed questionnaire and checklist and analyzed the data by program (SPSS) Statistical Package for Social Sciences version number (16).

It was noted that there is an increase in good knowledge about the concept of fever (40.4%) before the implementation of the program to (70.9%) after the implementation of the program . there is an improvement in knowledge about the signs associated with fever, and also there was an increase in the temperature measurement of oral program, axillary and the balance mercurial, and the balance of armpit-mail (26.3%, 29.8%, 63.2% to 78.9%, 73.7%, 84.2%) after the implementation of the program.

Concerning methods of treatment without drugs to reduce fever in children, there is an increase in the practice of the treatment of (15.8%, 24.6% to 61.4%, and 63.2%) after the implementation of the program. It was noted that there is an increase in the average good knowledge about the concept of fever (40.4%) before the implementation of the program to (70.9%) after the implementation of the

program.

The study concluded that nurses' knowledge improved regarding non-pharmacological skills related to reduction fever in children.

The study recommended that job training programs to improve the knowledge and practice to reduce fever in children without use of prescription of drugs through continuous professional development.

ملخص البحث

الحمى هى مشكلة طبية شايعة فى الاطفال التى تتطلب فى كثير من الاحيان من الوالدين الحصول على رعاية فورية. وهى تشكل من ضمن الاسباب المهمة للوفيات فى مستشفيات الاطفال.

الهدف من هذة الدراسة هو تنفيذ البرامج الغير دوائية للممرضات لتخفيض الحمي للاطفال في مستشفيات كسلا للاطفال.

وقد اجريت هذه الدراسة التجريبية فى ولاية كسلا فى مستشفى كسلا الجديد للاطفال, ومستشفى كسلا التعليمى فى الفترة من ديسمبر 2013م الى مارس 2014م لتقييم تنفيذ برنامج المعالجة بدون استخدام عقاقير طبية لتخفيض الحمى فى الاطفال ومدى معرفة الممرضات لهذا البرنامج وطريقة الممارسة . واحتوت الدراسة على: الاستبيان وقوايم اختبار المراقبة.

واشتملت الدراسة على 57 ممرضة تختلف خبراتها فى مجال رعاية الاطفال.

جمعت المعلومات بواسطة الإستبانة المصممة مسبقا وقائمة التدقيق وحللت البيانات بواسطة برنامج (spss) الحزمة الأحصائية للعلوم الاجتماعية الأصدارة رقم (16).

لوحظ انه هناك زيادة فى متوسط المعرفة الجيدة حول مفهوم الحمى من (40.4%) قبل تنفيذ البرنامج الى (70.9%) بعد تنفيذ البرنامج.كان هناك تحسن فى المعرفة بشأن الاعراض المرتبطة بالحمى, وايضا كان هناك زيادة فى برنامج قياس الحرارة عن طريق الفم ,والابط بالميزان الزئبقى,والابط بالميزان الالكترونى من (26.3%,29.8%,63.2%) الى (78.9%,73.7%,84.2%)بعد تنفيذ البرنامج.

من طرق المعالجة بدون عقاقير لتخفيض الحمى عند الاطفال :-

حمام الطفل ,الكمادات الباردة هنالك زيادة فى الممارسة لتلك المعالجة من (15.8%,24.6%) الى (61.4%,63.2%) بعد تنفيذ البرنامج.

خلصت الدراسة ان معظم الممرضات لديهم معرفة للمعالجةبدوناستخدامعقاقيرطبيةلتخفيضالحمىفىالاطفال.

اوصت الدراسة بعمل برامج تدريبية لتحسين المعرفة والممارسة فيما يتلعق ببرنامج لتخفيض الحمى فى الاطفال بدون استخدام عقاقير طبية من خلال التطوير المهنى المستمر.

Chapter One

Introduction

Justification

Objectives

ChapterOne

1-1 Introduction

Measurement of body temperature remains one of the most common ways to assess health. An increase in temperature above normal what is considered to be a normal value is inevitably regarded as a sure sign of disease and referred to with one simple word: fever *(Huemer C, 2006).*

Fever can be described as an elevation of the central thermoregulatory set point, largely achieved by disinheriting thermo genesis. This definition resulted from over 100 years of research during which the molecules mediating the fever response have been identified. Some were discovered only recently by groups investigating not strictly fever, but temperature homeostasis in general. *(Nakamura Y, 2009).*The core temperature of the human body lies between 36.4 and 37.4°C, depending on the time and measurement *(Mackowiak PA, 1992).*

Fever is a common symptom in children presenting to casualty. Identifying the seriously ill is difficult. Fever is a common event and is often an indication of a self-limiting viral infection, rather than a bacterial or serious illness. However, each year 100infants aged 1–12 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, 2007).The cause of fever can be difficult to identify and it can be an indicator of a major illness such as meningitis, septicemia, urinary tract infection or pneumonia. Several recent studies reported that health professionals often perceive fever to be harmful and that nurses can be confused about the risks and benefits associated with fever *(Walsh et al., 2005).* Most of fevers are self-limiting and many children readily tolerate temperatures of 39°C. Uncomplicated fever is relatively harmless and is an important immunological defense mechanism *(jbiebnm, 2001).*

Factors other than the underlying cause of fever can also influence body temperature. Heat and humidity in the surrounding environment can reduce the

amount of heat lost through the skin and a reduction in circulating blood volume, as the result of hemorrhage or dehydration, can cause the temperature to increase *(Casey, 2000).*It is an essential part of nursing care to understand the process of temperature control and take appropriate steps to identify if a child's fever may be a signof severe illness. It will help to provide optimum care to review one's knowledge and understand thepatho-physiology of fever. Specific nursing interventions aimed at reducing the child's temperature will not affect the outcome of the underlying illness; so everyone should aim your care at supporting the body's natural physiological responses and improving the child's comfort (*Trigg & Mohammed, 2006)*. Where possible, parents or careers of children in hospitals should assist with nursing care such as feeding and bathing, this may be particularly useful in situations of high anxiety such as febrile convulsions *(jbiebnm, 2001).*

1.2Justification

Fever is a common symptom of childhood illness in both developed and developing countries. Much effort should beexerted to reduce high temperatures in young children. Fever is an extremely common occurrence in pediatric patients and the most common cause for a child to be taken to the doctor. Fever management is beneficial for parents and nurses to promote and support fever management as part of worldwide health care programs. So it is important for the researcher to focus on.

The nurses should have the right knowledge and practices regarding how to bring down fever in children.They have to be assisted to reduce fever with non-pharmacological measures program.To reduce fever in pediatric it is crucial that nurses who provide care to children must understand the policies and practices that helpin reducing fever.

A recent study reported that health professionals often consider fever to be harmful. Nursesconfuse the risks and benefits associated with fever. The nurses and parents are often afraid that a fever will lead to febrile convulsions (*Mark Awad, 2013*).

1.3 Objectives

General Objective

To assess nursing competencies towards non-pharmacological fever reduction measures program in Kassala pediatric hospitals.

Specific Objectives

1. To assess nurse's knowledge and experience about non-pharmacological management to reduce fever pre and post intervention training program
2. To identify factors influencing nurses' knowledge and practice towards non-pharmacological management of fever
3. To provide tailored training program for nurses about non-pharmacological measures program to reduce fever in Kassala pediatric hospitals.

Outcome of the study:

Come out with recommendation and evidence-based findings to establish a non-pharmacological fever reduction program in Kassala pediatric hospitals

Chapter Two

Literature Review

Chapter Two
Literature Review

2.1. Background of fever

Fever is a common, yet frightening, physiologic response that has been the source of great consternation throughout the history of medicine. Hippocrates believed that illness was caused by imbalance of the four humors (blood, phlegm, black bile, and yellow bile) and that fever "cooked "the excess humor, thereby bringing the body back to normal homeostasis. Fever has been respected by many physicians, including Thomas Sydenham, who wrote in the 1600s, "Fever is a mighty engine which nature brings into the world for conquest of her enemies *(Clark M. Blatteis, 2003).*"Fever also known as pyrexia "is a common medical problem in children which often prompts parents to seek immediate medical care *(Youssef A, Al-Eissa-2013).*Fever is probably the most common of all pediatric complaints, affecting millions of infants and children throughout childhood *(AprilSanders, 2013).*

Fever is extremely common in childhood. Parents have been shown to have unrealistic fears of the harmful effects of fever in their children, and they generally see it as the main component of an illness. Normally body function depends upon a relatively constant body temperature, which is determined by the balance between heat production and heat loss. The core temperature (e.g. rectal, esophageal, bladder or intravascular temperature) normally 0.5 degree higher than oral temperature and undergoes circadian fluctuation of + 0.6 degree with the temperature lowest at 6 a.m. and highest at 8 p.m. The normal adult temperature core ranges from 36C to 38C, and during exercise may increase up to 40C *(Philip A, 2013).*

Fever is a common event during childhood and one of the most common reasons for parents to seek medical advice with height of the fever generally the deciding factor in addition to most childhood illness are characterized by fever. During the

first two years of life children generally have between four and six febrile episodes each year *(Walsh, 2008).*

Fever is one of the most common clinical symptoms managed by pediatricians and other health care providers and accounts, by some estimates, for one – third of all presenting conditions in children.Fever in a child commonly leads to unscheduled physician visits, telephone calls by parents to their child's physician for advice on fever control. Feverish illness in young children usually indicates an underlying infection and is a cause of concern for parents and careers *(national collaboration center, 2007)*

2.2 Definitions of Fever

Fever is an extremely common occurrence in pediatric patients and the most common cause for a child to be taken to the doctor *(BMCPediatr, 2013).*Fever is a state of elevated core temperature caused by a complex and highly regulated host response involving cytokines and numerous other acute phase reactants with activation of physiologic, endocrine and immune systems. It is stimulated by the presence of an infectious or inflammatory trigger. The interactions of these triggered host factors result in a change in the normal temperature range which is usually tightly controlled *(Karen Scruggs, el, at, 2007).*

Fever as a response to an infectious or inflammatory stimulus must be distinguished from hyperthermia caused by exposure to extreme environmental conditions or pathologic responses to anesthetics or drugs. The measurement of true core temperatures is too invasive for routine clinical use. Core temperatures are best measured in the pulmonary artery or by a deep colonic probe. Even these invasive measurements are not accurate for all parts of the body. For example, in shock or other poor peripheral perfusion states, the temperature of the peripheral sites may be much lower than the core. Conversely, during vigorous exercise the muscle temperature may be considerably higher than the core. There are accuracy problems with all of the proposed formulas for converting a measured temperature at any one site with the temperature at another site or with the theoretical core

temperature. Therefore conversion is neither necessary nor appropriate.

Fever is a normal, coordinated response of the body to a perceived threat to the immune system, which includes autonomic, behavioral and neuroendocrine responses *(Thompson et al, 2003).*As part of this response, an elevated temperature occurs in response to endogenous stimuli to allow for improved functioning of the immune system *(Cooper 1995, 2002).*In most patients; fever is advantageous and does not require intervention. In certain populations, such as those with neurological insults, fever is associated with poor outcomes and should be avoided *(Wartenberg et al. 2006, Kirkness et al, 2008).*

Fever refers to an elevation in body temperature. Technically, any body temperature above the normal oral measurement of 98.6 F (37◦ C) or the normal rectal temperature of 99 F (37.2◦ C) is considered to be elevated. However, these are averages, and one's normal body temperature may actually be 1 F (0.6◦ C) or more above or below the average of 98.6 F. Body temperature can also vary up to 1 F (0.6◦ C) throughout the day*(John P. et al, 2015).*

Fever is not considered medically significant until body temperature is above 100.4◦ F (38◦ C). Anything above normal but below 100.4◦ F (38◦ C) is considered a low-grade fever. Fever serves as one of the body's natural defenses against bacteria and viruses which cannot live at a higher temperature. For that reason, low fevers should normally go untreated, unless accompanied by troubling symptoms.

2.3Epidemiology of Fever

In 2007, an estimated 656 million fevers occurred in African children aged 0-4 years, with 78 million children of the 183 million attending a public health care facility *(Peter W.Gething mail, et al, 2013).*Feverish illness is very common in young children a high temperature is reported by nearly 40% of parents of children aged less than 6 months, and in over 60% of children in the other age ranges between 6 months and 5 years. Between 20% and 40% of children in the various age ranges are taken to a doctor because of fever ,with the proportions presenting between the ages 0f 6 and 18 months .It has been estimated that an average of eight infective

episodes occur in otherwise healthy children during the first 18 months of life *(National .C.C ,2007).*

Fever is a normal part of childhood illness, affecting around 70% preschool children. It can be miserable for the child, cause anxiety for parents and be expensive for health services .Up to 40% of preschool children see a health professional for a febrile illness each year. A though fever is considered by many to be an advantageous evolutionary by product of the host response to infection and as such should not be treated.The use of antipyretics is wide spread .The reasons for treating fever are contested and not necessarily evidence based but includes minimizing discomfort ,controlling fever , and prevent febrile convulsions*.(Hay AD.et al, 2013).*

A person's body temperature is sensitive indicator of the presence of the physiological changes occurring in the body .The changes can be result of the disease process, a traumatic injury or a therapeutic intervention because of sensitive nature of persons body temperature monitoring the person s temperature is one of the common, continue procedure performed on any persons entering health care system. Body heat is generated in the core tissues of the body it is transfer to the skin surface by the blood and then released into the environment surrounding the blood. Body temperatures raises during fever and hyperthermia due to excessive heat production or exposure to a hot environment ,and it is falls during hypothermia caused by exposure to cold*(Walsh , 2007).*

Virtually all biochemical processes in the body are affected by changes in temperature. Metabolic speed up or slow down depending on weather body temperature is rising or falling .Body temperature is normally maintained within arrange of 36.0 c to 37.2c (97.0F to 99.5F).Within this range,there are individual differences and diurnal variation; internal core temperatures reach their highest point in late afternoon and evening and their lowest point in early morning hours. Also temperatures differ in various parts of the body, with the core temperature

being higher than those at the skin surface *(Walsh, 2007).*In humans, body temperature is controlled by the thermoregulatory center in the hypothalamus. It receives input from two sets of thermo receptors: receptors in the hypothalamus itself monitor the temperature of the body as it passes through the brain (the core temperature), and receptors in the skin (especially on the trunk) monitor the external temperature both sets of information are needed so that the body can make appropriate adjustments. The thermoregulatory center sends impulses to several different effectors to adjust body temperature *(David O, 2009).*

2.4 Path-physiology of Fever

2.4.1Thermoregulation

It is the body's physiological function of heat regulation to maintain a constant internal body temperature. The heat of the body is measured in units called degrees .The "core" internal temperature of 98.6◦ Fahrenheit (F) (37◦) centigrade (C) does not vary more than 1.4◦ F (0.77◦c) and is higher than skin and external temperature. In contrast, the skin temperature rises and falls in accordance with changes in environmental temperature *(Sue C.DeLaune et al, 2002).*Thermoregulation is controlled in hypothalamus .It is an integrated,complex,physiological process involving a continuum of neural structures and connections extending from hypothalamus and limbic system through the lower brain stem and reticular formation to the spinal cord and spinal ganglia. Thermoregulation maintains the body at a constant core temperature, a 'set-point', by balancing the firing of warm and cold sensitive neurons throughout the body and skin despite changes in ambient temperature and motor activity. Heat loss responses (e.g., panting and sweating) are controlled by warm-sensitive neurons which increase proportionally with peptic temperature once a threshold or the set-point temperature has been reached. Cold-sensitive neurons receive synaptic inhibition from nearby warm-sensitive neuron. During peptic cooling, the firing rates of warm-sensitive neurons decrease reducing synaptic inhibition and

allowing cold-sensitive neurons to increase firing rates *(Walsh, 2013).*

The febrile response ,of which fever is but one component ,is a complex physiology reaction to disease involving a cytokine-mediated rise in body temperature, generation of acute-phase reactants ,and activation of numerous physiologic, endocrinology ,and immunologic systems .The temperature of the body is depend on maintaining a balance between the production and dissipation of heat. Under normal circumstances,heat is generated internal ling during metabolic processes or when external environmental temperature exceed those of the body .Heat can also be produced by increased skeletal muscle activity ,such as that which occurs with shivering .Heat loss occurs predominantly from the skin via evaporative losses and also ,to some extent, via the lungs*.(DalalShalini, 2013).*

Fever is considered an intentional elevation of the body'score temperature in response to invasion of an exogenous organism. During fever, (CT) rise is the deliberate result of a regulation operation of active thermo genic effectors. Hyperthermia, passive heat gain greater than body s capability to dissipate heat distance from fever and the two should not be confused. Fever is believed to be a host defense response to invasion from exogenous pyroxenes including microbial pathogens, such as bacteria, viruses, mycobacterium and fungi as well non-microbial agent such as inflammatory agents and drugs *(Walsh, 2007).*

2.4.2 Mechanism of Fever

The febrile response ,of which fever is but one component, is a complex physiologic reaction to disease involving a cytokine-mediated rise in body temperature , generation of acute –phase reactants ,and activation of numerous physiologic , endocrinology ,and immunologic systems. The temperature of the body is dependent on maintaining a balance between the production and dissipation of heat. Under normal circumstances heat is generated internally during metabolic processes or when external environmental temperatures exceed those of the body. Heat can also be produced by increased skeletal muscle activity, such as that

which occurs with shivering .Heat loss occurs predominantly from the skin via evaporative losses and also, to some extent, via the lungs *(Dalal.Shalini, 2013).* Fever is basically the elevation of the regulated set-point temperature by the effect of pyroxenes.Temperature set-point is regulated the thermoregulatory area, which is located in the rostral hypothalamus, part of the preoptic region. Within this area, there are warm-sensitive and cold-sensitive neurons. The preoptic thermo sensitive neurons are able to integrate central and peripheral thermal information. Some preoptic neurons not only sense local temperature, but also receive synaptic output from afferent pathways of thermo receptors in the skin, spinal cord, and other locations throughout the body's their names imply, the warm sensitive neurons increase their firing with increased warmth or decreased cold information from the afferent pathways, whereas the cold sensitive neurons increase their firing with decreased warmth or increased cold information from the afferent pathways. The balance in the firing rate of cold-and warm-sensitive neurons produces the ultimate set-point temperature *(DKK Ng, 2013).*

There are two types of pyrogens: exogenous and endogenous. Exogenous pyrogens include: micro-organism (primarily cell wall components), microbial toxins (usually Gram-positive organisms, antigen-antibody complexes, drugs, and poly nucleic acids. They can induce the host cells primarily macrophages) to produce endogenous pyrogens. Some endogenous molecules can also induce endogenous pyrogens; these include antigen-antibody complexes. Certain androgenic steroid metabolites, inflammatory bile acids, complement components, and some lymphocyte products.Endgenous pyrogens decrease the rate of preoptic warm-sensitive neurons, and increase the firing rate of the preoptic cold-sensitive neurons. The inhibition of warm-sensitive neurons causes decrease in heat loss responses. Similarly excitation of cold-sensitive neurons increases heat production, such as shivering, and heat retention responses, such as vasoconstriction. Pyrogens inhibition of warm –sensitive neurons raises the regulated set-point temperature of the anterior hypothalamus. In short, pyrogens disturb the balance in

firing of warm-and cold-sensitive neurons in the hypothalamus, leading to elevation of the set-point temperature *(DKK Ng JCY Lam, 2013).*

2.5Changes in the Body during Fever

Basal metabolism of the body is increased during fever. Increased breakdown of protein occurs as a result of increased metabolism which produces heat. The carbohydrate and fat metabolism is also disturbed leading to increased production of acids and increase in heat. Urine is diminished in production and becomes dark colored. Changes occur in the blood cells depending upon the toxins and bacteria. The heat and chill regulating centers in the brain are stimulated leading to sweating and dissipation of heat of the body. Continued fever results in weakness, emaciation due to destruction of proteins and stores of glycogen and fats of the body are depleted. There is fluid and electrolyte imbalance, weight loss, circulatory overload, arrhythmias occurring *(Sandh Harbakhash Sing, 2012)*

2.6 Normal Body Temperature

The body s average temperature is around 98.6◦ F (37◦C), but it normally fluctuates during the day. Many variables determine a child's "normal" temperature. Mild elevation (100.4◦ to 101.3◦ F {38◦ to 38.5◦C}) can be caused by exercise, excessive clothing, hot bath, or hot weather. Warm food or drink can also raise the oral temperature. In addition, a child's temperature may vary depending on the time of day it is taken.(higher at night) and the age of the child (younger children generally have somewhat higher temperatures than school –age children.*)(GregT.et al, 2013).*The levels of normal body temperature may vary slightly in different textbooks (*Sheila Lee's .et al, 2015).*

2.7Patterns of Fever

The pattern of temperature change in persons with fever varies and may provide information about the nature of causative agent *(Porth, 2000).*These patterns can be described as fever pattern. Febrile pattern is often helpful to clinicians in

establishing a specific diagnosis, particulary in infectious disease. In considering the febrile pattern, observation over a considerable time interval is important, in the absence of any effect of antipyretics, in order that the pattern observed is clinically significant.

2.8Definitions of Febrile Pattern

2.8.1Continuous (sustained) Fever Continuous (sustained) fever with slight remissions not exceeding 2.0◦ F.Within this group fall fevers caused by lobar and Gram-negative types of pneumonia,rickettsia diseases, typhoid fever, central nervous system disorders, and plasmodium falciparum (malignant tertian)malaria *(Blumenthal ,2013).*

2.8.2Intermittent Fever Intermittent fever with wide fluctuations, usually normal or low in the morning with a peak at 4 to8 pm .This group includes fevers caused by localized pyrogenic infections and bacterial endocarditis.Malaria presents as quotidian (daily spike), tertian (spike every third day), or quatrain (spike every fourth day) types depending on type of organisms and host defense. In acute brucellosis, fever is often intermittent, with sweating associated with leucopenia or normal leukocyte count *(Porth.et al, 2000).*

2.8.3 Saddleback (biphasic) Fever Saddleback fever with several days of fever, gap of reduced fever of about one day, and then several additional days of fever. Characteristic of this type are dengue and yellow fever, Colorado tick fever, Rift Valley fever and viral infections such as influenza, poliomyelitis, and lymphocytic choriomeningitis.

2.8.4 Pel-Ebstein Fever Pel-Ebstein fever is characterized by weekly or longer periods of fever, and equally long febrile periods with repetition of the cycle. It occurs in Hodgkin’s disease, brucellosis of the broucellamelitensis type, and relapsing fever. Occasionally tuberculosis the febrile course may be similarly intermittent.

2.8.5The Jarisch-Herxhimer Feverthe Jarisch-Herxhimer fever reaction refers to the sharp elevation of temperature and exacerbation of clinical manifestations several hours after beginning penicillin treatment of primary or secondary syphilis *(Blumenthal, 2013).*

2.9 Causes of Fever

The link between raised body temperature and disease has been known since time immemorial. Fever is caused by variety of stimuli known collectively as exogenous pyrogen.These include bacteria, both gram-positive and gram negative,viruses,fungi,antigen-antibody interaction, some drugs, illness related to heat exposure *(Blumenthal.2013).*However,all fevers, of any cause except direct brain damage, are now believed to be mediated *(David O, 2009).*Infection is the most common cause of fever in children. Common viral and bacterial illness like colds, gastroenteritis, ear infections, croup, bronchiolitis, and urinary tract infections are the most likely illness to cause fever. There is little or no scientific evidence to support the wide spread belief that teething causes fever. Although it is difficult to disprove this notion completely, alternative causes of fever should always be sought and temperature above 102◦ F (38.9◦ C) should never be attributed to teething *(Mark, 2013).*Fever is the most common reason for pediatric emergency department visits. Older studies from 1970 and 1980 reported that approximately 2% to 5% of febrile children age 3 to 36 months had bacteremia, with Streptococcus pneumonia and Homophiles influenza type B being the most commonly identified pathogens. The implementation of infant immunization with H influenza type b and conjugate sera S pneumonia vaccines reduced the frequency of bacteremia to tests than 1%.Determining the etiology of febrile illness in young children is challenging. In the absence of specific focal signs of infection, febrile illness is often attributed to anon specific viral infection. Many studies have focused on the burden of single viral pathogens in this age group. For example, human herpes virus type 6(HHV-6) may account for as much as 14% of febrile

illness in children less than 24 months of age.Enter viruses and respiratory viruses, particularly influenza and adenoviruses; have been identified as important causes of fever *(Joshua M et al, 2013).*

2.9 1Malaria

Malaria is an acute febrile illness*(Malaria: Fact sheet,2013)* .It is estimated that 216 million episodes of malaria occurred globally in 2020 with resultant 655,000 deaths .About 91% of malaria burden in that year occurred in Africa while 86% of the global malaria death was in children under five years of age *(WHO,2011).*Most of deathsoccur among children living in Africa where a child dies every minute from malaria. Country –level burden estimated available for 2010 showed that an estimated 80% of malaria death occurs in gust 14 countries and about 80% of cases occur in 17 countries. Together, the Democratic Republic of the Congo and Nigeria account for over 40% of the estimated total of malaria deaths globally.In an on-immune individual, symptoms appear seven days or more (usually 10-15 days) after the infective mosquito bite. The first symptoms-fever, headache, chills and vomiting-may be mild and difficult to recognize as malaria. If not treated with 24 hours P.falciparum malaria can progress to sever illness often leading to death. Children with severe malaria frequently develop one or more of the following symptoms; severe anemia, respiratory distress in relation metabolic acidosis, or cerebral malaria. In adults, multi- organ involvement is also frequent. In malaria endemic areas, persons may develop partial immunity, allowing asymptomatic infections to occur *(Malaria; Fact sheet, 2013).*

2.9.2 Common Cold

The common cold is the most common illness in the United States (U.S).Infants and children are affected more often and experience more prolonged symptoms than adults. The common cold accounts for approximately 22 million missed days of school and 20 million absences from work, including time away from work caring for ill children.The common cold is a group of symptoms caused by a number of

different viruses. There are more than 100 different varieties of rhinovirus, the type of virus responsible for the greatest number of colds. People may have multiple colds each year and dozens over a life time. Children under six years average six to eight colds per year, with symptoms lasting an average of 14 days. This means that a child could be ill with intermittent cold symptoms for nearly half of the days in this time period, without cause for concern. Young children in daycare appear to suffer from more colds than children cared for at home. However, when day-care children enter primary school; they catch fewer colds, presumably because they are already immune to a larger number. The signs and symptoms of a cold usually begin one to two days after exposure. In children, nasal congestion is the most prominent symptom. Children can also have clear, yellow, or green –colored nasal discharge; fever (temperature higher than 100.4◦ F or 38◦ C) is common during the first three days of illness*. (Diane E Pappas et al, 2013).*

2.9.3Tonsillitis

Tonsillitis is one the most common ailments encountered at childhood*. (H.K.Bakhu, 2013).*The inflammation usually extends to the adenoid and the lingual tonsils; therefore, the term pharyngitis may also be used. The condition rarely occurs in children younger than 2 years *(Udayan K Shan, 2013).*The main symptoms of tonsillitis are sore throat, fever, headache, and pain in various parts of the body, difficulty in swallowing, hoarseness of voice and general weakness. The tonsils are seen to be inflamed and red when the mouth is opened wide. In many cases, spots of pus exude from them. Externally, the tensile lymph glands, which lie just behind the angle of the jaw, are tender and enlarged. In several cases, there may be pain in the ear. The children suffering from this disease are often listless and pale. They may vomit frequently due to the irritation of large tonsils. In case of chronic tonsillitis, the children may lose weight. They may be irritable, lethargic and weak *(H.K.Bakhu, 2013).*

2.9.3Sore Throat

Sore throat is a common problem during childhood, and is usually the result of a bacterial or viral infection. Although sore throat usually resolves without complications, it sometimes requires treatment with an antibiotic. Symptoms that may occur with a viral infection can include a runny nose and congestion, irritation or redness of the eyes, cough, and hoarseness, soreness in the roof of the mouth, skin rash; or diarrhea. In addition, children with viral infections may have a fever and may feel miserable. High fever does not necessarily mean that the child has a bacterial infection*. (Ellen R Wald, 2013).*

2.9.4Ear infections

Also called Otitis media, are a common problem in children. About 50% of infants have at least one ear infection by their first birthday. Ear infections can cause pain in the ear, fever, and temporary hearing loss and general signs such as loss of appetite and irritability. Some children get better without specific antibiotic treatment but most young infants benefit from use of an antimicrobial agent. Ear infection is also known as acute otitis media (Otitis=ear, media=middle).Otitis media is an infection of the middle section of the ear *(Jerome O Klein et al, 2013).*

Ear infections most often develop after a viral respiratory tract infection, such as a cold.These infections can cause swelling of the mucous membranes of the nose and throat, and diminish normalhost defenses such as clearance of bacteria from nose, increasing the amount of bacteria in the nose. Viral respiratory tract infections also can impair Eustachian tube function. Normal Eustachian tube functions are important for minting normal pressure in the ear. Impaired Eustachian tube function changes to pressure in the middle ear (like when you are flying in an airplane).Fluid (called an effusion)may form in the middle ear and bacteria and viruses follow, resulting in inflammation in the middle ear. The increased pressure causes the eardrum to bulge, leading to the typical symptoms of fever (temperature higher than 100.4◦F or 38◦ C), pain, and fussiness in young children *(Jerome O Klein et al, 2013*).Fever more likely in older children: infants may not have a

temperature at all *(American Speech Language Hearing Association, 2013).*The increased pressure causes the eardrum to bulge, leading to the typical symptoms of fever, pain, and fussiness in young children *(Jerome O Klein et al,2013).*

2.9.5Pneumonia

Pneumonia is the single largest cause of death in children worldwide. Every year, it kills an estimated 1.2 million children under the age of five years, accounting for 18% of all deaths of children under five years old worldwide. Pneumonia affects children and families everywhere, but is most prevalent in South Asia and sub-Saharan Africa. Children can be protected from pneumonia; it can be prevented with simple interventions and treated with low-cost, low –tech medication and care *(W.H.O, 2013).*Cough is the most common symptom of pneumonia in infants, along with tachypnea, retractions, and hypoxemia. These may be accompanied by congestion, fever, irritability, and decreased feeding. Older children and adolescents may also present with fever, cough (productive or nonproductive), congestion, chest pain, dehydration, and lethargy *(Bennett et al, 2013).*

2.9.6 Teething Tooth eruption has been held responsible for a variety of systemic manifestations in infants. The association between teething and irritability, increased salivation, sleep disturbance, fever, diarrhea, and loss of appetite remains unclear because the onset of these disorders may simply coincide with the teething. Moreover, some of these signs and symptoms may imply more serious conditions *(A Sahib Mehdi, 2013).*Most of experts told that teething did not cause fever and definitely did not cause a high fever. It may cause a low grade fever,especially on the day that the tooth actually erupts, but when it doubt, don't blame your child's fever on teething, especially since it could be a coincidence and the child could be teething and have another illness causing the fever *(Iannelli, 2013).*

2.9.7 Urinary Tract Infection (UTI): Urinary Tract Infection is one of the most common pediatric infections. Signs of urinary tract infections in infants and young

children are easily missed, the child exhibit poor feeding, fussiness, delay growth, foul smelling urine, and incontinence. Unexplained fever in infant may be caused by UTI, and this should be considered when no other source for the fever if found *(Debra L.Price et al-2001).* Neonates and infants up to age 2 months who have pyelonephritis usually do not have symptoms localized to the urinary tract.UTI is disconcerted as part of an evaluation for neonatal sepsis. Neonates with UTI may display the following symptoms: Jaundice, fever, thrive, poor feeding, vomiting, and irritability.

2.9.8 Measles is a highly contagious disease, which is transmitted via the respiratory route. It was estimated that measles caused 555000 deaths in 2004, 64% which occurred in only 11 countries in Asia and Africa *(El Mubarak Hesitant, 2004).*It can be very unpleasant and possibly lead to serious complications, including blindness and even death. The initial symptoms of measles appear around 10 days after you get the measles infection and generally last for up to 14 days. The measles rash usually appears a few days afterwards.

The initial symptoms of measles include:

Cold-like symptoms, such as runny nose, watery eyes, swollen eyelids and sneezing, Red eyes and sensitivity to light, A mild to severe temperature, which may peak at over 40.6◦C (105◦ F) for several days, then fall but go up again when the rash appears, Tiny grayish-white spots (called Koplik's spots) in the mouth and throat, Poor appetite, Dry cough, Aches and pain.

2.10 Effects of Fever:

There is little research to support the belief that fever is harmful unless the temperature rises above 40◦ C animal studies have demonstrate a clear survival advantage in infected members with fever compared with animals that were unable to develop a fever. It was shown that small elevation in temperature such as those that occur with fever enhance immune function. There is increase motility and

activity of the white blood cells, stimulation of interferon production, and activation of T Cells. Many of the microbial agents that cause infection grow best at normal body temperatures, and their growth is inhibited by temperature within the fever range *(Porth, et.al, 2000).*

2.10.1 Benefits

With few exceptions, both vertebrates and invertebrates manifest fever in response to challenge with microorganisms or other known pyroxenes. This has been viewed as one of the strongest pieces of evidence that fever is an adaptive response it is held that the metabolically expensive increase in body temperature that accompanies the febrile response would not have evolved, and been so faithfully preserved within the animal kingdom, unless fever had some benefit to the host. Fever has been shown to enhance monocytic elimination of Leishmania and neutrophilic elimination of pneumococcal, Candida, Escherichia coli, Salmonelletyphimurium, Listeria monocytogenes, and Staphylococcus aureus.Fever also has been shown to decrease bacterial and viral growth rates *(Hasday JD, 2012).*Fever is the body's reaction to an infection. In adults and children, the hypothalamus responds to an invasion by a virus or bacteria by increasing the body's temperature. This is because most viruses and bacteria thrive at around 98 degrees F. A higher body temperature weakens the invaders and allows the immune system to more effectively fight the illness *(April Sanders,2013).*

2.11 Signs and Symptoms Associated with Fever

Fever is a symptom, not disease. It is the body's normal response to fighting infections. The elevated temperature turns on the body's immune system and makes it more difficult for bacteria and viruses to grow *(Greg T.Garrison et al, 2013).*Signs and symptoms of fever may be obvious a symptom in something the patient reports and feels, while assign is something other people, including a doctor may detect *(Robert Ferry,2013).*For example, headache may be a symptom while rash may be assign. When somebody has a fever, signs and symptoms are linked to

what is known as sickness behavior, and may include feeling cold, anorexia, dehydration, depression, lethargy, sleepiness, sweating if the fever is high there may also be extreme irritability, confusion, delirium and convulsions *(Christian Nordqvist, 2013).*

2.12Measuring Body Temperature:

Accurate body temperature monitoring in patients, especially in children, is vital and important. For all intents and purpose, though, elevation in body temperature was previously guessed at using the physician's hand until discovery of the first liquid-in glass thermometer. For more than200 years, the standard tool for the measurement of temperature has been the mercury in-glass thermometer. In recent years, alternative methods including chemical and infrared tympanic thermometer began to replace conventional mercury-in-glass instruments in emergency rooms and hospital. Although each method has its own advantages and disadvantages compared with the conservative mercury-in-glass thermometers, there is disagreement about the optimal anatomic site for measuring body temperature 2-4 as well as about the variations in measurements with different methods .Although peripheral temperature measurements (skin or axilla) are not exact representatives of the (CT), the axilla is the widely accepted site for daily temperature measurement (*Ates Kara. & et al, 2009*).

Despite the fact that temperature measurement in children seems so simple-wide variety of devices are available to record a fever from skin, oral or rectal mucosa or the tympanic membrane-the choice for health professionals and parents has never been so complicated. According to traditional teaching, the normal body temperature is 37 ◦C but it generally accepted that a temperature of 38◦ C (100◦F) or greater, as measured by rectal thermometer, represents a fever (*D Ledu, S*

*Woods, 2013).*The academic study of body temperature began in 1868.Since then; varieties of thermometers have been developed for clinical use. Working knowledge of these different thermometers, the various sites for taking temperature, and the normal range of body temperature, is essential *(DKK Ng et al, 2013).*

2.13 Thermometers

The term 'thermometer' refers to any device used to measure temperature.Clinical thermometers should possess sensitivity and accuracy meeting the requirements of the American Standards of Testing and Materials: maximum error allowed is 0.1◦C for a temperature range from 37◦ C to 39◦ C for a temperature range from 39◦ C to41◦ C, and 0.3◦ C for temperature greater than 41◦C.Practical tests of the sensitivity and accuracy of the thermometers include either simultaneous tests for a few thermometers or repeated tests of the same thermometer (*DKK Ng et al, 2013*).

2.14Types of Thermometers

2.14.1 Clinical Mercury Thermometers

Traditional mercury thermometers have been used for many years in clinical settings and may be used in the mouth, the axilla or the rectum. Though they are familiar to nurses and clients, their use has declined in recent years due to the potential hazards of mercury spillage and broken glass. There is also controversy surrounding accuracy of measurement and the length of time a mercury thermometer needs to be left in place. Types available include oral, rectal (those that record below 35◦ C) and disposable covers are readily available to reduce the risk of cross-infection (*Sue C.De Laune, 2002).*

2.14.2Electronic thermometers

These have become more popular in recent years and are often purchased for use

in the home. An internal probe is connected to power supply that has a display unit and bleeps when the maximum temperature is reached. They can be used in the mouth, the axilla or the rectum and should be covered with a clean disposable probe cover for each patient. They take significantly less time to register an accurate temperature than traditional thermometers and have therefore become increasingly popular. Though incurring a more significant cost they are considered a much safer product (*Sue C.De Laune, 2002).*

2.14.3The tympanic membrane(TM)

These are placed in the ear canal and heat is detected as infra-red energy from the tympanic membrane, it is an ideal site for measuring core temperature, because it is perfuse by a tributary of the carotid artery which supplies the body's thermoregulatory centre. The infrared(TM)thermometer works like a camera;it detects infrared energy emitted from (TM) and portions of the ear canal, processes the information, and display a value representing either the tissue temperature in the ear canal, or an adjusted estimate of the temperature in other sites e.g. oral,rectal,or core. It advantages include being anon-contact instrument and the short dwell time(less than a few seconds).Its disadvantages include the need for expensive probe covers, and conflicting reports of accuracy as compared with other thermometers. Unfavorableresults were reported by Erickson,Kirklin,Freed,Fraley,Stewart and Webster, whereas favorable results were described by Ng et al and Chamberlain et al These are placed in the ear canal and heat is detected as infra-red energy from the tympanic membrane. It is a rapid way of measuring temperature, only taking a few seconds, but there is some controversy over the accuracy of measurement. They are probably the most widely used devices used in hospital today (*Mackowiak PA, 2014*).

2.14.4 Disposable Strips

These are widely available from retail pharmacies and consist of individually wrapped strips for single use only. The strip is applied to the forehead until a

reading can be visualized on the strip. Whilst they can give abroad indication of where the individual is hot or cold they are the least accurate and only really serve as a very basic guide as to whether more professional attention is needed (*D Leduc, et.al, 2013*).

2.14.5 Digital. Mercury Thermometers

The traditional mercury thermometer has been replaced by the more "user friendly" digital thermometer. Since the accuracy is comparable with both instruments and mercury remains an environmental hazard, the Canadian Pediatric Society no longer recommends the use of mercury thermometers (*D Leduc, et al, 2013*).

2.15 Sites for Measuring Temperature in Children

Traditional sites for measuring the body's internal (core) temperature are oral; the sublingual site is easily accessible and reflects the temperature of the lingual arteries. However, oral temperature is easily influenced by the recent ingestion of food or drink and mouth breathing.Oral thermometry relies on the mouth remaining sealed, with the tongue depressed for 3-4 min, which is difficult task for young children. This method of temperature measurement cannot be used in young children, or in unconscious or uncooperative patients. Generally, it has been suggested that the accuracy of oral thermometry lies somewhere between that of axillary and rectal thermometry. It appears that accuracy may increase with the age of a technique (*D Leduc, 2013*).Rectal, and axillary, using either glass or electronic thermometers. Advances in clinical thermometry provide other devices and sites, such as thermostats for pulmonary artery temperature and infrared thermometers for ear canal temperature. Ear temperature is the most common site used for temperature measurements in adults because it is a safe and efficient method; however, it is less sensitive in detecting fever in infants and young children. Ear Temperature should not be used in infected or draining ears or if adjacent lesions or incisions exist. The most reliable measure of core temperature is pulmonary artery temperature. Since pulmonary artery temperature requires placement of a thermo

dilution pulmonary artery catheter, it is impractical for routine care. Oral and rectal temperature measurements are higher than axillary because the measuring device is in contact with the mucous membrane. Rectal measurements are higher than oral because of the seal created by the anal sphincter, which decreases contact with environmental air. With the availability of electronic measuring devices, glass thermometer should never-be used for oral readings if there is danger that the client will bite and break the thermometer. The axilla is commonly used as a site for infants and children with disabilities because it is the safest, even though least accurate, method. Axillary or rectal sites are used for clients who are uncooperative, comatose, or who have a nasogastric or feeding tube in place (*Sue C.DeLaune, 2002*).

The American academy of Pediatrics (AAP) recommends taking a rectal temperature in infants and children younger than 3, because it's most accurate measurement. An armpit temperature may be preferred for screening, but it's the least accurate. If the armpit temperature is above 99 degrees F, check it with a rectal temperature. In children older than 7 years, taking an oral temperature is acceptable. An ear thermometer is another option for older babies and children. It gives quick results, but placing it can be tricky. While other methods for taking child's temperature is available. The (AAP) doesn't recommend them. Ask your child's doctor for advice. Whatever method chooses, the thermometer purchased should be easy to use and comfortable for the child. With this in mind, our recent tests of 10 fever thermometers not only measured accuracy but also included comments from 19 children ages 4 and up about their comfort level with each thermometer (*Consumer reports,org,2013*).

2.16. Management of Fever:

Fever is uncomfortable, and children may be come irritable. For every 1◦ C of temperature elevation, the body metabolic rate increased 10% to 12% resulting in increased insensible fluid loss, increased oxygen consumption, and increased

stress on the cardiovascular system. Regardless of the fever's cause the child's comfort is the primary reason for treating fever in normal healthy child (*James, 2007).*Treatment of febrile children should focus on improving the child's comfort rather than bringing the temperature down to normal levels or preventing the onset of fever (*Hitt, Emma and, 2011*).Having a sick child is an anxious time for parents who are frequently very concerned about their child and have difficulty assessing the severity of the illness one of the main indicators of an illness is fever. Many parents consider fever to be harmful and a disease in itself parents often feel disempowered when their child is ill and that they are not caring appropriately for their child if they do not treat the fever (*Walsh, 2013*).The mothers perceptions about the cause of the fever, duration of sickness, accessibility and the anticipated cost of treatment, frequent use of traditional medicine, and judgment of the severity of the fever are the most important determinants for effective treatment of fever in children (*Muntasier,2007*).

2.16.1: Coals of Management of Fever

Fever management is a vital component of neuroscience nursing practice because patient outcomes may be negatively affected by unmanaged fever. Although growing evidence shows that a fever may reflect the beneficial mobilization of anti-inflammatory factors in the presence of infection (*Holtzclaw, 2002*) Discussion of the use of antipyretics in febrile children must begin with consideration of the therapeutic end points.When counseling families, physicians should emphasize the child's comfort and signs of serious illness rather than emphasizing normofthermia.A primary goal of treating the febrile child should be to improve the child's overallcomfort.Most pediatricians observe, with some supporting data from research, that febrile children have altered activity, sleep, and behavior in addition to decreased oral intake (*Misry Rd, 2007*).

Unfortunately, there is a paucity of clinical research addressing the extent to which antipyretics improve discomfort associated with fever or illness .It is not clear

whether comfort improves with a normalized temperature, because external cooling measures such as tepid sponge baths can lower the body temperature without improving comfort. The use of alcohol baths is not an appropriate cooling method, because of systemic absorption of alcohol have been reported as adverse events. (*DOI, 2010*).Uncomplicated fever is relatively harmless, but it is an important immunological defense,so a mild temperature in an otherwise healthy child should probably be allowed to run its course. So the aim is support the body's natural physiological responses and improving the child's comfort, where possible parents or careers of children in hospitals should assist with nursing care such as feeding and bathing. This may be particularly useful in situations of high anxiety such as febrile convulsions *(Kathy Bridgewater,et al-2013).*

Although clinicians have used conductive,convective,and evaporative methods of cooling to lower body temperature for less than 2500 years the benefits of such treatments are uncertain even to this day.More than 100 years ago, the German surgeon Frederick Smart wrote that some surgeon favored application of cold to inflamed tissue as means of diminishing blood flow to such tissue, whereas others recommended against the practice because of concern that cold might have delirious effects on the skin. One of the most commonly used physical methods of treating fever before the advent of antipyretic drugs was phlebotomy (*Peter Axelrod, 2013).*

2.16.2: Pharmacological Management of Fever:

Fever is one of the main concerns that parents have when their child is unwell. Many parents believe fever is potentially harmful and worry about its height and duration. It is standard practice for health professionals to give advice about administering antipyretic drugs to children. The most commonly used drugs are Paracetamol and ibuprofen. Because these drugs can be given at alternating intervals some doctors tell parents to use a combination of both drugs during the course of a febrile illness. Options for treating fever include physical measures

(taking cool fluids and dressing lightly) and the antipyretic drugs Paracetamol and ibuprofen (*Harnden et al, 2013*). According to the 2003 clinical policy of American College of Emergency Physicians (ACEP), response to antipyretic medication does not change the likelihood of a child having a serious bacterial infection and should not be used for clinical decision making (*Harnden.Anthony, 2013*).

Some of Common Antipyretic Use for Treatment of Fever in Children:

1. Paracetamol or Acetaminophen:

1.1Drug Class and Mechanism:

Acetaminophen belongs to a class of drugs called analgesics (pain relievers) and antipyretics (fever reducers).The exact mechanism of action of acetaminophen is not known *(Paracetamol,2013).*It may reduce the production of prostaglandins in the brain. Prostaglandins are chemical that cause inflammation and swelling. Paracetamol relives pain by elevating the pain threshold, that is, by requiring a greater amount of pain it develop before a person feels it. It reduces fever through its action on the heat-regulating center of the brain. Specifically, it tells the center to lower the body's temperature when the temperature is elevated.

1.2Giving Paracetamol:

Paracetamol for children comes in several different strengths: for young children and for older children. Paracetamol is also made and sold by many different companies. Common strengths include 100 mg in ml(drops for babies, only very small doses are given)120 mg in 5 ml(syrup for young children) 240 mg in 5 ml (syrup for children over four years old).The usual dose of Paracetamol is 15 mg of Paracetamol per kg body weight per dose, but we recommend that you give the dose that is written on the bottle or pack for a child of your child's weight, rather than calculate dose,as errors can made *(Using Paracetamol,2013).*

1.3Drug interaction:

Panadol is metabolized by the liver; therefore drugs that increase the action of liver enzymes that metabolize Paracetamol, for example, carbamazepine (Tigerton), ionized, reduce the levels of Paracetamol and may decrease the effectiveness of Paracetamol. Doses of Paracetamol greater than the recommended doses are toxic to the liver and may result in severe liver damage *(Sears Helpful, 2013).*Ibuprofen have three actions: it reduces fever, relives pain and fights inflammation. Typical uses are teething, earaches, fever, headaches, and symptoms of colds and fever following childhood vaccination *(Sears Helpful, 2013)*. Dr Alastair Hay, consultant senior lecturer in primary health care at the University of Bristol, who led the study, said: "doctors, nurses, pharmacists and parents wanting to use medicines to treat young, unwell children with fever, should be advised to use ibuprofen first *(ibuprofen Dosage Table,2013).*

2. Aspirin or Acetylsalicylic Acid (ASA):

Aspirin was an acceptable treatment of fever in children before 1980, when Strake et al published a case-control study that implicated aspirin as the cause of Reyes syndrome. Now Paracetamol is the standard agent for treating fever in children because of its effectiveness, low cost, and minimal side-effects (DKK. Ng, 2013).Aspirin should not be used for fever because several studies have linked it is use to Reye syndrome *(Janice E Sullivan.et al, 2010).*

2.16.2 No Pharmacological Management of Fever:

The most common treatments used for fever are antipyretic drugs, external cooling methods such as specialized cooling blankets, sponging and ice packs or a combination of these therapies (feverish illness in children, 2013).Physical methods for cooling are often recommended for treating fever. The methods most commonly used include tepid sponging, bathing, fanning, and cooling blankets. Physical methods allow the body to lose heat through conduction, convection, or evaporation. Conduction occurs when heat is exchanged between two objects in contact with one another. Convection occurs when warm air in contact with an

object moves away and is replaced by cooler air in a continuous cycle. When water evaporates from an object surface heat is lost and the object cools. People who are sponged to treat fever lose heat by all three mechanisms *(national collaboration center, 2013).*

2.1. Increase fluids:

Having fever can increase child's risk of becoming dehydrated (Meremikwu MM,2009).body fluids are lost during fever because of sweating and the increase respiratory rate associated with fever means increased insensible losses through respiratory vapors, to reduce this risk ,parents should encourage their child to drink an adequate amount of fluids (Janice E.Sullivan.et al,2010). Children with fever may not feel hungry, and it is not necessary to force them to eat. However, fluids such as milk, formula, and water should be offered frequently. If the child is unable to drink fluids for more than a few hours, the parent should consult the child's healthcare provider *(Meremikwu MM, 2009).*

2.3Clothing:

To make a child more comfortable by reducing the amount of clothing they are wearing and reducing bedding. Sheets and blankets may cooler than a duvet so are safer for children under one year old. Infants lose excess heat from their heads and it is important to keep their heads uncovered when they have a fever *(Mark Awad, 2013).*

2.4Rest:

Having a fever causes most children to feel tired and achy. During this time, parents should encourage their child to rest as much as the child wants. It is not necessary to force the child to sleep or rest if he or she begins to feel better. Children may return to school or other activities when the temperature has been normal for 24 hours *(Mark Awad, 2013).*

2.5 Environment:

A room temperature of 18 C is comfortable and best measured by a room thermometer. Note that infants do not need a hot room, and all-night heating is rarely necessary. Reduce a room's temperature by opening a window or using the fan away from child as the cold air can induce shivering and resultant rise in temperature *(Mark Awad, 2013)*

2.6 Sponging and Baths:

Sponging is not as effective as antipyretic medications and generally is not recommended.Alcohol should not be used for sponging because of the risk of toxicity if it is absorbed through the skin *(Mark Awad, 2013).*

2.17 Complication of Fever:

Fever is probably the most common of all pediatric complaints, affecting millions of infants and children throughout childhood. Fever is a common response of the body to infection. Fever makes people feel unwell and can result in serious complications such as convulsion, febrile convulsions are the most common type of convulsions in childhood and are known to affect about two to five percent of all children *(national collaboration center, 2013)*. Children under the age of 5 may suffer from febrile seizures, according to the MayoClinic.com website. Only a small percentage of children have these seizures, and they are usually trigged by a viral infection. During the seizure, the child may lose consciousness and suffer from convulsions. While this is scary for both the child and her parents, most of the seizures do not cause lasting harm and are not a cause for serious concern *(April Sanders, 2013).*

2.18 Febrile Seizure

Approximately one in every 25 children will have at least one febrile seizure. Febrile seizures usually occur in children between the ages of 6 months and 5 years and are particularly common in toddlers.Children rarely develop their first febrile seizure before the age of 6months or after 3 years of age. The older a child is when the first febrile seizure occurs, the less likely that child is to have more. Febrile seizures are convulsions brought on by a fever in infants or small children. During a febrile seizure, child often loses consciousness and shakes moving limbs on both sides of the body. Less commonly, the child becomes rigid or has twitches in only apportion of the body, such as an arm or a leg, or on the right or the left side only. Most febrile seizures last a minute or two, although some can be as brief as a few seconds while others last for more than 15 minutes.The majority of children with febrile seizures have rectal temperatures greater than 102 degree Fahrenheit. Most febrile seizures occur during the first day of a child's fever *(J Houghton, 2013)*.Children with a high temperature may develop a febrile seizure, also known as febrile fit or febrile convulsion, most of which are not serious and may be the result of an ear infection or respiratory virus (a cold).Less commonly, febrile seizures may be caused by something more serious, such as meningitis, kidney infection or pneumonia (Christian Nordqvist,2013).Fever above 42◦C can lead to neurological damage, but as mentioned above this is very rare event. There is no evidence the fevers below 42◦ C cause neurological damage, even in young infant *(WHO, 2013).*

2.19 The Role of the Nurse in Fever Management

Fever management is an integral aspect of the pediatric nurses' role yet there is a dearth of literature, particularly Australian, discussing nurses' management of febrile children or their perception of their responsibilities when managing fevers of febrile hospitalized children *(The national institute, 2013).*Recent study reported health professionals often perceive fever to be harmful and that nurses can be confused about the risks and benefits associated with fever. Nurses and parents are often fearful that a fever will lead to febrile convulsions *(Mark Awad, 2013).*

Chapter Three

Methodology

Chapter Three

3- Methodology

3.1 Study Design:

This is a quasi-experimental pretest – posttest design. It is a hospital-based study.

3.2.1Study Area:

Kassala town (Sudan) lies 620 km southern east to Khartoum and 580 km south to Port Sudan, the capital of Kassala State. Kassala town lies on eastern Sudan with a total area of about 42,282 Km2. The total population of Kassala in 2008 is estimated at about 1,527,214.

3.2.2 Study setting:

This study was conducted in two pediatric hospitals in Kassala State; Kassala Specialised Pediatric Hospital and Kassala Teaching Hospital. "*Kassala Specialised Pediatric Hospital"* was established in 1988 and funded by Patients Helping Fund Organization. The hospital consists of contain 106 beds, and contain four words include causality for receiving ill children for short stay (24 hours), general wards which receive children with general medical condition, respiratory disease ward which deal with child have respiratory disorders and malnutrition ward which deal with child having nutritional disorder. There are 31 nurses which provide nursing care for children.

"Kassala Teaching Hospital" was established in 1905. It provides most types of medical services (medicine, surgery, and pediatric). Besides these there is tuberculosis center and HIV center. The pediatric ward is in a separated area which

located in north side of hospital. The pediatric ward is divided into three separate rooms which are (general, casualty and nutrition ward, there are 26 nurses which deliver care to the children occupying 65 beds.

3.3. Study Population

The study population is the nursing staff working in Kassala Specialized Pediatric Hospital(31), and in pediatric department of Kassala Teaching Hospital(26).

3.4 Sampling and Sample Size

- Total coverage sample method was selected.
- All nurses available (57) who are providing nursing care to children in Kassala specialized hospital for pediatric (31 nurses) and Kassala teaching hospitals (26 nurses).

3.5 Data Gathering Tools

Tow tools were used to collect data during the study, and this includes:

- Structured questionnaire for nurses.
- Observational Checklist for nurse's performance; (Measuring body temperature, oral method-axillaries, method-electronic, baby bath, compresses).

3 .5.1 Questionnaire Structure

Thequestionnairecontains six sections as follows:

Section one: contains demographic data, it includes five structural questions related to nurses' age, qualification, years of experience in pediatric care, training courses in pediatric care ,and nonpharmocological measures program to reduce fever.

Section two: It includes questions about nurse's knowledge about fever, factors affecting the body temperature, glands that control body temperature, normal room temperature and classification of temperature.

Section three: It includes structured questions designed to obtain information about nurse's knowledge about causes of fever "diseases that lead to increase body temperature, reason of fever, patterns of fever and if the changes of claims affect

body temperature.

Section four: It includes structured questions designed to obtain nurses knowledge about associated factors to the fever, primary signs of fever, types of thermometer, and place for temperature measurements.

Section five: It includes structured questions designed to obtain nurses knowledge about how to reduce fever, reduce room temperature, applying compresses, and prevent the child from dehydration.

Section six: It includes structured questions designed to obtain nurses knowledge about complication of fever.

These tools were applied twice, pre-intervention and post intervention "before conducting the program, and three months after the program implementations".

3.5.2 Observation Checklists for Nurse's Performance

These tools were developed by the researcher in light of standard checklist in textbook to assess nurse's performance in various nursing procedures regarding reduce of fever before and after their training.

3.5.3Observational for Measuring Body Temperature Method

These tools driven from WHO guide for measurements of body temperature from the mouth and axillary with mercury thermometer and electronicthermometerand modified by the researcher to demonstrate the degree of compliance with oral method and axillary with mercury thermometer and electronic thermometer among nurses.

3.5.4 Observation Sheet for Incidence of Fever:

This tool was modified from textbook to be suitable to observe and record the incidence of fever during the period of the study.

Scaling System

Knowledge	Good	Sufficient	Poor
Correct response	More than 4	2 – 3	One
Performance	**Good**	**Fair**	**Poor**

Oral temperature by mercury thermometer	7-9	4-6	Less than 4
Axially temperature by mercury thermometer	9-12	5-8	Less than 5
Axillary temperature by electronic thermometer	11-15	6-10	Less than 6
Baby bath	21-30	11-20	Less than 11
Cold compresses	37-54	19-36	Less than 19

3.6Data Analysis

The statistical analysis of data was carried out using the Statistical Package for Social Science program (SPSS) version (16).

3.7 Data Presentation

The following statistical measures were used:

1-Descriptive measures including: frequencies, percentages and mean, for quantitative data.

2-Statistical test include: Chi square test, T test was used for quantitative variables for research questions.

3- Correlation between the variable of the study.

4- The level of significance selected for this study was P value equal to or less than 0.05.

3.8 Operational Design

Operational design includes piloting of the study, data collection technique and ethical consideration.

3.8.1 Validity and Reliability

The tools have been examined by supervisor. Modification was done as required to ensure the validity and reliability of the tools.

A pilot study was carried out before implementing the tools on similar area (pediatric ward in Aroma Hospital). To test applicability of the tools of data collection, and to estimate the time required for filling the required forms.

3.9 Data Collection Technique

In this study the data was collected in two phases. The first phase (pre intervention)

data was run before implementation of education program, in which the questionnaire was distributed to participant and each one of them is allowed sufficient time to fill it. Then the researcher assigned a code for each one of participants to facilitate the observation of them in the clinical area by using observational checklists. This observational process took about two months. Nurses were known that the researcher was observing their practice daily for children.

After collection of pretest (First phase) the participants received the nonpharmocological measures program to reduce fever through five sessions. The training continued for one month. Two weeks for nurses in Kassala specialized hospitals for pediatric and two weeks in Kassala teaching hospital. After the nurses received the program the researcher told them that their practice will be evaluated and observed with the same tools. Three months later the same tools used in pretest was used to collect post test data (The second phase) which took about three months. So as to compare the results of these two phase (tests), to make a judgment about the knowledge and practice of nurses regarding this training program.

3.10 Educational Program

A training program was designed based on actual needs for assessment of nurses to improve their knowledge and practice regarding nursing pediatric patient and nonpharmocological measures program to reduce fever.

The Step of the Program includes:

1. Setting objectives.
2. Preparation of the content (scope of fever, causes, signs associated with fever, complication of fever, management of fever, physical methods to reduce fever, types of thermometer, site to monitor body temperature)
3. Preparation of suitable media for teaching the nurses which include:

   Real objects (towels, cotton bolls, , gauze, thermometers, antiseptic solutions,

gloves, antiseptic soaps, basin wash, ice bag, kidney dish, models).

4. Implementation of the program.

3.10 Ethical Considerations

- The aim of the present study was explained to the director of the study setting "kassala teaching hospital and Kassala specialized hospital for pediatric" to take his permission to carry out the study.
- An official letters from the faculty of post graduate and scientific research to the directors of hospitals.
- An agreement to participate was taken from nurses involved in the study, after explanation of the purpose of the study. After obtaining their consent for participation in the study they were informed that all collected information will be confidential and will be used only for the purpose of the study.

Chapter Four

Results

Chapter Four

4. Results

The Results

The results of the current study were presented as follows:

Part one: Demographic Characteristics of Study group.

Part two: Performance of the Study Group about Pediatric care.

Part three: Relation between Study Variables.

4-1: Demographic Characteristics of Study Group

Includes:-Age of the studied group, qualification, years of experiences in pediatric wards, training session related to the care of pediatric, previous session of non-pharmacological measures program to reduce fever in pediatric.

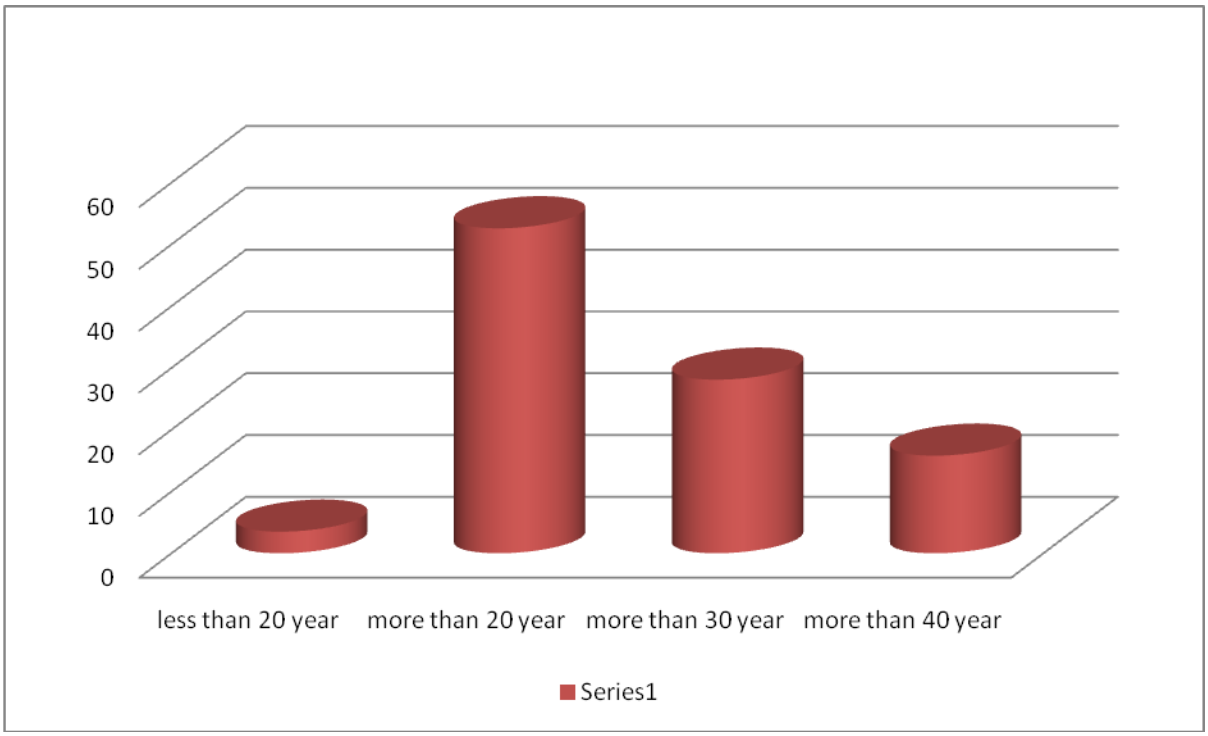

Figure (1): Age groups of the nurses participating in the study assessing non pharmacological treatment of fever in Kassala pediatric hospital (n=57).

Include 57 nurse their ranged between 20-45 years, the most of them (58%) in age range 20-30 years.

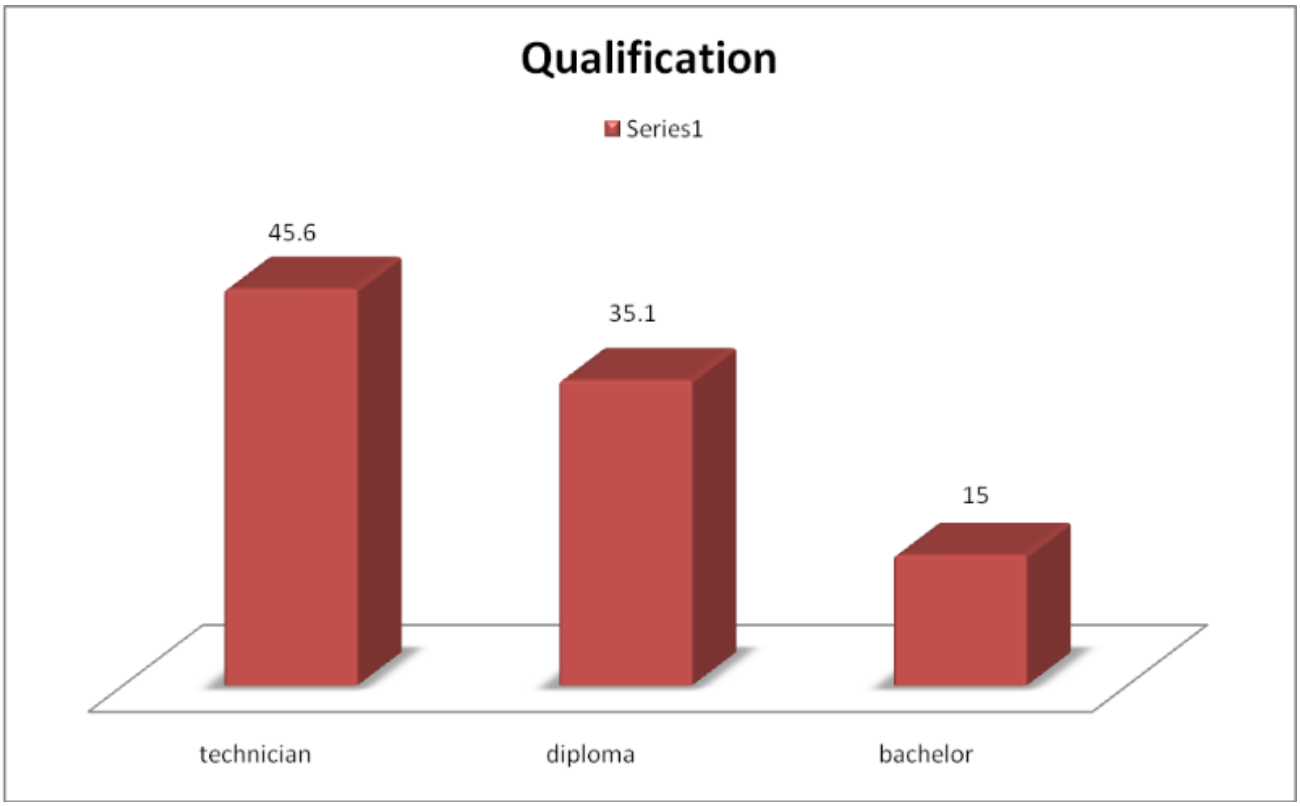

Figure (2): Qualification of the nurses participating in the study assessing non pharmacological treatment of fever in Kassala pediatric hospital (n=57).

Most of the study group (45.6%) are technicians, (15%) are bachelor holders, and (35.1%) of them are diploma holders.

Table (1): Received training courses for nurses participating in the study assessing non pharmacological treatment of fever in Kassala pediatric hospital (n=57).

Previous Courses	Frequency	Percentage
Six month ago	5	(8.8%)
A year ago	18	(31.6%)
More than year	5	(8.8%)
No previous courses	29	(50.9%)
Total	57	100%

The above table shows study group which received training session related to pediatric and more than half of the study group (50.9%) did not receive any courses, and (31.6%) received it one year ago.

Table (2): training program of nurses in non-pharmacological measures to reduce fever among nurses participating in the study assessing non pharmacological

treatment of fever in Kassala pediatric hospital (n=57).

No= 57	Frequency	Percentage
Six month ago	2	(3.5%)
A year ago	1	(1.8%)
More than one year ago	2	(3.5%)
No previous courses	52	(91.2%)
Total	57	100%

The above table shows that the majority (91.2%) of study group do not receive any training program of non-pharmacological measures to reduce fever in pediatric

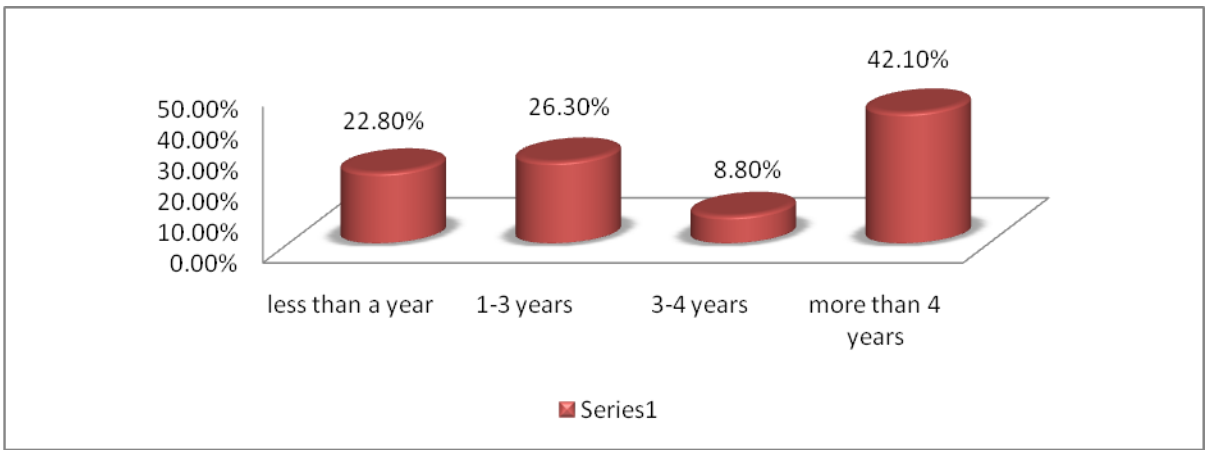

Figure (3): years of experience among the nurses participating in the study assessing non pharmacological treatment of fever in Kassala pediatric hospital (n=57).

The result shows that the percentage of nurses who have experience of more than 4 years were (40.0%) followed by those who have 1-3 years of experience (25%),while nurses with experience from 3-4year had lowest percentage (5.0%) ,and about (20%) less than 1 year,. regarding experience in children's wards.

4-2 Knowledge about Scope of Fever

Table (3): knowledge about concept of fever among nurses participating in the study assessing non pharmacological treatment of fever in Kassala pediatric hospital (n=57).

N = 57	Pre test				Post test			
Knowledge	*Good*	*Sufficient*	*Poor*	*Don't know*	*Good*	*Sufficient*	*Poor*	*Don't know*
Definition of fever	8 (14%)	28 (49.1%)	16 (28.1%)	5 (8.8%)	29 (50.9%)	20 (35.1%)	7 (12.3%)	1 (1.8%)
Factors affect the body temperature	23 (40.4%)	20 (33.1%)	12 (21.1%)	2 (3.5%)	47 (82.5%)	6 (15.5%)	3 (5.3%)	1 (1.8%)
Fever pattern	13 (22.8%)	21 (36.8%)	17 (29.8%)	6 (10.5%)	24 (42.1%)	18 (31.6%)	11 (19.3%)	4 (7%)
classification of fever	20 (35.1%)	12 (21.1%)	18 (36.6%)	7 (12.3%)	37 (64.9%)	5 (8.8%)	12 (21.1%)	3 (5.3%)
Diseases lead to high fever	39 (68.4%)	11 (19.3%)	6 (10.5%)	1 (1.8%)	52 (91.2%)	4 (7%)	1 (1.8%)	0 (0%)
Reasons for the emergence of fever	22 (38.6%)	22 (38.6%)	12 (21.1%)	1 (1.8%)	45 (78.9%)	9 (15.8%)	3 (5.3%)	0 (0%)
Forms of fever	36 (63.2%)	10 (17.5%)	7 (12.3%)	4 (7%)	49 (86%)	4 (7%)	2 (3.5%)	2 (3.5%)
Mean of knowledge	40.4%				70.9%			
P.Value	**0.000**							

Knowledge about the scope of fever was first tested using a questionnaire of studied group described that good knowledge of the study group regarding known of fever increased from (14%) in pretest to (50.9%) after intervention. The study group have poor knowledge (21.1%) and (3.5 %) have no knowledge about factors that affect the body temperature pretest where this percentage was decreased to (15.8 %%) after intervention with highly significant variation (P= 0.000) while score of good knowledge raises from (40.4%) pretest to (82.5%) after intervention.Also concerning knowledge of fever pattern depends on the poor score improved from ((10.5%) after intervention. Regarding knowledge about classification of temperature the good knowledge of study group increased from (31.4%) pretest to (64.9%) after intervention with significant (P= 0.000). Regarding disease that lead to high temperature there was improvement of good knowledge from (68.4%) pretest to (91.2%) after intervention. Concerning knowledge about the reasons for the emergence of fever in children there was decrease of poor knowledge from (21.1%) pretest to (3.5%) after intervention with high significant result (P= 0.000).The table also show that good knowledge of study group about Forms of fever increased from (63.2%) pretestto (86%) posttest .The table illustrate that overall mean of good knowledge about knowledge of fever improved from (40.4%) in pretest to (70.9%) in posttest.

Table (4): knowledge about "gland regulates the body temperature" among nurses participating in the study assessing non pharmacological treatment of fever in Kassala pediatric hospital (n=57).

No 57	Pre test		Post test	
Knowledge	Hypothalamus	I don't now	Hypothalamus	I don't now
Gland that regulates body temperature	6 (10.5%)	13 (22.8%)	17 (29.8%)	(0%)

Theabove table illustrates that few of study group (10.5%) aware about the gland that regulates body temperature and this knowledge increased after

intervention to (29.8%), and about (22.8%) don't know that the hypothalamus regulate body temperature, percentage were decreased to (0%) after intervention

Table (5): knowledge about normal room temperature among nurses participating in the study assessing non pharmacological treatment of fever in Kassala pediatric hospital (n=57).

No 57	Pre test		Post test	
Knowledge	18	I don't now	18	I don't now
Normal room temperature	3 (5.3%)	21 (36.8%)	23 (40.4%)	1 (12.3%)

The above table illustrate that few of study group (5.3%) aware about the degree of normal room temperature and this knowledge increased after intervention to (40.4%), and about (36.8%) was don't know and this percentage were decreased to (12.3%) after intervention.

Table (6): knowledge of about "degree of measurement of temperature" among nurses participating in the study assessing non pharmacological treatment of fever in Kassala pediatric hospital (n=57).

N = 57	Pre test				Post test			
Knowledge	More	Less	Equal	Don't know	More	Less	Equal	Don't know
Rectal temperature for the mouth temperature	32 (56.1%)	1 (1.8%)	19 (33.3%)	5 (8.8%)	41 (71.9%)	15 (26.3%)	1 (1.8%)	0 (0%)
Axillaries degree heat for rectal temperature	28 (49.1%)	1 (1.8%)	24 (42.1%)	4 (7%)	41 (71.9%)	1 (1.8%)	13 (22.8%)	2 (3.5%)
P.Value	0.000							

More than half (56.1%) of nurses gave correct answer regarding rectal temperature for the mouth temperature pretest and (79.9%) posttest, Regarding axillaries temperature for rectal temperature about (49.1%) were gave correct answer and this percentage increased to (79.1%) after implementation of program.

Table (7): knowledge about clinical feature and signs about fever among nurses participating in the study assessing non pharmacological treatment of fever in Kassala pediatric hospital (n=57).

N = 57	Pre test				Post test			
Knowledge	Good	Sufficient	Poor	Don't know	Good	Sufficient	Poor	Don't know
Sign associated with high fever	36 (63.2%)	12 (21.1%)	7 (12.3%)	2 (3.5%)	48 (84.2%)	7 (12.3%)	1 (1.8%)	1 (1.8%)
Clinical signs of fever	18 (31.6%)	24 (42.1%)	11 (19.3%)	4 (7%)	43 (79.4%)	10 (17.5%)	2 (3.5%)	2 (3.5%)
The most susceptible to fever	28 (49.1%)	9 (15.8%)	16 (28.1%)	4 (7%)	32 (56.1%)	10 (17.5%)	13 (22.8%)	2 (3.5%)
laboratory testing of blood	10 (17.5%)	4 (7%)	34 (59.6%)	9 (15.8%)	15 (36.3%)	7 (12.3%)	25 (43.9%)	10 (17.5%)
signs of dehydration	40 (70.2%)	8 (14%)	8 (14%)	1 (1.8%)	49 (86%)	2 (3.5%)	3 (5.3%)	3 (5.3%)
Mean of knowledge	46.3%				68.4%			
P.Value	**0.000**							

The above table shows that there is increased good knowledge regarding signs associated with fever from (63.2%) to (84.2%), and improved good knowledge for most susceptible to fever from (49.1%) to (56.1%) after intervention .Concerning signs that appear indicate that was fluid loss we find marked increase in good knowledge after implementation of program from (70.2%)

to (84%) with highly significant (P = 0.000)

Table (8): Knowledge about "types and site of thermometer" among nurses participating in the study assessing non pharmacological treatment of fever in Kassala pediatric hospital (n=57).

N = 57	Pre test				Post test			
Knowledge	Good	Sufficient	Poor	Don't know	Good	Sufficient	Poor	Don't know
Types of thermometer	25 (43.9%)	16 (28.1%)	14 (24.6%)	2 (3.5%)	46 (80.7%)	8 (14%)	2 (3.5%)	1 (1.8%)
Place to measure temperature	51 (89.5%)	2 (3.5%)	1 (1.8%)	3 (5.3%)	54 (94.7%)	1 (1.8%)	1 (1.8%)	1 (1.8%)
P.Value	**0.644**							

The above table shows that there is an improvement of knowledge about types of thermometer from (43.9%) to (80.7%) after intervention of program .Regarding knowledge about the place to measurement temperature good knowledge improved from (89.5%) pretest to (94.7%) after intervention of program.

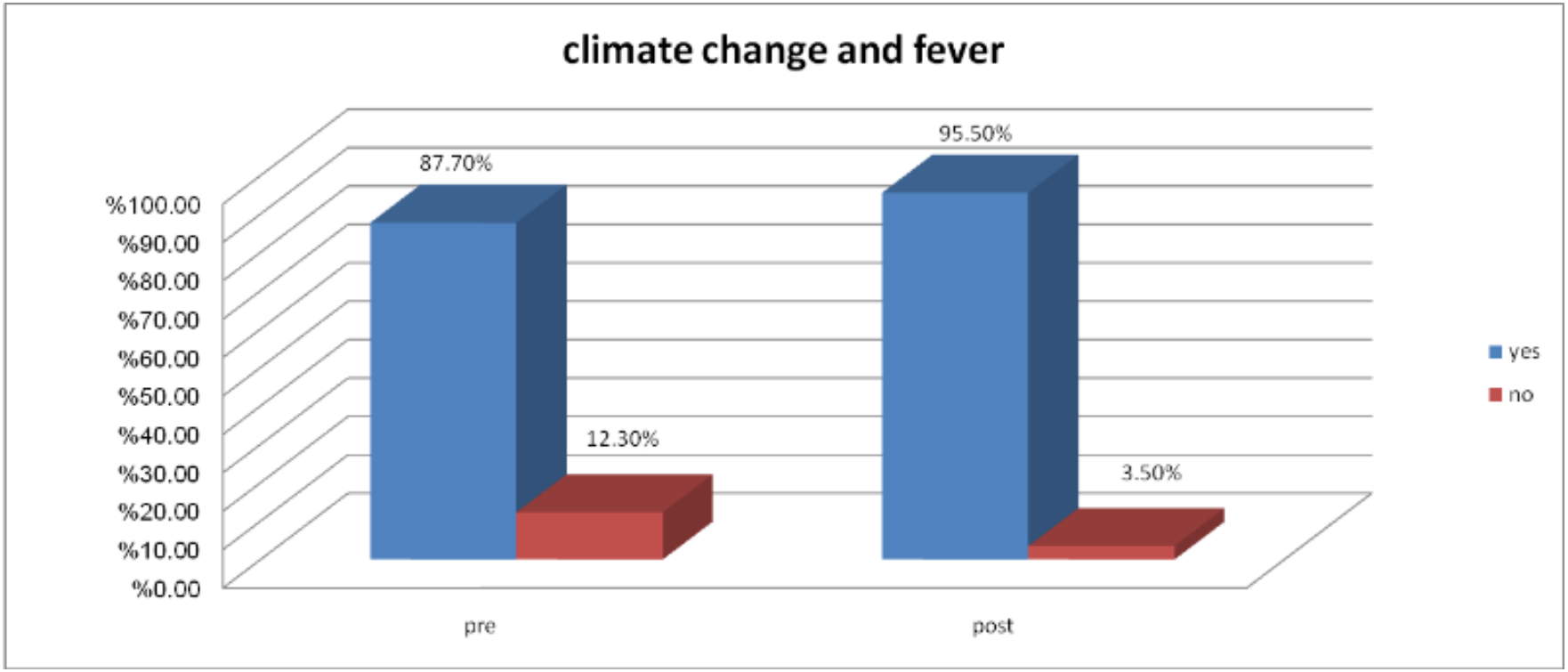

Figure (4): Knowledge about "relation of climate change and fever" among nurses participating in the study assessing non pharmacological treatment of fever in Kassala pediatric hospital (n=57).

The above figure shows that the majority of nurses (87.7%) of have gave correct answer regarding the effect of climate of the body temperature and this knowledge improved to (90%) after intervention.

Table (9): knowledge "about measures to reduce fever" among nurses participating in the study assessing non pharmacological treatment of fever in Kassala pediatric hospital

N = 57	Pre test				Post test			
Knowledge	Good	Sufficient	Poor	Don't know	Good	Sufficient	Poor	Don't know
Fever cases need emergency	32 (56.1%)	10 (17.5%)	12 (21.1%)	3 (5.3%)	45 (78.9%)	6 (10.5%)	3 (5.3%)	3 (5.3%)
Reduce the room temperature	35 (61.4%)	6 (10.5%)	12 (21.1%)	4 (7%)	48 (84.2%)	4 (7%)	2 (3.5%)	3 (5.3%)
Compresses to reduce fever	12 (21.1%)	9 (15.8%)	33 (57.9%)	3 (5.3%)	17 (29.8%)	30 (52.6%)	7 (12.3%)	3 (5.3%)
Protect from dehydration	37 (64.9%)	14 (24.6%)	4 (7%)	2 (3.5%)	51 (89.5%)	3 (5.3%)	3 (5.3%)	0 (0%)
High fever	18 (31.6%)	30 (52.6%)	7 (12.3%)	3 (5.3%)	37 (64.9%)	13 (22.8%)	4 (7%)	2 (3.5%)
Mean of knowledge	47%				69,5%			
P.Value	**0.00**							

The above table shows that there is an increase in score of good knowledge about fever cases that need emergency from (56.1%) to (78.9%), regarding how to reduce room temperature poor knowledge were decrease from (21.1%) to (3.5%) after intervention.Concerning that more than half (59.7%) had poor knowledge for compresses that are used to reduce fever, and improved to (12.3%) after intervention with highly significant (P = 0.000).The table show that about (64.9%) of nurses had good knowledge to how protect the child from fluid loss and improved to (89.5%) after implementation of program and follow up with highly significant (P = 0.000).

Table (10): knowledge about "management of fever and complication among nurses participating in the study assessing non pharmacological treatment of fever in Kassala pediatric hospital (n=57).

N = 57	Pre test				Post test			
Knowledge	*Good*	*Sufficient*	*Poor*	*Don't know*	*Good*	*Sufficient*	*Poor*	*Don't know*
First aid to reduce fever	41 (71.9%)	7 (12.3%)	7 (12.3%)	2 (3.5%)	47 (82.5%)	4 (7%)	1 (1.8%)	5 (8.8%)
Clinical treatment to reduce fever	39 (68.4%)	8 (14%)	8 (14%)	6 (10.5%)	44 (77.2%)	6 (10.5%)	1 (1.8%)	2 (3.5%)
Cases that need to see the doctor	21 (36.8%)	23 (40%)	11 (19.3%)	2 (3.5%)	32 (56.1%)	19 (33.3%)	1 (1.8%)	5 (8.8%)
Complications of fever	28 (49.1%)	16 (28.1%)	10 (17.5%)	3 (5.3%)	44 (77.2%)	7 (12.3%)	4 (7%)	2 (3.5%)

Mean of knowledge	53%		70.2%	
P.value	**0.000**			

Clarified that poor knowledge of the study group regardingfirstaid to reduce fever decreased from (12.3%) in pretest to (1.8%) after intervention. The study group have poor knowledge (14 %) and (10.5%)) have no knowledge about clinical treatment to reduce fever pretest where this percentage was decreased to (1.8%) after intervention with highly significant variation (P= 0.000) while score of good knowledge raises from (68.4%) pretest to (77.2%) after intervention.Also concerning knowledge about cases that need to see the doctor the poor score improved from (19.3% to1. 8 %) after intervention. Regarding knowledge about symptoms associated with fever the good knowledge of study group increased from (38.6%)pretest to (49.1%) after intervention with significant (P= 0.000). Concerning knowledge about complications of fever there was decrease of poor knowledge from (17.5%) pretest to (7%) after intervention with high significant result (P= 0.000).

Table (11): knowledge about "comparison between fever, pulse, and respiratory rate" among nurses participating in the study assessing non pharmacological treatment of fever in Kassala pediatric hospital (n=57).

N = 57	Pre test				Post test			
Knowledge	Increase rate	Decrease rate	Change doesn't happen	Don't know	Increase rate	Decrease rate	Change doesn't happen	Don't know
When the high fever pulse rate	41 (71.9%)	0 (0%)	7 (12.3%)	9 (15.8%)	42 (73.7%)	0 (0%)	9 (15.8%)	5 (8.8%)
When high fever respiration	44	0	7	7	43	0	7	6

rate	(77.2%)	(0%)	(12.3%)	(12.3%)	(75.4%)	(0%)	(12.3%)	(10.5%)

The above table shows that there is an improvement of knowledge regarding high temperature to pulse rate in posttest. Whom don't know from (15.3 %) to (8.8% % and 0 %) and good score from (71.9%) to (73.7%) with highly significant variation (P = 0.000). Concerning when high temperature respiration rate more than half of study group (12.3%) have incorrect answer but this percentage decreased after intervention to (10.5%) after intervention and follow up phase.

Performance about Pediatrics Care:

Table (12) performance about nursing procedures for measurement of body temperature among nurses participating in the study assessing non pharmacological treatment of fever in Kassala pediatric hospital (n=57).

N = 57	Pre test			Post test		
Procedure	Good	Fair	Poor	Good	Fair	Poor
Oral measurement by mercury thermometer	36 (63.2%)	21 (36.8%)	5 (8.8%)	48 (84.2%)	4 (7%)	0 (0%)
Axillary measurement by mercury thermometer	17 (29.8%)	39 (68.4%)	3 (5.3%)	42 (73.7%)	12 (21.1%)	1 (1.8%)
Axillary measurement by electronic thermometer	15 (26.3%)	19 (33.3%)	23 (40.4%)	45 (78.9%)	8 (14%)	4 (7%)

The above table illustrates that oral method performance of nurses increased toward good performance from (63.2 %) to (84.2 %) in posttest. Fair performance decreased from 36.8% to 7 % in posttestand poor performance was decreased from (8.8 %) to (0%) inposttest.Regarding axillaries methodgood performance increased from (29.8%) to (73.7%) in posttest,fair performance decreased from (68.4%) to (21.1%), and poor performance was decreased from (5.3%) to (1.8%) in posttest. Concerning electronic method good performance increased from (26.3%) to (78.9%), fair performance decreased from (33.3%) to (14%), and poor performance decreased from (40.4%) to (10.5%) in posttest.

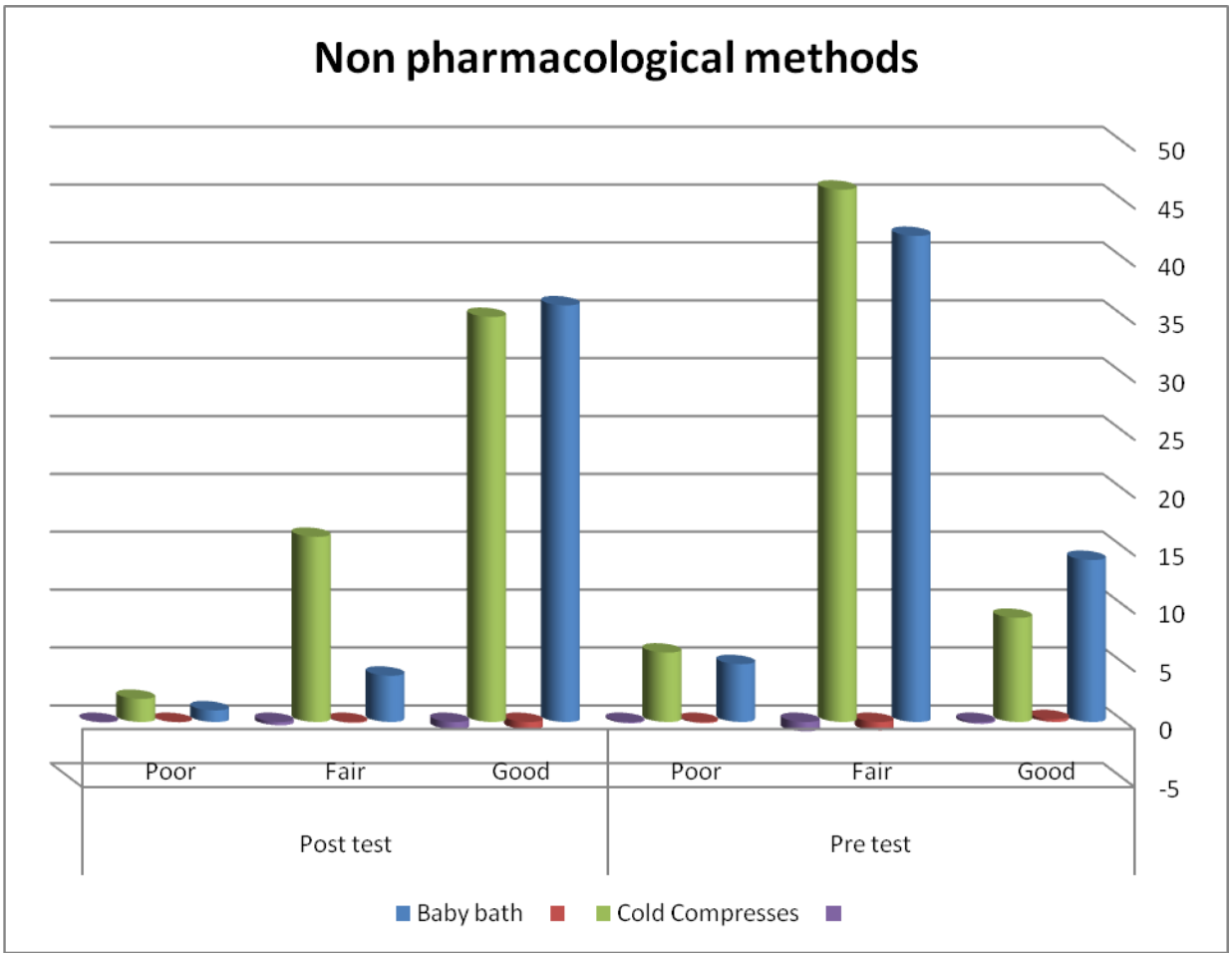

Figure (5) performance about "non-pharmacological measures program to reduce fever" among nurses participating in the study assessing non pharmacological treatment of fever in Kassala pediatric hospital (n=57).

The above figure illustrates that baby bath good performance increased from (24.6%) to (63.2%), fair performance decreased from (73.7%) to (7%), and poor performance decreased from (8.8%) to (1.8%) in posttest. Regarding comprises good performance increased from (15.8%) to (61.4%), fair performance decreased from (80.7%) to (28.1%), and poor performance decreased from (10.5%) to (3.5%) in posttest.

4-3Relation between various variable

Table (13) Relation between years of experience and knowledge about scope of fever among nurses participating in the study assessing non pharmacological treatment of fever in Kassala pediatric hospital (n=57):

N = 57	Knowledge	Years of experience			
Items		*Less than 1 year*	*1- 3 years*	*3-4 years*	*More than 4 years*
Prevent from dehydration	Good	8(16%)	8 (16%)	4 (10.8%)	17 (34%)
	Sufficient	4(8%)	4 (8%)	1 (2 %)	5 (10%)
	Poor	0 (0%)	0 (0%)	4 (8%)	2 (4%)
	Don't know	1 (2 %)	1 (2 %)	1 (2 %)	0 (0%)
P value	**0.806**				
Pattern of fever	Good	2 (15.4%))	5 (38.5%)	2 (15.4%)	4 (8%)
	Sufficient	6 (28.6%)	6 (28.6%)	0 (0%)	9 (18%)
	Poor	5 (29.4%)	2 (11.8%)	2 (11.8%)	8 (16.1%)
	Don't know	0 (0%)	2 (33.3%)	1 (16.1%))	3 (6%)
P value	**0.510**				
Reasons of the emergency of fever	Good	2 (9.1%)	10 (45.5%)	3 (13.6%)	7 (14%)
	Sufficient	7 (31.8%)	4 (18.2%)	2 (9.1%)	9 (18%)
	Poor	4 (33.3%)	1 (8.3%)	0 (0%)	7 (14%)
	Don't know	0 (0%)	0 (0%)	0 (0%)	1 (2%)
P value	**0.181**				
Place for measurement temperature	Good	11 (21.6%)	15 (29.4 %)	4 (7.8%)	21 (41.2%)
	Sufficient	0 (0%)	0 (0%)	1 (5. %)	1 (5%)
	Poor	0 (0%)	0 (0%)	0 (0%)	1 (5%)
	Don't know	2 (4%)	0 (0%)	0 (0%)	1 (33.3%)
P value	**0.336**				

The above table shows that (34%) those that have less than 4 years' experience in pediatric care have good knowledge about prevent from dehydration with no statistical significant p = 0.806. Also they have good knowledge about pattern of fever in children (18%), reasons of the emergency of fever (18%). Also (33.3%) of study group who have (less than 1 years) old have poor knowledge about reasons of the emergency offeverwithnostatisticalsignificancepvalue0.181.

Table (14) relation between qualification and nursing procedures regarding fever among nurses participating in the study assessing non pharmacological treatment of fever in Kassala pediatric hospital (n=57):

N = 57		Qualification		
Procedure s	**Performance**	***Technician***	***Diploma***	***Bachelor***
Oral Method	Good	17 (47.2%)	11 (30.6)	6 (16.7%)
	Fair	9(42.9%)	9 (42.9%)	3 (14.3%)
	Poor	0 (0%)	0 (0%)	0 (0%)
P value	**0.606**			
Axillaries Method	Good	9 (52.9%)	5 (29.4%)	2 (11.8%)
	Fair	16 (40%)	15 (38.5%)	7 (17.9%)
	Poor	1 (100 %)	0 (0%)	0 (0%)
P value	**0.867**			
Electronic Method	Good	5 (33.3%)	4 (26.7%)	5 (33.3%)
	Fair	8 (42.1%)	8 (42.1%)	3 (15.8%)
	Poor	13 (56.5%)	8(34.8 %)	1 (4.3%)
P value	**0.262**			
Compresses	Good	2 (22.2%)	2 (22.2%)	5 (55.6%)
	Fair	23 (50%)	17 (37%)	4(8.7%)
	Poor	1 (5%)	1(5%)	0 (0%)
P value	**0.041**			

The above table represents that (42.9%)of study group are those technicians who have fair performance for oral methodwith no statistical significance p value = 0.606. Also those with diplomaperform poorlyfor axillaries method (100 %) and (38.9%) of those perform fairly regarding electronic method. Also the table illustrates that of study group those have bachelor (55.6%) of them done goodly performance regarding compresses with statistical significance p value = 0.041.

Table (15): relation between years of experiences in pediatrics wards and nursing procedures among nurses participating in the study assessing non pharmacological treatment of fever in Kassala pediatric hospital (n=57).

N = 57		Years of experience in the children's wards			
Procedure s	**Performance**	less than a year	1-3 years	3-4 years	more than 4 years
Axillaries Method	Good	2 (11.8%)	4 (23.5%)	2 (11.8 %)	9 (52.9%)
	Fair	3 (7.7%)	14 (35.9 %)	3 (7.7%)	19 (48.7%)
	Poor	0 (0%)	0 (0%)	0 (0%)	0 (0%)
P value	**0.915**				
Electronic Method	Good	2 (13.3%)	3 (20%)	2 (13.3%)	8 (53.3%)
	Fair	2 (10.5%)	6 (31.6%)	3 (5.3 %)	10 (52.6%)
	Poor	1 (4.3 %)	9 (39.1 %)	2 (8.7%)	11 (47.8%)
P value	**0.848**				
Baby Bath	Good	2 (14.3%)	2 (14.3%)	2 (14.3%)	8 (57.1%)
	Fair	3 (7.1%)	16 (38.1%)	3 (7.1%)	20 (48.6 %)
	Poor	0 (0%)	0 (0 %)	0 (0 %)	1(100%)
P value	**0.639**				
Compresses	Good	2 (22.2%)	0 (0%)	2 (22.2%)	5 (55.6%)
	Fair	3 (6.5%)	17 (37%)	3 (6.5%)	23 (50%)
	Poor	0 (0%)	1 (50%)	0 (0%)	1 (50 %)
P value	**0.230**				

The above table represents that (48.7%)of study group are those who have experience in pediatric care more than 4 years have fair performance axillaries method with no statistical significance p value = 0.915. Also those with (1-3 years) of experience perform poorly in electronic method (39.1 %) and (38.1%) of those have experience 1-3 years perform fairly regarding babybath. Also the table illustrates that of study group those have experience less than 1 years and (1 – 3 years) (50 %) of them done poorly regarding compresses with statistical significance p value = 0.230.

Chapter five

Discussion
Conclusion
Recommendations

Chapter five

5.1 Discussion

This study was conducted in Kassala pediatric hospitals to evaluate of implementing of nonpharmocological measures program to reduce fever among admitted children; the educational program was directed mainly to the nurses who provide direct care to children throughout their hospital stay. The study involved 57 nurses where (45.6%) of them were qualification of technician, (8.8%) of them had experience in pediatrics care field more than 1 year. More than thirty percent (31.8%) of them have no previous training course in pediatrics care and half of them (50.9%) have not attended of nonpharmocological measures program to reduce fever. The present study revealed that increase in mean of good knowledge about scope of fever from (40.4%) before intervention of program to (70.9%) after implementation of program with highly statistical significant (p value = 0.000). In light of the fact that an educational program based on evidence designed according to nurses' needs and new evidence findings in fever knowledge showed increase in means of good knowledge *(Khalifa M. I, 2007).*

In this study regarding, nurses knowledge about thermoregulation, the present study revealed that the few of nurses were aware about this knowledge before intervention and this knowledge improved after implementation of the program this reflect that most nurses respondents know the gland regulate body temperature due to their experience in children ward’s more than for 4 years. Moreover the study revealed most of nurses with different educational level had poor knowledge about signs associated with fever there was improvement of nurse's knowledge regarding signs associated with fever (63.2% to 84.2%), clinical signs of fever (31.6% to 79.4%), and signs of dehydration (70.2% to 86%) after implementation of program.

There was changes in nurse's knowledge about thermometers (types and sites of taking temperature) from (43.9% to 80.7%); (89.5% to 94.7%) after implementation of the program respectively with no statistical significant (value 0.644) In comparable with other study conducted on Moroccan proved that 54% of parents determined their children's fever using thermometer, (44.4%) stated that fever could be determined by touching the childes forehead *Balafama Alex-Hart, 2011*.

On the other hand the present study revealed that of nurses (47%) had improved knowledge of fever management to(69.5%)after implementation of program and this supported by *(Greensmith L, 2013)* nurses knowledge towards fever management further education is required to improve nurses' knowledge of fever and fever management based care for febrile children. IN this study regarding, nurse's knowledge towards relation between fever and climate the present study revealed that the (87%, 94%) majority of nurses were aware about this knowledge due to most of them had experiences in children more than 4 years and the different level of education. Also in this study the majority (632%) of nurse had correct knowledge regarding relation between different methods for measuring body temperature due to their more experience in children wards with highly significant (P = 0.000) .

The result of the study revealed that nurses knowledge regarding reduction of fever improved from (47% to 69.5%) after implementation of program with statistical significant (p value = 0.000).This supported by *(Edward H, 2007)* improving pediatric nurses knowledge in childhood fever management specifically knowledge of the physiology of fever, and attitudes towards evidence-based fever management. In addition, experimental group nurses demonstrated statistically significantly more knowledge of general fever management principles at 4 months after the intervention than control group nurses (P = 0.01), and compared with their own knowledge at baseline (P < 0.001).

There was acceptable change in nurses knowledge about the non-pharmacological methods to reduce fever and complication of fever from (53% to 70.2%) after

implementation of program with statistical significant (p value = 0.000) due to low level of qualification of study group was technician about (45.6%).In fact effect of an evidence-based pediatrics fever education program on emergency nurses knowledge increased following the tutorials ***(Considine J et al, 2007).***

There was acceptable change in nurse's knowledge about compression (vital signs) specially pulse, respiratory rate from (71.9%, 77.2% to 73.7%, and 75.4%) after intervention of program with highly significant variation (P = 0.000). Concerning nurse's practice towards method for measurement temperature oral, axially and electronic methods the present study reported that the rate of this method started was low (63.2%, 29, 8%, 26, 3%) but improved after nurses received optimum knowledge and practice regarding this methods (84.2%, 73.7%, 78.9%).This is due to the efforts made by implementing of non-pharmacological measures program in the period of study aiming to increase awareness of the importance of method to measurement body temperature among nurses. This results in contrast with Palestine study as the most of Palestine mothers 65.4% recognized fever by only touching the child, approximately one third 31.6% would measure the temperature, and evaluated temperature by touching and measuring (***Zyoud.et al, 2013).***

Also disagree with study conduct in Kuwait that showed 34% of mothers would recognize fever by general appearance of child, and 32% of them by touching the child. Only about one third (32.6%) would measure temperature (***Abdjalil.el al-2007).***The most common site that palatine parents used for measuring temperature was the mouth (50.2%) followed by the anus (25.9%) and then the armpit (21.1%) (***Zyoud.et al, 2013).***

Concerning nurse's practice towards non pharmacological methods to reduce fever (baby bath, cold compresses) the present study reported that the rate of this method started was low ((24.6%, 15.8%) but improved after nurses received optimum knowledge and practice regarding this methods ((63.2%, 61.4%) This is due to the efforts made by the non-pharmacological measures program in the

period of study aiming to increase awareness of the importance of method to reduce body temperature among nurses. Similar study conducted on the Nigerian mothers; tepid sponging used by (90.1%) of mothers (*Kareem AOshikoya,2014*)the most commonly reported methods to treat feverish child in Palestine are sponging*.(Zyoud.Sa.Ed,2013)*ShaliniDaial stated that during febrile episodes, increasing fluid intake, removing excess clothing and linens, bathing or sponging with tepid water and using antipyretics may offer relief. In the very sick administration of fluids intravenously may be warranted. Other comfort measures include applying a lubricant to dried lips and keeping mucous membranes moist with ice chips. Convective cooling via increasing air circulation using fans or an airflow blanket may be effective to reduce the temperature and improve patient comfort *(Dalal Shalini,2013)*.And 15% of Kuwait mothers apply sponging *(Data collection Methods,2013)(Abde I jalil,2007).*

Our study showed a significant difference in the level of knowledge about scope of fever and years of experience in pediatrics wards there was good knowledge in the nurses who had the years of experience more than 4 years in pediatrics wards and some of them have sufficient knowledge previous study proved that parents in Saudi Arabia were not able to define fever accurately*(Awal Khan, Hedyaatullah et al, 2015)* . And other Study from the United States of America, France, Palestine and Saudi Arabia has shown that parents rarely define fever correctly *(Maria Kelly,2016).*

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On other hand our study showed that also a significant difference in the level of nursing procedures that reduce fever and qualification there was good performance in the technician for oral methods and axillaries methods and good performance in electronic methods and compresses in the bachelor.

Study showed that relation between years of experience in pediatrics wards and nursing procedures to reduce fever there was good performance `for axillaries

methods, baby bath, and compresses for the years of experience in the pediatrics wards more than 4 years.

5.2 Conclusion

This study concludes that:

- Nurses working in the pediatric department had relatively good knowledge regarding scope of fever as definition of fever; factors affect the body temperature, pattern of fever, classification of fever, causes of fever, and forms of fever.
- There was improvement in nurse's knowledge regarding signs associated with high fever, clinical signs of fever, and the most susceptible to fever.
- The nurses measuring body temperature practice was motivated in optimum way as there was an increase in knowledge and practice of nurses regard measuring temperature after implementation of the program.
- There was improvement in nurse's nonpharmacological skills that related to pediatric fever care.

5.3 Recommendation

Based on the result of the study, the researcher recommends the following:

- Practice pediatric care with non-pharmacological fever guidelines for prevention of complication of fever and periodically assess health care personnel adherence to guidelines.
- Establish periodic educational program for nurses working in the pediatric department about non-pharmacological measures program to reduce fever by more qualified nurses, and using audiovisual materials.
- Implementation of non-pharmacological methods practice in all health care institutions before starting of treatment.
- Further studies need to be conducted to overcome the limitations of this study.

Chapter six

References

Appendix

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Appendix

Questionnaire
University of Shendi
College of Graduate Studies and Scientific Research
A questionnaire for nurses to apply non - pharmacological programs to reduce fever in children in hospitals

Confession:

I am Maha Mohammed Al-Amin working in the Nursing Department, Faculty of Medicine and Health Sciences. This research was carried out to explain the implementation of an educational program for nurses to reduce fever in children in Kassala children's hospitals. I greatly appreciate your participation in this research. The information collected through the questionnaires will help design policies to reduce fever in children inside hospitals within the children's sections. The program contributes to increasing your knowledge, allowing nurses to learn how to reduce fever in children without medication inside hospitals. The questionnaire takes about 20 minutes to complete. The information you write will be kept confidential and your answers will not be disclosed to anyone who is not a researcher. None of your answers will be shared with anyone inside or outside the hospital. Your participation will be one of the 50 volunteers participating in this research.

Do you have any questions about the search and the program?

Researcher s Phone No. 0912993983 – 0121883754

Agree ( ) Disagree ( )

First: demographic information:

1-Age:

a. Less than 20 years( ) b. 21-30 years( )
c. 31-40 years ( ) d. More than 40 years ( )

2-Qualification:

a. Technician ( ) b. Diploma ( )
c. Bachelor ( )

3- Years of experience in the children's ward:

a. Less than one year ( ) b.1.3 years ( )
c. 3-4 years ( ) d. 4 years ( )

4. When did you take the last training course on caring for children?

a. 6 months ago ( ) b. One year ago ( )
c. More than one year ago ( )

5. When did you take a training course on how to reduce fever in children?

a. 6 months ago ( ) b. One year ago ( )
c. more than one year ago ( ) d. did not take a training course ( )

Put a tick (√) about the correct answer and across (χ) about the wrong answer:

Second: Knowledge about Fever:

6. Fever defined as:

a. Body temperature higher than 37.5 ° C( )
b. The temperature of the body is more than 40 ° C( )
c. Infection with viral infection ( )
d. I do not know ( )

7. Factors affecting body temperature:

a. Environmental factors ( ) b. Loss of liquids ( )
c. Bleeding ( ) d. I do not know ( )

8. The gland regulating body temperature is:

a. thyroid( ) b. Hypothalamus( )

c. The touch ( ) d. I do not know ( )

9. Natural room temperature is

a. 16 ° C ( ) b. 18 ° C ( )
c. 20 ° C ( ) d. I do not know ( )

10. The temperature of the rectum for the temperature of the mouth:

a. More ( ) b. Less( )
c. Equal ( ) d. I do not know ( )

11. Armpit temperature for rectal temperature:

a. More ( ) b. Less( )
c. Equal( ) d. I do not know ( )

12. The pattern of fever in children depends on:

a. Child age ( ) b. Virus infection ( )
c. The infection with bacteria( ) d. I do not know ( )

13. How high temperature to be rated:

a. Light ( ) b. Medium ( )
c. High ( ) d. I do not know ( )

Third: knowledge about the causes of fever:

14. Diseases that lead to high temperature:

a. Meningitis ( ) b. Blood poisoning ( )
c. Inflammation of urine ( ) d. I do not know ( )

15. Causes of fever in children:

a. Air temperature rise ( ) b. After taking the vaccination ( )
c. Some drugs ( ) d. I do not know ( )

16. Fever forms in children:

a. Continuous heat ( ) b. Intermittent heat ( )
c. Heat rehearsal ( ) d. I do not know ( )

17. Does climate change affect body temperature?

a. Yes ( ) b. No ( )

Knowledge about symptoms associated with fever:

18. Symptoms associated with high temperature:

a. Shudder ( ) b. Pulse and breathing speed ( )
c. Exhaustion ( ) d. I do not know ( )

19. Clinical signs of fever:

a. Warming ( ) b. Skin redness ( )
c. sweating heavily ( ) d. I do not know ( )

20. People who are more prone to fever

a. Less than a year ( ) b. 2-3 years ( )
c. 4-5 years ( ) d. I do not know ( )

21. When conducting a laboratory blood test for a child with fever we find:

a. Increasing in RBCS( ) b. Increasing TWBCS( )
c. Increasing in the two together ( ) d. I do not know ( )

22. What signs appear on the child indicate that he has been exposed to fluid loss:

a. Dry skin ( ) b. Change of biomarkers ( )
c. Decrease the amount of urine ( ) d. I do not know ( )

23. Kinds of Thermometer:

a. Mercury ( ) b. electronic( )
c. Stripe ( ) d. I do not know ( )

24.Parts of Heat measurement:

a. Mouth ( ) b. Armpit ( )
c. Anal ( ) d. I do not know ( )

Knowledge of how to treat fever:

25. Fever infection of cases that need to:

a. Going to the Health Center ( )b. Going to the hospital( )
c. Home Appliances( ) d. I do not know ( )

26. How to reduce the temperature of the room:

a. Open windows ( ) b. Turn on the fan ( )
c. The air conditioner operator ( ) d. d. I do not know ( )

27. Compresses used to reduce fever are performed

a. Lukewarm water ( ) b. warm water ( )
c. Cool water ( ) d. d. I do not know ( )

28. How to protect your child from loss of fluids:

a. Give oral fluids ( ) b. Give venous fluids ( )
c. Breastfeeding( ) d. I do not know ( )

29. How to know the temperature rise:

a. Temperature measurement ( ) b. Touch ( )
c. Decreasing the amount of urine ( ) d. I do not know ( )

Sixth knowledge of first aid offered to reduce fever

30. First aid to reduce fever:

a. reducing the amount of clothing ( ) b. giving it a quantity of fluids( )
c. Breastfeeding ( ) d. I do not know ( )

31. Clinical treatment for fever reduction:
a. sitting in a well-ventilated room ( ) b. Temperature measurement( )
c. Working compresses ( ) d. I do not know ( )

32. Some of the cases that need to be reviewed by the doctor are:
a. Age of the child ( ) b. Associated symptoms ( )
c. Continuous fever ( ) d. I do not know ( )

33. Symptoms associated with fever:
a. severe diarrhea ( ) b. severe vomiting ( )
c. cramps ( ) d. I do not know ( )

Knowledge about complications caused by fever

34. Fever complications:
a. Loss of fluids ( ) b. Convulsions ( )
c. Blood pressure drops ( ) d. I do not know ( )

35. When the temperature rises pulse rate:
a. The rate modifies ( ) b. Decreases ( )
c. No change ( ) d. I do not know ( )

36. In high temperature breathing rate:
a. The rate modifies ( ) b. Decreases ( )
c. No change ( ) d. I do not know ( )

37. Is fever a dangerous condition:
a. Yes ( ) b. No( )

الاستبيان

جامعة شندى

كلية الدراسات العليا والبحث العلمى

إستبيان للممرضات لتطبيق البرامج غير الدوائية لتخفيض الحمى فى الاطفال داخل المستشفيات

إقرار

انا مها محمد الامين اعمل فى قسم بكالريوس التمريض بكلية الطب والعلوم الصحية.جامعة كسلا واقوم بإجراء بحث يشمل تطبيق برنامج تعليمى غيردوائى للممرضات لتخفيض الحمى فى الاطفال داخل مستشفيات الاطفال بمدينة كسلا. واقدر كثيرا مشاركتك فى هذا البحث. المعلومات التى ساقوم بجمعها منك بواسطة الاستبيانات ستساعد فى تصميم سياسات لتخفيض الحمى فى الاطفال داخل المستشفيات داخل اقسام الاطفال.والبرنامج الذى سوف تتلقاه سوف يساهم فى زيادة معلوماتك ممايتيح لك الفرصة للتعرف على كيفية تخفيض الحمى فى الاطفال بدون معالجات دوائية داخل المستشفيات.وياخذ الاستبيان مايقرب 20 دقيقة لاستكماله.ستبقى المعلومات التى ستكتبها سرية وإجاباتك لن تكشف لاى شخص غير الباحث ولن يتم تقاسم اى من إجاباتك مع اى شخص داخل المستشفى او خارجها.وانه بمشاركتك ستكون احد المتطوعين والذين يشملهم البحث وعددهم حوالى 50 مشارك.انت لست مرغما على ان تشارك فى هذا البحث.

هل لديك اى اسئلة حول البحث والبرنامج؟؟

رقم الباحث 0912993983 - 0121883754

اوافق ( ) لااوافق ( )

اولا: المعلومات الديمواغرافية:

1-العمر:

أ.اقل من 20 سنة ( ) ب.21-30 سنة ( )
ج.31-40سنة ( ) د.اكثرمن40 سنة ( )

2-المؤهل:

أ .فنى ( ) ب.دبلوم ( )
ج.بكالوريس ( )

3- سنوات الخبرة فى عنبر الاطفال :

أ.اقل من سنة ( ) ب.1-3 سنوات ( )
ج.3-4 سنوات ( ) د.اكثرمن4سنوات ( )

4-متى اخذت اخر دورة تدريبة تتعلق بالعناية بالاطفال؟

أ.قبل 6 شهور ( ) ب.قبل سنة ( )
ج.قبل اكثر سنة ( ) د.لم اخذ اى دورة ( )

5-متى اخذت دورة تدريبة عن كيفية تخفيض الحمى فى الاطفال؟

أ.قبل 6 شهور ( ) ب.قبل سنة ( )
ج.قبل اكثرمن سنة ( ) د.لم اخذاى دورة تدريبة ()

ضعى علامة (صح) امام الاجابة الصحيحة وعلامة (خطأ) امام الاجابة الخطأ:-

ثانيا: المعرفة عن الحمى:

6.تعرف الحمى بانها:

أ.ارتفاع درجة حرارة الجسم اعلى من 37,5 درجة مئوية ( )

ب.ارتفاع درجة حرارة الجسم اكثر من 40درجة مئوية ( )

ج.الاصابة بالتهاب فيروسى ( )

د.لااعرف ( )

7.العوامل التى تؤثر فى حرارة الجسم:

أ.عوامل بيئية ( ) ب.فقدان السوائل ( )

ج.النزيف ( ) د.لااعرف ( )

8.الغدة التى تنظم حرارة الجسم هى :

أ.الدرقية ( ) ب.الهايبوثلامس ( )

ج.الثلامس ( ) د.لااعرف ( )

9.درجة حرارة الغرفة الطبيعية هى :

أ.16 درجة مئوية ( ) ب.18 درجة مئوية ( )

ج.20 درجة مئوية ( ) د. لاأعرف ( )

10.درجة حرارة المستقيم بالنسبة لدرجة حرارة بالفم :

أ.اكثر ( ) ب.أقل ( )

ج.متساوية ( ) د.لاأعرف ( )

11. درجة حرارة الإبط بالنسبة لدرجة الحرارة بالمستقيم :

أ.اكثر ( ) ب.أقل ( )

ج.متساوية ( ) د. لاأعرف ( )

12.نمط الحمى عند الاطفال يعتمد على :

أ.عمرالطفل ( ) ب.الاصابة بالفيروس ( )

ج.الاصابة بالبكتريا ( ) د.لاأعرف ( )

13.كيف يتم تصنيف ارتفاع درجة الحرارة:

أ.خفيفة ( ) ب.متوسطة ( )

ج.مرتفعة ( ) د.لاأعرف ( )

ثالثا المعرفة عن مسببات الحمى:

14.الامراض التى تؤدى الى إرتفاع درجة الحرارة:

أ.التهاب السحائى ( ) ب.تسمم الدم ( )

ج.التهاب البول ( ) د.لااعرف ( )

15.أسباب ظهور الحمى عند الاطفال:

أ.ارتفاع حرارة الجو( ) ب.بعد اخذ التطعيم ( )

ج.بعض العقاقير ( ) د.لااعرف ( )

16.اشكال الحمى عند الاطفال :

أ.الحرارة المستمره ( ) ب.الحرارة المتقطعة ( )

ج.الحرارةالراجعة ( ) د.لااعرف ( )

17.هل تغير المناخ يؤثر على درجة حرارة الجسم:

ا.نعم ( ) ب.لا ( )

<u>رابعا المعرفة عن الاعراض المصاحبة للحمى:</u>

18.الاعراض المصاحبة لارتفاع درجة الحرارة :

أ.قشعريرة ( ) ب.سرعة النبض والتنفس ( )

ج.ارهاق ( ) د.لااعرف ( )

19.العلامات السريرية للحمى :

أ.ارتفاع الحرارة( ) ب.احمرار الجلد ( )

ج.تعرق شديد ( ) د.لااعرف ( )

20.الاعمارالاكثرعرضة للاصابة بالحمى :

أ.اقل من سنة ( ) ب.2-3 سنة ( )

ج.4-5سنوات ( ) د.لااعرف ()

21. عند اجراء الفحص المعملى للدم لطفل مصاب بالحمى نجد :

أ.زيادة)RBCS( ) ب.زيادة TWBCS ( )

ج.زيادة فى الاثنان معا ( ) د.لااعرف ( )

22. ماهى العلامات التى تظهر على الطفل تدل على انه تعرض لفقد السوائل:

أ.جفاف الجلد ( ) ب.تغير العلامات الحيويه ( )

ج.نقصان كمية البول ( ) د. لااعرف ( )

23.انواع الثيرمومترات :

أ.الزئبقى ( ) ب.الالكترونى ( )

ج.الشريطى ( ) د.لااعرف ( )

24.اماكن قياس درجة الحرارة :

أ.الفم ( ) ب.الابط ( )

ج. الشرج ( ) د.لا اعرف ( )

<u>خامساالمعرفة عن كيفية معالجة الحمى:</u>

25.الاصابة بالحمى من الحالات التى تحتاج الى :

أ.اسعاف الى المركز الصحى ( ) ب.اسعاف الى المستشفى ( )

ج.اسعافات منزلية ( ) د.لااعرف ( )

26.كيفية تخفيض درجة حرارى الغرفة :

أ.فتح النوافذ ( ) ب.تشغيل المروحة ( )

ج.تشغل المكيف ( ) د. لااعرف ( )

27.الكمادات التى تستخدم لتخفيض الحمى تتم ب :

أ.ماء فاتر ( ) ب.ماء دافئ ( )

ج.ماء بارد ( ) د.لااعرف ( )

28. كيفية حماية الطفل من فقدان السوائل :

أ.إعطاؤه سوائل بالفم ( ) ب.إعطاؤه سوائل وريدية ( )

ج.مواصلة الرضاعة الطبيعية ( ) د. لااعرف ( )

29.كيفية معرفة ارتفاع درجة الحرارة :

أ.قياس درجة الحرارة ( ) ب.باللمس ( )

ج.نقصان كمية البول ( ) د.لااعرف ( )

<u>سادسا المعرفة للاسعافات الاولية التى تقدم لتخفيض الحمى :</u>

30.الاسعافات الاولية لتخفيض الحمى :

أ.تقليل كمية الملابس ( ) ب.إعطاءه كمية من السوائل ( )

ج.مواصلة الرضاعة الطبيعية ( ) د.لااعرف ( )

31.المعالجة السريرية لتخفيض الحمى :

أ.قياس درجة الحرارة ( ) ب.الجلوس فى غرفة ذات تهوية جيدة ( )

ج.عمل كمادات ( ) د. لااعرف ( )

32.من الحالات التى تحتاج لمراجعة الطبيب هى :

أ.عمرالطفل ( ) ب.وجود اعراض مصاحبة ( )

ج.الحمى المستمرة ( ) د.لااعرف ( )

33.من الاعراض المصاحبة للحمى :

أ.اسهال شديد ( ) ب.تقيؤ شديد ( )

ج.تشنجات ( ) د.لااعرف ( )

سابعا المعرفة عن المضاعفات التى تسببها الحمى:

34.من مضاعفات الحمى :

أ.التشنجات ( ) ب.فقدان السوائل ( )

ج.هبوط ضغط الدم ( ) د.لا اعرف ( )

35.عند ارتفاع درجة الحرارة معدل النبض :

أ. يزيدالمعدل ( ) ب. ينقص ( )

ج.لايحدث تغير ( ) د.لااعرف ( )

36.عند ارتفاع درجة الحرارة معدل التنفس :

أ.يزيد المعدل ( ) ب.ينقص ( )

ج.لايحدث تغير ( ) د.لااعرف ( )

37.هل الحمى من الحالات الخطرة :

أ.نعم ( ) ب.لا ( )

Observation check list for nurses about measurement of body temperature

Steps	Good	Fair	Poor
Oral method(meurgery thermometer): 1. Clean thermometer with alcohol swab from the bulb up and inspect for damage, shake the level of mercury down to below 35C°.			
2. Place thermometer in the mouth for back under the tongue for 3 min. Tell the child to keep mouth closed, breath through the nose and not to talk.			
3. Remove thermometer and wipe it from up down to the bulb.			
Axillary method(meurgery thermometer): 1. Rinse and dry axilla.			
2. Clean thermometer with alcohol swab from the bulb up and inspect for damage, shake the level of mercury down to below 35C°.			
3. Place thermometer under arm with tip in centre of axilla and keep it close to skin not clothing. hold child's arm firmly against side for 5 min at least.			
4. Remove thermometer and wipe it from up down to the bulb.			
(2). Measuring temperature using the electronic thermometers 1. Cover the probe.			
2. Place covered probe of the electronic thermometer in mouth, axilla, or rectum and keep it in place for one min till you hear the peep.			
3. Remove it and read the temperature on the digital display.			
4. Discard the probe cover and place probe in its place.			
5. Record temperature.			

Observational check list for application of cold compress

Steps	Good	Fair	Poor
▪ Review the medical order or nursing plan of care for the application of cold therapy, including frequency, type of therapy			
▪ Gather the necessary supplies and bring to the bedside Stand or over bed table.			
▪ Perform hand hygiene.			
▪ Explain what you are going to do and why you Are going to do it to the patient.			
▪ Assess the condition of the skin where the ice is to be Applied.			
▪ Assist the patient to a comfortable position that provides Easy access to the area to be treated. Expose the area and drape the patient with a bath blanket if needed			
▪ **Prepare device:** Fill the bag, collar, or glove about three-fourths full with Ice. ▪ **Remove any excess air from the device.** Securely fasten the end of the bag or collar; tie the glove closed, checking For holes and leakage of water.			
▪ **Cover the device with a towel or washcloth.**(If the device			

Has a cloth exterior, this is not necessary.)			
▪ Position cooling device on top of designated area and Lightly secure in place as needed.			
▪ Remove the ice and assess the site for redness after 30 seconds. Ask the patient about the presence of burning Sensation			
▪ Reassess the treatment area every 5 minutes or according To facility policy.			
▪ After 20 minutes or the prescribed amount of time, remove The ice and dry the skin.			

Observation check list of nurses for child bath

Steps	Good	Fair	Poor
1. Wash hands.			
2. Prepare the necessary linen and arrange it over the head of crib.			
3.Close the windows and doors.			
4. Fill the bath basin one-half full of warm water.			
5.Place the rubber sheet on bed.			
6.Undress the infant except for the diaper and he is securely wrapped in bath towel.			
7. Start with eyes, with washcloth; carefully wipe each eye from the inner to the outer aspect of the lid with water only.			
8. Moisten cotton balls and clean the ears gently with water only or the ears can be cleaned with the twisted end of wash cloth if no cotton balls available.			
9. Cleanse the face by warm water only.			

10. Hold the infant over the basin and wash the head with soap and water, rinse by pouring water from a small vessel over the head into the basin.			
11. Place child in bed and dry the head quickly.			
12. Remove the napkin (diaper) and clean the buttocks from the fecal matter with the corner of the napkin if any.			
13. Wash infant's body carefully at neck, arms, hands, chest, abdomen, back, legs and genital area. A. For female baby genitalia, clean the vulva from front to back direction. For male baby genitalia, clean the penis and scrotum.			
14. Pick up the baby and place him into the basin slowly, insert feet first.			
15. Remove infant from basin and place him in bed.			
16. Dress infant.			
17. Clean the equipment.			

Non pharmacological program to reduce fever

Introduction:

A highly effective strategy in reducing healthcare-associated fever in hospitals is through the proper implementation and practice of policies and procedures on fever management by healthcare providers committed to this vital patient safety effort, fever management policies and procedures, when consistently applied and integrated into all systems and processes will yield the desired outcome. i.e. reduced complication .

Aim of program;

The aim of this training program to give nurses information and nursing skills necessary to reduce fever in children with in the children s wards.

Educational objectives:

By the end of this program the nurses should be able to:

1. Define fever.
2. Discuss the causes of fever.
3. Identify signs and symptoms associated with fever.
4. Identify the methods to reduce fever before medical treatment.
5. Demonstrate nursing procedure to reduce fever in pediatric in hospital.
6. Demonstrate how to prevent child from fever complications.
7. Determine importance of reducing fever in pediatric.

First session: fever scope:

Time: 1 hour.

Learning objectives	Content	Instructional method	Instructional aids	Evaluation

Define fever	Measurement of body temperature remains one of the most common ways to assess health. An increase in temperature above what is considered to be a normal value is inevitably regarded as a sure sign of disease. Fever define as elevated of body temperature above the normal (36,8-37 degree centigrade) or 96,6 degree f.	Modified lecture / group work	Hand out	
Causes of fever and associated symptoms	**The cause of fever:-** can be difficult to identify and it can be an indicator of a major illness such as: ▪ Meningitis. ▪ Urinary tract infection. ▪ Rheumatic fever. ▪ Septicemia. ▪ Very hot weather. ▪ After vaccination. ▪ Some drugs. ▪ Otitis media. ▪ Abscess in the tooth. **associated symptoms of fever:-** ▪ Fatigue. ▪ Vomiting. ▪ Change in vital signs ▪ Excessive sweating. ▪ Shivering.			

Second session:

Time: 2hour body temperature measurement procedures:

Learning objectives	Content	Instructional method	Instructional aids	Evaluations
Explain temperature measurement	❖ There are different routes for measuring temperature; oral, rectal, axillaries, and tympanic routes. ❖ Now rectal route is used for neonates and axillary route is used for infant and older children. Oral route is not used for infection control purposes. **There are different types of thermometers:** 1. Mercury glass thermometer. 2. Electronic thermometer. 3. Tympanic membrane thermometer. Digital thermometer. **(1). Measuring temperature using the mercury glass** **A). Oral temperature:** ▪ Oral temperatures contraindicated in following circumstances: *oUncooperative or unconscious children.* *o Following oral surgery.* *oChildren under 5 years of age.* ▪ Oral temperatures are inaccurate in children receiving Oxygen therapy. Oxygen cools the mouth and tachypnea leads to a low reading. ▪ Oral temperature has advantages of preventing intrusive procedure and rectal perforation.	Lecture / lab demonstration	simulated patient / hand out	

	▪ Use a glass thermometer for children over 6 years of age. ▪ If the child has had something to eat or drink, wait 15, min before measuring temperature. **Equipment:** oral Thermometer, alcohol swab, dry swab, and receptacle for used swab, stopwatch, and kidney basin for used thermometers. **The procedure:** ▪ Clean thermometer with alcohol swab from the bulb up and inspect for damage, shake the level of mercury down to below 35C°. ▪ Place thermometer in the mouth for back under the tongue for 3 min. Tell the child to keep mouth closed, breath through the nose and not to talk. ▪ Remove thermometer and wipe it from up down to the bulb. **B). Axillary temperature:** ❖ Axillary temperature has advantages of preventing intrusive procedure and rectal perforation. ❖ Temperature may be affected by poor perfusion or use of radiant *warmers in neonates.* **Equipment:** mercury Thermometer, alcohol swab, dry swab, and receptacle for used swab, stopwatch, and kidney basin for used thermometers. **The procedure:** ▪ Rinse and dry axilla.			

	▪ Clean thermometer with Place thermometer under arm with tip in centre of axilla and keep it close to skin not clothing. hold child's arm firmly against side for 5 min at least. Alcohol swab from the bulb up and inspect for damage, shake the level of mercury down to below 35C°. ▪ Remove thermometer and wipe it from up down to the bulb. **(2). Measuring temperature using the electronic thermometers** **Equipment:** electronic thermometer and cover for thermometer probe. **The procedure:** ▪Cover the probe. ▪ Place covered probe of the electronic thermometer in mouth, axilla, or rectum and keep it in place for one min till you hear the peep. ▪ Remove it and read the temperature on the digital display. ▪ Discard the probe cover and place probe in its place. ▪Record temperature.			

Third session: first aid to reducefever:

Time: 2 hour

Learning objectives	Content	Instructional method	Instructional aids	Evaluation
Classification of degree of severity of the heat	▪ **Classification of the degree of severity of the heat:** ▪Mild 38 degree centigrade. ▪ Moderate 38,2-39,2 C° degree centigrade. ▪ Sever 39,5-42 degree centigrade. ▪ Very sever more than 43,3 degree centigrade. **▪Patterns of fever in children:** ▪ Continuous fever. ▪ Relapsing fever. ▪ Intermittent fever. ▪ **Clinical treatment:**	Modified lecture / group work	Hand out	

	▪ Measurement of temperature. ▪ Remove external closes and leave the child with internal closes and change the room temperature by open the windows, or by open the fan if available. ▪ Sponge by tape water. ▪ Give oral fluid. ▪ Follow the decent of heat until it reaches almost 38 degree centigrade.			

Fourth session: Infant bath

Time: 2 hour

Learning objectives	Content	Instructional method	Instructional aids	Evaluation
Purpose of bathing:	▪ To promote comfort of the infant. ▪ To keep skin fresh and clean. ▪ To stimulate the circulation. ▪ To give an opportunity for the nurse to observe infant's behavior, state of arousal, alertness and muscular activity. ▪ To give the infant the chance to exercise without clothing. ▪ To provide a wonderful opportunity	Lecture / lab demonstration	Models/hand out	

	for parent-infant social interaction. ▪ **Equipment:** ▪ A wash basin with bath water (38-40C°). ▪ A soft wash cloth for sponging. ▪ Cotton balls. ▪ A bag to dispose cotton balls. ▪ A towel to place under the baby. ▪ A baby comb. ▪ The infant clothes. ▪ Crib linen. ▪ A mild soap.			

Fifth session: complication offever

Time: 1 hour

Learning objectives	Content	Instructional method	Instructional aids	Evaluation
Complication of fever:	▪ Dehydration. ▪ Convulsion and so on.	Modified lecture / group work	Hand out	
Sever symptoms associated with	▪ Newborn. ▪ Child age between 2-6 months.			

fever:	▪ Child age 6months-2 years. ▪ Child with low immune. ▪ Continuous fever more than 2 weeks. ▪ Severe diarrhea. ▪ Sever vomiting. ▪ Some or sever dehydration. ▪ Respiratory distress. ▪ Sever cough. ▪ Severe headache. ▪ Loss of appetite. ▪ Jaundice and cyanosis. ▪ Convulsion. ▪ Fatigue. ▪ Sever pale. ▪Skin rash.			

Six sessions: application of compress

Time: 2 hour

Learning objectives	Content	Instructional method	Instructional aids	Evaluation
▪ **Goal:** The patient reports a reduce of fever	▪ Review the medical order or nursing plan of care for the application of cold therapy, including frequency,	Lecture / lab demonstration	Models/ handout	

	type of therapy, body area to be treated, and length of time for the application. ▪ Gather the necessary supplies and bring to the bedside ▪ Stand or over bed table. ▪ Perform hand hygiene ▪ Identify the patient. Determine if the patient has had any ▪ Previous adverse reaction to hypothermia therapy. Close curtains around bed and close door to room if Possible. Explain what you are going to do and why you ▪ Are going to do it to the patient. ▪ Assess the condition of the skin where the ice is to be Applied. ▪ Assist the patient to a comfortable position that provides Easy access to the area to be treated. ▪ Expose the area and drape the patient with a bath blanket if needed. ▪ Put the Waterproof pad under			

	The wound area, if necessary. ▪ **Prepare device:** ▪ Fill the bag, collar, or glove about three-fourths full withice. ▪ **Remove any excess air from the device.** ▪ Securely fasten the end of the bag or collar; tie the glove closed, checking for holes and leakage Of water. ▪ Prepare commercially prepared ice pack if appropriate. ▪ Cover the device with a towel or washcloth. (If the device has a cloth exterior, this is not necessary.) ▪ Position cooling device on top of designated area and lightly secure in place As needed. ▪ Remove the ice and assess the site for redness after 30 seconds. Ask the patient about the presence of burning Sensation			

	▪ Replace the device snugly against the site if no problems are evident. ▪ Secure it in place with gauze wrap, ties, or *tape.* ▪ Reassess the treatment area every 5 minutes or accordingtofacility policy. ▪ After 20 minutes or the prescribed amount of time, remove the ice and dry the skin .			

عنوان البحث باللغة الانجليزية:

Implementing of Non-Pharmacological Measures Program for Nurses to Reduce Fever in Kassala Pediatric Hospitals.

عنوان البحث باللغة العربية:

تطبيق المعالجة غيرالدوائية للممرضات لتخفيض الحمى فى الاطفال بمستشفيات كسلا.

هد ف البحث:

1- تقييم معلومات وممارسات الممرضات بالنسبة لتخفيض الحمى للاطفال داخل المستشفى.

2-تطبيق برنامج تعليمى للممرضات عن كيفية تخفيض الحمى للاطفال داخل المستشفى.

طرق البحث:

سيتم إجراء هذا البحث على عينة مكونة من 75 ممرضة حاصلة على دبلوم او بكالريورس تمريض يقمن بإعطاء العناية التمريضية المباشرة للاطفال بمستشفى كسلا التخصصي للاطفال ومستشفى كسلا التعليمى.

الادوات:

- استمارة استبيان تم تصحيحها بواسطة الباحث لتحديد معلومات الممرضات عن كيفية تخفيض الحمى فى الاطفال داخل المستشفى.
- استمارة ملاحظة للممرضات عن كيفية تخفيض الحمى فى الاطفال.
- برنامج تعليمي يغطى جميع العناصر التى سيتم تطبيقها على الممرضات خلال فترة البرنامج التدريبى ثم تقييم هذا البرنامج بعد 3 أشهر من تطبيقه بمقارنة النتائج قبل وبعد إعطاء البرنامج.

تنفيذ برنامج تخفيض الحمى فى الاطفال داخل المستشفيات

اهمية تنفيذ برنامج تخفيض الحمى فى الاطفال:

إن اصابة الاطفال بالحمى مشكلة يعانى منها الكثيرون فى جميع انحاء العالم,وهذه الامراض التى تسبب الحمى من اهم اسباب الوفاة بين الاطفال,كما انها تتسبب فى ارتفاع حدة الاصابة بمضاعفات الحمى التى تؤدى الى فقدان عدد كبير من الاطفال,لذلك لابد من الممارسات السليمة التى تؤدى الى تخفيض الحمى وذلك عن طريق الاسعافات الاولية التى تقدمها الممرضات للاطفال قبل بدأ المعالجات الدوائية.

يعتقد الكثيرمن العاملين بالرعاية الصحية ان تطبيق المهارات التمريضية لتخفيض الحمى فى الاطفال شئ يتطلب معدات وادوية غالية ,ولكن ذلك ليس حقيقيا,فإمكانية اتباع هذه المهارات فى الاماكن ذات الامكانيات المحدودة هى نفس امكانية اتباعها فى الاماكن ذات الامكانيات الكبيرة,لان هذه المهارات تعتمد فى تطبيقها على المعرفة الصحيحة واعتياد القيام بها.

اهداف البرنامج التدريبى:

الهدف العام :-

يهدف هذا البرنامج التدريبى الى تزويد الممرضات بالمعلومات والمهارات التمريضية اللازمة لتخفيض الحمى فى الاطفال داخل اقسام الاطفال.

الاهداف الخاصه:-

بنهاية هذا البرنمج التدريب سوف تكون الممرضة قادرة على ان :

- تعرف الحمى.
- تشرح مسببات الحمى.
- تتعرف على الاعراض المصاحبة للحمى.
- تتعرف على كيفية معالجة الحمى قبل المعالجة الدوائية.
- تطبق المهارات التمريضية الخاصة بتخفيض الحمى فى الاطفال داخل المستشفيات.
- تتعلم كيفية الوقاية من مضاعفات الحمى.
- تقدر اهمية تخفيض الحمى فى الاطفال داخل المستشفيات.

المهارات التمريضية التى يكتسبنها الممرضات:-

- كيفية اخذ درجة الحرارة بواسطة الميزان الزئبقي
- كيفية اخذ درجة الحرارة بواسطة الميزان الرقمي.
- كيفية عمل الكمادات.
- كيفيه اجراء حمام للطفل
- كيفية التحكم في درجة حرارة البيئة حول الطفل.

اولا: المسح	❖ ملاحظة الممرضات اثناء قيامهم بالرعاية التمريضية	
ثانيا: البرنامج التدريبي:	**الجلسة الاولي 11 ص – 12 ظ**	**الجلسة الثانية 1 ظ – 3 ظ**

اليوم الاول	الافتتاح / اجراء الاستبيان القبلي	المعرفة عن الحمى
اليوم الثاني	مسببات الحمى والاعراض المصاحبة	مهارات تمريضية
اليوم الثالث	المعالجة الاولية السريرية للحمى	مهارات تمريضية
اليوم الرابع	مضاعفات الحمى وكيفية الحماية منها	مهارات تمريضية / الختام

المطلوبات:

- يجب ان يشمل البرنامج كل الممرضات اللاتي يعملن بمستشفي الاطفال.
- تقسيم الممرضات الي مجموعتين **ما امكن** واعلامهم بذلك بالتنسيق مع ادارة المستشفي.
- توفير مكان مناسب لاقامة المحاضرات وإجراء التطبيق العملي.
- الالتزام التام من قبل الممرضات بالزمن و المكان المحددين.