UNIVERSITY of RWANDA

PARENTS'KNOWLEDGE, BELIEFS AND HOME BASED TECHNIQUES REGARDING A FEVERISH CHILD UNDER FIVE YEARS AT KABGAYI HEALTH CENTER

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BY

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A dissertation submitted in partial fulfillment of the requirements for the degree of

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DECLARATION

I, Pacifique MUNEZERO, do hereby declare that this research dissertation titled" **Parents' knowledge, beliefs and home based techniques regarding a feverish child under five years at Kabgayi health center"** submitted in partial fulfillment of the requirements for the degree of Master of Science in Nursing Pediatrics at University of Rwanda/ College of Medicine and Health Sciences, is my original work and has not previously been submitted elsewhere. Also, I do declare that a complete list of references is provided indicating all the sources of information quoted or cited.

Signature

Pacifique MUNEZERO

DEDICATION

I sincerely dedicate this work to:

My beloved husband NDEKEZI MALEKERA Deogratias for his support,

My sons NDEKEZI MUTIJIMA Michel Arnaud and NDEKEZI Achille for their love and patience,

My mother NIYOYITA Anastasie for her special care and support,

All my sisters and brothers for their love and support,

All my classmates for all time spent with them, their collaboration and their support,

Finally to all my relatives, friends and family friends,

Your love, sacrifice and support helped me through this Master's program.

May the Almighty God richly bless you all.

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ABSTRACT

Introduction: Fever is the primary symptom of many illnesses such as acute respiratory infection, malaria and measles among others, which cause numerous deaths in children under five years mainly in developing countries.

The aim of the study was determine parents' knowledge, beliefs and home based techniques regarding a feverish child under five years at Kabgayi health center**.**

Methodology: The study used non experimental descriptive design with a quantitative approach. The convenience sampling was used to select the sample from population. Data were collected from 288 parents who brought their children with fever in consultation at Kabgayi Health Center .The period of data collection was from 1st March 2019 to 30th April 2019.Data were collected using an adapted tool, its validity and reliability were tested. Data were analyzed by SPSS VERSION 20. Chi square was used to determine the association between variables. Data from descriptive and inferential statistics were presented in table and using chart.

Results: The findings revealed that 173(60.1%) of participants, knew the definition of fever. More than a half of them 169(58.68%) have good knowledge and the majority of participants 249(86.46%) have positive beliefs regarding a feverish child under five years. Concerning non drugs home based techniques, almost all parents 269 (93.4%) identified Appling a tepid sponging; 178(61.8%) giving plenty fluid; 167(58%) giving breast feeding more than usually and 100 (34.7%) undress the child. Most of participants 268 (93.1%) reported paracetamol to be used as a fever medicine and brufen was identified by a few number 27(9.4%). We found a significant statistical association between level of educational and parents' knowledge (p value $\leq$0.001). Also a significant statistical association has been identified between level of educational and home based techniques (p value $\leq$0.001). There was a significant statistical association between parents' knowledge and home based techniques (p value $\leq$0.001).

Conclusion: This study showed that the level of education is associated with parents' knowledge; the researcher concluded that parents should raise their level of education in order to have good knowledge regarding a feverish child in order to use appropriate home based techniques to treat a feverish child as the parents' knowledge is associated with those techniques.

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LIST OF SYMBOLS AND ACRONYMS/ABREVIATIONS

CHW: Community Health Workers

Eg: example

HPM: Health Promotional Model

IMCI: Integrated Management for childhood illness

MOH: Ministry of Heath

NICE: National Institute for Health and Care

NA: North Africa

RTI: Respiratory Tract Infections

SPSS: Statistical Package for Social Sciences

SSA: Sub-Saharan Africa

UNICEF: United Nations International children's Emergency Fund.

URTIs: Upper respiratory Tract infection

USA: United States of America

WHO: World Health Organization

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CHAPTER ONE: INTRODUCTION

1.1. INTRODUCTION

A feverish child is considered as a young person especially between infancy and youth (Mariam,2018) who has a body temperature ≥ 38 °C (Green and Pentz, 2014). Fever in children younger than 5years is a common symptom and has potentially serious consequences (John, Hospital and Chester, 2013).

All over the world fever in children under 5 years was documented where in Indonesia three in four children under 5 years with fever (74 %) were brought to a health facility or provider for treatment (Statistics Indonesia, 2013), in Rwanda the prevalence was 19 % and there are variations among the provinces, with the highest prevalence in East (22 %) and South (21 %) and the lowest in North (14 %) (National Institute of statistics, 2015).

Parent's knowledge about definition, causes and outcomes of fever are different country to country : in developed countries most of parents have more knowledge than in developing countries eg: in Netherlands, 88.3% of parents stated the correct definition of fever which is temperature >38°C (Francis and Dinant, 2014); The study conducted in Morocco on 264 parents aimed "Knowledge and management of fever among Moroccan parents" showed that only 3.5% of the parents knew the correct temperature definition for fever (Rkain*et al.*, 2014). In Ireland the interviewed parents about parent knowledge, attitudes and beliefs regarding fever in children under 5 years revealed that cold, teething or an infection are some causes of fever (Kelly *et al.*, 2016). Outcomes of fever were also cited, where brain damage, seizures , paralysis , breathing difficulty and coma were identified as consequences of fever in Morocco (Rkain*et al.*, 2014).

Parents' beliefs about harmful of fever for a child under 5 years were identified in many countries: In Malaysia almost of parents (93.6%) believed that fever could cause harm to children (Bong and Tan, 2018). In Saudi Arabia, 95% believed that fever is harmful for the child under 5 years (Mohammed *et al.*,2019).

Techniques used by parents to treat fever for a child under five years were indicated where 92.4% of parents in Malaysia reported that they administered fever medication to treat feared fever complications (Bong and Tan, 2018). Furthermore, in the study involved 332 mothers of

children under five conducted in rural setting in Sudan showed that tepid sponging was used by 47% of the interviewed mothers. 15% of the mothers increased fluid intake, 7% bathed the child and 5% put the child in lightclothes.59%of mothers applied tepid sponging on head, 33.9% on all the body, 3.7% and 2.2% on groin area and axillary, respectively. The majority of mothers (86%) used water from refrigerator or Zeer (water clay pot) for applying tepid sponging, 9% used tap water, and 3% used ice water (Mukhtar and Elnimeiri, 2014).

The difference between parents 'knowledge, beliefs about techniques used to treat feverish child under five years, country to country inspired the researcher to conduct this study in order to explore the figure of Rwanda.

1.2. BACKGROUND

All over the world many studies have indicated the prevalence of fever among children under 5 years. In Asia prevalence of fever among children under 5 years changes according country to country. In Indonesia three in four children under 5 years with fever (74 %) were taken to a health facility or provider for treatment (Statistics Indonesia., 2013). In other hand, in Bangladesh fifty-five percent(55%) of children under 5 years with fever were taken to a health facility or trained medical provider for treatment (National Institute of Population Research and Training, ICF International and Mitra and Associates, 2014) however in Cambodia the prevalence of fever among children under 5 years who attended health facilities was 28 percent (28%) (Kosal *et al.*, 2015).

In Western Africa: 12 percent (12%) of children under 5 years were reported to have had a fever in Gambia (Gambia Institute of Statistics, 2014) while in Liberia the prevalence was 29% (Liberia Institute of Statistics and Geo-Information Services, 2013).

In Southern Africa the fever in children under 5 years was observed where in Zambia 72% of children under 5 years with a fever were taken to a health facility or provider for treatment (MOH,2014). Moreover 5.29% of children in Malawi were presented to health facilities with fever (UNAIDS,2014).

In East African countries, fever among children under 5 years was also reported. In Kenya twenty-four percent (24%) of children were reported to have fever : the prevalence of fever was

highest in Nyanza (37 %), Western (36%), and Coast (27 %) and lowest in North Eastern (9 %) (Survey, 2014). In another hand in Tanzania, 18% of children under 5 years were reported to have fever (MOH, 2016) while in Rwanda, the prevalence was 19 % and there are variations among the provinces, with the highest prevalence in East (22 %) and South (21 %) and the lowest in North (14 %) (National Institute of statistics, 2015).

The prevalence of fever among children under 5 years roused different researchers interests to conduct different studies in order to find out the parents' knowledge and beliefs towards a feverish child under 5 years : in Netherlands most parents (88.3%) knew the correct definition of fever (temperature >38°C). Just over one-half of the participants (55.2%) correctly stated that antibiotics are effective in treating bacterial infections and not viral infections. Furthermore, 72% indicated that not every child with a fever needs to be treated with either antibiotics or paracetamol (Francis and Dinant, 2014) while in Ireland parents revealed that the fever is the temperature which range from 37.5 to 39 °C. Parents stated also that the range of temperatures to define normal temperature is between 36 and 38 °C (Kelly *et al.*, 2016).

In India, a team of reseachers conducted a study that showed that few parents (14.63%) know that the detection of fever is done using thermometer. Majority (75%) of them used electronic thermometer to detect fever, rest using mercury thermometer (Agrawal *et al.*, 2013). On the other hand, in Morocco only 3.5% of the parents knew the correct temperature definition for fever. Just over half of the parents (54.4%) reported that to determine their children's fever they have to use thermometer, while 44.4% stated that fever could be determined by touching the child's forehead. 58.9% of parents they knew to read the thermometer (Rkain *et al.*, 2014) but in Kenya the caregivers defined fever correctly as the generalized body hotness, while24.8% gave an incorrect response (Koech, Onyango and Jowi, 2014).

The parent's beliefs were also identified towards a feverish child worldwide: In the study conducted in Turkish, revealed that parents beliefs and concerns about fever are different, 87% of parents reported that they believe fever has a bad outcome; 77% of them also stated that treating fever does not mean curing the disease indicating that they believed that fever is a symptom rather than a disease (Yavuz *et al.*, 2017). Abdinia, Hassan and Khalilzadeh, in Iran discoved that (59%) of parents believed in continuing breastfeeding at the time of the child's fever, 57 (19%) believed in the cessation of breastfeeding at the time the child had fever,

and 66 (22%) did not comment on this case (no choice was selected). Regarding the mothers' practices in terms of feeding the children with fluids, 161 mothers (53.7%) believed in feeding more fluids than usual, 21 (7%) believed in feeding less fluid than usual, and 118 (39.3%) believed in feeding fluids similar to ordinary days (Abdinia, Hassan and Khalilzadeh, 2017) while parents from India believed that untreated fever caused brain damage (Agrawal*et al.,* 2013).

Concerning home based techniques towards a feverish child under 5 years studies revealed the following results: In American continent exactly in Brazil 26.7% of respondents reported to use antipyretic to reduce fever and the drugs most often used were dipyrone and paracetamol (Li *et al.*, 2013).

Studies from Europe on home based management towards feverish child under 5 years showed the following results: The study conducted among general population of the Netherlands on 1000 participants, nearly all parents (91.4%) indicated that they commonly treat their feverish child with antipyretics like paracetamol. Only 2.8% of parents indicated doing so at a temperature lower than 38˚C, and 86.9% would use antipyretics without consulting a doctor (Francis and Dinant, 2014). The similar results were discovered by Yavuz and her colleagues in Turkey where they revealed that (83.4%) of parents used antipyretics to reduce fever in children before they attend the Primary Care Center and Paracetamol was the most frequently used antipyretic (Yavuz *et al.*, 2017) father more in Ireland the majority of parents (81.8%) indicated that they use liquid or oral forms of medication: Suppository or rectal forms of medication to reduce fever. A small number of parents (1.1%) preferred not to use medication while 3.8% use methods other than medication to reduce fever (e.g. tepid sponging) (Kelly *et al.*, 2017) .

In Asia precisely in Subzevar, region of Iran most of mothers 83.7% of t treat their febrile child using antipyretic administration. Among the mothers who applied a wet sponge to reduce body temperature, 37.2% used lukewarm water, 22.5% used cold water, and 20.2% used salted water (Talebi*et al.,* 2016), however in India, the parents reduce their child' s fever by reducing clothing and exposure to air (40.85%), tepid sponging specially of forehead (71.95%) and fanning (9.4%) (Agrawal*et al.*, 2013).

In Africa, Mukhatar and Elnimeiri (2014) in their study, in Sudan showed that tepid sponging was used by 47% of the interviewed mothers. 15% of the mothers increased fluid intake, 7% bathed the child and 5% put the child in lightclothes.59%of mothers applied tepid sponging on head, 33.9% on all the body, 3.7% and 2.2% on groin area and axilla, respectively. The majority of mothers(86%) used water from refrigerator or Zeer (water clay pot) for applying tepid sponging, 9% used tap water, and 3% used ice water (*Mukhtar* and Elnimeiri, 2014), however in Kenya, antipyretics were the leading medication used by 127caregivers (54.7%) to treat fever in children at home; this was given at either a high dosage or at too frequent intervals. Other medications given to febrile children were antibiotics (40.1%), anti-malaria (4.7%), antihistamine and herbs 6.8% (Koech, Onyango and Jowi, 2014).

1.3. PROBLEM STATEMENT

Globally fever in children under 5 years is a serious problem because it indicates the presence of various illnesses that can include malaria, pneumonia, an ear problem, the common cold, influenza, and other infections.(Ministry of Health, Community Development, Gender, 2016).If not treated the fever could lead to side-effects such as brain damage, seizures , paralysis , breathing difficulty and coma (Rkain *et al.*, 2014). This explains the reason why fever should be managed appropriately, as soon as possible.

In different counties worldwide, there are some parents who still having poor knowledge, negatives beliefs and inappropriate home based techniques regarding feverish child under 5 years as indicated in different studies such as using traditional treatment like traditional makers, traditional herbal. Those traditional treatments are also used in our country. Furthermore the prevalence of fever in children under five years was noted in Rwanda where the prevalence was 19 % and there are variations among the provinces, with the highest prevalence in East (22 %) and South (21 %) and the lowest in North (14 %) (National Institute of statistics, 2015). Also in nursing practices, we face parents who bring their children with fever at the health care facility already presenting some complications of fever (convulsions, delirium, and breath difficulties) because they are not able to manage it adequately at home. These complications make the parents more stressfully because they are not able to relive such conditions them self and the child appear in altered status.

In addition, in our country there is no evidence about knowledge ,beliefs and home based home based techniques used regarding a feverish child under 5 years though the aim of the current study.

1.4. AIM OF THE STUDY

To assess parents' knowledge, beliefs and home based techniques regarding a feverish child under five years at Kabgayi health center.

1.5. RESEARCH OBJECTIVES

1. To identify parents' level of knowledge about definition, causes, outcomes, and measurement of feverish in a child under five years at Kabgayi Health center.

2. To identify the parents' beliefs about the harm of fever for a feverish child under five years at Kabgayi Health Center.

3. To determine home based techniques used by parents to treat a feverish child under five years at Kabgayi Health center.

4. To determine the association between parents 'knowledge/ beliefs and home based techniques used to treat a feverish child under 5 years atKabgayi Health Center

1.6. RESEARCH QUESTIONS

1. What is the parents' level of knowledge about definition, causes, outcomes and measurement of fever in a child under five years at Kabgayi Health center?

2. What are the parents' beliefs about harm of fever for a feverish child under five years at Kabgayi Health Center?

3. What are the home based techniques used by parents to treat feverish child under five years at Kabgayi Health Center?

4. What is the association between parents' knowledge/ beliefs and techniques used by parents to treat feverish child under five years at Kabgayi Health Center?

1.7. SIGNIFICANCE OF THE STUDY

1.7.1. Research

The findings of this study will be a baseline for further studies aimed to determine the parents' knowledge, beliefs and home based techniques regarding a feverish child.

1.7.2. Nursing education

This study will be used as reference object in nursing schools to make nurse students aware of the parents' knowledge, beliefs and home based techniques regarding a feverish child under five years.

1.7.3. Nursing Practice

The findings of this study will help health care professional to understand the parents' knowledge, beliefs and home based techniques regarding a feverish child under five years in Rwanda context in order to take them into consideration when providing nursing care

1.7.4. Nursing and leadership and management

The results of this study will be used by nurse leaders to plan and coordinate focused out rich in the community in order to improve health care

1.8. DEFINITION OF CONCEPTS

Parent: One that begets or brings forth offspring or a person who brings up and cares for another (Marriam,2018).

In this study the parent was any person who brought the child in consultation during the period of data collection**.**

Home-based techniques: Any form of care given to an ill people in their homes. In this study, home-based management is a set of different techniques carried out by parents to relieve fever in children at home**.**

Knowledge: The fact or condition of knowing something with familiarity gained through experience or association (Marriam ,2018).

For the context of this study the knowledge is a set of information known by parents about fever including fever measurement, and fever outcome in children**.**

Belief: A state or habit of mind in which trust or confidence is placed in some person or thing (Marriam,2018). In this study belief is about what the parent accepts as true regarding the fever in children.

Fever: Fever is defined as a body temperature ≥ 38 °C (Green and Pentz, 2014). In this study, the fever will be the temperature ≥38 °C.

Child: a young person especially between infancy and youth (Mariam,2018). In this study child is every child under 5 years old.

1.9. SUBDIVISION OF THE STUDY

This dissertation has two main parts. The first part (with small roman numerals) includes the Presentation of the project : The title page, declaration, dedication, acknowledgement, abstract, table of contents, list of symbols and abbreviations/acronyms, list of tables, list of figure and list of appendices. The second part (with Arabic numerals) contains 6 chapters: including Introduction, literature review, Methodology, Results, Discussion, conclusions and recommendations. It also includes references and appendices.

1.10. CONCLUSION TO CHAPTER ONE

Different studies have been conducted in different countries mostly in developed countries to determine parents' knowledge, beliefs and home based techniques regarding a feverish child under five years and the results indicated that in developed countries parents have the more correct mindset than in developing countries. However in some developing countries including Rwanda no studies have been done to explore this topic. Thus the main objective of this dissertation, as this study has not been conducted in Rwanda before, is determine Parents' knowledge, beliefs and home based techniques regarding a feverish child under five years at Kabgayi Health Center.

CHAPTER TWO: LITERATURE RIVIEW

2.1. INTRODUCTION

A literature review is a written summary of journal articles, books, and other documents that describes the past and current state of information on the topic of your research study (Cresswel ,2012 p,.80).

This literature review used google scholar, pubmed, HINARI to search the information. The literature search keys words used are: “fever in children under five years”, “fever management”, “techniques used by parents to manage fever in children under five years”, “parents’ knowledge about a child under five years with fever”, ”parents’ beliefs about a child under 5 years with fever”

This literature revolved around the following themes: theoretical literature, empirical literature.

2.2. THEORETICAL LITERATURE

2.2.1. Definition of fever

Fever has its etymological basis in Latin, meaning simply ‘heat’. The American College of Critical Care Medicine, the International Statistical Classification of Diseases, and the Infectious Diseases Society of America define fever as a core temperature of 38.3 °C (Walter *et al.*, 2016). In another hand Green and Pentz, 2014 defined it as a body temperature ≥ 38 °C. Anochie,2013 gave the following definition: if the body temperature is above 37.2°C and is associated with sweating, hyperventilation and vasodilatation in the skin, we speak of fever and John, Hospital and Chester (2013) stated that fever in children younger than 36 months is a rectal temperature of at least 100.4°F (38°C).

2.2.2. Mechanism of the fever

The mechanism of fever appears to be a defensive reaction by the body against infectious disease. When bacteria or viruses invade the body and cause tissue injury, one of the immune system’s responses is to produce pyrogens. These chemicals are carried by the blood to the brain, where they disturb the functioning of the hypothalamus, the part of the brain that regulates body temperature. The pyrogens inhibit heat-sensing neurons and excite cold-sensing ones, and the

altering of these temperature sensors deceives the hypothalamus into thinking the body is cooler than it actually is. In response the hypothalamus raises the body's temperature above the normal range, thereby causing a fever (Walter *et al.*, 2016).

Anochie decribed the mechanism of fever as as the following: Sub stances that cause fever are known as "pyrogens". There are two types of pyrogens; exogenous and endogenous pyrogens. Those that originate outside the body, such as bacteria toxins are called "exogenous "pyrogens. Pyrogens formed by the body's own cells in response to an outside stimulus (such as bacteria toxins) are called endogenous pyrogens (Anochie, 2013).

Anochie continues by saying that pyrogen is a substance that induces fever. These can be either internal (endogenous) or external (exogenous) to the body. The bacterial substance lipopolysaccaride (LPS), present in the cell wall of some bacteria, is an example of an exogenous pyrogen. In essence, all endogenous pyrogens are cytokines, molecules that are part of the innate immune system. They are produced by phagocytic cells and cause the increase in thermoregulatory set-point in the hypothalamus. Major endogenous pyrogens are interleukin 1 (alpha and beta) (Walter, 2003) interleukin 6 (IL-6) and tumor necrosis factor –alpha. Minor endogenous pyrogens include interleukin-8, tumour necrosis factoralpha, tumour necrosis factor-beta, macrophage inflammatory protein-alpha and macrophage inflammatory protein –beta as well as interferon-alpha, interferon-beta and interferon- gamma (Anochie, 2013).

These cytokine factors are released into general circulation, where they migrate to the circumventricular organs of the brain due to easier absorption caused by the blood-brain barrier's reduced filtration action there. The cytokine factors then bind with endothelial receptors on vessel walls, or interact with local microglial cells. When these cytokine factors bind, the arachidonic acid pathway is then activated. One model for the mechanism of fever caused by exogenous pyrogens includes LPS, which is a cell wall component of gram-negative bacteria (Anochie, 2013).

The cited researcher continues by saying that an immunological protein called lipopolysaccaride binding protein (LBP) binds to LPS. The LBP-LPS complex then binds to the CD14 receptor of a nearby microphage. This binding results in the synthesis and release of various endogenous cytokine factors, such as interleukin 1(IL-1), interleukin 6 (IL-6), and the tumour necrosis factor-

alpha. In other words, exogenous factors cause release of endogenous factors, which in turn, activate the arachidonic acid pathway. Prostaglandin E2 (PGE2) release comes from the arachidonic acid pathway. This pathway (as it relates to fever), is mediated by the enzymes phospholipase A2 (PLA2), cyclooxygenase-2 (COX-2), and prostaglandin E2 synthase. These enzymes ultimately mediate the synthesis and release of PGE2. PGE2 is the ultimate mediator of the febrile response. (Anochie, 2013)

2.2.3. Methods of measuring a child's temperature

The method of measuring a child's temperature is commonly set by the policy of the health care setting. The temperature can be measured by the oral, tympanic, temporal, rectal, or axillary method (Hatfield *et al*., 2017).

Temperatures are recorded in Celsius or Fahrenheit, according to the policy of the health care facility. Oral Temperatures are usually taken only on children older than 4 to 6 years of age who are conscious and cooperative. Tympanic temperatures are now used in many health care settings,the tympanic thermometer records the temperature rapidly (registering in about 2 seconds), is noninvasive, and causes little disturbance to the child. A tympanic measurement often can be obtained without awakening a sleeping infant or child (Hatfield *et al*., 2017).

Temporal temperatures are a newer method of measuring temperature in the child. An infrared sensor probe is scanned across the skin on the fore head, the sensor measures heat from blood flow in the temporal artery. The use of this noninvasive procedure is becoming more common, especially as a screening tool and in detecting rapid temperature changes, but it is still not widely accepted as a reliable measurement of temperature in all ages and situations. Rectal Temperatures may be taken in children but usually only if another method cannot be used, they are not desirable in the newborn because of the danger of irritation to the rectal mucosa or in children who have had rectal surgery or who have diarrhea. Axillary Temperatures are taken on newborns and on infants and children with diarrhea or when a rectal temperature is contraindicated (Hatfield *et al*., 2017).

2.2.4. Causes of fever in children

Most fevers in children are of brief duration with limited consequences and are viral in origin. However, children who appear very ill and are at high risk for serious bacterial illness, such as urinary tract infections or bacteremia (Sahib El-Radhi, Carroll, and Klein, 2009).

RTI, UTI, viral infections eg: common cold, Bacterial infections: pneumococcal infections, streptococcal infection, salmonella gastroenteritis; parasitic disease: malaria, have been identified as the diseases that are accompanied by Fever (William *et al*.,2016).

2.3. EMPIRICAL LITERATURE

2.3.1. Parents' knowledge about definition, causes, measurement techniques and outcomes of fever for a feverish child under five years

2.3.1.1. Parents' knowledge about definition of fever for a feverish child under five years

The study conducted in Netherlands on 1000 participants showed that most parents (88.3%) knew the correct definition of fever which is temperature >38°C. (Francis and Dinant, 2014).In other hand, the study conducted in Ireland on 23 parents revealed that temperatures that parents associated with fever range from 37.5 to 39 °C, in this study also parents reported a range of temperatures to be defined as normal temperature :between 36 and 38 °C (Kelly *et al.*, 2016).

In urban India, more than one third of the parents (38.9%) did not know the correct temperature for fever; 47.9% parents considered fever to be present if the temperature exceeded 100 degrees F (Thota*et al.*, 2018).

In Saudi Arabia, 250 parents participated in the study where 54% identified normal temperature, 64% defined fever correctly.56% attained to identify high fever whereas 47% could not (Mohammed *et al*.,2019).

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

However in Morocco ,the study conducted in on 264 parents aimed "Knowledge and management of fever among Moroccan parents" revealed that only 3.5% of the parents knew the correct temperature definition for fever (Rkain *et al.*, 2014).

2.3.1.2. Parents' knowledge about causes of fever for a feverish child under five years

The study conducted in Pakistan revealed that about 37% of parents don't know about causes of fever, only 10% of parents stated that malaria causes fever, 17% of them reported that diarrhea causes fever in children while remaining 37% of those parents replied that infection is responsible for causing fever(Khan *et al.*, 2013).In India, the infection was identified as the most common cause of fever, while a few number of parents attributed it to seasonal changes (Thota *et al.*, 2018).

There are studies conducted also in Africa where in Eastern Nigeria parents identified malaria as the common cause followed by pneumonia (Chukwuocha*et al,*.2014). Furthermore in Ghana, parents (39%) were acknowledged malaria to cause fever, infections (18%), other mentioned overeating (6%) as well as evil spirit (11%) (Anokye*et al.*, 2018) while in Burkina Faso, malaria; gastro intestinal infections; common bacterial pathogens of naso-pharynx; bacterial bloodstream infection and urinary tract infections were identified to be the causes of fever in children under five years (Kiemde*et al.*,2018).

2.3.1.3. Parents' knowledge about outcomes of fever for a feverish child under five years

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

In India, the outcomes identified in the study conducted by Thota *et al.*, 2018 were the following: the death was the most common complication, followed by lethargy and dehydration.

The study conducted in Morocco on 264 parents aimed "Knowledge and management of fever among Moroccan parents" revealed that 96.8% of parents knew that fever was a very serious

condition, which could lead to side-effects such as brain damage (28.9%), seizures (18.8%), paralysis (19.5%), breathing difficulty (14.8%) and coma (14.8%) (Rkain *et al.*, 2014).

2.3.1.4. Parents' knowledge about measurement techniques of fever for a feverish child under five years

In Iran, the study aimed "mothers' management of fever of children in Sabzevarshowed that measurement of body temperature used by mothers was carried out by touching the head of the child in 67.4%, while 24.8% of the mothers used a thermometer. This study also showed that fever measurement used by educated mothers was using axillary (20.2%) and oral thermometers (19.4%) (Talebi *et al.*, 2016).While in India,a team of reseachers conducted a study that showed that few parents (14.63%) know that the detection of fever is done using thermometer. Majority (75%) of them used electronic thermometer to detect fever, rest using mercury thermometer (Agrawal*et al.*, 2013).

Also in Saudi Arabia, Mohammed and his colleagues in their study showed that most of the parents 82% measured their children temperature by their touching the forehead; 68% use oral thermometer,63% use axillary thermometer , almost quarter use rectal thermometer and 60% took their children to the health care center and emergency department to measure their temperature (Mohammed *et al*.,2019).

The study conducted in Morocco on 264 parents aimed "Knowledge and management of fever among Moroccan parents showed that just over half of the parents (54.4%) knew that to determine their children's fever they have to use thermometer, while 44.4% stated that fever could be determined by touching the child's forehead. 58.9% of parents they know to read the thermometer (Rkain *et al.*, 2014).

Concerning the level of knowledge, in Saudi Arabia, parents showed poor knowledge and practice in regard to parents management of febrile children, overuse of non-prescribed fever medication (Mohammed *et al.*,2019)

2.3.2. Beliefs of parents about harm of the fever for a child under five years

In study conducted in Saudi Arabia by Mohammed and colleagues, they saw that almost all parents 95% of participants believed fever to be harmful to their children (Mohammed *et al*.,

2019). Another study done in Jordan revealed that 97% of parents believed that there is a potential harm from fever if left untreated (Athamneh, 2014).

In Turkish, parents revealed also their beliefs about the harm of fever where 87% of them believed that fever had a bad outcome (Yavuz*et al.*,2018).

2.3.3. Techniques used by parents to treat fever for a feverish child under five years

Just over one-half of the participants (55.2%) in Netherlands, correctly stated that antibiotics are effective in treating bacterial infections and not viral infections. Furthermore, 72% indicated that not every child with a fever needs to be treated with either antibiotics or paracetamol (Francis and Dinant, 2014).

In the study conducted in Ireland showed that the majority of parents (81.8%) indicated that they use liquid or oral forms of medication: Suppository or rectal forms of medication to reduce fever. A small number of parents (1.1%) preferred not to use medication while 3.8% use methods other than medication to reduce fever (e.g. tepid sponging) (Kelly *et al.*, 2017) while undress the child with extra clothing or give fluid to child with fever as a correct approach to fever management were reported by the parents in Australia (Rn and Bds, 2018).

The study conducted in Turkish on a total of 205 parents, showed that 83.4% of parents used antipyretics to reduce fever in children before they attend the Primary Care Center and paracetamol was the most frequently used antipyretic (Yavuz *et al.*, 2017).

In other hand in Iran, the study conducted among 300 parents of children under 5 years in Iran, where parents were able to choose more than one choice in the questionnaire, this study showed that among the practices taken by parents when their child has fever, use of antipyretics was selected 199 times (66.3%), visiting a doctor or medical center was selected 187 times (62.3%), reducing child's clothes was selected 138 times (46%), use of foot bath was selected 188 times (62.6%), feeding fluids was selected 52 times (17.3%), and cooling the environment was selected 17 times (5.6%) by the mothers in the questionnaire (Abdinia, Hassan and Khalilzadeh, 2017).

Similar study was conducted in Subzevar, another region of Iran on 340 mothers with revealed that 83.7% of the mothers woke their febrile child for antipyretic administration. Among the

mothers who applied a wet sponge to reduce body temperature, 37.2% used lukewarm water, 22.5% used cold water, and 20.2% used salted water (Talebi *et al.*, 2016).

In Saudi Arabia, in the study conducted on 250 parents, the following techniques were identified as techniques used by parents to manage fever in under 5 children at home: most parents (84%) applied cold compression,75% gave non-prescribed fever medication,61% gave plenty of fluid,46% went to consult their relatives and friends and 64% took their children to the doctor right away (Mohammed *et al*.,2019).

The study involved 332 mothers of children under five conducted in rural setting in Sudan showed that tepid sponging was used by 47% of the interviewed mothers. 15% of the mothers increased fluid intake, 7% bathed the child and 5% put the child in lightclothes.59%of mothers applied tepid sponging on head, 33.9% on all the body, 3.7% and 2.2% on groin area and axilla, respectively. The majority of mothers (86%) used water from refrigerator or Zeer (water clay pot) for applying tepid sponging, 9% used tap water, and 3% used ice water (Mukhtar and Elnimeiri, 2014).

In Kenya, a study conducted to a sample of 250 caregivers of children presenting with fever, revealed that antipyretics were the leading medication used by 127caregivers (54.7%) to treat fever in their children at home. This was given at either a high dosage or at too frequent intervals. Other medications given to febrile children were antibiotics (40.1%), anti-malaria (4.7%), antihistamine and herbs 6.8% (Koech, Onyango and Jowi, 2014).

2.4. CRITICAL REVIEW AND RESEARCH GAP IDENTIFICATION

In the study conducted in Jordan aimed “parents' knowledge, attitudes and beliefs of childhood fever management in Jordan” had potential limitations: the study findings may not be generalized to all the Jordanian population since the study was conducted in one of the 13 governorates in Jordan whose population numbers and therefore resources may differ from the other governorates. The replication of the study in additional governorates would improve the generalizability of the findings. The researchers relied on self-reported data, which might contain potential sources of bias, such as selective memory (to remember or not remember experiences or events that occurred at some point in the past) and it might contain a social

desirability bias (the tendency to answer based on what they think is theoretically right rather than actual practice) (Athamneh, 2014).

The study conducted in Morocco, one limitation found was that data were collected from parents presenting to one emergency department. Therefore the findings might not be generalizable to the Moroccan population (Rkain*et al.*, 2014).

2.5. CONCEPTUAL FRAMEWORK

The conceptual framework of this study was adapted from the health promotion model (HPM) developed in the early 1980s by Pender Nola. This model represents a theoretical perspective that explores the factors and relationships contributing to health-promoting behavior and therefore to the enhancement of health and quality of life. This model has three Components:

1st: Individual characteristics and experiences

Prior related behavior : frequency of the same or similar health behavior in the past Personal factors (biological, psychological, socio-cultural) :general characteristics of the individual that influence health behavior such as age, personality structure, race, ethnicity, and socioeconomic status(Nola, 2011). In this study**,** individual characteristics and experiences are socio demographic characteristics of parents that influence their knowledge, beliefs and home based techniques used to treat a feverish child under 5 years.

2nd: Behavior specific cognitions and affect

Perceived self-efficacy: judgment of personal capability to organize and execute a particular health behavior; self-confidence in performing the health behavior successfully(Nola, 2011).In this study behavior specific cognitions and affect/perceived self efficacy are parents' knowledge about definition, causes, outcomes and measurements techniques regarding a feverish child under 5 years.

Activity related affect: subjective feeling states or emotions occurring prior to, during and following a specific health behavior (Nola, 2011).In this study, behavior specific cognitions and affect/ activity related affect are parents' beliefs about harmful of fever for a feverish child under 5 years.

3rd: Behavioral outcome: Health promoting behavior

Health promoting behavior: the desired behavioral end point or outcome of health decision-making and preparation for action (Nola, 2011). In this study behavioral outcomes are home based techniques used by parents to treat a feverish child under 5 years.

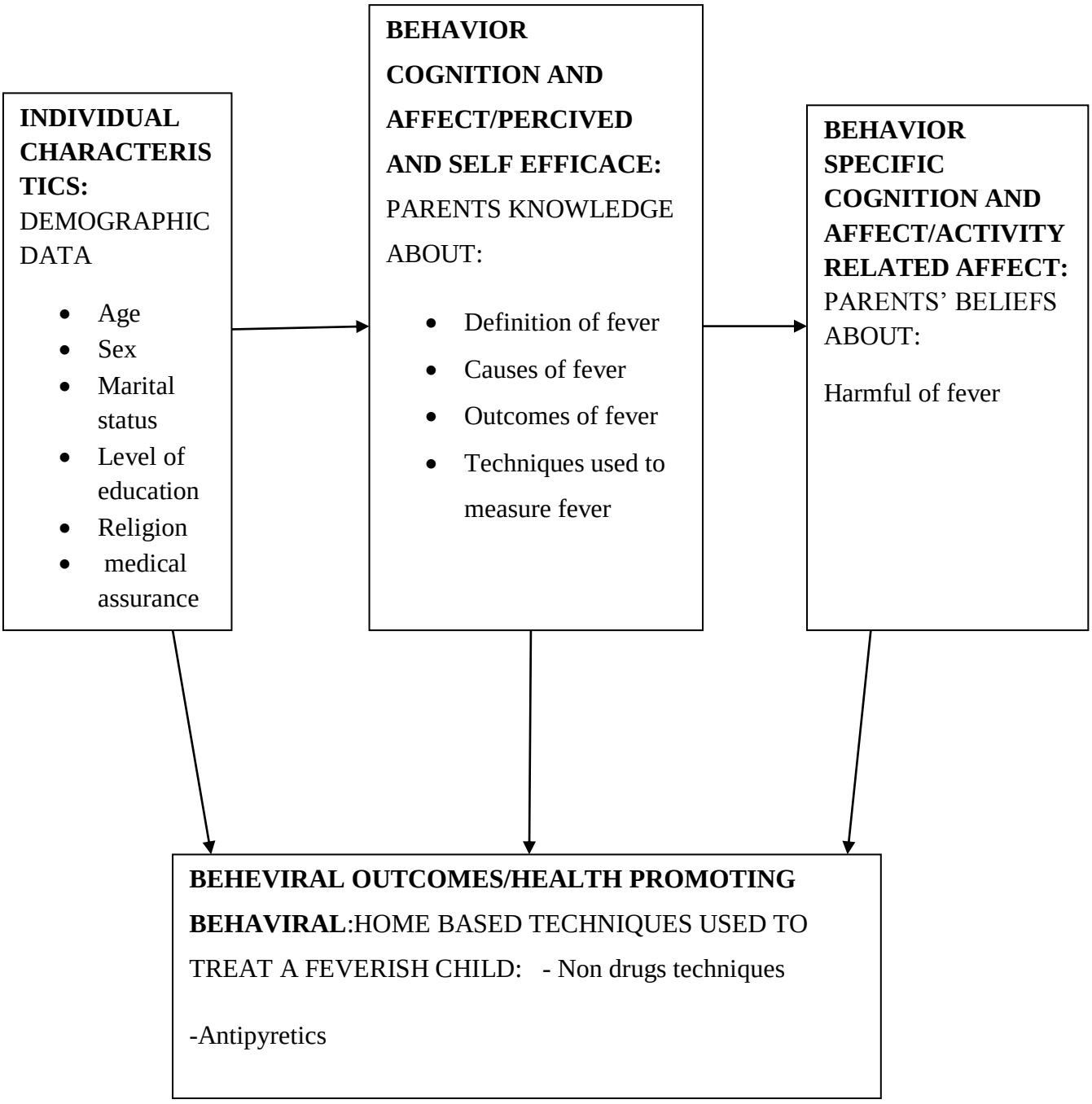

Figure 1. **Conceptual framework adapted from Pender Nola: Interlinked variables leading to home based techniques.**

2.6. CONCLUSION TO CHAPTER TWO

Definition, causes, mechanism and measurement techniques of fever have been identified in this chapter. Parents' knowledge, beliefs and home based techniques regarding a feverish child under 5 years also have been reported where parents from different countries have different mindset. The Health Promotional Model developed by Pender Nola constituted the conceptual framework of this study.

CHAPTER THREE: METHODOLOGY

3.1. INTRODUCTION

Research methodology is defined by Polit and Beck (2008) as a systemic investigation that improves knowledge on the important issues for a given profession, looking at all its aspects.

This chapter explains the process and methods that have been used to achieve objectives of this study. These include: research design, research approach, study setting, study population , sampling criteria, simple size and sampling strategies, data collection instruments, data analysis , ethical issues, management of data, dissemination of data and challenges that the researcher encountered.

This study aims at determining parents' knowledge, beliefs and home based techniques regarding a feverish child under five years at Kabgayi health center**.**

3.2. RESEARCH APPROACH

Quantitative research approach was used in this study. The quantitative research is a formal, systematic process by which numerical data are processed to get new information about the world (Grove *et al*.,2013,p.23).Rebar and colleagues(2011,p.30) stated that quantitative methods focus on a comprehension and split down phenomenon into parts to evaluate the outcome.

This study was descriptive in nature as it described the variable by showing frequencies for each variable and it explores associations between those variables.

3.3. RESEARCH DESIGN

A research design is defined as a overall plan to get knowledge through an approach that answers research questions; the research design determines how participants are recruited and involved in the study, the process for the study, including the timing of any activity and when the study will be completed (Rebar *et al*., 2011,p.175).

This study used a non-experimental descriptive and cross-sectional design.

Descriptive studies offer an exact interpretation of characteristics of an individual, the group or the situation by determining a new meaning of the phenomenon, describing what exists, showing how frequent something occurs and classifying information (Grove, Burns and Gray, 2013,

p.26).This study had the aim to describe the phenomena and parents' level of knowledge, beliefs and home based techniques regarding a feverish child.

3.4. STUDY SETTING

The study was conducted at Kabgayi Health Center which is located in Southern Province, Muhanga District, Nyamabuye Sector, Gahogo Cell, Kamazuru Village.

Kabgayi Health Center has been chosen because it is located in South Province. The Southern Province was the second for having high prevalence of fever among children under 5 years (the highest prevalence of fever in children under 5 years in Rwanda is 22% in East and 21% South (National Institute of statistics, 2015) due to the accessibilities and financial limitations. Kabgayi Health center is among the health center of southern which receives many under 5 years with fever.

3.5. STUDY POPULATION

A population is an entire group of individuals, substances or objectives that meet inclusion criteria set by the researcher (Grove,Burns and Gray,2013, p. 44).

In this study, the population of interest was made of parents from Kabgayi Health center catchment area with children under 5 years.

3.5.1.Target population

is "the entire aggregation of respondents that meet the designated set of criteria" (Burns & Grove 1997:236).

The target population was made of all parents whose children were under 5 years and presenting fever andcame to consultKabgayi Health Center. The total was 1021 as the parents who brought their under five years with fever to consult Kabgayi Health Center in last three months.

3.5.2. Accessible population

Is the portion of the target population to which the researcher has reasonable access (Porter, E.J., 1999.).

Accessible population was made of parents whose children under 5 years presenting feverandwho met the inclusion criteria and accepted to participate.

3.5.3. Inclusion criteria

Burns and Grove (2003: 234) define eligibility criteria as "a list of characteristics that are required for the membership in the target population"

In this study, inclusion criteria was the following: Parent who ever came with a child under 5 years presenting fever and who agreed to participate and who could communicate verbally and gave consent form to participate in the study.

3.5.4. Exclusion criteria

Talbot (1995) (cited in Rees 1997:134) defines exclusion criteria as "characteristics, which a participant may possess, that could adversely affect the accuracy of the results"

Exclusion criteria in this study were:Parent with no under-five child and ,Parent who refused to participate in the study, and those who were not able to consent for study, parents fulfilling inclusion criteria who were not available during data collection, and those parents residing other than selected rural community and mothers included in pilot study.

3.6. SAMPLING

3.6.1. Sample size

The following formula of Taro Yamane was used to get the sample:

$n= N/1+N*(e)^2$ where:

n= Sample size; N= the population size; e= the acceptable sampling error (e=0.05).

$n=1021/1+1021\times(0.05)^{2=}1021/1+1021\times0.0025=1021/1+2.5525=1021/3.5525$

$=287.40=288$

The sample size has been 288 based on total population 1021

3.6.2. Sampling strategy

This study used convenience sampling a type ofnonprobability sampling methods.

As the parents came one by one with unprecized interval the convenience have been used to collect data.

3.7. VALIDITY AND RELIABILITYOF RESEARCHINSTRUMENT

3.7.1. Validity of the research instrument

The validity is the degree to which an instrument measures what it is supposed to measure (Polit and Beck, 2008, p.422). The data collection tool used has been used in Saudi Arabia in the study aimed to explore "Parent's knowledge, beliefs and practice in home management in their children in Riyadh, Saudi Arabia". This tool has been provided by one of the members who conducted the cited study and he allowed the researcher to adapt the tool to the Rwanda context. Then the tool was given to experts to test its consistency and accuracy. The questionnaire was fairly easy to read.

In this study the content and construct validity were ensured when categorizing items of questionnaire according the research objectives, literature review and theoretical framework.

Table of content validity

OBJECTIVES	**COMPONENT OF CONCEPT FRAMEWORK**	**ITEMS**
To identify the parents' knowledge about definition, causes, measurement techniques and outcomes of fever for a feverish child under five years at Kabgayi Health center	**Behavior specific cognitions and effect: perceived self-efficacy**	**I. PARENTS' KNOWLEDGE ABOUT:** **I.1.Definition of fever:** The fever is the temperature$\geq 38^0$C **I.2.Causes of fever:** I.2.1.Does malaria cause fever? I.2.2. Do Diarrheic diseases cause fever? I.2.3. Does immunization causes fever? I.2.4.Does tooth eruption causes fever? I.2.5.Does tonsillitis cause fever? I.2.6.Does pneumonia cause fever? I.2.7.Does meningitis cause fever? **I.3.Outcomes of fever:** I.3.1. Are convulsions an outcome of fever?

		I.3.2.Is dehydration an outcome of fever? I.3.3.Is loss of consciousness an outcome of fever? I.3.4. Are respiratory difficulties an outcomes of fever? I.3.5. Is brain damage an outcome of fever? **I.4.Measurement techniques used by parents to measure fever:**4.1.Measure temperature (manually using hand) 4.2.Using an axially thermometer 4.3.Using an oral thermometer 4.4.Using a rectal thermometer
To identify the parents' beliefs about harmful of fever for a feverish child under five years at Kabgayi Health Center.	**Behavior specific cognitions and effect: Activity related affect**	**II. PARENTS' BELIEFS ABOUT HARMFUL OF FEVER** II.1. Do you believe that fever is harmful for a child under 5 years? II.2. How much do you believe fever is harmful: • Litlle harmful • Harmful • Very harmful
To determine home based techniques used by parents to treat a feverish child under five years at Kabgayi Health center	**Behavior outcome :Health promoting behaviors**	**III.HOME BASED TECHNIQUES USED BY PARENTS TO TREAT A FEVERISH CHILD:** **III. 1.Non drugs techniques** III.1.1.Does applying tepid sponging used to treat fever? III.1.2.Does Undress the child used to treat fever?

		III.1.3. Does Giving plenty fluids used to treat fever? III.1.4. Does Giving breastfeeding more than usually used to treat fever? **III.2. Does Using of fever medicine used to treat a feverish child at home** **III.3.Antipyretic used to treat fever** III.3.1. Does paracetamol used to treat fever for a child under 5 years? III.3.2.Does brufen used to treat fever for the child under 5 years?
To determine the association between parents' knowledge/ beliefs and home based techniques used to treat a feverish child under 5 years at Kabgayi Health Center		**IV.ASSOCIATION BETWEEN VARIABLES** IV.1. Association between demographic data and parents' knowledge IV.2. Association between demographic data and parents' beliefs IV.3. Association between demographic data and home based techniques IV.3. Association between parents' knowledge and home based techniques. IV. Association of parents' beliefs and home based techniques.

Table 1.Demonstrates the content validity.

The assessment of internal validity was controlled by avoiding the use of confusing and complicated words in data collection tool. The translation of the questionnaire from English in Kinyarwanda language was done by the expert in English-Kinyarwanda with understandable words and the researcher pretested questionnaire before conducting the study.

The external validity was controlled by selecting a representative sample size from the sampling frame with a random sampling of participants. The assistants were trained about how to use the questionnaire before the study then the researcher and his assistants selected participants at random, making sure that all participants fulfill the inclusion criteria to prevent bias.

3.7.2. Reliability of the research instrument

According Pilot and Beck (2008,p.416) reliability refers to the consistency with which it measures the taget attribute.

To assess the reliability of this questionnaire test retest has been used. The researcher administered the same questionnaire twice to a group of individual fulfilling the inclusion criteria (28persons: 10% of the sample size) then the scores from time 1 and time 2 have been successful. Therefore the researcher calculated the internal consistency reliability coefficient. The questionnaire had 32 items and the Cronbach's alpha test was 0.795,which shows that items were connected and related each other.

3.8. DATA COLLECTION

Data collection is "a systemic way of gathering information, which is relevant to the research purpose or questions" (Burns & Grove 1997:383).

Following approval from CMHS institutional review board (IRB), the researcher contacted Kabgayi health center administration to request for permission to conduct the study in its institution. The approval from Kabgayi Health center administration to conduct the study within the institution was received. The convenience sampling was used to collect data from the parents. As the sample size was 288 parents, the researcher had 35 days to collect data from 1 March 2019 to 30 April 2019.The researcher elaborated a schedule to follow in order use the available time correctly.Thedays chosen to collect data were Thursday, Friday, Saturday and Sunday as other days of the week the researcher had to attend the class. The first 20 days the researcher collected the data from 180 participants means 9 participants a day, the following 11 days the researcher collected data from 88 participants means 8 participants a day then the remaining days (4 days) the data were collected from 20 participants means 5 parents a day. Once the participant identified and ready to participate, the researcher introduced himself to the parent of under-five child presenting fever and gave an explanation about the study in brief, the importance of her participation, the procedures to be followed and the purpose of the study also shared.

After this, consent form was delivered to the parent for her to sign for her participation in the study then the researcher used face to face structured interview by reading the questions and recorded parent's responses on individual questionnaire.

3.9. DATA ANALYSIS

Quantitative data were analyzed descriptively (specific objective 1, specific objective 2 and specific objective 3) and inferential statistics chi square was used to find association between variables (specific objective 4). Data were entered in SPSS version 20 and wereimported into Microsoft Excel, and then the results were presented in tables and pie chart.

3.10. ETHICAL CONSIDERATION

Approval to conduct this study was given by IRB/CMHS (Appendice B). Approval to collect data at Kabgayi Health Center was given by Kabgayi Health Center authorities (Appendice C). Ethical principles were observed and reported regarding the use of resources in the research. Explaining the purpose of the study to parents was done by the researcher. Obtaining written consent from parents was respected then information that was obtained from parents was kept confidential. The parents were assured of no harm and they were explained that they may withdraw from the study at any time without consequences.

3.11. DATAMANAGEMENT

The filled tool was stored safely; the data was coded, entered and saved into the computer in SPSS program version 20, and then secured by a password known only by the researcher. The data has been categorized based on the variables by use of codes. Both hard and soft copies will continue to be stored as they can be needed for future research and helpful to the respective health center.

3.12. DATA DISSEMINATION

The results of this study will be published in order to be accessible to the user in need and the researcher will provide feedback to the study setting in order to facilitate them to set strategies to use appropriate practices to manage fever at home.

3.13. LIMITATIONS AND CHALLENGES

Our study findings may not be generalized to all the Rwandan population because the study was conducted in one of 500 health centers.

3.14. CONCLUSIONTO CHAPTER THREE

A non-experimental descriptive design with a quantitative approach helped the researcher to collect data from 288 parents with feverish child under 5 years at Kabgayi Health Center determined using Taro Yamane formula for the total population of 1021. The convenience sampling was used to collect data from the participant. An adapted tool was used to collect data in order to know parents' knowledge, beliefs and techniques regarding a feverish child under five years, its reliability and validity was tested in Rwanda context.

CHAPITER FOUR: RESULTS

4.1. INRODUCTION

This chapter presents the research findings. The results of this study are presented to answer the research questions. These results are presented in five sections: **section1**: socio-demographic characteristics; **section2**: parents' knowledge about definition, causes, outcomes and fever measurements regarding a feverish child; **section 3:** parents' beliefs about harmful of fever for a feverish child; **section 4:** home based techniques used to treat a feverish child and **section 5:** the association between parents 'knowledge/ beliefs and home based techniques used to treat a feverish child under 5 years at Kabgayi Health Center.

All results are presented in form of chart and tables displaying frequencies and percentages. All responded to the questionnaires making a response rate of 100%.

4.2. SOCIODEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS (N=288).

Table 2. Indicates the socio-demographic characteristics of respondents; the results are presented in frequencies and percentages.

About a half of respondents108 (37.5%) were under 18years old, 170(59.5%) were between 18 and 35 years old and a few number of them 10 (3.5%) were greater than 35 years old. The majority of participants were female272 (94.4%) whereas 16(5.6%) were males. Most of them were married 256(88.9%), a very few number were single 11(3.8%) and 9(3.1%) were divorced while 12(4.2) were widower. Concerning the Level of education, the findings of this research showed that 36 of respondents (12.5%) were illiterate, 187(64.9%) had the primary level, 57(19.8%) had secondary level and 8(2.8%) had university level. The high majority 278(96.5%) were Christians and a very few number 10(3.5%) were Muslims. Almost all participants 286(99.3%) had Medical insurance and a very small number 2(0.7%) had not.

SOCIO-DEMOGRAPHIC VARIABLES		Frequency	%
1.AGE	<18 years	108	37.5
	≥18 to 35 years	170	59
	>35years	10	3.5
	Total	**288**	**100**
2. SEX	Male	16	5.6
	Female	272	94.4
	Total	**288**	**100**
3.MARITAL	Single	11	3.8
STATUS	Married	256	88.9
	Divorced	9	3.1
	Widower	12	4.2
	Total	**288**	**100**
4.LEVEL OF	Illiterate	36	12.5
EDUCATION	Primary level	187	64.9
	Secondary level	57	19.8
	University level	8	2.8
	Total	**288**	**100**
5.RELIGION	Christians	278	96.5
	Muslims	10	3.5
	Total	**288**	**100**
6.MEDICAL	Applicable	286	99.3
INSUARENCE	No applicable	2	0.7
	Total	**288**	**100**

4.3. PARENTS'KNOWLEDGE ABOUT DEFINITION, CAUSES, OUTCOMES OF FEVER AND TECHNIQUES USED TO MEASURE FEVER.

4.3.1. Parents 'knowledge about definition of fever

Figure 2.Parents 'knowledge about definition of fever

The figure 2 illustrates responses provided by the participants about the definition of fever where those who know the definition of fever were 173 (60.%) and those who do not know were 115(40%)

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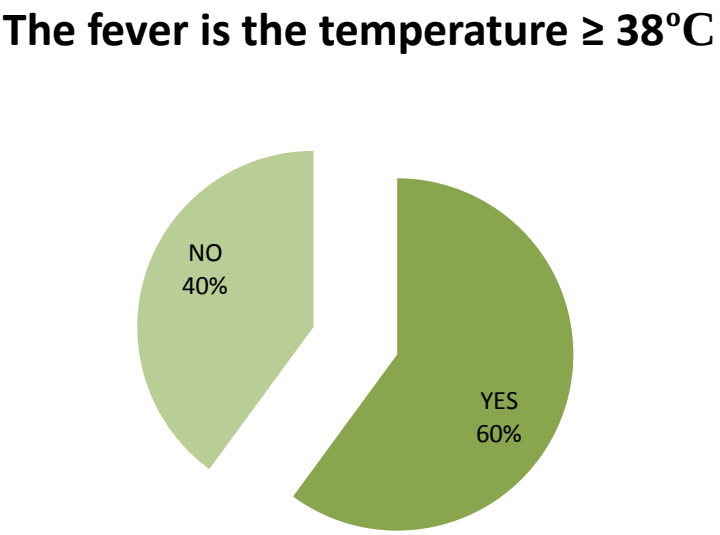

4.3.2. Parents' knowledge about causes of fever

Table 3.Indicates the frequency and percentage of respondents on the knowledge about the causes of fever.

The high majority of respondents 280 (92.2%) knew malaria as the cause of fever and a very few number 8 (2.8%) did not know that. Almost a quarter of participants 60(20.8%) do not know that diarrheic disease cause fever and the majority 228 (79.2%) of them reported to know that. Regarding immunization most of participants 244 (84.7%) recognized it as a cause of fever while 44 (15.3%) did not know it. The tooth eruption was identified by a big number of participants 219(76%) to be a cause of fever and a few number 69(24%) did not know that. Around three quarter 211(73.3%) recognized tonsillitis as a cause of fever whereas a few number 77(26.7%) did not recognized that. Pneumonia has been identified by the majority of participants 218(75.7%) while 70(24.3%) did not acknowledged that. Around a half of the participants118 (41%) stated to know it as the cause of fever while 170(59%) did not.

CAUSES OF FEVER (N=288)		Frequency	%
1.MALARIA	Yes	280	97.2
	No	8	2.8
	Total	**288**	**100**
2.DIARRHEIC DISEASES	Yes	228	79.2
	No	60	20.8
	Total	**288**	**100**
3.IMMUNIZATION	Yes	244	84.7
	No	44	15.3
	Total	**288**	**100**
4.TOOTH ERUPTION	Yes	219	76
	No	69	24
	Total	**288**	**100**
5.TONSILITIS	Yes	211	73.3
	No	77	26.7
	Total	**288**	**100**
6.PNEUMONIA	Yes	218	75.7
	No	70	24.3
	Total	**288**	**100**
7.MININGITIS	Yes	118	41
	No	170	59
	Total	**288**	**100**

4.3.3. Parents' knowledge about outcomes of fever

Table 4.Illustrates the frequency and percentage of respondents on the parents' knowledge about outcomes of fever.

A high majority of participants 260(90.3%) knew the convulsions as one of the outcomes of fever and a few number of them 28(9.7%) did not know it. Most of participants 231(80.2%) acknowledged dehydration to be an outcome of fever while 57(19.8%) did not acknowledge that. Regarding the loss of consciousness, almost all participants240 (83.3%) knew as an outcome of fever whereas 48(16.7%) did not know. A greater part of participants 230(79.9%) identified respiratory difficulties like an outcome of fever while 58(20.1%) did not identified that. Around the three quarter 205(71.2%) recognized the brain damage as an outcome of fever then in the same time 83(28.8%) did not recognize that.

OUTCOMES OF FEVER (N=288)		**Frequency**	**%**
1.CONVULSIONS	Yes	260	90.3
	No	28	9.7
	Total	**288**	**100**
2.DEHYDRATION	Yes	231	80.2
	No	57	19.8
	Total	**288**	**100**
3.LOSS OF CONSCIOUNSNESS	Yes	240	83.3
	No	48	16.7
	Total	**288**	**100**
4.RESPIRATORY DIFFICULTIES	Yes	230	79.9
	No	58	20.1
	Total	**288**	**100**
5.BRAIN DAMAGE	Yes	205	71.2
	No	83	28.8
	Total	**288**	**100**

4.3.4. Parents' knowledge about techniques used to measure fever

Table 5. Indicates the frequencies and percentages of respondents on knowledge about techniques used to measure fever.

Almost all participants 271(94.1%) knew that the temperature is measured manually using hand, very few of participants 17 (5.9%) did not know this technique**.** Among the respondents who participated in this research, the high majority 278(96.5%) knew that temperature can be measured by an axiallary thermometer and very few 10(3.5%) did not know that. Few of participants 33(11.5%) stated that temperature can be measured by using oral thermometer whereas the majority 255(88.5%) were not aware of this techniques. Also few of respondents 49 (17%) knew that temperature can be measured by rectal thermometer while a big number 239 (83%) did not know that.

TECHNIQUES USED TO MEASURE FEVER(N=288)		**Frequency**	**%**
1.MEASURING TEMPERATURE MANUALLY	Yes	271	94.1
(BY HAND)	No	17	5.9
	Total	**288**	**100**
2.USING AN AXILLARY THERMOMETER	Yes	278	96.5
	No	10	3.5
	Total	**288**	**100**
3.USING AN ORAL THERMOMETER	Yes	33	11.5
	No	255	88.5
	Total	**288**	**100**
4. USING A RECTAL THERMOMETER	Yes	49	17
	No	239	83
	Total	**288**	**100**

4.3.5. Level of knowledge

Marks below the mean (12.11) categorized the parent in poor knowledge level

Marks above the mean (12.11) categorized the parent in good knowledge level

Table 6. Indicates the level of knowledge

More of the half 188 (58.88%) had good knowledge regarding a feverish child while the remaining number 119 (41.32%) had poor knowledge.

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KNOWLEDGE SCORE OUT OF 17	**N**	**%**	**MCT**	**LEVEL OF KNOWLEDGE**	**N OF LEVEL OF KNOWLEDGE**	**LEVEL OF KNOWLEDGE %**
4 5 6 7 8 9 10 11 12	10 2 9 6 15 13 22 23 19	24.52 29.41 35.29 41.17 47.05 52.94 58.82 64.70 70.58	Mean:12.11 Median:13 Mode:14	Poor knowledge	119	41.32
13 14 15 16 17	53 54 38 19 5	76.47 82.35 88.23 94.11 100		Good knowledge	169	58.68
Total	**288**				**288**	**100**

4.4. PARENTS' BELIEFS ABOUT HARM OF FEVER FOR THE CHILD UNDER FIVE YEARS.

Table 7. Demonstrates the frequency and percentage of respondents about the harm of fever for the child under five years

All of the participants 288(100%) believe that fever is harmful to the child under 5 years.

BELIEFS ABOUT FEVER'S HARMFUL(N=288)		Frequency	%
Do you believe that fever is harmful to the child under fiver year?	Yes	288	100
	No	0	0
	Total	**288**	**100**

4.4.1. Category of harmful

Table 8. Indicates the category of harmful

The majority of participants believe that fever is very harmful 249(86.5%) while a small number 37(12.8%) believe it to be harmful and a very few of participants 2(0.7%) believe that fever is little harmful.

CATEGORY OF HARMFUL	Frequency	%
Little harmful	2	0.7
Harmful	37	12.8
Very harmful	249	86.5
Total	**288**	**100**

4.4.2. Level of beliefs

Marks below the mean (12.11)= negative beliefs

Marks above the mean (12.11) = positives beliefs

Table 9. Demonstrates the level of beliefs

The majority of participants 249 (86.46%) had positive believes regarding a feverish child while 39 (13.54%) had negative beliefs.

BELIEFS SCORE OUT OF 3	**N**	**SCORE ON %**	**MEASURES OF CENTRAL TENDANCE**	**LEVEL OF BELIEFS**	**FREQUENCIES OF LEVEL OF BELIEFS**	**LEVEL OF BELIEFS %**
1 2	2 37	33.33 66.66	Mean:2.85 Median:3 Mode:3	Negatives beliefs	39	13.54%
3	249	100%		Positive beliefs	249	86.46%
Total	**288**				**288**	**100**

4.5. HOME BASED TECHNIQUES USED TO TREAT FEVER

4.5.1. Non drug techniques used to treat fever

Table 10. Demonstrates the frequencies and the percentages of participants about non drugs techniques used to treat a feverish child under 5 years

Almost all participants 269(93.4%) recognized Applying tepid sponging to be a no-drug technique used to treat fever while a few number 19(6.6%) did not. Undress the child has been identified by the majority 188(65.3%) whereas a small number 100(34.7%) did not recognized that .Give plenty fluids was accepted by most of participants 178(61.8%) while more than a quarter 110(38.2%) did not know it. More than a half 167(58%) identified Give breast feeding more than usually as a no-drug technique used to treat fever whereas 121(42%) did not recognized it.

HOME BASED TECHNIQUES (N=288)		**Frequency**	**%**
1.APPLY A TEPID SPONGING	Yes	269	93.4
	No	19	6.6
	Total	**288**	**100**
2.UNDRESS THE CHILD	Yes	100	34.7
	No	188	65.3
	Total	**288**	**100**
3.GIVE PLENTY FLUIDS	Yes	178	61.8
	No	110	38.2
	Total	**288**	**100**
4.GIVE BREAST FEEDING MORE THAN	Yes	167	58
USUALLY	No	121	42
	Total	**288**	**100**
5.GIVE A FEVER MEDICINE	Yes	275	95
	No	13	4.5
	Total	**288**	**100**

4.5.2. Antipyretic drugs used to treat a feverish child under 5 years

Table 11. Demonstrates the frequencies and the percentages of participants about antipyretic used to treat a feverish child under 5 years

A high majority of participants 268(93.1%) recognized paracetamol as an antipyretic used to treat fever while a few number of them 20(6.9%) did not recognized that. A small number of participants 27(9.4%) knew brufen as an antipyretic used to treat fever while 261(90.6%) did not know that.

ANTIPYRETICS (N=288)		**Frequency**	**%**
1.PARACETAMOL	Yes	268	93.1
	No	20	6.9
	Total	**288**	**100**
2.BRUFEN	Yes	27	9.4
	No	261	90.6
	Total	**288**	**100**

4.6. RESULTS OF ASSOCIATION BETWEEN VARIABLES

4.6.1. Association between demographic data and parents' knowledge

Table 12. Illustrates the association between socio-demographic variables and parents' knowledge.

The cross tabulation was computed to determine the possible association between socio-demographic variables and parents' knowledge .This association was assessed using multiple linear regression and the statistical association was identified only between level of education and parents' knowledge where the P-value was ≤0.001

SOCIO-DEMOGRAPHIC CHARACTERISTICS (N=288)		PARENTS'KNOWLEDGE		P-VALUE
		Frequency	%	
1.AGE	<18 years	108	37.5	0.167
	≥18 to 35 years	170	59	
	>35years	10	3.5	
2.SEX	Male	16	5.6	0.236
	Female	272	94.4	
3.MARITAL STATUS	Single	11	3.8	0.575
	Married	256	88.9	
	Divorced	9	3.1	
	Widower	12	4.2	
4.LEVEL OF	Illiterate	36	12.5	**≤0.001***
EDUCATION	Primary level	187	64.9	
	Secondary level	57	19.8	
	University level	8	2.8	
5.RELIGION	Christians	278	96.5	0.213
	Muslims	10	3.5	
6.MEDICAL	Applicable	286	99.3	0.060
INSUARENCE	No applicable	2	0.7	

4.6.2. Associations between demographic data and parents beliefs.

*P -value of less than 0.05 was considered significant.

Table 13.Illustrates the association between socio-demographic variables and parents' beliefs.

The cross tabulation was computed to determine the possible association between socio-demographic variables and parents' beliefs .The results showed that there is no statistical association between them because all p- value are above 0.05.

SOCI-DEMOGRAPHIC CHARACTERISTICS (N=288)		PARENTS' BELIEFS				P-VALUE
		LITTLE HARMFUL	HARMFUL	VERY HARMFLUL	TOTAL	
1.AGE	<18 years	1	15	92	108	0.578
	≥18 to 35	1	21	148	170	
	>35years	0	1	9	10	
	TOTAL	**2**	**37**	**249**	**288**	
2.SEX	Male	0	2	14	16	0.896
	Female	2	35	235	272	
	TOTAL	**2**	**37**	**249**	**288**	
3.MARITAL STATUS	Single	0	2	9	11	0.744
	Married	2	31	223	256	
	Divorced	0	2	7	9	
	Widower	0	2	10	12	
	TOTAL	**2**	**37**	**249**	**288**	
4.LEVEL OF EDUCATION	Illiterate	1	2	33	36	0.988
	Primary level	1	25	161	187	
	Secondary level	0	10	47	57	
	University level	0	0	8	8	
	TOTAL	**2**	**37**	**249**	**288**	
5.RELIGION	Christians	2	35	241	278	0.641
	Muslims	0	2	8	10	
	TOTAL	**2**	**37**	**249**	**288**	
6.MEDICAL INSUARENCE	Applicable	2	37	247	286	0.557
	No applicable	0	0	2	2	
	TOTAL	**2**	**37**	**249**	**288**	

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4.6.3. Associations between demographic data and home based techniques used to treat fever

*P value of less than 0.05 was considered significant.

Table 14.Illustrates the association between socio-demographic variables and techniques used to treat fever

The cross tabulation was computed to determine the possible association between socio-demographic variables and parents' knowledge .This association was assessed using multiple linear regression and the statistical association was identified only between level of education and practices used to treat fever the P-value was ≤0.001.

SOCI-DEMOGRAPHIC CHARACTERISTICS (N=288)		**TOT. SCORE OF TECHNIQUES**		**P-VALUE**
		Frequency	**%**	
1.AGE	<18 years	108	37.5	0.643
	≥18 to 35 years	170	59	
	>35years	10	3.5	
2.SEX	Male	16	5.6	0.448
	Female	272	94.4	
3.MARITAL STATUS	Single	11	3.8	0.084
	Married	256	88.9	
	Divorced	9	3.1	
	Widower	12	4.2	
4.LEVEL OF EDUCATION	Illiterate	36	12.5	**≤0.001***
	Primary level	187	64.9	
	Secondary level	57	19.8	
	University level	8	2.8	
5.RELIGION	Christians	278	96.5	0.283
	Muslims	10	3.5	
6.MEDICAL INSUARENCE	Applicable	286	99.3	0.642
	No applicable	2	0.7	

4.6.4. Association between parents' knowledge and home based techniques

*P -value of less than 0.05 was considered significant.

Table 15. Indicates the association betweenparents' knowledge and techniques used to treat fever.

The cross tabulation showed that there is an association between parents' knowledge and practices where the P-value was ≤0.001.

VARIABLES	TOTAL TECHNIQUES	RESULTS
TOTAL KNOWLEDGE	P Value	**≤0.001***

4.6.5. Association between parents' beliefs and techniques used to treat fever

*P -value of less than 0.05 was considered significant.

Table 16.Indicates the association between parents' beliefs and techniques used to treat fever

There is no association between beliefs and home based techniques because the p-value has the value above 0.005.

VARIABLES	TOTAL TECHNIQUES	RESULTS
TOTAL BELIEFS	P Value	0.927

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CHAPTER FIVE: DISCUSSION

5.1 INTRODUCTION

The aim of this section is to discuss findings from this study in line with study objectives. The results were compared with the literature reviews of studies conducted by other researchers to exchange views of others on the set objectives.

5.2. SOCIO-DEMOGRAPHIC CARACTERISTICS

In this study almost all participants were female (94.4%), Similar study in USA conformed that female were (91.2%) (Hiller *et al.*,2019). Slight similar study conducted in Kenya showed that female were 81.2% (Koech, Onyango and Jowi 2014),this was supported by Athamneh *et al*., 2014 in Jordan where their study revealed that most of participants was also female (83%).One more study conducted in India revealed that female was majority 88% (Sanjana *et al.,* 2018) in contrast with this, the study done by Mohammed *et al*., 2019 in Saudi Arabia showed that most of participants were male(70.4%).

The majority who participated in this study were married (88.9%).The similar results were identified in the study conducted in Jordan by Athamneh*et al.,* 2014 where the married participants were 92.12%.

Concerning the level of education, majority of participants had primary level (64.9%),this findings are slight the same as those from Turkish where majority of parents (51.2%) were primary school graduates (Yavuz*et al*.,2018) but these results are different from those found in Iran where the majority had university level 75.3% (Babak*et al.,* 2017),the study from Kenya showed that most of participants had secondary level (73.2%) (Koech, Onyango and Jowi 2014).The strong contrast was identified in USA were the majority had the secondary level 44.7% (Hiller *et al.,* 2019)

Regarding religion most of participants in this study were Christians (96.5%).In Nigeria, the similar study stated that majority of participants (98%) was Christians (Chukwuocha*et al*., 2014).

5.3. PARENTS'KNOWLEDGE ABOUT DEFINITION, CAUSES, OUTCOMES OF FEVER AND TECHNIQUES USED TO MEASURE FEVER

5.3.1. Parents' knowledge about definition of fever

Majority of participants in this study know the definition of fever (60.1%), the slight similar results were identified in Netherland where most of participants (88,3%) knew the correct definition of fever (Kelly *et al.*,2016); in Saudi Arabia Mohammed *et al.,* 2019 showed a minor similarity where most of participants (54%) knew the definition of fever .The same findings were identified in Ireland by Maria *et al.,* 2018 were 63.1% of participants knew the definition of fever. This similarity has not been identified in Morocco because the study conducted there revealed that a very few number 3,5% of participants knew the definition of fever (Rkain *et al.*,2014).

5.3.2. Parents' knowledge about causes of fever

In this study malaria has been identified as the cause of fever by the majority of the participants (97.2%), this is supported by a study conducted in Nigeria where most of participants (64%) know malaria to be one cause of the fever (Chukwuocha *et al*., 2014). In contrast, a research conducted in Pakistan by Khan *et al*.,2013 showed that only 10% of participants knew malaria to be a cause of fever.

Regarding diarrhea, most of participants(79.2%) report that diarrhea diseases is among the causes of fever for a child under 5 years, this findings are different from what has been seen in Pakistan where 17% of participants know diarrheic disease to be a cause of fever (Khan *et al.*, 2013).

5.3.3. Parents knowledge about outcomes of fever

Most of participants in this study 90.3% know convulsions as an outcome of fever for a child under 5 years .In Saudi Arabia Mohammed *et al* 2019 conducted a study where results showed that a higher number of parents (74%) recognize convulsions as an outcome of fever.

In this study, dehydration was knowledgeable to be an outcome of fever by all most of participants (80.2%), this was supported by (Koech, Onyango and Jowi, 2014) in Kenya where more than a half (65.6%), knew that the fever could lead to dehydration this similarity is not shared in Saudi Arabia, because in the study conducted by Mohammed *et al.,* 2019 reported that only 40% of participants knew dehydration as the outcome of fever in children under 5 years.

According the loss of consciousness, most of participants (83.3%) in this study accepted it as the outcome of fever, this is in contrast by what has been identified in Saudi Arabia, where 40% of parents recognized loss of consciousness as an outcome of fever (Mohammed *et al*., 2019).

Breathing difficulties have been accepted by all most of participants in this study (79.9%) but in Morocco a small number of participants (14%) knew breathing difficulties as an outcome of fever (Rkain *et al.*,2014).

Regarding brain damage ,participants in this study are knowledgeable that fever can lead to brain damage where a higher percentage was identified (71.2%) ,this is supported by the findings in Kenya where brain damage was knowledgeable by most of participants(77.6%) (Koech, Onyango and Jowi 2014),slight similarity was identified in Jordan where brain damage was knowledgeable by 58% of participants (Athamneh et al., 2014) but this is not the same in the study conducted in Saudi Arabia (Mohammed et al., 2019) and in Morocco (Rkain et al.,2014) because there the percentage is lower:32%.28.9% respectively.

5.3.4. Parents' knowledge about techniques used to measure fever

94.1% of participants in this study were knowledgeable that fever in children under 5 years should be measured manually (by hand). In different countries all over the world many studies showed that majority of participants knew that fever can be measured manually: In Saudi Arabia most of participants (82%) are knowledgeable that touching forehead help to measure fever (Mohammed *et al.,* 2019), the slight similarity was seen in Iran where touching the head is knowledgeable by 67.4% of participants (Talebi *et al.*,2016).

The use of axially thermometer was identified by almost of participants (96.5%) to be a technique used to measure fever, the slight findings were found in Saudi Arabia by Mohammed and colleagues (2019) were most of parents 63% knew the use of use axillary thermometer as the technique used to measure fever.

The use of oral thermometer was acknowledged by a few number 11.5% in this study. In contrast with the study from Saudi Arabia where most of participants (68%) knew the use oral thermometer to measure fever (Mohammed *et al.,* 2019).

5.4. PARENTS' BELIEFS ABOUT HARMFUL OF FEVER

In this study all of the participants (100%) believe that fever is harmful for the child under 5 years, slight similarity was found in Jordan where most of participants 97% believed that fever is harmful if left untreated (Athamneh *et al.*,2014) this was also supported by the findings from Saudi Arabia where Mohammed *et al* 2019, revealed that most of participants(95%) believe fever to be harmful to the child under 5 years. In contrast, in India almost a half of the parents (47%) believed fever to be harmful to the child (Thota *et al.*,2018).

5.5. HOME BASED TECHNIQUES USED TO TREAT FEVER

5.5.1. Non drugs techniques used to treat fever

Applying a tepid sponging was identified by almost of participants (93.4%) to be among the techniques used to treat fever for a child under 5 years. Consistent with the findings of this study, in Saudi Arabia Mohammed and colleagues (2019) found that tepid sponging is known by most of participants (84%) to be a non-drug technique used to treat fever. This is supported by 2 slight similar study conducted in Iran (Abdinia, Hassan and Khalizadeh, 2017) and Sudan (Mukhtar and Elnimeiri,2014) where most of participants (62.6%,59% respectively) where knowledgeable that tepid sponging is used to treat fever. In contrast, the study conducted in Ireland by Kelly *et al.*,2017 showed that only 3.5% of participants knew the use of tepid sponging as a technique used at home to treat fever for a child under 5 years

In this study, to give plenty fluids was recognized by a large number of participants 178(61.8%).The similar results has been identified in Saudi Arabia where plenty fluids was accepted by 61% (Mohammed et al 2019).This is in contrast with findings from Iran where a few number 17.3% recognized it as an no-drug technique used to treat fever (Abdinia, Hassan and Khalizadeh,2017). Also the contrast was found in Sudan were 15% of participants recognized the increase of fluid intake (Mukhatar and Elnimeiri (2014).

5.5.2. Antipyretic used to treat fever

This study revealed that almost all participants (95%) knew that antipyretic is used to treat fever, the similarity was identified in USA where most of parents (94.9%) stated to know antipyretic as the drug reducing fever (Hiller *et al.,* 2019)), this is in the same line like a study conducted in India where most of participants 89% knew the use of antipyretic (Sanjana et al., 2018), this is

supported by another conducted in Turkish by Yavuz and collegues (2018) where almost of participants 83.4% knew the use of fever medicine as a technique to treat fever treat fever. In Iran ,most of participants (66.3%) were also identified to be knowledgeable that use of antypiretic is a technique used to treat fever (Abdinia, Hassan and Khalizadeh, 2017).

Concerning the use of paracetamol, this study showed that 93.1% of participants know it as a drug used to treat fever, the similar study in Turkish showed the same line where 84% of participants accepted it as a drug used to treat fever (Yavuz *et al.*,2018).

The use of brufen was not known by many participants in this study like a drug used to treat fever because only 9.4% recognized that. The low percentage was also identified in Turkish where participant were 35% to recognize that (Yavuz *et al.,* 2018).

5.6. ASSOCIATIONS BETWEEN VARIABLES

5.6.1. Association between demographic variables and parents' knowledge

In this study, among socio-demographic variables, only the statistical association has been identified between the level of education and the parents' knowledge where the p-value was 0.000. The study conducted in Malaysia showed that was an association between parents' ethnicity, education level and household and parents 'knowledge (Bong *et al.,* 2018)

5.6.2. Association between demographic variables and parents' beliefs

In this study no statistical association between demographic variables and parents beliefs this was not the same in the study conducted in Turkish where the association between them has been identified ,the p-value was 0.045 (Yavuz et al.,2018).

5.6.3. Association between demographic variables and techniques used to treat fever Results from this study confirmed the statistical association that was between level of education and techniques used to treat fever where the P-value was 0.000.This association was also identified in East Nigeria where the p-value has been ≤0.05(Chukwuocha*et al.*,2014).Another study conducted in Iran reveled the existence statistical association between maternal age (p value 0.048),education level (0.002),employment status (p-value 0.001) (Talebi*et al.,* 2016).

5.6.4. Association between parents' knowledge and techniques used to treat fever

The association between parents' knowledge and techniques used to treat fever has been identified. This was supported by the study conducted in Malaysia where the p –value was 0.021 (Bong et al.,2018)

5.6.5. Association between parents' beliefs and techniques used to treat fever

In this study there is no association between beliefs and techniques used to treat fever the similar findings was in Saudi Arabia by (Mohammed *et al*.,2019)where the association was not identified.

CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS

6.1. INTRODUCTION

This study aimed at determining the parents' knowledge, beliefs and home based techniques regarding a feverish child less than five years. The sample size of 288 participants from 1021 individuals of population was selected through convenience sampling the response rate was 100%.therefore, the findings showed the parents' knowledge, beliefs and homes based technique regarding a feverish child and the association between variables has been identified.

6.2. CONCLUSIONS.

This study determined the parents' the parents' knowledge, beliefs and home based techniques regarding a feverish child less than five years. A slightly more than half of respondents had good knowledge (58.68%) about definition, causes and outcomes of fever in child under five years. The majority (86,46%) had positive beliefs (86,46%) regarding a feverish child under five years.

6.3. RECOMMANDATIONS

Based on the research findings, the following recommendations were made:

Nursing research:

This study identified the knowledge, beliefs and home based techniques used to treat a feverish child under 5 years at Kabgayi Health center, therefore, more investigations in different regions of the country about this topic are needed to further generalize the result for the whole Rwandan population.

Nursing practice

The health professionals such as nurses will use the results of this study to implement responsive health programs targeting to treat feverish child under 5 years. The findings of this study will be useful to develop guidelines fit for local setting and to encourage parents to adapt appropriated and recommended home based techniques to treat a feverish child under 5 years.

Nursing Administration:

Results of this study revealed gaps in parents' knowledge, beliefs and home based techniques regarding a feverish child under five years, we recommend nursing administration to develop useful guidelines fit for local setting and set adequate and suitable strategies to address fever in children under five years old. Additionally, we recommend Kabgayi health center administration in particular to organize and implement more health campaigns, health education, community conversation and dissemination of information so as to increase the knowledge, beliefs and home based techniques regarding a feverish child under 5 years and ultimately reduce the morbidity and mortality rates from fever among children less than 5 years of age. There is also a need to train all health care providers especially nurses and community health workers on home based techniques used to treat fever in children under five years so that they can later train and educate the community and reduce morbidity and mortality related to fever.

Nursing education:

We recommend nursing education institutions to develop and implement responsive educational programs aimed at equipping graduates to provide health education to parents about parents knowledge, beliefs and home based techniques used to treat fever among under 5 years children, so that this will contribute to reduce mortality and morbidity rate relate to the fever.

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APPENDICES

APPENDIX 1.QUESTIONNAIRE

Dear parent,

I am Pacifique MUNEZERO; student in master's of Science in Nursing, department of General Nursing, Pediatrictrack ,school of nursing and midwifery in the college of medicine and health sciences/University of Rwanda. Under the supervision of Dr Madeleine MUKESHIMANA and Mr KAYIRANGA Dieudonne, lecturers at college of medicine and health sciences, I am conducting a research dissertation on "**Parents' k**nowledge, beliefs and home based techniques **regarding a feverish child under 5 years**" as partial fulfilment of my studies.

It is for this regard that I seek your cooperation to respond to the questions in this questionnaire. The information you provide will be kept and only used for the purpose of this research confidentially. The questionnaire will remain anonymous and no name will be published.

Instructions

1. The questionnaire is addressed to you individually

2. No names must be mentioned on questionnaire

3. Select the appropriate response by a tick (∨) in the provided space

Your contribution is highly appreciated for the success of this study.

Contact information:

Pacifique MUNEZERO ,
Phone :+250788642890/+25078112427

KNOWLEDGE AND BELIEFS OF PARENTS ABOUT HOME BASED TECHNIQUES USED TO TREAT A FEVERISH CHILD UNDER FIVE YEARS

SECTION 1 . DEMOGRAPHIC DATA

1.1.AGE	
1.1.1.≤25 years	
1.1.2. ≤26years-50 years	
1.1.3. ≥ 51years and above	
1.2.SEXE	
1.2.1. Male	
1.2.2. Female	
1.3.MARITAL STATUS	
1.3.1. Single	
1.3.2.Married	
1.3.3.Divorced	
1.3.4.Widowed	
1.4.LEVEL OF EDUCATION	
1.5.1.Illiterate	
1.5.2.Primary level	
1.5.3.Secondary level	
1.5.4.Third level	
1.5.RELIGION	
1.5.1.Christian	
1.5.2.Musilm	
1.7.MEDICAL insurance	
1.7.1.Applicable	
1.7.2.No applicable	

SECTION2. PARENTS' KNOWLEDGE ABOUT DEFINITION, CAUSES AND OUTCOME OF FEVER FOR A FEVERISH CHILD UNDER FIVE YEARS.

2.1. DEFINITION OF FEVER

DEFINITION	**YES**	**NO**
2.1.1.For the child under five years the fever is the temperature $\geq 38^0$C		

2.2. CAUSES OF FEVER

CAUSES OF FEVER	YES	NO
2.2.1. Does Malaria cause fever in the child under five years?		
2.2.2. Does Diarrheic disease cause in the child under five years?		
2.2.3. Does Immunization cause fever in the child under five years?		
2.2.4. Does Teething cause fiver in the child under five years?		
2.2.5.Does tonsillitis cause fiver in the child under five years?		
2.2.6.Does Pneumonia cause fiver in the child under five years?		

2.3. OUTCOMES OF FEVER UNDER FIVE

ITEMS	**YES**	**NO**
2.3.1. Are the convulsions an outcome of fever in child under five years?		
2.3.2. Is the dehydration an outcome of fever in child under five years?		
2.3.3. Is the loss of consciousness an outcome of fever in child under five years?		
2.3.4. Are the breath difficulties an outcome of fever in child under five years?		
2.3.5.Is the brain damage an outcome of fever in child under five years?		

4. MEASUREMENTS OF FEVER

ITEMS	YES	NO
4.1.1. Is the temperature measured manually (by hand)?		
4.1.2. Is the temperature measured by an axillary thermometer?		
4.1.3. Is the temperature measured by an oral thermometer?		
4.1.4. Is the temperature measured by a rectal thermometer?		

SECTION 3: PARENTS' BELIEFS ABOUT HARMFUL OF FEVER FOR A FEVERISH CHILD UNDER 5 YEARS

3.1. HARMFUL OF FEVER

ITEMS	**YES**	**NO**
Do you believe that fever is harmful for a child under five years?		

3.2. HOW MUCH DO YOU BELIEVE THAT FEVER IS HARMFUL TO THE CHILD UNDER FIVE YEARS?

ITEMS	**RESPONSE**
3.3.1.Very harmful	
3.3.2.Harmful	
3.3.3.Little harmful	

SECTION 4. PARENT'S HOME BASED TECHNIQUES USED TO TREAT FEVER FOR A CHILD UNDER FIVE YEAR

4.1. NON TECHNIQUES USED TO TREAT FEVER

ITEMS	YES	NO
4.1.1. Is tepid sponging used to treat fever in child under five years?		
4.2.3. Is undress the child used to treat fever in child under five years?		
4.2.4.Is plenty fluids used to treat fever in child under five years?		
4.1.4. Is breastfeed more than usually used to treat fever in child under five years?		

4.2. ANTIPYRETIC USED TO TREAT FEVER

DRUGS	**YES**	**NO**
4.2.1.The drug used to treat fever is an antipyretic		
4.2.2.Is paracetamol used to treat fever for a child under five years?		
4.2.3. Is brufen used to treat fever for a child under five years?		

APPENDIX 2. INFORMED CONSENT FORM

I am Pacifique MUNEZERO; student in master's of Science in Nursing, department of General Nursing, Pediartric Track, school of nursing and midwifery in the college of medicine and health sciences/University of Rwanda. Under the supervision of Dr Madeleine MUKESHIMANA and Mr KAYIRANGA Dieudonne, lecturers at college of medicine and health sciences,, I am conducting a research dissertation on "**Parents' k*nowledge , beliefs and home based techniques regarding a feverish child under 5 years at Kabgayi Health Center***" as partial fulfillment of my studies.

I am seeking your cooperation to participate in this study. This study is important because it will help researchers learn more about Parents home based management, knowledge and beliefs towards a feverish child.

With your permission, I kindly request you to give as much information as possible seek by responding to the questions in the questionnaire will be addressed to you.

There are no anticipated risks associated with this study. Your decision whether or not to participate in this study will not affect you at all.

The information you provide will be confidential and only used for the purpose of this research.

Your identity will not be disclosed in any published and written material resulting from the study.

The participation in this study is voluntary,

I agree to participate in this study, and understand that I can decide at any time to stop my participation, I can ask questions later if I have them, or discuss any changes with me.

Date and Signature of Participant __/___/2019

APPENDIX 3. APPROVAL TO USE QUESTIONNAIRE

Gmail **Pacifique Munezero <pacifique.munezero@gmail.com>**

Request for the tool used in Data collection
5 messages

Pacifique Munezero <pacifique.munezero@gmail.com> 5 February 2019 at 09:54
To: malateeq@hotmail.com

Respected Sir,
I am MUNEZERO Pacifique,a student in University of Rwanda/College of Medicine/School of Nursing and Midwifery.I' am doing masters in Pediatric Nursing.
I take this time to write this email to request for a tool that you have used to collect data in your research aimed:" Parent's knowledge and practice in home management of fever in their children in Riyadh, Saudi Arabia"
In fact, I would like to conduct the similar study in my country Rwanda/East Africa in order to finish the masters program.

Thank you for your collaboration!

Mohammed AlAteeq <malateeq@hotmail.com> 5 February 2019 at 11:58
To: Pacifique Munezero <pacifique.munezero@gmail.com>

please find attached
for referring to our paper in your methodology

regards
Mohammed

From: Pacifique Munezero <pacifique.munezero@gmail.com>
Sent: Tuesday, February 5, 2019 7:54 AM
To: malateeq@hotmail.com
Subject: Request for the tool used in Data collection

[Quoted text hidden]

Final Questioniare 20 Dec.doc
95K

Pacifique Munezero <pacifique.munezero@gmail.com> 5 February 2019 at 12:15
To: Mohammed AlAteeq <malateeq@hotmail.com>

Thank you very much Sir!
May you allow me to adapt this tool according my country context?
I appreciate your consideration!
[Quoted text hidden]

Mohammed AlAteeq <malateeq@hotmail.com> 5 February 2019 at 12:16
To: Pacifique Munezero <pacifique.munezero@gmail.com>

yes sure

Gmail - Request for the tool used in Data collection https://mail.google.com/mail/u/0?ik=757d785e3b&view=pt&se...

good luck

From: Pacifique Munezero <pacifique.munezero@gmail.com>
Sent: Tuesday, February 5, 2019 10:15 AM
To: Mohammed AlAteeq

APPENDIX 4.ETHICAL CLEARENCE

UNIVERSITY OF RWANDA — *COLLEGE OF MEDICINE AND HEALTH SCIENCES*

CMHS INSTITUTIONAL REVIEW BOARD (IRB)

Kigali, 14/01/2019
Ref: CMHS/IRB/**048**/2019

MUNEZERO Pacifique
School of Nursing and Midwifery, CMHS, UR

Dear MUNEZERO Pacifique

RE: ETHICAL CLEARANCE

Reference is made to your application for ethical clearance of the revised protocol of the study entitled ***"Knowledge And Beliefs Of Parents About Home Based Techniques Used In To Treat A Feverish Child Under Five Years At A Selected Health Center."***

Having reviewed your protocol and found it satisfying the ethical requirements, your study is hereby granted ethical clearance. The ethical clearance is valid for one year starting from the date it is issued and shall be renewed on request. You will be required to submit the progress report and any major changes made in the proposal during the implementation stage. In addition, at the end, the IRB shall need to be given the final report of your study.

We wish you success in this important study.

Professor Jean Bosco GAHUTU
Chairperson Institutional Review Board,
College of Medicine and Health Sciences, UR

Cc:
- Principal College of Medicine and Health Sciences, UR
- University Director of Research and Postgraduate studies, UR

APPENDIX 5.AUTHORIZATION TO CONDUCT A STUDY

Caritas
Diocésaine
Kabgayi

E-mail : caritaskabgayi@yahoo.fr

N/Réf : Caritas-K30/2019/ I.M

Kabgayi, le 01/ 3/2019

Ku muyobozi w'ikigonderabuzima cya .Kabgayi

Impamvu: Kwemerera umunyeshuri gukora ubushakashatsi

Muyobozi w'ikigonderabuzima cya..Kabgayi

Mu rwego rwo kunoza gahunda yo gufasha abanyeshuri bo mu rwego rw'ubuzima hagamijwe kubafasha kugera ku ntego yabo, Caritas ya Diyosezi Kabgayi ikwandikiye igusaba gufasha umunyeshuri witwa ....MUNEZERO PACIFIQUE..... wiga ku kigo cy'amashuri cya.....URI/C.M.H.S/School of Nursing and Midwifery mu mwaka wa....Master's Level mu ishami rya....Pediatric Nursing..... Mu bikorwa byo gukora ubushakashatsi mu by'ubuzima (recherche), muri service ya.....C.P.D..... mu gihe kingana na.....Amezi atatu..... kizatangirana na...1/3/2019....kugeza kuwa .....30/4/2019.....

Ibikoresho byakwangirika mu gihe ari muri ibi bikorwa, niwe ubwe ugomba kubyishyura kandi mbere y'uko ahabwa amanota cyangwa icyemezo cy'ubushakashatsi yakoze hagomba kubanza gukorwa inama n'ubuyobozi bw'ikigo nderabuzima bufatanyije na chef wa service yo gusuzumira hamwe ibyakozwe n'umunyeshuri bakemeza ko ibyangijwe byishyuwe ndetse bakanamuha ibyangombwa bindi yakenera.

Caritas ya Kabgayi izahabwa raporo y'ikigo nderabuzima igaragaza uko umunyeshuri yitwaye mu gihe yari ari mu kigo nderabuzima.

Tubifurije amahoro y'Imana.

Padiri Innocent MUTABAZI
Umuyobozi wa Caritas ya Diyosezi Kabgayi

CARITAS DIOCESE KABGAYI