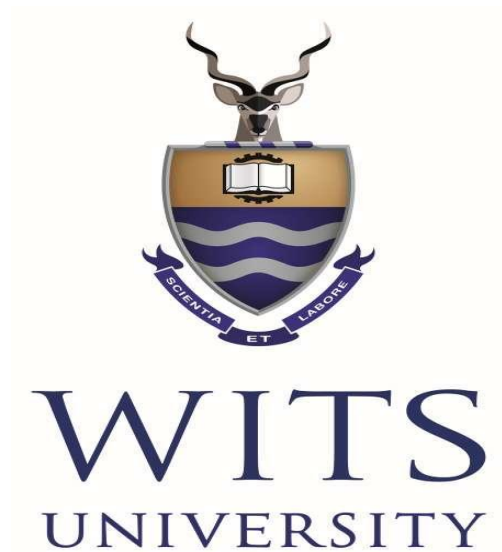

**THE PROFILE AND PSYCHOSOCIAL IMPACT OF BURN INJURIES AMONG
CHILDREN AND THEIR CAREGIVERS IN ADDIS ABABA, ETHIOPIA**



Worku Woldegiorgis Herbaye
Student number: 2335895

A thesis submitted to the Faculty of Health Sciences, University of the Witwatersrand,
Johannesburg, in fulfilment of the requirements for the Doctor of Philosophy.

Johannesburg

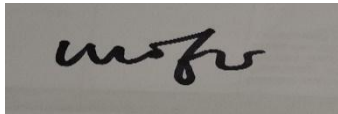
June 2025

Declaration

I declare that the profile and psychosocial impact of burn injuries among children and caregivers in Addis Ababa Ethiopia is my own work and that it has not been submitted before for any degree or examination at this or any other university, and that all the sources I have used or quoted have been indicated and acknowledged as a complete reference.

Worku Woldegiorgis Herbaye

Signed; _____

A rectangular box containing a handwritten signature in black ink. The signature is cursive and appears to be 'W. Woldegiorgis'.

Johannesburg
June 2025

Dedication

I dedicate this thesis to my family for all the support they gave me throughout the PhD journey particularly to my wife Mrs Aregash Alemayehu Bire; my children Ms Deborah Worku Woldegiorgis, Ms Kidist Worku Woldegiorgis, Shalom Worku Woldegiorgis, Binyam Worku Woldegiorgis, Elizabeth Worku Woldegiorgis and to all caregivers and parents of the children with burn injuries and children who participated in the study.

Abstract

Over one million burns occur in sub-Saharan Africa each year, leading to significant morbidity and mortality. In Africa, children under five have almost three times more burn-related deaths than children worldwide. There has been wide and diverse research carried out with regards to burn injury related topics. However, there is limited published literature within the Ethiopian context concerning burn injuries among children and the psychosocial impact on caregivers and this research project aims to close the gap. This project had five study objectives: objective 1 forming part of Stage I (Study 1); Objective 2 and 5 forming part of Stage II (Study 2 and Study 5); Objective 3 and 4 forming part of Stage III (Study 3 and Study 4). These studies were clustered into stages based on similarities in study methods.

Objectives: The purpose of this research project was to assess the patterns, circumstances, and characteristics of burn injuries in children admitted to Yekatit 12 Hospital, Myungsung Christian Medical Centre and Addis Ababa Burn Emergency and Trauma Hospital in Addis Ababa; explore the psychosocial impact of burn injuries on children and their caregivers; identify the caregivers practice of first aid among children with current burn injuries; assess the post burn health related quality of life (HRQoL) of the children aged less than 18 years and the socioeconomic impact of burn injuries on current caregivers in Addis Ababa; and to assess the current children burn injury prevention practice in Addis Ababa.

Methodology: This thesis was conducted in three stages.

Stage I: A retrospective review of records from 1st of January 2016 to 31st of December 2020 to assess the patterns, circumstances and characteristics of burn injuries of children. Data collection sites were included based on availability of burns unit centre for children. Data was extracted from the files of children with burn injuries who were less than 18 years of age and did not have missing information. Descriptive analysis was carried out.

Stage II: A qualitative study to assess the psychological impact of burn injury among the caregivers and the current burn prevention program in use in Addis Ababa. Content analysis was used to analyse the data.

Stage III: A quantitative study to assess post burn HRQoL among the children, Household and socioeconomic impact of burn injury and first aid practice knowledge among the caregivers where carried out. Paeds QoL inventory questionnaire was used for children and closed and open ended questionnaire were used for the caregivers. Descriptive analysis was carried out.

Results: Stage I: The total number of children at the three hospitals from January 2016 to December 2020 was 15,600 and of these, 350 (2.24%) had major and minor burn injuries. From the 350 files of children with burn injuries only 282 (80.6%) fulfilled the criteria for inclusion in the study. The majority n=134 (48%) of children with burn injuries were less than 4 years old and 146 (51.8%) of children who sustained a burn injury were females. The major cause of the burn among the children was hot liquid and flame burns. The association between the age group 0-4 years and contracture development was shown to be statistically significant (OR 2.1.88 95% CI (0.835-5.730) P-Value was ≥ 0.05).

Stage II: Most of the children and the caregivers had difficulty in sleeping, nightmares and fear of the hot liquid among the children and loneliness among the caregivers. Some of the caregivers felt that they had lost all their friends because of their children's burn injuries and no one to speak to in the time of emergency. There is a gap on burn injury prevention school programmes in government departments and there is no evidence of current dedicated burn injury prevention programs in use at Health Ministry level.

Stage III: The household and socio-economic status analysis shows that 31(33%) of the fathers were illiterate and 43(45%) of the mothers completed or enrolled in primary schools. The majority of the caregivers [n=49 (52.1%)] were getting between 3501 and 4500 Birr per month which is equivalent to USD 62-74. Most of the families [n=40 (42.6%)] had 5-6 people in a one room house followed by 7-10 people [n=13 (32%)]. The study on HRQoL revealed that there were no major differences between physical and social component. The psychosocial health score was calculated as the mean of the items from the emotions, social and school functioning scales. The result indicate that physical and social component was higher compared to the emotional and school functioning component. There was no difference in any domain between caregivers reports and self-reports. Most of the caregivers [n=30 (31.9%)] applied cool water on the burned site of the

body, 29 (30.9%) applied Litti (a dough for bread) and honey [n=7 (7.4%)] as first aid at home whereas 22 (23.4%) of the caregivers used animal manure, salt, sugar, milk, butter and traditional herbs. The caregivers used the cool tap water application method as first aid and there were no statistically significant differences in the knowledge of the standard 20-minute application duration between different facilities (p-value = 0.974).

Conclusion: Burn injuries are an important public health problem with high incidence and mortality rates. There is a need to establish a burn prevention department at the government level in Ethiopia, a support group for caregivers and burn injury survival in Addis Ababa hospitals with burn units. Collective action is required from the health authorities and their partners to address these issues through developing prevention strategies incorporating further research on burns. The results of this study should be regarded as a first attempt rather than the final outcome on the level and extent of psychosocial impact of burn injury in Addis Ababa and hopefully another study will be conducted at national level on the caregivers and children post burn experiences.

Key words: Burn, Children, Caregivers, Addis Ababa, Profile, Characteristics, Psychosocial, first aid knowledge, Ethiopia, Health related quality of life, Physiotherapist

Acknowledgements

The study was started under challenging circumstances during the Covid-19 virus pandemic which resulted in psychosocial and financial difficulties in the world including Ethiopia. I feel very fortunate to have had supervisors who possess such vast collective knowledge and research experiences. I would particularly like to thank them for the many hours they spent discussing my research with me and reviewing my work. I would not have been able to complete the study without the support of my supervisors (Prof Ronel Roos, Prof Veronica Ntsiea and Dr Tefera Agizew in Ethiopia). I am grateful to my supervisors for the hard work they put in for me to complete this thesis. Their thoughtful comments were much appreciated.

I want to appreciate my research assistants, Physiotherapist Fantu Begashaw, Sister Ayal Worku, and Sister Dararetu Teshome for their contribution towards the completion of this study. My profound gratitude also goes to the Burn unit staff at the Yekatit 12 Hospital, Myungsung Christian Medical Centre and Addis Ababa Burn Emergency and Trauma Hospital in Addis Ababa; Federal ministry of health injury prevention desk office and Addis Ababa fire brigade burn prevention office. In addition, my sincere gratitude to Dr. Einar Erekson, a plastic surgeon, Dr. Adane Haile, caregivers and children with burn injury who took part in this study.

List of Abbreviation

AA	Addis Ababa
AROM	Active Range of Motion
HRQOL	Health related quality of life
HESSI	Household and Economic Social Status Index
HIC	High income countries
ICF	International Classification of Functioning, Disability and Health
LMIC	Low and Middle Income Countries
MDT	Multi-disciplinary Team
OT	Occupational Therapy
PROM	Passive Range of Motion
PT	Physiotherapist
PTSD	Post Traumatic Stress Disorder
PI	Principal Investigator

QOL

Quality of Life

TBSA

Total Body Surface Area

WHO

World Health Organization

Definition of terms**Activity**

Activity is the execution of a task or action by an individual (WHO, 2001).

Activity limitations

Activity limitations are difficulties an individual may have in executing activities.

Burn

Bodily injury resulting from exposure to heat, caustics, electricity, or some radiations marked by varying degrees of skin destruction, and hyperaemia often with the formation of watery blister and in severe case by charring of the tissue and classified according to the extent and degree of the injury (Roger., 2006).

Burn Injury

A burn is an injury to the skin tissue encompassing scalds, thermal, chemical or electrical injuries.

Caregiver

In this study a caregiver is any person living with a burn injury child responsible for both physical and financial support.

Child

There is no universally agreed age range for what constitutes childhood. A concept that varies considerably across cultures. This study uses the definition of a child according to the study aim

and objectives. Such as 0-4 toddlers, 5-9 school age, 10-18 pre teenager and childhood age (Roger, 2006).

Injury

A bodily lesion resulting from acute over exposure to energy (this can be mechanical, thermal, electrical, or chemical) interacting with the body in amounts or rates that exceed the threshold of physiological tolerance (WHO, 2002 a).

Profile

A profile is a graphic representation of the extent to which an individual or group exhibits (Roger, 2006).

Participation

A participation is involvement in a life situation (WHO, 2001).

Participation restriction

Are problems an individual may experience in involvement in life situations (WHO,.2001).

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Chapter 1

1.1.1 Introduction to chapter

The necessity and rationale for the investigation are explained in this chapter. To set the scene for the study, a brief overview of the Democratic Republic of Ethiopia is given in this chapter. To emphasize the need for research, the global profile of burn injuries among children up to 18 years, the psychosocial effects of burn injuries on children and caregivers, the conceptual and theoretical framework, and the contributing factors of burn injuries will be covered. This chapter also presents the study's importance, goals, and purposes as well as the thesis outline.

1.1.2 Background

Ethiopia is a country located in the eastern region of the Horn of Africa. It's estimated that over a million people in Africa experience burns annually, with 18% of hospitalizations attributed to burns, suggesting that Ethiopia likely has a significant burn injury burden (Potokar, 2016). Based on the May 2007 National population and Housing Census report of the Central Statistical Agency (CSA) of Ethiopia, the population of Ethiopia was 84,320,987 of which 42,556,999 were male and 41,763,988 were female individuals and the population of Addis Ababa was 3,384,569 (CSA, 2019). Yekatit 12 hospital (A), Myungsung medical centre (B) and Addis Ababa burn, and emergency trauma (AaBET) Hospital (C) are situated in Addis Ababa, the capital of Ethiopia. Burn injuries are a serious global health risk to young children (Ashley, 2007, De Young, et al., 2012, Ogada, et al., 2019), yet it remains an under-appreciated trauma that can affect anyone, anytime and anywhere (Dos Santos, et al., 2021). The most recent statistics available from the World Health Organization (WHO), (2018) state that around 265,000 deaths are attributed to fires alone each year, with additional deaths occurring from electrical burns, scalds, and other burn types (Mortada, et al., 2020). According to the WHO, (2022) report, burn injuries are the fifth most

common cause of non-fatal child-hood injuries. Africa and South-East Asia has a disproportionately high rate of burn injuries (Potokar, 2019, WHO, 2020). In sub-Saharan Africa alone it is estimated that-between 18,000-30,000 children younger than the age of five years die annually due to burn-related injuries (Ashley, 2007; WHO, 2020, Mulatu, et al., 2022). Burn injuries occur in a home and at the workplace (Joseph, 2019, WHO, 2023). A community survey conducted in Ethiopia and Bangladesh showed that 80-90% of burns sustained by children occur at home (WHO, 2022). A person's relationships can be strained, depression or substance addiction can result, and their physical health may even be further compromised by the emotional trauma resulting from burn injuries (Shupp, 2017). Apart from causing death and severe injuries, burn injuries may result in disabling scars, painful hypertrophic tissue (Leblebici, et al., 2006), itching and psychological problems among the children (Desousa, 2010). The caregivers are also affected psychologically following the burn injury due to stress and emotional disturbance (De Sousa, 2015, Alemayehu, et al., 2020, Tibebe, et al., 2021). Therefore, the management of burn injuries require sound awareness of its epidemiological features, associated hazard aspects as well as information relating to the effectiveness of prevention and management protocols (Potokar, 2013; Mulatu, et al., 2022). The contributing factors for burn wounds in children are many such as age, gender, comorbidity, and unknown factors which are identified as potential factors for burn injuries among the children in the Ethiopian context such as traditional rituals with fire in some communities. The management of the burn injury in the health facility and severity of injury will determine whether the outcome of burn injury is bad or good. Burn injury treatment is expensive and thus, educating the public on the danger of burn injury will minimize the incidence and severity of burn injuries. According to the World Physiotherapy definition, physiotherapy is a treatment to restore, maintain and make the most of a patient's mobility, function and wellbeing (WPT, 2023). Physiotherapists

provide services that develop, sustain and restore people's maximum movement and functional ability. They can help people at any stage of life, when movement and function are threatened by ageing, injury, diseases or environmental factors (WPT, 2023). The role of a physiotherapist includes health promotion, rehabilitation, and the prevention of disabilities resulting from unintentional injuries such as burn injuries (Bricknell & Chan., 2014). Therefore, physiotherapy plays a key role in restoring and preventing post-burn impairment and assisting in reducing the level and extent of disability. The physiotherapists assist and provide assistive devices for the attainment of activities of daily living (ADL). In a hospital setting physiotherapists are part of the burn management team members (Edigard & Bereton, 2004, Bricknell & Chan, 2014). According to the Ethiopian Physiotherapy Association records, currently more than 280 physiotherapists are working in the government hospital. Few are working in private practices in Addis Ababa, and it is reported that physiotherapy is a relatively underdeveloped field in Ethiopia (Banata, 2022). From experience at Hospital (A) burn unit, the researcher has observed that physiotherapists treat an average of 2-4 patients with burn injury at Hospital (A) burn unit daily.

1.1.3 Problem Statement

Burn injuries are a national problem in Ethiopia (Wolde, et al., 2008) and were the second leading cause of death among children from unintentional injuries (Gedilu, 1994, Alemayehu, et al., 2020, Mulatu, et al., 2022). A study conducted by Megenagna, (2019), in Addis Ababa city indicated that, the total damage caused by fire to property in Addis Ababa alone was estimated at USA \$500,000 (twenty-six million Ethiopian Birr in 2016). Domestic fire accidents are a genuine issue in Addis Ababa, and their impacts have enormous implications on safety, lives, and the economy (Megenagna, 2019). Burn injury data is limited in the east African region (Mulkagaju, et al., 2022).

Literature on burn injuries and related factors on post burn psychosocial impact on caregivers and children are scarce.

A review of the literature revealed few reviews of psychological aid groups for burn survivors and their families in the low-income countries (Barnett, et al., 2017). Most studies investigate the cause and the contributing factors of burn accidents. Many of the studies conducted in Ethiopia focus on resuscitation and management of burn injuries in hospitalized children. Appropriate pre-hospital care for burn injury is not practiced in Africa (Outwater & Braekel., 2019). Studies investigating the caregivers' knowledge of first aid and the burn injury prevention strategies in Ethiopia are not available for review. Studies on the Health-related Quality of Life (HRQoL) of Ethiopian children post discharge from hospital are not available for review. This concurs with a study conducted in Kenya by Letei & Mwangi, (2011) which highlighted the unavailability of children burn injury data in western Kenya. None of the published studies took children's post burn HRQoL into consideration. Severe burn injury is the contributing factor for depression, isolation and activity limitation and participation restriction among children (WHO, 2001, Merry, 2009, Bricknell & Chan., 2014). Burn injury remain cause for concern in Ethiopia. The study conducted by Nega & Lindtjörn, (2002) indicated that mud, oil and butter were used as a first aid treatment in Mekelle town in Ethiopia. A similar study conducted by Achamyelsh, (2014) at Yekatit 12 Hospital in Addis Ababa indicates that some caregivers were using raw eggs and ice cube application on burn wounds as a first aid treatment. This indicates that a gap in first aid knowledge for treatment of burn injury in Ethiopia may exist. There is also limited literature with regards to post burn HRQoL, psychological and social impact among children and their caregivers in Ethiopia.

1.1.4 Research question

1.1.4.1 What are the patterns, circumstances, characteristics of burn injuries and HRQoL of children who sustained burn injuries in Hospital (A), Hospital (B) and Hospital (C) in Addis Ababa?

1.1.4.2 What is the psychosocial impact of burn injuries on children and caregivers in Addis Ababa?

1.1.4.3 What is the current child burn injury prevention practice in use in Addis Ababa and the implementation knowledge of caregivers on burn injuries as a first aid?

1.1.5 Aim of the study

The main aim of the study was to assess the pattern, psychosocial impact of burn and contributing factors of activity limitations on the children and caregivers with burn injuries in three selected hospitals in Addis Ababa.

1.1.6 Objective of the study

1.1.6.1 The specific objectives of this study are grouped in stages

- The first objectives were under study of stage 1, To assess the patterns, circumstances and characteristics of burn injuries sustained by the children admitted to Addis Ababa's Hospitals A, B and C.

1.1.6.2 The second and the fifth objectives were under stage II

- To explore the psychosocial impact of burn injuries on children and their caregivers
- To assess the current burn injury prevention practice in use in Addis Ababa.

1.1.6.3 The remaining third and fourth objectives were under stage III

- To assess the post burn HRQoL of children aged less than 18 years and socioeconomic impact of burn injuries on current caregivers in Addis Ababa. 7
- To identify the implementation knowledge of first aid among the caregivers of children with current burn injuries in Addis Ababa.

Figure (1.1 and figure 1.2 below on page 7 and 8) gives a highlight on the study structures, objectives of the study the data collection tools and source of data for the intended study correspondingly. A flow diagram on page 8 below illustrates the flow of the study stages.

Hospital record review

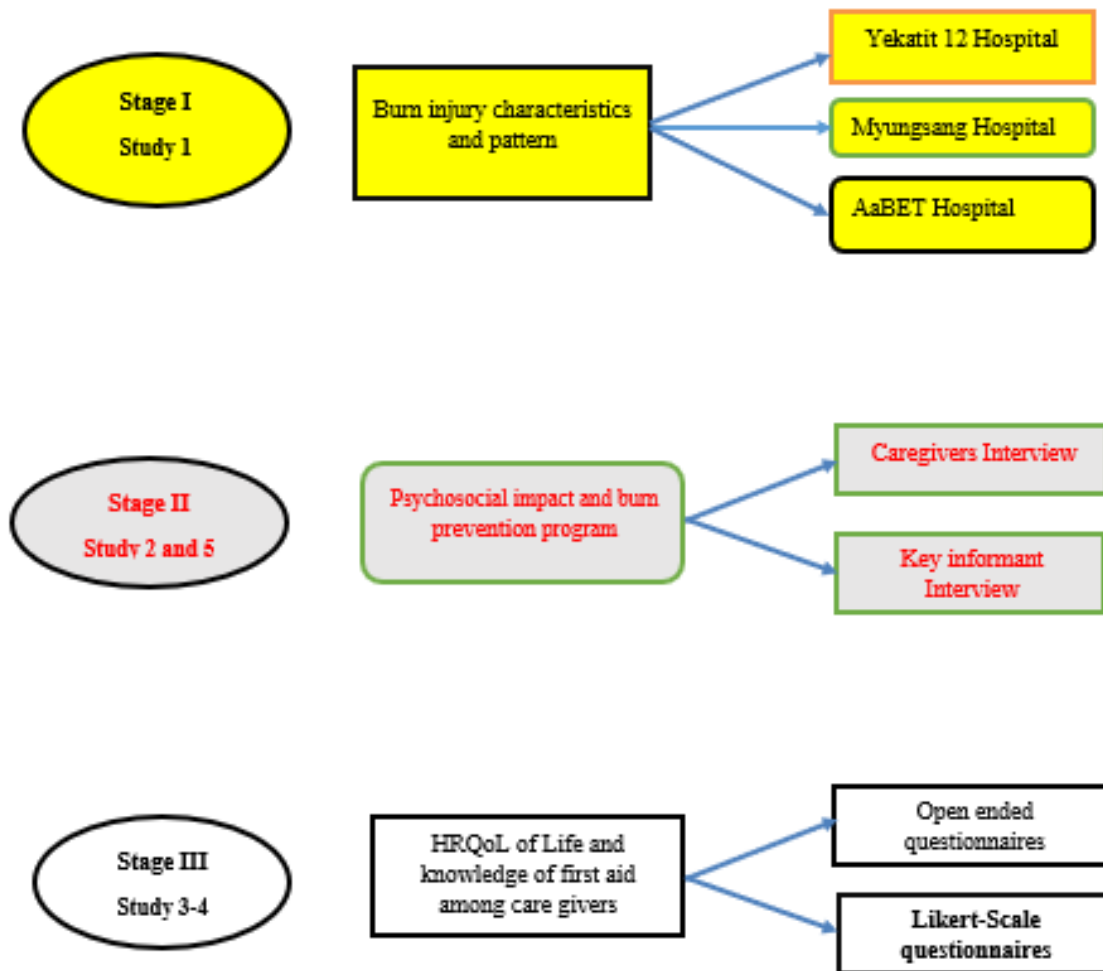


Figure 1.1 Study Structure, objectives of the study and a data source for the children enrolled in this study (n= 282).

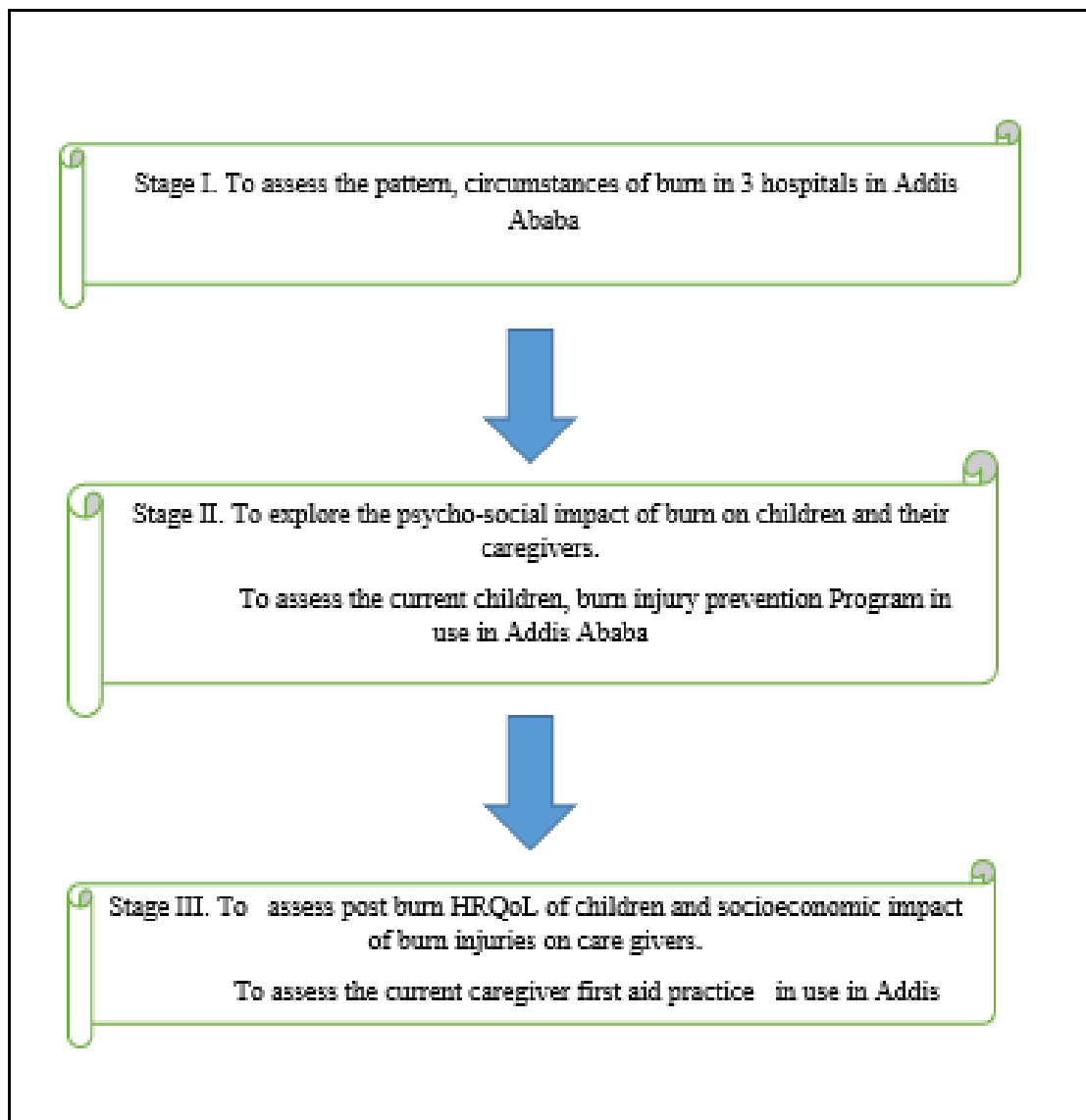


Figure 1.2 Flow diagram of thesis

1.1.7 Outline of the study phases

This study commenced after the approval of the physiotherapy department and ethics committee. The study phase's plan was developed by the principal investigator based on similarities of the study objectives. The study was conducted in the three consecutive phases as indicated above, according to the Wits Human Research Ethics Committee (Medical)'s recommendation (Figure 1.1 Page,7). The study was conducted with a multiple methods approach that includes both quantitative and qualitative designs, consisting of three stages. Stage I was a record review, using a data capture tool. Stage II was a qualitative study on the psychological impact of burn injury, using a semi structured interview guide tool, and voice recording and establishing the current burn prevention in use in Addis Ababa using a closed and open-ended interview guide tool. Stage III was a quantitative study on post burn HRQoL and household socio-economic status of the current caregivers and survey on first aid knowledge practice of a caregivers on burn injuries. Using research assistant administered closed and an open ended questionnaire, for care givers and Paediatric quality of life inventory for children.

1.1.8. Clinical Significance

Burn injuries are a serious universal health threat to young children (Ashley, et al., 2007, De Young, et al., 2012, Ogada, et al., 2019). In recent years burn injuries have been reported as a public health concern among the children in low socioeconomic status households in Addis Ababa (Megnagna, 2019, Van-Nickerk, et al., 2020). One of the contributing factors could be limited rooms or space for young children to play (Gedilu, 1994, Joseph, 2019, Herut, 2022) Literature shows that children and caregivers need more support following the burn injury. Particularly in normalizing family members' reactions to burns and post burn life. (Phillip, et al., 2007) advice support regarding scar management and altered appearance is very important management of psychosocial aspect (Phillip, et al., 2007). Despite the increase in the number of burn injuries, there is an inadequate supply of psychosocial support, descriptions of prevention measures and surroundings of occurrences of burn injuries in Addis Ababa (Alemayehu, et al., 2020). According to the study conducted in Ethiopia by Teshale & Alemu, (2017) on knowledge of first aid in Addis Ababa indicates that there is a huge gap on the implementation practice of first aid among the taxi drivers. An important and frequently overlooked global health disparity, yet research is limited from Low- and Middle-Income Countries (LMICs) on how survivors and their caregivers recover and successfully return to their pre-burn lives (Rencken, et al., 2021, Mulatu, et al., 2022). Identifying the gaps in psychosocial support in the community and creating a solution to solve the limitation or a gap within the context of the local health care delivery services may lead to an improvement in the care of burn injury children and caregivers in Addis Ababa. Furthermore, it will provide the information for efficient and effective burn injury prevention strategies in Addis Ababa. This study may form the basis for psychosocial support, continuing education s and

providing clinicians with an appropriate approach of burn injury rehabilitation and prevention in the country.

1.1.9 Outline of the thesis writing

The literature review in Chapter 2 will cover the literature on the prevalence of burn injuries in children aged 0 to 18 in high- and low-income countries, as well as the causes of burn injuries and burn management. The methodology and study one are covered in Chapter 3, along with the research site(s), research methods (such as data collection techniques), research design, and data analysis. Study two is discussed in Chapter 4, along with the study's findings. Study three is discussed in Chapter 5 along with the study's findings. Study 4 is discussed in Chapter 6 and provides the study's findings and research methodology. Study 5 is discussed in Chapter 7 along with the findings. In Chapter 8, the entire investigation will be discussed in relation to the goals and research questions. The chapter also includes the thesis conclusion, recommendations, and limitations of the study. The table of contents begins with chapter number; for instance, 1.1.1 denotes chapter 1, and 1.1 will be the introduction paragraph. Another example: 7.5.1 - the numbers 7 and 5 correspond to Chapter 7, Study Number 5, and the Introduction Paragraph 1 respectively. Since each study objectives does not always inform the next, even though they are related, the thesis is given in an I-II-III- study phase manner. Each study goal is distinct and serves to close specified research gaps. However, they do influence one another.

1.1.10 Theoretical framework

The theory underpinning the entire Thesis is the biopsychosocial model approach, considering the physical aspect of the burn wound itself (biological), psychological impact such as the patient complaints due to pain, disfigurement, stress and depression (psychological), and the social implications such as related to activity of daily living and functioning, relationships, and societal stigma (social)—all interacting to influence the overall recovery process and quality of life. (Partr WHO., 2001a) (Figure1.3 page14).

This approach is more comprehensive and wider compared to the biomedical approach. Sub-Saharan Africa (SSA) experiences over a million burns annually, resulting in considerable morbidity and mortality (Collier, et al., 2021). The cost of the treatment of burns injuries is very high and it causes a strain on the existing health management system particularly in LIC's (Potokar, 2016). According to the Child Wound Care Foundation Ethiopia, treating a burn at Myungsung Medical Centre in Addis Ababa cost a total of USD 1,500, equivalent to 57, 000 Ethiopian birr (Einar, 2022). Therefore, empowering the community with basic education of prevention may minimize the extent and the level of burn related expenses and complications (Peck., 2016, Potokar, 2021, Alemayehu., 2022). Hospital based burn management is not adequate to reduce the level and extent of disability caused by burn injuries. The cost of burn injury treatment is beyond the ordinary citizen of Ethiopia. Burn injuries in children occur accidentally, and no one can foresee when they will occur. This study focuses on preventative techniques and views burn injuries as a public health issue. Therefore, the Ottawa Charter for Health Promotion (WHO, 1986) was chosen as the strategical framework for mobilizing the community and educating and empowering the community to reduce the number and extent of burn injuries among the children. This will be a comprehensive system of medical care for burn victims. There are varied factors

that can either favour or harm our health - for example economic, cultural, environmental and behavioural factors. In the Ottawa Charter of health promotion there are certain conditions that need to be fulfilled to achieve good health and minimize disability. To achieve this, three basic strategies for health promotion were established, one of them is advocacy for health. The aim is to reduce disability, to make health condition as good as possible, mediate, which means that prospect for health cannot be ensured by the health sector itself; cooperation with voluntary and non-governmental organization, involving media sectors to make and facilitate a public education forum in order to increase injury awareness among the community (WHO,1986). The last strategies will be enabling the community, which means assisting the community to reach their full health potential through capacity building training. It is important to ensure the availability of equal opportunities and resources for all. (Figure, 1.4 Page, 15) outlines the Ottawa Model of Health Promotion.

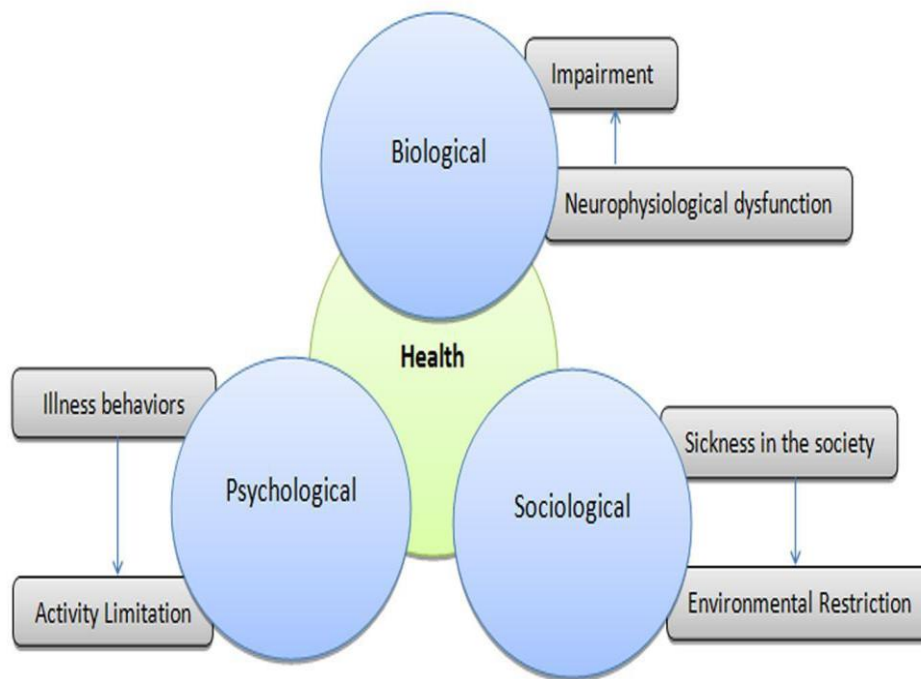


Figure 1.3. Bio -Psychosocial model of health

Source: Online: <https://www.physio-pedia.com>

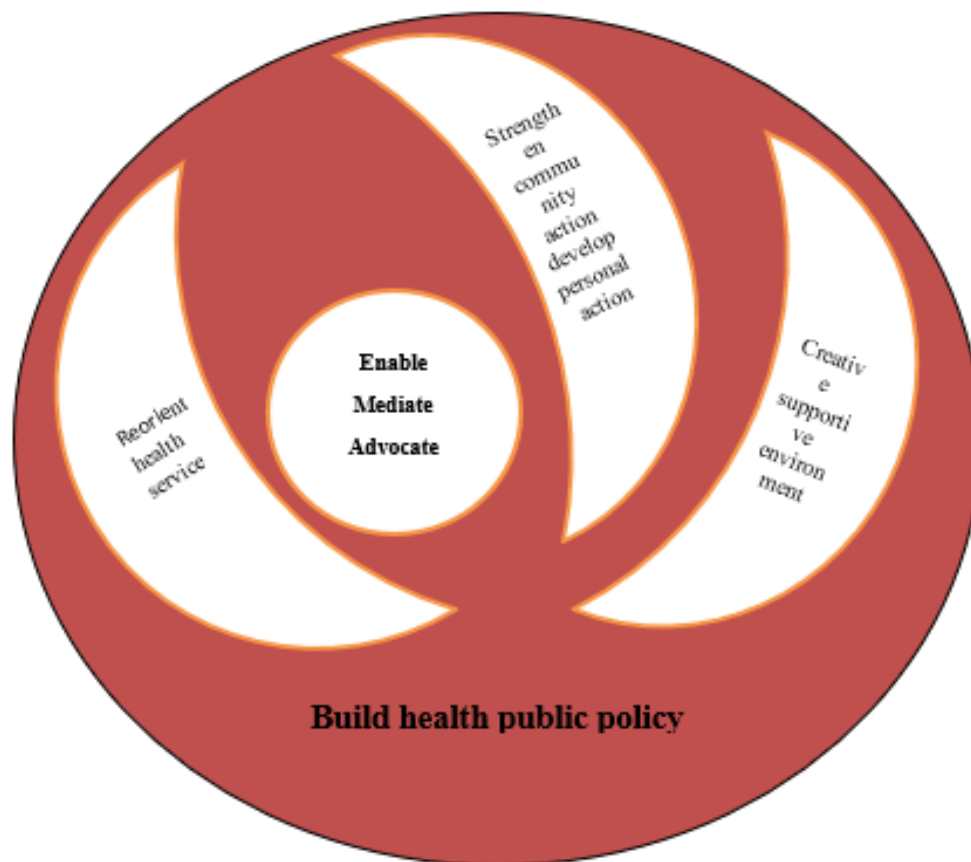


Figure 1.4, Ottawa Model of health promotion (WHO, 1986)

Source: Online <https://www.who.int/teams/health-promotion/enhanced-wellbeing/first-global-conference/call-for-action>.

1.1.11 Conceptual Framework of the study

Burn injury has been correlated with age, of the children, comorbidity, illiteracy, and low socioeconomic status of the family. Each of this are contributing factors for burn injury. The cause and cost of burn injury treatment can be minimized or mediated by increasing awareness on the prevention strategies and improving the infrastructure, skilled manpower and applying poverty reduction strategies. It is suggested in the literature that burn injury patients require regular therapeutic physical exercise to reduce or minimize the level and extent of disability. This study was carried out on bio psychosocial approach, whereby interactions between biological, psychological and social factors determine the cause and outcome of wellness or disease (Engel., 1977, Kusnanto, 2018, Malhotra & Kaimal,2022) This approach is in contrast with the medical model which views a problem of a person directly caused by trauma or disease (WHO, 2001). The relationship between the contributing variables to the injury and the significance of increasing knowledge regarding burn injury, burn injury rehabilitation, and burn injury prevention intervention is summarized by the conceptual framework that follows. According to the study's conceptual frameworks, the following factors contributed to the children's burn injuries: age, gender, comorbid conditions like leprosy and epilepsy, poverty, and the civil war in Ethiopian context. Burn injury causes activity and participation limitation and disability. Early participation in therapeutic physiotherapy exercises and greater awareness of burn injury prevention will lower the frequency of burn injuries and reduce pain, contracture and stress and increase the activity of daily living among children,

The management of the burn injury in health facility, cause of the burn level of the damage and level of awareness of the caregivers on burn injury prevention knowledge will determine the outcome of burn injury. According to a research assessing the impact of burn education among

Indian schoolchildren, kids who had competed responded much differently than those who had not (Keswani, 2001). In children burn injury, it is not possible to predict the injury and to put a prevention measure, however, the most effective burn injury managements are the prevention of burn accidents from occurring. Thus, it reduces the outcome of the children mortality and morbidity related to the burn injuries (Mulatu, et al., 2022). There is no doubt that burning is always an injury to the covering of the body that is the skin (Gilboa, 2001). Burn can cause contracture, pain and disfigurement. Early involvement of rehabilitation will reduce pain and contractures and increase joint mobility and flexibility of muscles.

In conclusion, research suggests that children from families with a basic foundation in burn injury prevention are more likely to escape severe complications from burn injuries than children without any burn injury prevention training (Farzan., et al., 2023, Teshale, et al., 2022). for instance, even though a burn injury is an accident and cannot be predicted, the mother with basic burn injury prevention training will not apply traditional medicine to the wound region; instead, she will apply water to the afflicted area of the body and transport the child to a medical institution for further management unlike the mother who do not have any training on burn injury prevention. Thus, the most effective way to lessen the severity and extent of burn-related sickness and mortality is through active burn prevention campaigns and mobilization of the community.

Chapter 2. Literature review

2.1.0 Introduction

This chapter discusses the historical background of the burn injuries, world perspective, African perspective and Ethiopian perspective of children burn injuries. A Medline search was conducted as part of the preparation stages of the research methodology, sorting specific papers with subheadings such as “epidemiology” and “Burn.” The electronics databases including PubMed,

CINAHL, Medline, Pedro and PSYC INFO were searched for related publications from 2016 to 2020. The terms in the title used was (“Physiotherapy “OR” Physical therapy “OR” Rehabilitation”). Web based online information was utilized. Google Scholar was used as a search engine.

2.2.1 Historical background of burn literature

Burn injuries are a common occurrence that have affected people from ancient times to the present. During Hippocrates (460-377B.C) day, iron was thought to be able to heal illnesses that medicine was unable to treat. Fire was used to heal those who were not healed by iron. Those deemed incurable were those who could not be healed by fire (Sowemimo, 1982). The majority of ancient burn care consisted of topical therapies and can be traced back for centuries. One of the earliest records of burn treatment was described in an Egyptian Smith Papyrus written in 1600 BC which advocated the use of resin and honey salve for treating burns (Lee, et al.,2014). The World Health Organization (WHO) estimates that burn injuries account for around 180,000 deaths and is the fifth leading cause of non-fatal childhood injuries (WHO, 2022). There are at least eight burn injury deaths each day in Iran, indicating a high incidence and mortality rate for burn injuries (Zamanzadeh, et al.,2015). Fire-related burns are the 11th leading cause of death for children between the ages of 1 and 9 years (WHO, 2021). The WHO broadly defines a burn injury as an injury caused by heat (Martin, et al., 2000, Othman & Kendrick,2010) whereby the amount of the temperature of a burning agent on the skin is exceeding above the normal temperature of the human body. The skin is the largest organ of the human body and the first line of defence to our body system consisting primarily of two layers, the epidermis and dermis (Martin, et al., 2000). Skin damage is proportional to the temperature of a burning agent, the length of time it remained in

contact with the skin and the thickness of the skin. The elderly and incredibly young have thinner skin thus, they will sustain deeper burns (Potokar, 2013, Mulatu, et al.,2022).

2.2.2. Global perspective of burn injury in children

Numerous and varied studies have been conducted on subjects relating to burn injuries. Nonetheless, there is a paucity of published research on burn injuries in children in the Ethiopian context (Mulat, et al.,2022). This led to the investigator's use of international literature that could be related to the Ethiopian situation, for comparative reasons. According to WHO, (2020) nearly 173,000 Bangladesh children under 18 years are moderately or severely burned every year. The study conducted by Mashreky, et al., (2011), in Bangladesh reported that 26% were due to flame and 25% were hot liquid among the children who sustained burn injury. Electrical burn injuries constitute about one third of total burn injuries in the same study conducted by Mashereky, et al., (2011). In 2008 over 410,000 burn injuries occurred in the United States of America with approximately 40,000 requiring hospital admission (WHO, 2020). According to the American Burn Association Report (2018), in 2015 burn injury was the 5th leading cause of deaths in the United States for children aged 1-4 and the 3rd for those aged 5-9 (Anon, 2018, Mulate, et al.,2022). Nearly 96 000 children under the age of 20 years were estimated to have been fatally injured as a result of a fire-related burn in 2004 (WHO, 2008). It is estimated that 250 per 10,000 children aged 0 – 4 are hospitalized for a burn's injury in Western Australia (McGarry, et al.,2013). The systematic review on epidemiology of burn injuries conducted in the east Mediterranean region by Othman and Kendrick, in 2010 highlighted that the incidence of burn injury ranged from 112 to 518 per 100,000 per year. It was reported that the burn victims were more frequently young and approximately one third of the victims were children aged 0-5 years (Othman & Kendrick., 2010). A retrospective study conducted by Riedlinger, et al., (2015,) in Australia and New Zealand

indicate that scalding is a common injury in children aged 0-14 years and a frequent reason for hospitalization despite being a preventable injury. It is estimated that 25,000 children attend emergency departments (ED) in England and Wales per year with a flame or scald, with 3800 of these children requiring hospital admission (Battel, et al.,2016). A similar systematic study conducted on epidemiology of burn injury in Nepal by Tripathee & Basnet, (2017) indicated that flame burns were found to be the most common burn injuries followed by scald burns among the paediatric population.

2.2.3 The African perspective of burn injury in children

Sub-Saharan Africa (SSA) experiences over a million burns annually, resulting in considerable morbidity and mortality (Collier, et al.,2021, Mulat, et al.,2022). Children remain the most common victims of burns injury in sub-Saharan Africa (Banga, et. al., 2023). In Africa, children under the age of five years have almost three times the incidence of burn deaths than children worldwide (Alemayehu, et al., 2020). Children who are below four years have disproportionately higher mortality compared to the other age group (Tusiime, et al., 2022). Children who live in poverty have the highest rate of burn injuries. An estimated 18,000 to 30,000 children under the age of 18 pass away from burn-related illnesses each year in SSA (Alemayehu, et al., 2020). According to Albert, et al., (2006) relevant and accurate data regarding paediatric burn injuries is sketchy and incomplete. Burn injuries are a leading cause of hospital admission and are linked to high rates of morbidity and mortality in young children aged four years or less (Fomukong, et al., 2019). A study conducted by Biru, et al., (2020) in Ethiopia at Hwassa specialized hospital revealed that 97.7% of burn injuries occurred at home. Childhood burns place enormous socio-economic burden on patients, their families and health services (Fomukong, et al.,2019. Mulat, et al.,2022). Burns are a substantial burden of paediatric injuries, particularly in low and middle-

income countries, where more than 90% of burn-related paediatric deaths occur (Wesson, et al., 2013). Whereas a study conducted in South Africa, by Wesson et al., (2013) indicated that South Africa has a rate of 2.8 burn related deaths per 100,000 children which is more than five times higher than other upper middle countries in Africa. According to the study conducted retrospectively in South Africa Red Cross Children Hospital by Wesson et al., (2013) indicate that between 1995 and 2009, 9,438 children attended the facility due to burn related injuries. Another study conducted by Alemayehu et al., (2020), highlighted that annually 3.2% of the South African population acquired burns with 50% occurring below the age of 20 years. Burns are third among external causes of death in South Africa for children under the age of eighteen (Heeder, et al., 2012). The children's burn injury in Dar es Salaam, Tanzania represented 16.3% of reported injuries (Roman, et al., 2012). The most common contributor to burn injury in Dar es Salaam was open flame, 36.9%, followed by hot liquids, 33.8%. A community based cross sectional survey conducted in Egypt by Halawa, et al., (2015) in over 27 Egyptian administrative regions highlighted that, from a sample population of 1399 households, burn injuries was 20.3 % and the most common accidental injuries among the children 0-18 years old. When compared to older and younger children, the incidence of these injuries was significantly higher in males (57.2%) than in girls, particularly in children between the ages of two and six (70%) (Halawa, et al., 2015). According to the study conducted by Mohammed, et al., (2012) in Khartoum Hospital in Sudan, a child below five years constituted 75% of the patients with male dominance in Sudan. Similar study conducted in South Africa, indicate that male children was more dominant with burn injury (Wesson, et al., 2013). In contrast, Oduor, (2010) conducted a study in the Rift Valley provincial hospital in Kenya, where the majority of burn victims were female and the mortality rate was 11.9%, with flame burns being more deadly than scalds. This is in contrast to the study conducted

in South Africa by Wesson, et al., (2013) whereby the predominant burn injury mechanism was scald. Of the flame burns, 68% were caused by charcoal or firewood while 32% were as a result of kerosene-initiated burns. In Kenya, it is estimated that children's burns are the cause of 20% of all traumas seen at Kenyatta National Hospital (Wanjeri, 2019). The study conducted by Hassen, et al., (2010) at Assiut University Hospital in Egypt highlighted that, from 1999 burn injury children 1444 children treated in outpatient department for burns less than 10% TBSA (Hassen, et al.,2010), Children under the age of 5 years were most affected and the main cause for burns was scald 75% followed by flame 20% burn injuries. This finding is in contrast with the finding in Ghana whereby scald burn injury was 45% among the children with burn injuries.

Burns are important preventable causes of morbidity and mortality (Peck.,2009, Nthumba., 2016). According to the study report conducted in Cameroon by Fomukong, et al., (2019) indicated that, a major factor affecting burn care in Africa is the absence of established protocol. This statement was supported by Mohammed, et al., (2018) state that in Eritrea accurate data on burn injuries are either unavailable or incomplete information on the characteristics and management of burns were not available. Certain African nations use standard operating procedures, which include determining the degree of wounds. However, the management of burn causality in Africa is challenging. The main contributing factors for delayed management of burn causality could be frequent occurrence of highly infectious disease such as tuberculosis and HIV/AIDS, political instability, and terrorist acts in some part of African countries (Nthumba, 2016). In addition to the above scenario, Sub-Saharan African nations have little funding for preventive measures, pre-hospital, in-hospital and post- discharge burn care, which contributes to a high rate of burns, high morbidity, and high death rates (Potokar,2013, Peck,2016, Nthumba,2016). The potential factors for increasing the risk of burn injuries in Ethiopia were age, gender, and socioeconomic status.

Naphtha lanterns, which are homemade lights used at night, are a frequent cause of burns. Furthermore, poorly designed houses, ground floor cooking, as well as underlying disease conditions such as epilepsy, were considered risks for children burn injuries.

2.2.4 Children burn injury in Ethiopia

Burn injuries are thought to be the cause of 265,000 deaths worldwide each year, making them a major public health concern (Alemayehu, et al,2020). Burn injuries were first reported in Ethiopia, as a public health problem in 1993 by Court right, et al., (1993). Burn injuries are a national problem in Ethiopia (Wolde, et al., 2008, Mulat, et al.,2022). Most burns occur at home, the causes being scald and flame (Alemayehu, et al.,2020, Van-Niekerk, et al.,2020). In recent years, burn injuries have been reported as a public health concern among children in Addis Ababa (Megenagna.,2019, Gate, et al., 2022). Despite this understanding, there are inadequate descriptions of the individuals and circumstances of occurrences of burn injuries in Addis Ababa. In Ethiopia, there has been an emphasis on hospital-based studies into burn injuries (Derbew & Ahmed,2006, Alemayehu, et al.,2020). With regard to burn injuries sustained by children in Addis Ababa, the available data make it challenging to determine the actual cost of burn injuries to the city's general population. Moreover, little is known about the epidemiology of burn injuries in the population that is not present in the burn care facilities in Addis Ababa. This is a significant knowledge gap to explore further. A systematic review of literature conducted by Edna, et al., (2019) in four regions of Ethiopia estimates that burns account for about 1.5% to 9% of injuries in all age groups and between 4% and 15% of injuries in the paediatric population. The prevalence of burn injuries in the population under study was exceptionally low and estimated to range between 0.1 and 1.2% in Ethiopia (Edna, et al., 2019). The study conducted by Jordan, et al., (2022) supports the same findings, where children aged 1-4 years contributed to 62% of burn

injuries. Nega and Lindtjörn, (2002) noted the incidence of burn injuries among children less than five years to be 4.8% in Mekelle town in North Ethiopia. A similar study conducted in Addis Ababa at the Yekatit 12 burn centre between July 2001 and September 2002 indicated that 121 burn-related injuries of all ages were admitted to the burn unit for management (Edna, et al., 2019). According to the Ethiopian Demographic and Health Survey (EDHS) (2016), 3% of households said that they had at least one member who was once injured or killed due to burn accidents in Ethiopia. More girls (12.0%) experience burn accidents compared to male children (7%) in Ethiopia (EDHS, 2016). One possible explanation for the rise in burns among teenage girls is cultural bondage, which includes meal preparation, which increases the risk of burns.

2.2.5 Health Related Quality of life (HRQoL)

Health related Quality of life (HRQoL) is a more comprehensive phrase that includes aspect of life that are not directly related to health and are instead considered non- medical (such as assessing how the surrounding area or environment affects overall well-being) that are not directly amenable to healthcare services and medical products (Varni, et al,2007). The study conducted in the north-west of Ethiopia's Amhara region on HRQoL and its associated factors by Tibebe, et al., (2021) indicates that burn injuries lead to severe HRQoL activity limitation and mortality. It has also had considerable health and economic impacts on the patients. Literature on burn injuries and related factors on post burn QoL for caregivers and children is scarce (Price, et al.,2021). There is little, if any, data available on post burn HRQoL among children in Africa. A review of the literature revealed few reports of psychological support groups for burn survivors and their families in LIC's (Barnett, et al., 2017).Research carried out in the united states has demonstrate that a patient's capacity to reintegrate into daily life following a burn is not solely reliant on the physical aspects of the burn; rather , it also depends on coping mechanisms, the support of family and

society , and the psychological health of the victim (Van-Niekerk ,et al., 2020, Renckene, et. al., 2021).

2.2.6 Quality life

Quality of life becomes one of the most crucial elements of recovery as the burn survivor enters the rehabilitation phase (Fonia, 2010). Over the past 15 years, there has been an improvement in the psychosocial outcome and quality of life for children who have suffered burn injuries (Blakeney et al, 1998). A through rehabilitation is necessary to enhance functional independence and lessen the patient's post-traumatic effects. The dedication of the members of the burn team, their support of patient participation and full engagement in rehabilitation, and their commitment to patient care can all make a significant impact on the long-term quality of life (QOL) of paediatric burn patients (Ohgi & Gu., 2013).

In this study the investigator relies on caregivers and children with burn injuries reported outcome for post burn QoL measure as there is no specific tool to measure post burn quality of life particularly in African context. Physical trauma, body disfigurement, the social stigma associated with burn injury completely shatter an individual life (Gautam, et al.,2022). Despite being a leading cause of death and morbidity for children and young women worldwide, Burn injuries do not cleanly fit under a single Millennium Development Goal (Peck, 2011).

2.2.7 Physiotherapy's function in burn injuries

Burn injuries are complex and involved injuries that require immediate and specialized interventions (Chu, et al., 2023). A physiotherapist plays a key role in the acute phase to prepare the patient both physically and mentally for physical activities (Fonia, 2010, Chu, et al., 2023,). Rehabilitation begins immediately with a comprehensive approach of physical, psychological, and

emotional aspects. The rehabilitation phase begins when the burn wound is reduced to less than 20% of the total body surface area, and it continues until the patient reaches his or her maximum level of physical and emotional independence (Salisbury, et al., 1983, Morgan & Hendon, 2002). The physiotherapist's role during the rehabilitation phase is to collaborate with the patient to plan and implement a treatment, which will assist the child to regain muscle strength, range of motion, and function. The goal of the physiotherapist in the management of burn injuries is twofold. First, the physiotherapist is to assist the patient in regaining his or her pre-burn range of motion, strength, balance, and posture (Fonia, 2010) and secondly, integration into the family and community. An important and fundamental component of burn treatment is rehabilitation. It is a process that begins on the first day of admission and lasts for months or even years after the primary occurrence, rehabilitation exercises do not start after skin grafts heal or after being released or discharged from the burn care centre (Morgan & Hennon, 2002, Fonia, 2010). Burns rehabilitation is not something that is completed by one or two individuals but should be a team approach, incorporating the patient and, when appropriate, their family. The term 'Burns Rehabilitation' incorporates the physical, psychological, nutritional, and social aspects of care and it is common for burn patients to experience difficulties in one or all of these areas following a burn injury (Fonia, 2010, Tapfuma, 2020).

Burn injury rehabilitation has been divided into an early stage of rehabilitation and a later stage of rehabilitation. Early mobilization as tolerated by the patient's condition is encouraged, including deep breathing exercises to support respiratory function and prevent complications like pneumonia. The main goal of Physiotherapy in the initial stages of burn rehabilitation is to prevent

contractures through the use of appropriate positioning, splinting, and gentle range-of-motion exercises (Edgar & Brereton, 2004).

The goal of physiotherapy in the later stages of burn rehabilitation is to manage the psychological effects of the burn injury while concentrating on scar management, increasing muscle strength and endurance, improving balance and coordination, facilitating functional activities, and reintegrating into society by addressing issues like walking with little assistance. This phase aims to maximize the patient's quality of life after the burn healing process (Edgar& Brereton,2004, Fonia, 2010). It must be understood that they may overlap between the early and later stages depending on individual progress (Fona, 2010). The burn team members' devotion, commitment to the patient's care, and encouragement of patient participation and full engagement in rehabilitation can be effective to young burn patients' long-term life (QOL) (Raipure, et al., 2023). First aid after a burn injury is considered to be integral to reducing scar and infection, and the need for surgery. The current recommendation for optimum first aid after a burn is a tap water cooling for twenty minutes within three hours of the post burn injury (Wood, et al., 2016).

2.2.8 The Associated factors of burns and the impact of burns.

In Africa, burn injuries are linked to a variety of factors, such as socioeconomic circumstances, environmental risks, and vulnerabilities connected to health. Burns are common in urban slums and shantytowns, especially because of poverty, congestion, and dangerous housing structures. Burn risks are also increased by cooking methods such using kerosene lamps and open fires, particularly when children are involved (Tusiime, et al.,2022). Lack of parental supervision and certain medical disorders, like epilepsy, can also make the danger even higher.

The impact of burn injuries is both obvious and invisible. The obvious impact of burn injuries would be the loss of body parts, such as fingers, legs, and upper limbs, scarring, deformity, loss of hair, change in body pigmentation; and alterations in the skin texture and loss of sensation (Potokar, 2013; Lee, et al., 2014). The invisible impact of burn injuries is the physical and emotional pain and the associated financial burden (Mashreky, et al., 2008). The physical discomfort may be itching of the wound and intolerance to ultraviolet rays (Lee, et al., 2014, Potokar, 2013). For common Ethiopians, the expense of burn injury treatment becomes an obstacle. The trauma associated with burns is influenced by the socioeconomic factors (Frank, et al., 2001, Ahachi, et al., 2017). In a developing nation such as Ethiopia, with poorly developed and ill-funded health facilities, poor or non-existent public sector and poor socioeconomic support systems, the impact of burns on the patient, his family, and their socioeconomic activities can be quite overwhelming (Ahachi, et al., 2017).

2.2.9 Measurement of burn surface area and depth

It was only at the end of the 19th century that it was realized that a relationship existed between the size of a burn and mortality (Lee, et al., 2014). An early attempt at linking the size of burns to prognosis was carried out by Smart CB, (1876) who studied 12 burn victims from an explosion aboard a ship and concluded that burn severity was determined by their percent of total body surface area (TBSA%) size and depth, in addition to other bodily systems that were affected, such as the airway (Muir, et al., 1987, Devgan, et al., 2006, Lee, et al., 2014). The percentage of body surface area was calculated by using the rule of nine formulae (Figures 2.1 and 2.2 Page, 31 and 32). The measurement of burn depth is not exact science (Leveridge, 1991, Rice, et al., 2021) but

there is some agreement about the criteria used for the clinical assessment of burn depth. However, the complexity of the dynamic changes that occur to the cellular and parenchymal elements of the skin after burning, has led to the failure to produce an agreed-upon technique for the histological measurement of burn depth. The determination of burn depth is further complicated by the dynamic changes in depth that were observed during the acute post-burn period (Watts, Tyler, Roberts & McGrouther., 2001, Rice, et al., 2021). In the early nineteenth century, Dupuytren reviewed the care of fifty burn patients, treated with occlusive dressings, and developed a classification of burn depth that is still used today (Herndon, 2002, Lee, et al., 2014). The diagnosis of the depth of the burn is difficult (Leveridge, 1991, Herndon, 2002, Rice, et al., 2021). The surgeon uses a combination of two factors to diagnose the depth of the burn: (1) the type and circumstances of the burn; and (2) the skin's texture and appearance. To assess the degree of sensation, he or she uses the pinprick test, which involves pricking the skin. The depth of burns has been measured using a variety of methods, including biopsies, vital dyes, infrared images, and ultrasounds. Research employs all of these methods to estimate burn depth. These are all techniques used in research for estimating burn depth. In children, at the surface of the burn injuries, a superficial or deep layer of the skin is actually destroyed by the heat (Devgan, et al., 2006,). The deeper layer of the skin and the subcutaneous tissue are severely affected by the heat because the resistance to heat of the epidermal layer in children is less than that of the adult skin (Muir, Barclay & Settle, 1987, Rice, et al., 2021). The penetration of burns can be classified according to the degree of burns. Clinically, burn depth measurement is important as it determines the appropriate treatment (Spurr & Shakespeare, 1990, Rice, et al., 2021). The currently accepted categories of cutaneous burn injuries, found in many surgical texts, describe three levels of burn injuries based on a combination of the clinical estimation of the depth and outcome of the wound.

These are (1) superficial partial thickness, (2) deep partial thickness (deep dermal), and (3) full thickness burns or third-degree burns that can affect deep layers of your skin, including fatty tissues. (4) Fourth degree burns also go much deeper, affecting your muscle tissues, tendons, and nerves. (Panke & McLeod, 1985; Watts, et al., 2001, Rice, et al.,2021). A superficial burn affects the epidermis and is a minor injury that leaves the underlying tissue red and painful. This corresponds to the first-degree burn. Deep partial thickness burns (second degree burns) destroy the epidermis and dermal layer, but it leaves sweat glands and hair follicles intact. Moist and blistered, these burns are not sensitive to pinprick, but perception of deep pressure is still intact (Derstine & Hargrove, 2001; Herndon, 2002, Rice, et al.,2021). Full-thickness burns (third degree burns) occur when the entire skin layer is destroyed. As a result of nerve-ending destruction, the victims experience little or no pain. Deep injuries that involve muscle and bone destruction are sometimes referred to as fourth-degree burns. Electrical burn injuries are very common in the paediatric population and are usually accidental and sometimes occupational (Shahid, et al., 2022) The contributing factors for children electrical burn were that the standard of equipment used at home for heating the water and cooking, as well as the installation of electrical wiring was below the standard (Rencken, et al.,2021,). Electrical injuries often result in fourth-degree injuries (Derstine & Hargrove, 2001, Rice, et al.,2021, Shahid, et al.,2022).

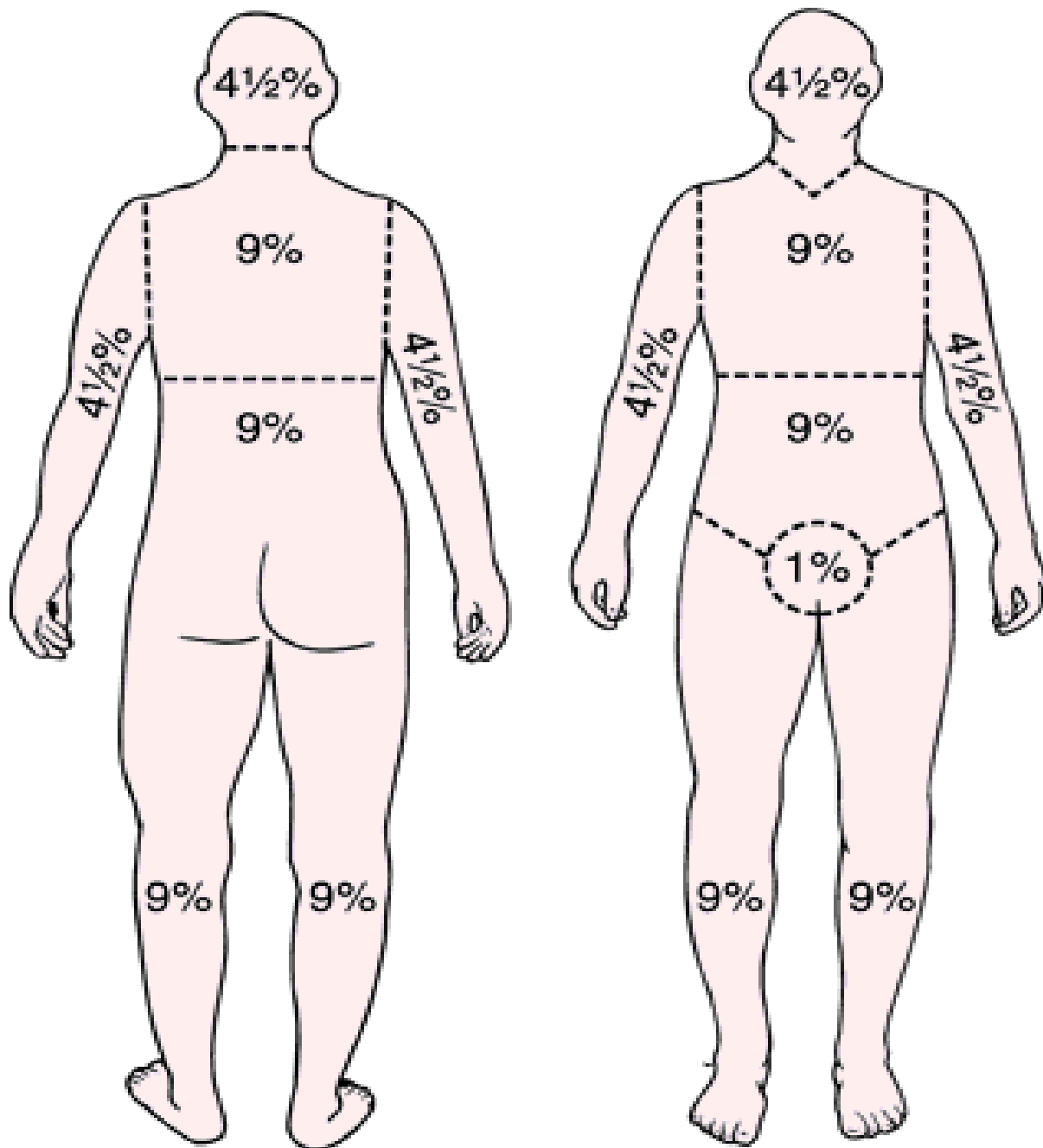


Figure: 2.1 Rule nine Estimation for adult.

Source; online: <https://www.emergency-live.com/health-and-safety/calculating-the-surface-area-of-a-burn-the-rule-of-9-in-infants-children-and-adults/>

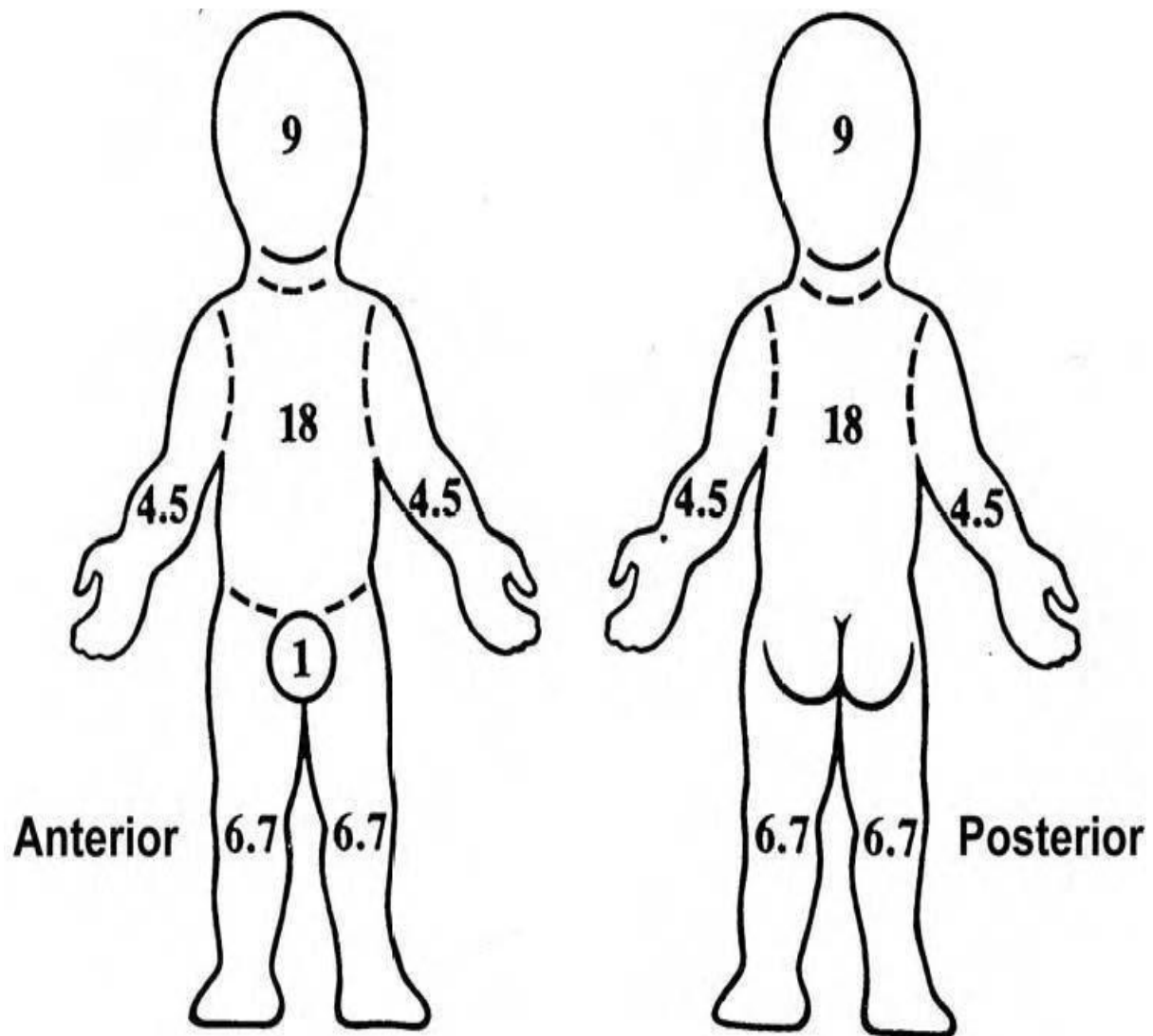


Figure: 2.2 Rule of nine for small children.

Source: online: <https://www.emergency-live.com/health-and-safety/calculating-the-surface-area-of-a-burn-the-rule-of-9-in-infants-children-and-adults/>

2.2.10 Burn's psychosocial effects on caregivers and children

Research on how survivors and their caregivers rehabilitate and effectively return to their pre-burn life styles is scarce from LMICs, despite the fact that this is a crucial and often overlooked global health inequity (Gete, et al.,2022) The long-term psychological stress and the varied spectrum of psychiatric disorders in burn patients are profound (Abafita, et al., 2020). Advances in medicine have improved the chances of survival following burn injuries, however, Psychosocial outcomes have not seen the same improvement, (Woolard, et al., 2023) Paediatric burn patients are at a higher risk of developing Psychopath-ology compared to the general population (Van Niekerk, et al.,2020). Policymakers have been persuaded that caregiving is a significant public health concern by the evidence on the health effects of caregiving that has been acquired over the previous 20 years (Schulz & Sherwood.,2008). In this study, caregiving denotes care that is provided by family members or friends rather than by a professional. Caregiving has all the features of chronic stress experiences (Schulz & Sherwood., 2008, Van- Niekerk et al., 2020, Woolard, et al., 2023). The association between physical and psychological health and being informal caregivers are well established (Schulz & Sherwood, 2008, Woolard, et al., 2023). Globally, low socioeconomic status is also associated with more severe burns and higher mortality rates (Park, et al., 2009, Peck, 2011). There is a correlation between poor socioeconomic status and greater fatality rates and more severe burns (Get et al., 2022). The study conducted in Nigeria by Ahachi, et al., (2017) shows that of the study population of fifty-two subjects with burn injuries, 21.6% had a subnormal social life. Implementation of a dedicated national for psychosocial support of burn patients should be made accessible to all patients (Druery, et al., 2017, Shahid, et al., 2022). All patients should have access to a specialized national for psychosocial support for children and adults with burn injury survival (Druery et al., 2017, Shahid et al., 2022). High rates

of anxiety and depression are linked to burn injuries and burn depth, according to a 2017 study by De-Sousa., et al. in India that, evaluated the degree of anxiety and depression among burn survivors.

2.2.11 Post burn Social Rehabilitation.

Some people may experience feelings of loneliness and isolation after suffering a burn injury. It could be challenging for them to reintegrate into society and resume their lives as they were before their injury (Van Niekerk, et al., 2020). Particularly if they have obvious burn scars, they might feel like they are the only one who has experienced such an injury and may be unsure of how to reintegrate into society (Wischman & Patterson., 2004, Fonia, 2010). As soon as they are able, these people should be encouraged to re-establish themselves in their social and professional lives, and their family members should be encouraged to support this behaviour as well.

Childhood burn injuries can be traumatizing and have long-lasting consequences for adulthood (DeSousa.,2010). Paediatric burn recovery and rehabilitation are influenced by a variety of factors. Family dynamics, parental responses, parental mental illness, the role of family members, it is critical that paediatric burn units understand the importance of having a child psychiatrist and psychotherapist on their team for rehabilitation. In addition to burn-related treatment, effective psychotherapy will significantly improve these patients' quality of life (DeSousa, et al., 2010, 2017). Reaching the best possible physical, psychological, and functional outcome for burn injury victims may be facilitated by an understanding of their social and psychological challenges.

2.2.12 Burns Prevention

Burn injuries are a global public health problem; fortunately, they are preventable. This has been demonstrated by the considerable progress made by high-income countries in their burn prevention strategies, such as Australia, Canada, the United Kingdom, and New Zealand (Wainjeri, et al, 2018). Cooking-related child burn injuries cause a greater health burden in low- and middle-income countries (Adane, et al., 2023) Low- and middle-income countries tend to focus on treatment, with little or no funding allowed for injury prevention and research (Potokar, 2016). But treatment of burn injuries is expensive, which is why policies and legislation need to be developed to reduce the prevalence and incidence of burn injuries (Wainjeri, et al.,2018, Price, et al.,2021). Studies targeting households can result in the identification of risk factors operating in family setups (Wesson, et al.,2013, Wainjeri, et al.,2018,). Previous burn-related injury experiences in the family have an elevated risk of causing burn injuries. Risk factors for burn injury differ according to region, but typically include alcohol and smoking, the use of open fires for space or room heating, the use of a ground level stove for cooking, the wearing of long, loose fitting clothing while cooking, high set temperatures in hot water heating, and substandard electrical wiring. Many of these risk factors are eminently amenable to prevention efforts (WHO, Mock, et al., 2008). Prevention is a key and truly, the best way to treat a burn is to prevent it from happening in the first place (Biru, et al.,2020). Effective prevention s will face similar barriers to implementation as those efforts to improve acute care, but prevention is much more cost-effective and will clearly reach greater numbers of people (Peck, et al.,2009, Achameyelsh, 2014). The prevention of burn injuries can be effectively achieved by educating parents about safety measures and improving health infrastructure. (Price, et al.,2021, Shahid, et al.,2022). It is sad to notice that well-managed burn injury prevention measures are available in high-income countries (HICs) but scanty

information on prevention strategies in low-income countries (LIC's) including Ethiopia. To my knowledge, there are no efficient and impactful burn injury prevention s in use in Addis Ababa compared to HIC's. A systematic review published in 2015 highlighted that implementation and evaluation of burn prevention program has been limited in LMIC's (Price, et al., 2021).

2.2.13 Conclusion

Burn injuries have been a common occurrence that have affected people from ancient times to the present. Children with burn injuries can be found all over the world and in all societies. The impact of burn injuries varies according to the level and extent of the injury. Application of a tap of cool water to the affected part of the body for 20 minutes is considered the best treatment to reduce burn scars and hypertrophic tissue and minimize the number of post burn surgeries. Burn injuries can cause feelings of isolation and loneliness for some children and caregivers. Reintegrating into society and returning to their pre-injury lives may prove to be difficult for them. However early psychosocial support increases the reduction of anxiety and loneliness among the burn injury children and caregivers. A burn injury prevention proved effective in some countries with a reduction in the number of children with burn injuries. In contrast, there has been an incomplete burn prevention without evaluation and implementation strategies in low-income countries, including Ethiopia. Educating the young male and girl children at an early age will minimize the extent and level of burn injury during their adulthood, particularly female children in the Ethiopian context.

Chapter 3 Methodology and Study 1

3.1 Methodology

This study uses multiple methods. Multiple methods which when two or more research objectives are conducted and each complete by itself to address research objectives (Driessnack, et al., 2007). Qualitative and quantitative data represents word and numbers, which are the two fundamental languages of human communication (Polit & Beck., 2006, Creswell, et al.,2013). The strength and weaknesses of these two types of data and associated methods are complementary. Thus, by using multiple methods a researcher can possibly avoid the limitation of a single approach (Polit & Beck.,2006, Creswell, et al., 2013). Multiple methods research has gained popularity in recent years. There is some variation in defining multiple methods research, although there is a general consensus that it combines a mixture of qualitative methods within a project to fully explore a research question (Leonard,1990, Creswell, et al., 2013,). This method is preferred because it will best address the objectives of this study. The quantitative study will describe the characteristics of the target population under study, while the qualitative aspect explores more detailed information from the caregivers and key informants. In this study quantitative study analysis was done in the first phase of study and qualitative data analysis was carried out in the second phase of the study. This strategy was chosen by the Principal investigator (PI) to assimilate the findings according to the study aim and objectives. The link between all of these is depicted in (Figure 2.3 Page 38) below. A rescored review is used to evaluate the pattern and circumstances of burn lead to assess psychosocial effects of burns, the first aid competence of caregivers, the preventative in Addis Ababa, and, lastly, the quality of life of children who have had burns.

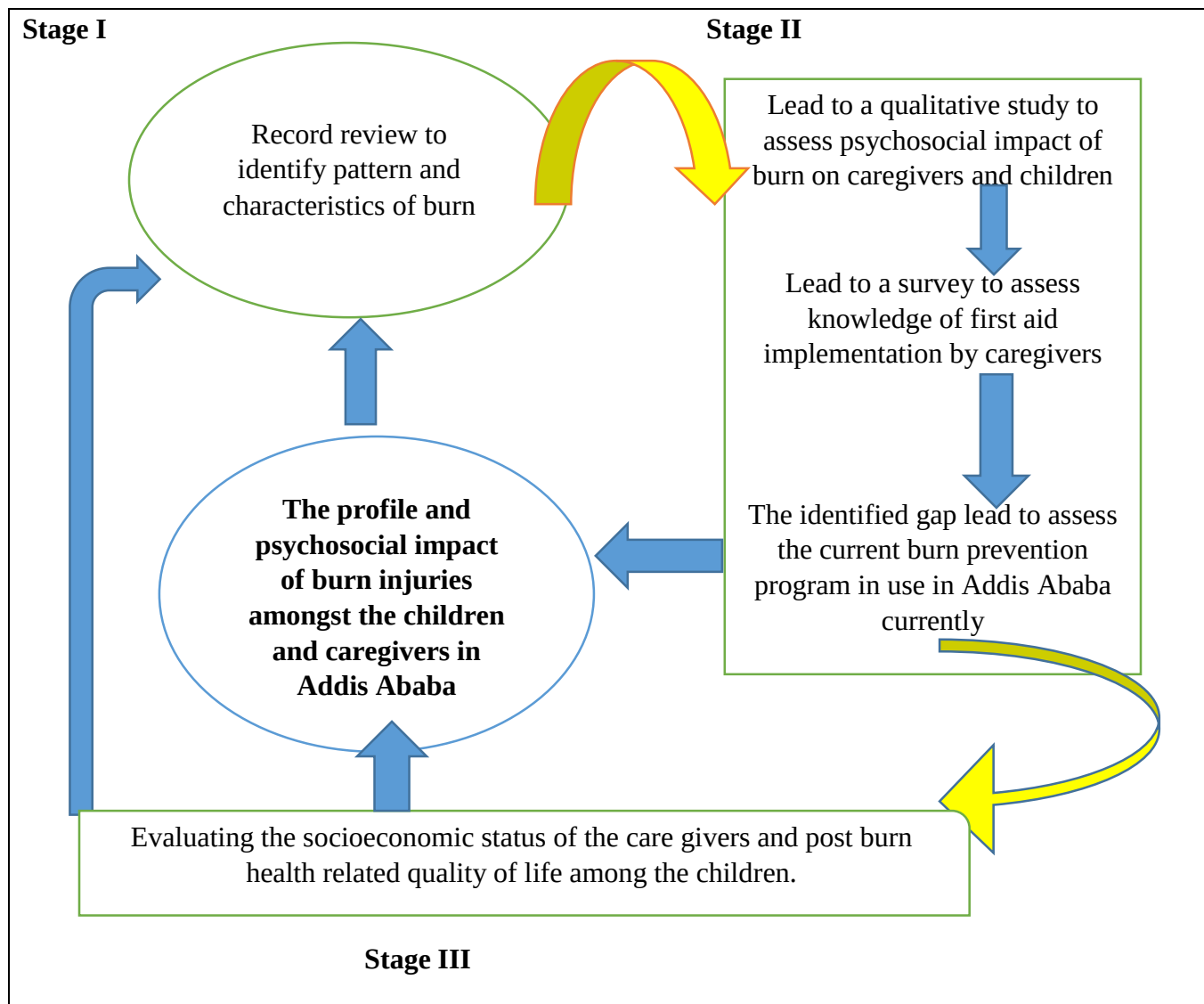


Figure 2.3 Linkage between all objectives

3.1.0 Chapter 3 Study 1

To assess the patterns, circumstances and characteristics of burn injuries of children admitted to Yekatit 12 Hospital (A), Myungsung medical centre (B) Addis Ababa burn emergency and trauma Hospital (C) in Addis Ababa.

3.1.1 Introduction

In this phase of the study, the record review was conducted in three selected hospitals with burn units in Addis Ababa from August 2022- to November 2022. The selection of the hospital was based on the criteria set by the principal investigator which states that the hospital will have a burn unit centre for children. The purpose was for easy access to the children with burn injury medical records. For the purpose of confidentiality and anonymity the three above- mentioned hospital was designated an alphabetic symbol of A, B and C in a sequential order in this particular study. The name of the hospitals was Yekatit 12 hospital(A), Myungsung medical centre(B) and Addis Ababa burn emergency and trauma (AaBET) Hospital (C). These three Hospitals were chosen as they serve as referral centres for domestic burn injuries within Addis Ababa and the whole country. Most patients with burns requiring hospitalization were referred to these hospitals. See more information about the hospital below.

3.1.1.2 Yekatit 12. Hospital

Northeast of Addis Ababa is home to this governmental hospital that specializes in teaching. It can accommodate 260 beds and sees about 600 patients every day. It offers every kind of specialist service, including physiotherapy. The Ethiopian government subsidizes the cost of medical services. (Source: Public Relations Office at the Hospital).

3.1.1.3 Myungsung Hospital

This is a private tertiary hospital with 230 beds that is owned by Koreans. It may be found in the eastern region of Addis Ababa. 500 patients a day are expected to visit the facility. It is a fee-paying hospital with all specialized services, including physiotherapists. (Source: Office of Hospital Records Management)

3.1.1.4 Addis Ababa Burn Emergency and Trauma Hospital (AaBET)

This public referral hospital is connected to Millennium Medical College's St. Paul's Hospital. Provide 250 beds for burn emergency and trauma patients, together with 12 ICU beds for the treatment of burn injuries. It is situated in the heart of the Addis Ababa city government. 600 patients are reportedly seen each day. The hospital has a physiotherapy centre in addition to all specialties (Source: Addis Ababa, March 2022, Hospital Public Relations Office)

3. 1.2 The aim of the study

The aim of the study was to identify the pattern of burn injury in Addis Ababa at three burn care Hospitals.

3.1.2.1 Objective of the study

The objectives of the study were to assess the patterns, circumstances and characteristics of burn injuries of children admitted to Hospital(A), Hospital (B) and Hospital (C) in Addis Ababa.

3.1.2.2 Source of population

Records of patients under the age of eighteen who sought medical attention in the inpatient and outpatient departments of the aforementioned hospitals between January 1, 2016, and December 31, 2020, served as the study's source.

3.1.2.3 Study population

The study population for this study were patients with burn injuries who are less than 18 years of age who visited inpatient and outpatient departments of Hospital (A), Hospital (B) and Hospital (C) within the specified period of time (1stJan 2016- 31st Dec2020) for getting help for their burn injuries.

3.1.2.4 Study settings

Three carefully chosen Addis Ababa hospitals hosted the study. The fact that the three hospitals listed above serve as Addis Ababa's primary burn treatment and rehabilitation facilities serves as justification for selecting them as study centres. It was anticipated that all patients with burn injuries would be referred to these facilities for acute and subacute phase resuscitation and rehabilitation. This will facilitate the researcher's recruitment of volunteers for the remaining study. Additionally, the entire nation refers patients to the Centre for management and rehabilitation.

3.1.2.5 Study design

A retrospective descriptive study design was used. Retrospective record survey is a popular methodology widely applied in much health care-based disciplines such as clinical audit and

epidemiology (Matt & Matthew., 2013). When studying different group characteristics and the population is diverse, stratified sampling is the ideal method. It helps prevent specific population attributes from being overrepresented or underrepresented, which can happen with basic random sampling. The population size of each catchment area of research site was not available to conduct stratified sampling. As a literature, indicate even if the sample is representative of the whole population, there will still be an element of error in the outcome (Carolyn ,1995, p 21-34).

3.1.2.6 Piloting

The instruments in this study were piloted for all study objectives at the same time in order to reduce the frequency of time caregivers and medical staff travelled to medical facilities during the data collection period in Addis Ababa because of the Coved 19 Virus pandemic. An explanation of each study objective instrument piloting procedures is provided below. The primary goal of conducting the pilot study on the data collection tool and questionnaires was to evaluate the quality of the data recorded on children's files and the possibility of recruiting participants for the study. Furthermore, to pre-test the use of the data capturing sheets, questionnaires and interview guides to identify any gaps in the tools, and the length of time required for a research assistant. Piloting was performed on both qualitative and quantitative instruments prior to the main study. The pilot study was carried out after the approval of the protocol and ethical clearance was received. The data from the pilot study was analysed to identify the gaps and areas that require clarification. For the study of record review two files for each of the years under review (2016-2020 = 10 files) were selected randomly and the information on the folder was captured on the data capture tools. This will help to identify potential challenges with the record review and the data capture tool. Amendments to the data collection tool or procedure were made after identifying the problems. Thus, the data collection period was extended from Monday through Friday from 8

a.m. to 4:30 p.m. to Saturday at 12 p.m. the following day. The change to working time gives extra working hours to give enough time for file collectors to identify files from the store. The data capture sheet was adapted from the literature search and tested using two blinded research assistants, to establish if they captured the same information in the same way. The data capture sheet (Appendix,3.2 Page,222) was appropriate in retrieving all the information from the electronically and manually stored information from the three hospitals as the information retrieved was the same. The information took between 10 to 15 minutes to retrieve from each file. Piloting of the first aid practice and other study objectives questionnaires were translated into the local national language Amharic by a professional translator (Appendix 3.8, Page,238). The translation was done forwards and backwards: first from English to Amharic and from Amharic to English and compared the similarity of wording. Then the translated version was distributed in the burns outpatient department to 12 of the study participants (Moore, et al., 2011) to establish if there are any confusing words or sentences in the questionnaires.

The interview guide was sent to the health workers in the burns clinic to get their input about the type of questions and make amendments as per their recommendations for relevance and clarity. All possible changes were made according to the research settings and objectives of the study. The particular change that was made was the definition for burn injury in Amharic translation was not clear and changed into human body or skin burn injury.

3.1.2.7 Instrument

The pertinent data was extracted from the hospital records using a data capture sheet that was modified and adapted from Nasih, (2010) (Appendix, 3.2, Page, 222). There were two portions to the data capture sheet. The patients' socio-demographic data is provided in the first section, and

details about the type of burn injury, the body parts injured, the cause of the burn, the depth of the burn, the total surface area affected, the patient's residence, and the hospital treatment received are provided in the second section.

3.1.2.8 Sample size

Sample size calculation was based on studies by Gessess & Yibeltal, (2017) which indicated that the prevalence of patients with burn injuries was 6.4% in Yekatit 12 hospital in Addis Ababa.

The sample size was calculated by using a single population proportion formula by considering the following assumption (Hicks, 1997, Nasih, 2010,): P=6.4% prevalence of burn injury among children; Level of Confidence =95%; Margin of error (d) = 5%

$$n = \frac{(Z_{\alpha/2})^2 \times P \times (1-P)}{d^2}$$

$$d^2$$

n= minimum sample size required, p= prevalence of burn injury, d= margin of error and $Z_{\alpha/2}$ standard normal value at (1- α) 100% confidence level.

$$N = \frac{(1.96)^2 \times 0.064 \times (1-0.064)}{(0.05)^2} = 94 \text{ per clinical facility, total } 94 \times 3 = (282)$$

$$(0.0025)$$

3.1.2.9 Procedure

Half day training was given for data collector's qualified physiotherapists and principal registered nurses who were recruited to serve as research assistants by principal investigators. The training was focused on the data collection tools, how to access records and capturing each item in the instrument accurately. It was conducted before the actual data collection date. Close monitoring

was done by the principal investigator to ensure the quality of the data. The medical records for the period of 1st January 2016 to 31st December 2020 were reviewed. The records for patients who were less than 18 years old and sustained burn injury were identified from the registry in the paediatric outpatient department of the respective hospitals. Once the folder number was identified the name and diagnosis of the child was followed up with the admission ward and record department where the folder of all discharged patients was retained. Information as per study objectives was extracted onto the data extraction sheet.

3.1.2.10 Ethical considerations

The documentation review was carried out for two months, from the 23rd of August 2022 to October 14th, 2022. Ethical approval was obtained from the Human Research Ethics Committee (HREC:M211105) of the University of Witwatersrand (Appendix 3.3 Page, 230), Human research committee Yekatit 12 Hospital Y12HMC 026/22 (Appendix, 3.4 Page, 231), Myungsang specialized Medical centre human research committee MCM 153/22 (Appendix, 3.5, Page, 232) and for AaBET from St Paul Millennium Hospital human research committee PM 23/987 (Appendix, 3.6, Page, 233).

3.1.2.11 Inclusion criteria

The inclusion criteria include all selected patient's charts of children of 0- 18 years of age with burn injury, which was with complete medical record.

3.1.2.12 Exclusion criteria

A file where the handwriting is not clear and a file with wrong file number and missing information was excluded from the study.

3.1.2.13 Data analysis

The data was checked manually for completeness and consistency and coded and exported into Microsoft Excel and the outcome variables (Gender, Tbsa, Age Location, Aetiology, Depth and Site of burn on the body) were analysed using descriptive statistics. Analysis of the data was done using the Statistical Package for Social Sciences (SPSS) version 26. All clinical and socio-demographic data were grouped into nominal and interval data. Findings were summarized using means, medians, and standard deviations, frequencies and percentages for categorical data. Chi-square was conducted to identify associations between variables. All information regarding the raw data, a soft copy and hard copy was kept in a safe place for three years with the principal investigator.

3.1.3 Outcomes for study 1

Study 1 outcomes will be discussed in this section. With the use of tables, figures, flow charts and bar charts, the sample's characteristics were described in relation to the demographic profile and clinical data. The chi-squared statistical test was used to conduct inferential statistical analysis, examining relationships between burn injuries and variables like gender. There are two subsections that include the results:

1. The study encompassed the socio-demographic features of all children admitted to the three hospitals in Addis Ababa with burn injuries, whose files were analysed.
2. Characteristics, pattern and circumstances of burn injury.

15,600 medical records were obtained from the three hospitals between January 1, 2016, and December 31, 2020. These documents pertain to children who were seen both as outpatients and

as inpatients. All children seen at the hospital for orthopaedic, surgical, and other conditions were included in this figure. Out of all the files, only 350 (2.24%) had records of children who suffered burn injuries, and only 282 (80.6%) of those met the study's inclusion criteria. Due to incomplete information, mislabelled folder numbers, and unreadable handwriting, 68 (19.4%) of the files could not be used. See flow chart below (Figure 3.1 Page, 48).

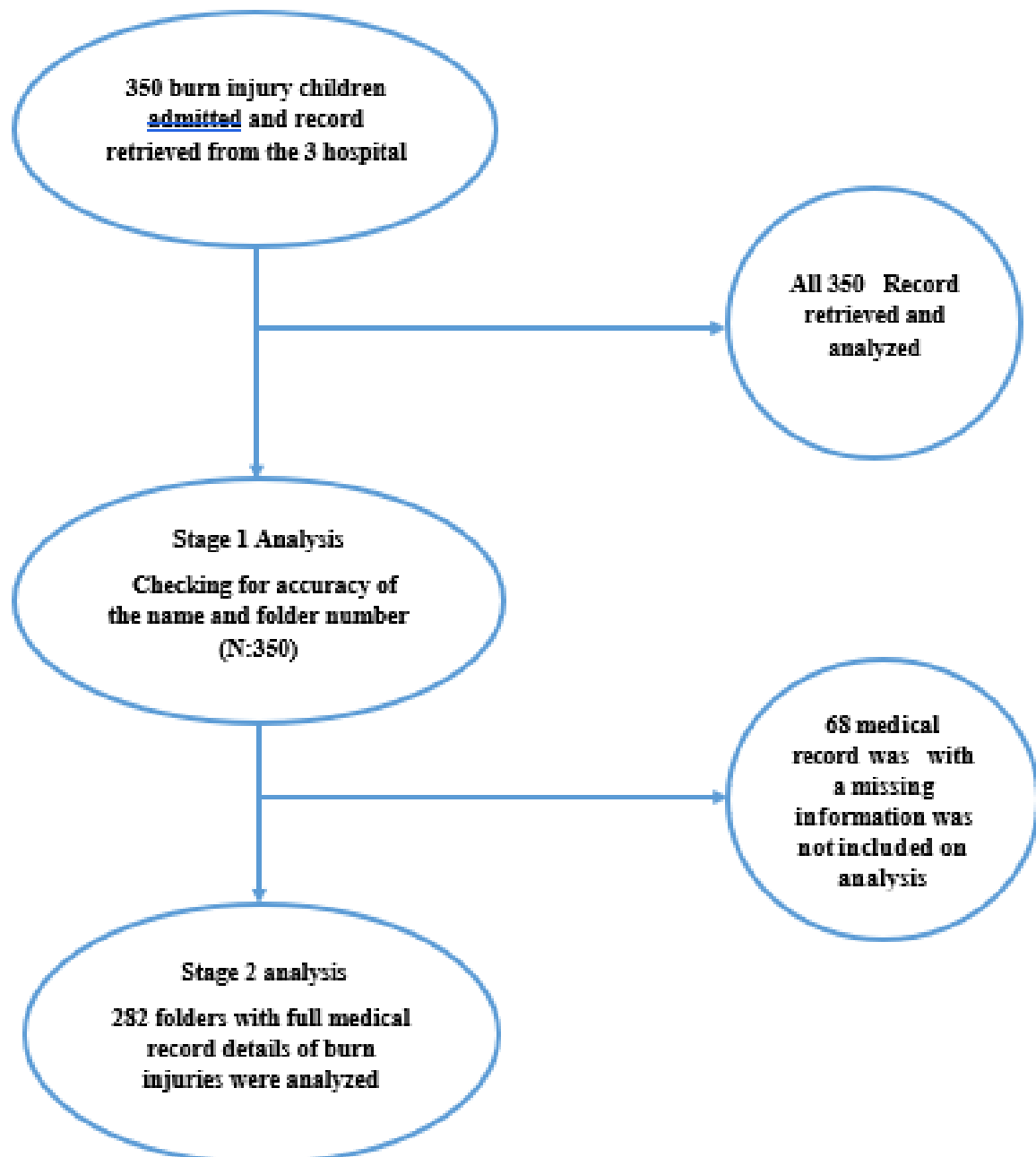


Figure :3.1 Flow chart

3.1.3.1 Socio demographic characteristics

A total of n=282 folders were identified and analysed: 103 (36.5%) folders from hospital (A), a total number of n=73 (25%) folders from Hospital (B) and a total of n=106 (37.6%) children folders from Hospital (C). There were more female children n=59 (59.3%) than male children (n=44, 44.7%). (Figure 3.2 Page,48) Enrolled children admitted to Yekatit 12 Hospital, Myungung Christian Medical Centre and Addis Ababa Burn Emergency and Trauma Hospital in Addis Ababa. See Table 3.1 Page,51 below.

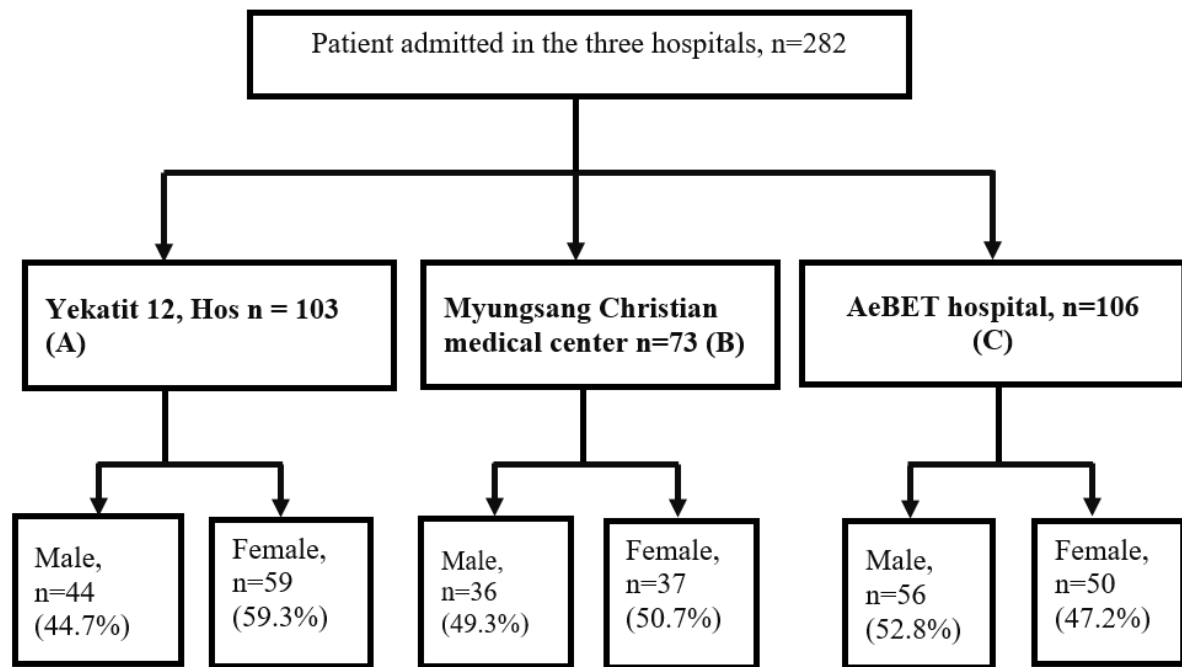


Figure 3.2: Admitted children from a total of 350 children at three Hospitals (n=282)

3.1.3.2 Characteristics of age group, gender, location and degree of burns.

Of 282 study sample 134 (47.5%) were of the 0-4 age group, with 136 (48.2%) male children. The mode for gender was zero (0). Regarding the location 225 (79.8 %) of the total study subjects were from Addis Ababa area while the remaining 57 (20.2%) were from surrounding village within 3-4 Km radius. The second degree burn 215 (76.2%) was more common burn injuries.

Table 3.1 Age group, gender, location and degree of burn (n=282)

Characteristics	N = 282	Hospital A n= 103	Hospital B n= 73	Hospital C N = 106
Age, in years				
0-4	134	63 (61.2%)	42 (57.5%)	29 (27.4%)
5-9	60	18 (17.5%)	11 (15.1%)	31 (29.2%)
10-18	88	22 (21.4%)	20 (27.4%)	46 (43.4%)
Gender				
Male	136	44 (42.7%)	36 (49.3%)	56 (52.8%)
Female	146	59 (57.3%)	37 (50.7%)	50 (47.2%)
Location				
Addis Ababa	225	88 (85.4%)	59 (80.8%)	78 (73.6%)
Outside Addis Ababa	57	15 (14.6%)	14 (19.2%)	28 (26.4%)
Degree of Burn injury				
1st	28	10(10.0%)	14(19.2%)	4 (3.8%)
2nd	215	85 (83%)	55 (75.3%)	75(70.8%)
3rd	28	5 (4.9%)	2 (2.7%)	21 (19.8%)
4th	11	3 (2.9%)	2 (2.7%)	6 (5.7%)

3.1.3.3 Type of burn.

The three most common types of burns were thermal (273, or 96.8%), electrical (2.1%) and chemical (3.1%). The cause of burn hot liquid and flame (Table 3.2) is shown below. Children who sustain burns from chemicals or electricity are rare injuries, and their care varies widely (Alemayehu., et al.,2014). While chemical and electrical burns are uncommon, they have a high morbidity and fatality rate. Electrical burn injuries are common in Addis Ababa among children 0-4 years old. Although there has been more research on electrical burns in children than chemical burns, to date no established true epidemiological data in electrical burn injuries among the children in Ethiopia. Because of their very low frequency, electrical and chemical burns were not covered in this study.

Table 3.2 Type of burn and cause of burn (n=282).

		Frequency (n-)	Percent (%)
Type of burn	Thermal	273	(96.8%)
	Chemical	3	(1.1%)
	Electrical	6	(2.1%)
Cause of burn	Hot liquid	141	(50.0%)
	Flame	117	(41.5%)
	Gas stove	6	(2.1%)
	Electrical	6	(2.1%)
	Charcoal	5	(1.8%)
	Hydrochloric acid	3	(1.1%)
	Hot metal	1	(0.4%)
	Matches	1	(0.4%)
	Kuraz	1	(0.4%)

3.1.3.4 Percentage of total body surface area burn

Total body surface area (TBSA) ranged from 0–15% for the majority of children (n = 133 (47.2%), 16–25% for n = 99 (35.1%), 26–35% for n = 34 (12.1%), 36–45% for n = 11 (3.9%), and above 46% for n = 5 (1.8%).

3.1.3.5 Site of the burn injury on the body.

The thigh (n=87; 30.9%) was the most frequently afflicted body part, followed by burn injuries to the upper arm (n=67; 23.7%). Injuries to the upper lower extremities were n = 61 (21.6%) for hands and n = 67 (23.7%) for arms. 53 injuries to the head and neck (18.8%) and 57 injuries to the anterior trunk (20.2%). Fourteen (4.96%) of the children had burns on their genitalia and perineum area.

Table 3.3: Site of burn injuries (n: 282)

	N	(%)
Head and neck	53	(18.8%)
Trunk and chest		
Anterior trunk	57	(20.2%)
Posterior trunk	31	(11%)
Upper extremities		
Upper arm	67	(23.7%)
Hand	61	(21.6%)
Lower extremities		
Thigh	87	(30.9%)
Feet	48	(17.02%)
Genitalia and perineum	14	(4.96%)

3.1.3.6 Age distribution of cause of burn according to the age group

The contingency table of 3 x 5 shows that the majority of the flame burn injuries were within 0-4 age group 50 (37.5%) followed by 10-18 years' age group 43 (48.9%). Scald burn was seen in 75(56.0%) children among the 0-4 years whereas the 10 -18 age group only had 36(40%). Among the 0-4 age group only 4 (3.0%) had electrical burn injuries while 2 (2-3%) were among the 10-18 years. More chemical injury was observed among 10-18 years' age groups. flame was the predominant cause of burn among pre- pubertal and pubertal 10-18years of age. The contingency test result indicates that the association among the age group and the cause of burn was weak. P-value (0.329). See the Table below:

Table 3.4 Cross tabulation of cause of burn and age group (n:282)

		Cause of burn injury						
		Flame n:117 (%)	Scald n:141(50 %)	Electric n: 6(2.1%)	Charcoal n 5(1.8%)	Hcl acid n:3(1.1%)	Total	P value
Age group	0-4	50(37.5%)	75(56.0%)	4 (3.0%)	0	1(0.7%)	134 (47.5%)	0.329
	5-9	24(40.0%)	30(50%)	0	3(5.0%)	1(0.7%)	60 (21.2%)	
	10-18	43(48.9%)	36(40.9%)	2(2.3%)	2(2.3%)	2(2.3%)	88(31.2%)	
							282	

3.1.3.7 Contracture

Of the 282 children's folders, 106 (37.6%) children developed a contracture as the result of burn injury in their extremities.

Table 3.5: Frequency table of contracture (n: 282)

	Frequency	Percent
No	176	62.4%
Yes	106	37.6%
Total	282	100%

3.1.3.8 Contracture case by age group (n:282)

The table below shows the number of children who are affected by the burn injury and who subsequently developed contractures. The analysis shows that 35(26.1%) were in the age group category 0-4, 23 (38.3%) from the 5-9 age group and 48 (54.5%) from the 10-18 age group. The relationship between developing contracture and the age group was shown to be statistically significant (p value 0.001). Risk estimate was conducted, and it shows no significance between contracture and scar development because the odds ratio result was above 1. To be significant the odds ratio must be less than 1. The result for 95% confidence interval (CI) shows that the whole range was above 1 thus, the p value was ≥ 0.05 . (see Table 3.6).

Table: 3.6 Contracture cases per age groups (n: 282)

		No	Yes	Total
Age group	0-4	99	35	134
		73.9%	26.1%	100%
	5-9	37	23	60
		61.2%	38.3%	100%
	10-18	40	48	88
		45.5%	54.55	100%

Contracture * scar tissue Cross-tabulation (2x2).

Table 3. 7 Cross tabulation

	Scar tissue			
Contracture		No	Yes	Total
	No	168 (96%)	8 (4.0%)	176
	Yes	96 (91%)	10(9.0%)	106
Total		264 (93.6%)	18 (6.7%)	282

Risk Estimate.

Table 3.8 Risk Estimate

OR	95% CI	P-value
2.188	(0.835-5.730)	≥ 0.05
1.054	(0.983-1.130)	≥ 0.05
0.482	(0.196-1.183)	≥ 0.05

3.1.3.9 Gender and degree of the burn

In this study of records, burns caused primarily by hot liquids were found to be the main cause of children burn injuries as in several earlier investigations conducted in sub-Saharan Africa and other regions (Gebreab, et al., 2019). The majority of burns were 2nd degree burns 215 (76.2%), and the most affected gender was female children 146 (51.8%), compared to male children. This could be attributed to the bondage of the female children to their mothers. The p-value was 0.823.

3.1.3.10 Gender and thermal burn

In this study, scald/hot liquids and flame burn injuries were considered thermal burn injuries. The results indicate that out of a total of 273 thermal burn injuries, 80 (58%) female children sustained scald burn injuries, and 58 (42%) sustained flame burn injuries, whereas 103 (76.2%) male children sustained scald burn injuries and 32 (23.7%) sustained flame burn injuries. (Table 3.9).

Table: 3. 9 Gender and thermal burn injury

		Scald	Flame	Total
		n (%)	n (%)	n (%)
Gender	Female	80 58%	58 42%	138 (100%)
	Male	103 76.2%	32 23.7%)	135 (100%)
		183	90	273

3.1.3.11 Thermal, and others burn and gender (2X2) crosstab

Two variables were subjected to the crosstab analysis. There was a correlation between gender and thermal burn injuries, according to the nominal factors analysis. The null hypothesis was that there was no correlation between this variable and burn aetiology or gender. The results of the Fisher exact test showed that the p value was less than 0.001, the OR was 16.3, and the 95% CI was (6.9-38.6). According to the results, girls are more likely to get burn injuries. This outcome demonstrates the need for Addis Ababa to establish a burn prevention specifically for female children. (See Table 3.10, below).

Table: 3.10 Gender, thermal, electrical and chemical burn 2x2 table.

Gender	Thermal (Scald/Flame) (n=221)	Electrical and chemical (n=9)	Total
Female	141(97%)	3(3%)	146
Male	80(59%)	6(41%)	136
			282

Fisher exact test p=1.00

Odd ratio	95% CI	P.value
16.3	6.9-38.6	<0.001.

3.1.3.12 Age group and TBSA

At Hospital (A), the majority of children ($n = 35$, or 70%) had 0–15% of their whole-body surface area among the 0–4 age group, whereas $n = 17$ (or 39.5%) of the children in the 10–18 age group had 0–15% of their total body surface area. at Hospital (C). Only 24 (60%) of the children ages 0–4 had 0–15% TBSA sustained at hospital(B). Only 11 children (28.0%) sustained TBSA 16–25% at Hospital (C), compared to 17 (58.6%) at Hospital (A) and 16 (64.0%) at Hospital (B) among the 0–4 age group. 10 children (58.8%) in the 0–4 age group suffered 26-35% TBSA burn injuries at Hospital (A), compared to just 5 (45.5%) in Hospital (C). According to the data, 2 children (66.7%) between the ages of 10 and 18 had burn injuries at Hospital (A) that resulted in 36% TBSA. There was just one case 0-4 age group at Hospital (A) and 4 from age group 10–18 at Hospital(C) with burn injury of 46% and above TBSA of burn. (Table 3.11). Further Chi-square test analysis shows that body surface area was significantly associated with age group at hospital A. The data was decoded and Pearson chi-square=7.464 and P-Value was 0.024. The remaining attributes were not significant. See the Table 3.12 Page,69 below.

Table 3.11 Cross Tabulation of Age Group by Total body surface Area (n: 282)

	Cross tabulation						
	Age group, * Total body surface area and facility						
Total body surface area	n =282		0-4y n (%)	5-9y n (%)	10-18y n (%)	Total	Present
	0-15	A	35 (70%)	10 (20.0%)	5(10.0%)	50	100%
		B	24(60.0%)	7 (17.5%)	9 (22.5%)	40	100%
		C	12(27%)	14(32.6%)	17(39.5%)	43	100%
	16-25%	A	17(58.6%)	5(17.2%)	7(24.1%)	29	100%
		B	16(64.0%)	2(8.0%)	7(28.0%)	25	100%
		C	11(24.4%)	12(26.7%)	22(48.9%)	45	100%
	26-35%	A	10(58.8%)	3(17.6%)	4(23.5%)	17	100%
		B	1(18.7%)	2(33.3%)	3(50.0%)	6	100%
		C	3(27.3%)	3(27.3%)	5(45.5%)	11	100%
	36-45%	A	1(33.3%)	0(0.0%)	2(66.7%)	3	100%
		B	1(50.0%)	0(0.0%)	1(50.0%)	2	100%
			2(33.3%)	2(33.3%)	2(33.3%)	6	100%
	46%and above		0(0.0%)		4(100%)	4	100%
			1(100%)		0(0.0%)	1	100%
						282	100%

Table 3:12 Chi-square test

Hospital	Pearson chi-square	P value
Hospital (A) Number of valid cases n= 103	7.464	0.024
Hospital (B) number of valid cases n=73	1.215	.545
Hospital (C) Number of valid case n=106	.528	.768

3.1.3.13 Facility and Gender of admitted children for burn injury at the hospitals

According to the findings, 53 (18.8%) female and 50 (17.8%) male children with thermal burn injuries were admitted to Hospital (A). 32 (11.3%) female, and 41 (14.5%) male children were admitted to Hospital (B), and the remaining 46 (16.3%) female and 60 (21.2%) male children were admitted to Hospital (C) in Addis Ababa. The majority of the male children, 60 (21.2%), were admitted to Hospital (C), while 53 (18.8%) of the female children were admitted to Hospital (A). The estimated date of hospitalization from the burn unit record ranges from 1–15 days at Hospital (C), 7–21 days of admission at Hospital(A), and 1-6 weeks of admission at Hospital (B). The relationship between facility and number of days admitted was shown to be statistically significant with a p value of <0.001.

Table: 3.13 Gender and facility admission

		Facility			Total
		Hospital A	Hospital B	Hospital C	
Gender	Female	53	32	46	131
	Male	50	41	60	151
		103	73	106	282

3.1.3.14 Result of Bivariate and Multi-Variate Binary analysis.

Bivariate analysis examines two matched data sets to see whether they are related. Using two or more variables, multivariate analysis determines whether any of them are correlated with a particular result. In the latter instance, the objective is to identify the factors that affect or contribute to the result. Majority of the victims were female and the age group 0-4 were most affected age. There was no association between burn injury and gender. The range was 17 for the children age.

According to the multivariate analysis, there was no correlation between the aetiology of burn injury and total body surface area (P-Value 0.084). While the number of hospital admission days were not significant with the father's caregivers' p-value of 0.078, the number of days and mother were significant with a P-value of 0.017. Physiotherapy services and the degree of burn injuries were significantly correlated (P-Value 0.001). There was no relationship between the total body surface area and age group. Further statistical analysis of Binary logistic analysis of contributing

factors for contractures shows that there was no significance between age and gender. Model goodness of fit was checked by Hosmer and Lemishow test. after checking both bivariate and multivariate logistic regression model was implemented and variables having P-Value less than or equal 0.05 were considered statistically significant. (see table 3-14 below)

Table 3.14 Multi nominal logistic regression analysis

Model Fitting Information						
Model	Model Fitting Criteria			Likelihood Ratio Tests		
	AIC	BIC	-2 Log Likelihood	Chi-Square	Df	Sig.
Intercept Only	703.256	717.823	695.256			
Final	616.352	849.434	488.352	206.904	60	<.001

Likelihood Ratio Tests						
Effect	Model Fitting Criteria			Likelihood Ratio Tests		
	AIC of Reduced Model	BIC of Reduced Model	-2 Log Likelihood of Reduced Model	Chi-Square	Df	Sig.
Intercept	616.352	849.434	488.352 ^a	.000	0	.
Facility hospital name	641.137	845.083	529.137	40.785	8	<.001
Location	611.071	829.585	491.071	2.719	4	.606
Type of burn	619.664	823.611	507.664	19.313	8	.013
Occupational therapy	612.395	830.910	492.395	4.044	4	.400
Physiotherapy	606.083	780.894	510.083	21.731	16	.152
Total body surface area	614.667	818.614	502.667	14.315	8	.074
Recoded degree of burn comparing 2nd degree with other	683.973	902.487	563.973	75.621	4	<.001
Recoded causes of burns as Flame, Hot liquid and other	626.760	830.707	514.760	26.409	8	<.001

The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.

3.1.4 Summary of the results

The study's objectives were to assess the pattern and circumstances surrounding burn injuries in three Addis Ababa hospitals. In all, 15,600 children sought medical attention at the aforementioned hospitals. Of the children with burn injuries, a statistically optimum sample of 282 records was analysed. Hospital (C) 106 accounted for the majority of the burn injury children's folder (37.6%), with hospital A (103) coming in second (36.5%). Gender-wise, 146 (59.3%) were female and 136 (51.8%) were male. Female demonstrated dominance. This was an unusual finding, considering the majority of the research on children burns (Ramajisthan et al., 2005, Odondi, et al., 2022) supports the idea that males dominate in childhood burn injuries. The possible explanation for the dominance of Male children could be more likely than girls to engage in risky behaviours like fire play, exploring dangerous situations, and participating in activities involving flammable materials. These behaviour's are often influenced by peer pressure and contribute to the higher likelihood of burn incidents that male children experience than female children.

The majority of the 225 children (79.8%) were from Addis Ababa. With 273 (96%) of the burns, in this study, thermal burns were the most common form of burn injuries. (Thermal burns include flame and scald burns.) Electrical burns came in second with 6 cases (2.1%), while chemical burns accounted for the remaining cases. No suicidal effort to burn oneself or cause burn injuries was documented. The two most common types of burn injuries were flame burns 117 (41.5%) and scald (hot water) burns 141(50.0%). Table 3.4. Page, 58 (3.x4) presents cross-tabulation statistics indicating that children aged 0-4 experienced a higher incidence of hot water burns n = 75 (56.0%)

compared to flame burns $n = 50$ (37.5%). The result revealed that 53(18.8%) female and 50 (17.8%) male children admitted at Yekatit 12 hospital and 60 (21.2%) male and 46 (16.3%) female children was admitted at AaBET hospital where as (18.8%) and (14.5%) children admitted at Myungsung hospital respectively. In relation to the days of hospitalization majority of the children was admitted at AaBET hospital 1-15 days and 7-21 days at Yekatit 12 hospital whereas from 1-6 weeks at Myungsung hospital .80 (58%) female sustained scald burn injury and 103 (76.2%) male children sustained scald burn injury while 42% female children sustain flame, and 23.7% male children sustained flame injuries. (Table 3,9 Page, 64). In this study only 6 (2.12%) children sustained smoke inhalation injuries, and 14 (4.9%) children sustained genitalia and perineum area burn injuries. The following is a summary of the burn injury pattern and characteristics in this study. Most victims were female, most children had burns with a total body surface area between 0 and 15%, most burn depths were second degree, and hot liquid or scald was the main cause of burn injuries. At Hospital C, more children were admitted. The majority of children with burn injuries (85.4%) came from Addis Ababa. In every hospital in Addis Ababa, mothers were the primary caregivers for children with burn injuries. The body parts that were most impacted were the upper and lower extremities. After suffering burn injuries, 16 (5.6%) children died and 106 (37.6%) children were developed contractures. Fisher exact statistical test conducted and revealed that girls are more likely to get thermal burn injuries than male children. p . Value <0.001 , OR 16.3 and 95% CI was (6.9-38.6). Burn injuries brought on by chemicals, and high electrical voltages were not included in this study. (See table 1 Page, 52, Figure 3.4, Page, 77, Table 3.10, Page, 65).

3.1.4.1 Age and gender

Of the 282 burn cases, the majority of them were female (146, or 51.8%). The female predominance prevailed in the 0–4 age group, whereas male children are more exposed to scald

burns in the age group between 5 and 9 years, and more (43%) of the children in the age range of 10–18 were exposed to flame burn injuries. This study concurs with study conducted in Tanzania whereby more male children exposed for the scald burn.

3.1.4.2 Causative agent and degree of burn

In this study Scald burns accounted for 105 (48.8%) and 19 (67.9%) of the burn injuries among the children with first-degree superficial burns and second-degree/partial-thickness burns, respectively. Nonetheless, flame burns accounted for most burn injuries among the 6 (54.5%) individuals who had third-degree or full-thickness burns. Second degree/partial thickness burns affected 215 (76.2%) of the children, followed by first degree/superficial thickness burns, and third degree/full thickness burns 56 (19.9%). Chemical burns, electrical burns, frostbite burns, contact burns, and sunburn injuries were out of the scope of this study.

3.1.4.3 Availability of Allied Health professional services in Addis Ababa for burn patients

In terms of the availability of allied health care, all hospitals provide dietician, social worker physiotherapy, and insignificant or very limited occupational therapy services to patients. These were due to the shortage of skilled occupational therapist on burn management in the country. The counselling services were conducted by a social worker at the hospital. All children get services at the government hospital. Some of the services of rehabilitation were available, except occupational therapy by the time of this study. However, services like clinical psychologist, orthosis and prosthesis services were not available in all three hospitals in Addis Ababa

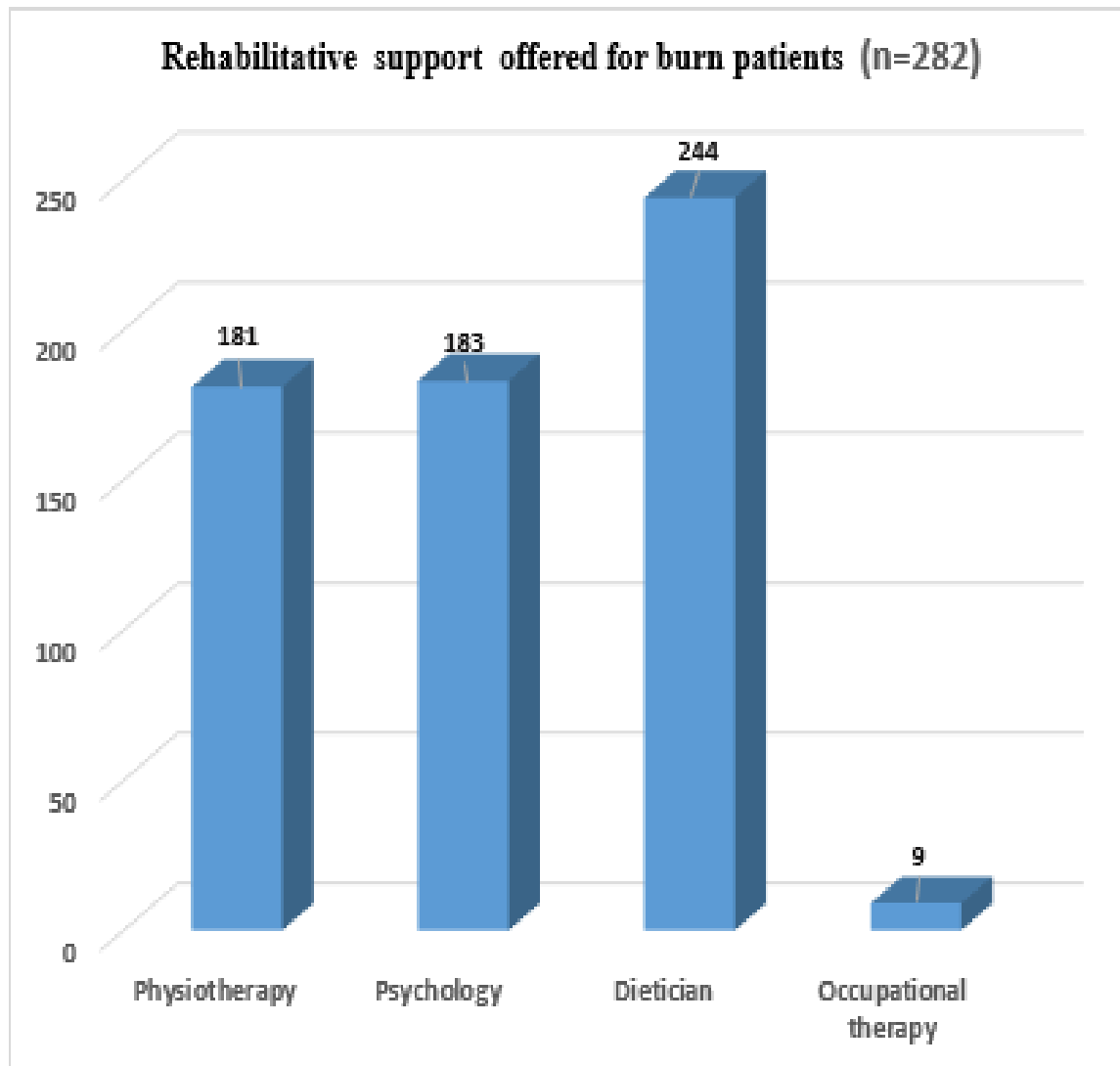


Figure 3.3: Rehabilitation service (n: 282)

According to (Figure 3.4 Page, below), 16 children died following burn injury, 9 had amputations, and 106 suffered contractures. Despite its tiny size, this statistic has clinical relevance. As literature indicates children with burn injuries suffer from isolation, disfigurement and pain which lead to poor academic performance and socio-economic constraints on a family budget.

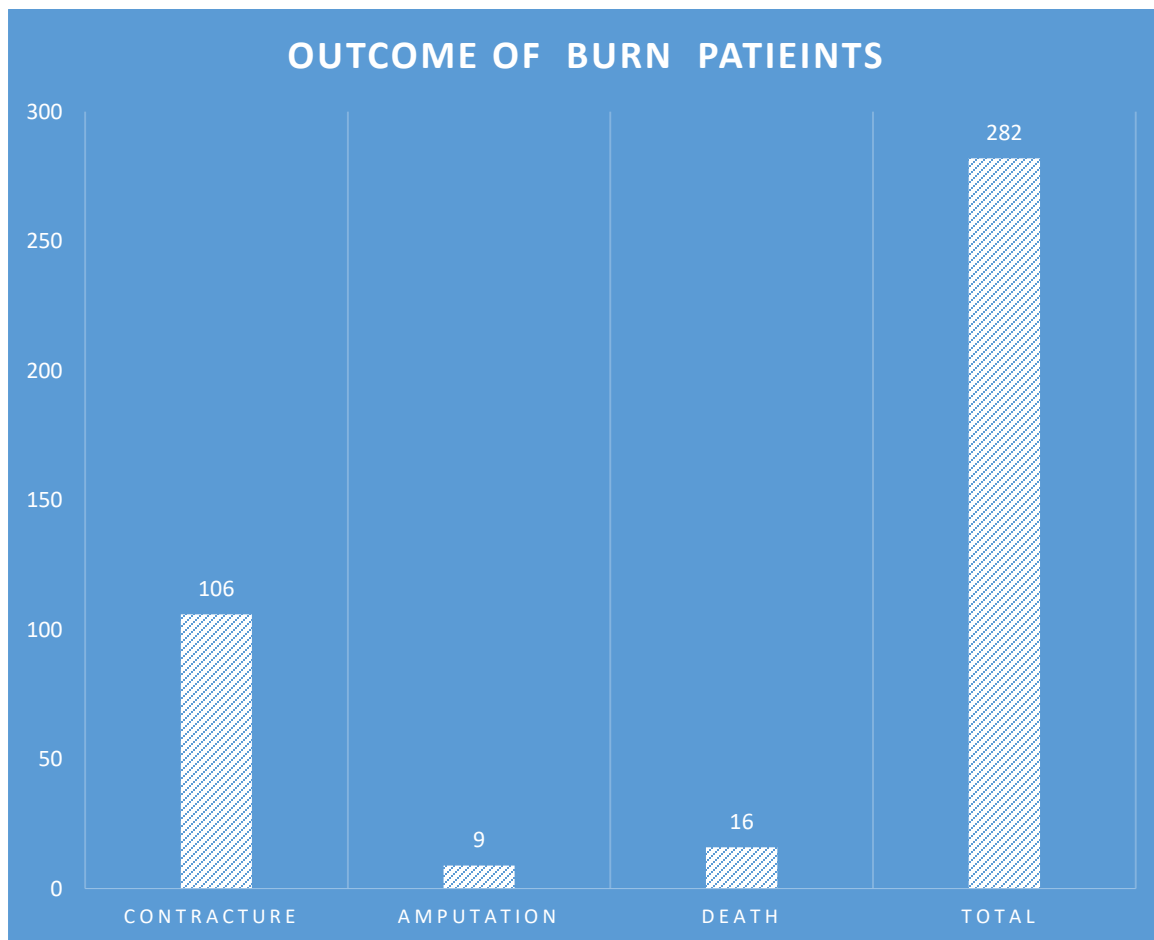


Figure 3.4: The outcome of burn injury.

3.1.4.4 Discussion on Rehabilitation services offered at the hospital

Out of the children in this study, only 181 (64.2%) received physiotherapy services, while 101 (35.6%) did not. Additionally, the number of therapy sessions varies from every day to once per week. A dietitian saw 174 (61.7%) children daily, whereas a social worker saw 85 (30.1%) children daily. Only 9 (3.1%) children were treated with occupational therapy (Figure 3.3 Page 75). Therapeutic exercises can be described as bodily movements prescribed to correct impairment, improve musculoskeletal function, or maintain a state of well-being (Carolyn, 1995), Anon, 2023). They are described as a variety of exercises that put an emphasis on preserving and regaining flexibility, stability, strength, and balance. Restoring the wounded patient to a completely functional, pain-free state is the primary objective of therapeutic activities (Fonia, 2010, Anon, 2023), From the perspective of physical therapy, joint mobilization, strengthening, endurance, flexibility, balance, and coordination exercises were the rehabilitation activities documented in the patient record at the hospitals. However, the record shows that patients were not followed up regularly for exercise after burn injuries. The children with burn injuries who exercised benefited from better cardiovascular health, better bone weight maintenance, more self-confidence, and enhanced social skills. Musculoskeletal mobilization decreases joint space and ligament shortening and inversely increases the range of motion and flexibility of muscular tissues; this reduces subcutaneous tissue oedema and increases patient range of motion and participation in activities (Rice, et al., 2021).

3.1.5 Discussion

It was hard to obtain the records of every patient admitted due to inadequate record management at one of the hospitals and this needs remedying. Burn are a global health concern, burn injuries represent a significant threat to our health and our economy. They present a challenge for medical professionals as well as a significant cause of stress for the victims and their families (Nduaguban, et al., 2022). Burn injuries are among the most prevalent health conditions worldwide especially children, military, and victims of fire accidents (Mamo, et al.,2023).

The results of the study will be discussed in correspondence with the aim and objectives of the research. The study's aim was to assess the patterns, circumstances, and characteristics of burn injuries sustained by children who were admitted to the three clinical sites. The sample sociodemographic data revealed that 146 female children and 136 male children sustained burn injuries. One possible reason for female children's dominance in this study could be that in Ethiopian culture, females are more attached to kitchen activities, and they are prone to burn injuries, mostly in the pre- and post-adolescent age group. For infant and kindergarten children with burn injuries, the main reason could be the knowledge gap on prevention among the mothers or caregivers.

The striking finding was that one child sustained a chemical burn injury from the peripheral location of Addis Ababa, which is not a common finding for chemical burn injuries. The study found that burn injuries were mostly caused by scald and flame. Oduor, (2010) observed similar results in the Refit Valley Provincial Hospital in Kenya, where girls made up the majority of the victims. This is in contrast to the results of Halawa et al., (2015) in Egypt, who found that boys were more impacted than girls with burn injuries (57.2%) of them. The possible reason for this could be that, boys are more active and tendencies of exploring the surrounding environment. In

Addis Ababa study scald burns account for 141 (50%) of the total burn injuries. Similar findings to this study were found in a South African study by Wesson et al., (2013), which indicated that scald burn was the primary contributing cause for burn injuries among children aged 0 to 18. Another study carried out at the AaBET Hospital in Addis Ababa by Mamo et al., in (2023) revealed that burns on children were primarily caused by scalds. One of the contributing factors for scald injuries among young children could be a knowledge gap in the dangers of burn injuries and an awareness of the impact of burn injuries. Young mothers have no experience taking care of the young ones at home and lack knowledge of the risk of burn injury. The study conducted by Tusiime, et al. (2022) in Kampala, Uganda, highlighted that under five children from single mothers and teenage mothers, were more likely to get burn injuries such as scald or hot fluid burns in Uganda. The results of this study support those of Rediliner, et al., (2015), who found that scald was the most frequent cause of burns in children in Australia. This is not the case with the findings in Tanzania's Dar es Salaam. Open flames accounted for (36.9%) of burn injuries in Dar es Salaam, with hot liquids coming in second at (33.8%).

The contributing factors for this could be that cooking is done primarily on the floor, it is possible that young children in their toddler years (0-3), explore the environment and more likely to knock over pots and kettles as cooking was done mostly on the floor in Ethiopian context. Cooking methods that include charcoal, gas stoves, and open fires on the ground that are easily accessible by young children can result in moderate to severe burn injuries. This is the typical cooking practice in Ethiopian rural areas, where people cook on the ground. Only 6 (2.12%) inhalation injuries were found in this investigation. In study conducted by Ramakrishan et al., (2005) burns by inhalation were observed in 7 (77.8%) of the 0–18-year-old children in India.

These burns with smoke inhalation were uncommon and linked to severe flame burns. The factor that contributed to the increase in flame burn injuries in Addis Ababa among females compared to male children was associated with the cultural beliefs that females are not allowed to work on the farm in my home village in Ethiopia or outside the house and that they are responsible for taking care of children and cooking at kitchen. This was consistent with research conducted with findings from Felegehiwot hospital (2017) in Ethiopia whereby female were more affected with flame burn injuries as compared to the males. The assumption that more female affected than male children with flame burn injuries was based on the literature. Research done at Bahir-dar, Ethiopia by Mulatu et al., (2022) showed that 0.46% of paediatric female populations were more affected than males. In the age range of 0–4, scald burns accounted for (50.0%) of all burn injuries in Addis Ababa study. These results are consistent with those of Ramakrishan et al., (2005), who found that scald burns were the most common type of burn among the 0–4 age group in India.

In Ghana, children less than ten years accounted for 53.5% of all burn admissions. A similar trend has been reported elsewhere; in Turkey, children younger than five accounted for 44.6% of the burn admissions. It is clear from the above studies that children bear much of the burden of burn injury, not only in Addis Ababa but in other low- to middle-income countries. In this study, 14 (4.9%) children sustained burn injuries around the genitalia and perineum area. Burns surrounding the genitalia were a clinical concern for physiotherapists due to the increased risk of contractures forming. Over 50% of the children had upper limb injuries, which may result in restricted shoulder and elbow range of motion as well as potential contractures of the wrist and fingers. This finding concurs with the study conducted in Nairobi by Mutisa & Khainga, 2010 whereby the upper limbs were the commonest site with about 5% burn injuries among children 0-4 years old. The most prevalent total body surface area in the 0–4 age group was 0–15%. It was observed that females had

a greater impact than males. These results are in conjunction to the prospective study carried out at the AaBET Hospital in Addis Ababa by Mamo et al. in 2023. To reduce contractures and attain ideal hand function, close coordination with occupational therapists and a multidisciplinary team will be required.

3.1.6. Conclusion

A serious burn injury remains the most severe and devastating injury, despite the tremendous advancements in the medical field. Burn injuries are therefore a burden on both the individual and society. Children's burn injuries are becoming more widely acknowledged as a significant contributor to morbidity and mortality in developing nations. The literature that is currently available on burn injuries in children indicates that burn injuries primarily affect children under the age of five. The majority of burn injuries in youngsters were caused by flame and scald burns. The most common type of burn in this study was second degree burns. The relationship between facility and number of the admission date among the children was shown to be statistically significant (P-Value 0.001). Most children received physiotherapy and dietetic services at the hospital, whereas occupational therapy services were not easily available. This study did not capture burn patients who were not present at the hospital. In other words, children with burn injuries who were unable to go to the hospital for initial post burn physiotherapy assessment and treatment were excluded from the study. Hence the word not captured implies the above explanation. Environmental and health risk factors that may have contributed to burns, such as unsafe home conditions, co-morbidities such as epilepsy, leprosy, or insufficient child supervision, were also not explored. The contributing factor to the limited services of occupational therapists was the availability of training centres in the country. The service of Occupational therapists for burn rehabilitation is crucial. Occupational therapists provide pressure garments for burn wound

scar tissue reduction and assessment and provision of adaptive device for post burn adjustment of activity of daily living. However, the public and hospital staff members are not well-informed about the advantages of occupational therapy interventions for treating burn injuries. Burn injuries in children remain a serious challenge in the face of widespread lack of awareness regarding safe practices in handling hot and flammable items at home as well as ignorance regarding standard first aid measures (Nduaguban et al., 2022). As was suggested by scholars in the field of burn management, prevention is the key to reducing burn accidents and should be implemented at both the legislative and community levels. A constant education approach is most important for the sustainability of the burn prevention and its evaluation. The biomedical model of treatment should be replaced with holistic approaches that take into consideration the child, the family and the environment. As physiotherapists, our approach to the management of burn injuries would thus be holistic. Thus, community development in health is located in a theoretical framework in which people and their health are seen within the context of their social interaction with their environments. In order to treat burn injuries in children, it is critical to understand the nature of the causative agent as this may help the clinician assess the extent of the burn. The majority of burn epidemiological studies have been conducted in hospitals, excluding the large number of burn cases that never make it to a hospital. Therefore, no study to date has fully presented the true epidemiology of burn injuries, especially in developing nations like Ethiopia. The reviewed literature on burn injuries focused primarily on prospective and retrospective studies in children with burn injuries. Burns caused by electricity and chemicals are more complex and often do not resemble other types of burn injuries. Funding and time constraints did not allow for such extensive data collection, and it is acknowledged that the results may not be generalizable to all burn injuries in Addis Ababa.

3.1.7 Recommendation

Burn injury accidents were most likely to occur in the home, especially in the kitchen According to estimates from the World Health Organization (WHO,2021), 43,000 Africans lose their lives to burns annually, or 6.1 per 100,000. According to Albertyn et al. (2006), burn injuries are increasing in Africa. The authors identified poverty, illiteracy, and migration to urban slums and shanty towns and socio-economic status of the family as contributing factors for children burn injuries. Burn injuries occur in all societies and places. Burn injuries can be avoided, but because they happen by accident, they cannot be prevented. Therefore,

I recommend the following based on the study findings;

- To enhance the management of hospital records, namely at hospital A
- To support a focused for preventing burn injuries in Addis Ababa and the surrounding region.
- More community-based research is required to identify the risk variables.
- All Addis Ababa burn centres and regional health institutions should have allied health specialists with the necessary training, including physiotherapists, occupational therapists, dieticians, and clinical psychologists.

Chapter 4 Study 2

Chapter 4: Study 2: The psychosocial impact of burn injuries on children and their caregivers in Addis Ababa.

4.2.1 Introduction

The effect of a flame or hot liquid burn on a child can have profound psychological and emotional consequences for caregivers (Philip & Rumsey, 2006; Lerneval, et al., 2023). In addition to acute feelings of intense guilt, caregivers of children who have burn injuries frequently endure confusion regarding the course of therapy and the long-term implication of the condition (Partridge & Robinson., 1995; Van-Niekerk et al., 2020; Woolard, et al., 2023). This could include significant levels of anxiety and depression at both the inpatient and outpatient stages of their child's management plan (Phillips & Rumsey., 2008). Depression has been found in around 50% of parents of children with burn injuries (Kent, et al., 2000; El Hamaoui, et al., 2006; Vlastelica, 2014). The purpose of the study was therefore to assess what happened to the caregivers through the process of caring for their child with a burn injury at home. Literature suggests that no study was carried out to investigate the impact on caregivers during and after discharge from the hospital in Addis Ababa (Tibebu, et al., 2021). In this study, all those who are attending to or taking care of children who sustained burn injuries are considered as a caregiver.

4.2.2 The aim of study 2

The purpose of the study was to investigate the physical and psychological impact of burn injuries among the children and caregivers in Addis Ababa.

4.2.3 The objective of the study.

To explore the psychological impact of burns injury among the caregivers and children.

4.2.4 Methodology.

Figure below outlines the Methodological flow chart explaining the sections of this chapter.

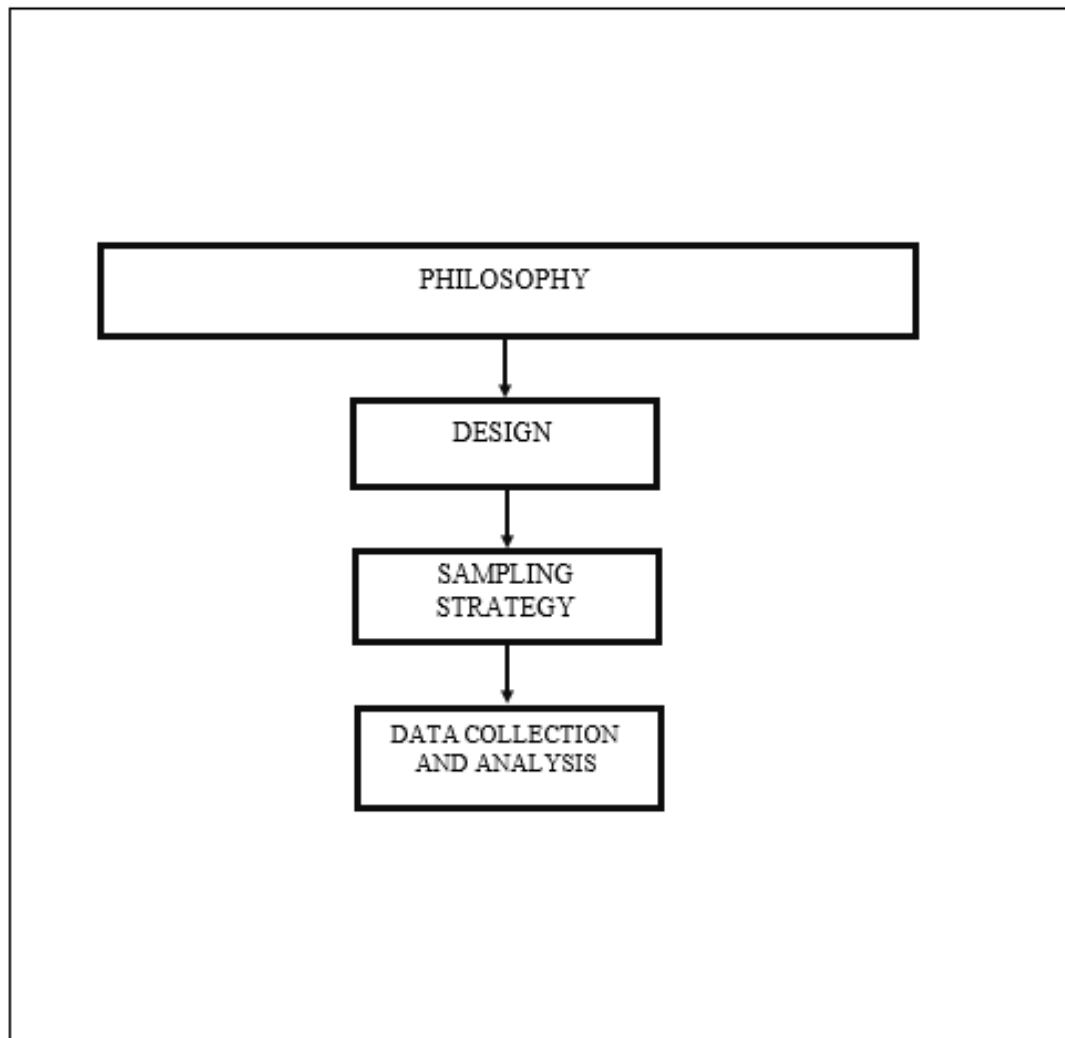


Figure: 4.1. Methodological flow chart.

4.2.4.1 Philosophical assumption.

In this study the philosophical assumption was ontological. Philosophy means the use of abstract ideas and their beliefs (Lincoln & Guba., 1988, Creswell, et al.,2013). Ontology relates to the nature of reality, being and its characteristics (Creswell, et al.,2013). The study's focus was thus to understand the feelings, emotions, perceptions, and experiences of post burn injuries among caregivers and children.

4.2.4.2 Source of population.

The source of the study population for this objectives was children less than 18 years of age and caregivers who visited the inpatient and outpatient departments of the hospitals for medical care during the data collection period.

4.2.4.3 Study population.

The population for this study was current caregivers for children less than 4 years, children 5 to 9 years of age and adolescent children above 9 years of age who sustained burn injuries and were treated at the hospitals for burn injury during the data collection period.

4.2.4.4 Study setting.

The study was conducted at Hospital (A), Hospital (B) and Hospital (C), in Addis Ababa.

4.2.4.5 Study design.

The research used a qualitative, explorative methodology. In order to gather pertinent data, interviews were conducted. Perceptions and experiences were intended to be studied since this technique was thought to best address the study's research topic. The design allows a phenomenon

to be studied and described, whereas valuable reflections of the individuals can be presented (Polit & Beck., 2008, Creswell, et al.,2013).

4.2.4.6 Study sample.

The caregivers were purposefully sampled as follows: caregivers and proxy caregivers for children less than 5 years old; caregivers of children 5–9 years old; and caregivers of children 10–18 years old. Children 5 to 18 years of age were recruited for one-on-one interviews. The children were purposefully sampled as follows: 5–9 years old and 10–18 years old. The selection of the participants was conducted through purposefully sampling methods. Purposeful sampling, also known as purposive sampling, is a non-probability sampling technique in which a researcher specifically chooses participants based on particular traits, expertise, experiences, or other factors that are pertinent to the goals of the study (Creswell, et al., 2013). The sample size was dependent on when the information collected from study participants during the interviews became saturated. In this study, data saturation occurred when 12 caregivers were interviewed. The recruited participants were enrolled in one interview session only.

4.2.4.7 Instrument.

An interview guide was used when interviewing the caregivers and their respective children. The interview guides are available in the appendices (Appendix 4.1, 4.7 Pages, 246 and Page, 255). The purpose of the respective interview guides was to provide a framework for a moderator to ask and probe questions. Using an interview guide increases the comprehensiveness of data collection (Morgan, 1996; Anderson, et al., 1996; Wong, 2008; Creswell, et al., 2013).

4.2.4.8 Procedure.

There was an interview with current caregivers and one-on-one interviews with children 5–18 years old. A comfortable and conducive venue for the interview was identified within the hospital environment in collaboration with hospital management. Interviews were conducted by the researcher and a research assistant with children 5–18 years old, their current caregivers, and the proxy caregivers who were accompanying the young children during one-on-one interview time. The main reason for the caregivers joining the young children during the one-on-one interview session was the requirement by the hospital to accompany underage children to encourage the children to participate and to reduce anxiety and fear. The caregivers interpreted some unclear information from very young children (0–4) for the investigator. The information sheet about the study was given to the participants by the researcher or research assistant (Appendix 4.2, Page, 244; Appendix 4.3, Page, 248). The venue and time for the interviews depended on the participant's agreement based on the location of the hospital. The interview was conducted in the Amharic language. The interview took between 30 and 45 minutes with the interviewee (Wong, 2008). One-on-one interviews with the children took 20–25 minutes, although it depended on the child's attention span and how much they had to say. The additional information was gathered through field notes, whereby the words and mannerisms of the participants were captured, and interviews were conducted until data saturation occurred. There was no incidence of stress or anxiety related to the interview among the caregivers and children. Informed consent for caregivers and informed assent for children were obtained prior to the interviews (Appendix 4.4, Page, 249; Appendix 4.5, Page, 250).

4.2.4.9 Inclusion and exclusion criteria.

The primary caregivers were interviewed if the following inclusion criteria were met: (1), age 18 years or older; (2), parent or primary caregiver to a child or adolescent 0–18 years of age who experienced a thermal burn injury within 12 weeks, which means the study will cover all children who have been involved in burn injury accidents within the last 12 weeks and who were admitted or had a follow-up appointment with the surgical team. Children were excluded if family members were unable to give informed consent. One-on-one interviews with children were conducted if the children met the following criteria: (1), age 5–18 years; (2), they had a thermal burn injury in the past 12 weeks.

4.2.4.10 Ethical considerations.

The British Psychological Society emphasizes that children develop differently from adults in terms of their abilities, comprehension, and emotional states. Furthermore, they acknowledge that although children are distinctive individuals, they are still members of families that participate in their care and decision making. In order to make sure that children are not exposed to risk during study, collaboration between parents and researchers is crucial. These pertain to several ethical issues, including the right to withdraw, informed consent, and secrecy and anonymity (Anon, 2021). This thesis adheres to the British Psychological Society (BPS) code of ethics to which all researchers working in the field of human health are expected to adhere, which is based on four main principles: respect for the autonomy, privacy and dignity of individuals and communities; scientific integrity; social responsibility; maximizing benefit and minimizing harm (Fernandez.,2008, Anon.,2021). Children, as a population, have traditionally been underserved in

research for a variety of reasons, including a protectionist attitude of some individuals, difficulties in recruiting adequate numbers for rare diseases (Fernandez, 2008).

4.2.4.11 Method of Data analysis.

Qualitative content analysis focuses on the interpretations of texts and is commonly used in behavioural science as well as caring sciences (Thyme, et al.,2013). The Data was analysed using content analysis. Content analysis uses a descriptive approach in both coding of the data and its interpretation of qualitative counts of the data (Morgan,1993, Creswell., 2013). The method was applicable in various kinds of texts and interpretations can be done at different levels, which makes it suitable to use it to study and interpret text from voice-recorded or tape- recorded interviews. A content analysis as described by Thyme, et al. (2013) and Creswell., (2013) was therefore used in this study for data analysis. During the interviews, both the researcher and research assistant were present in order to make the interpretation of the non-verbal language easier, like facial expressions and body language. Each interview was voice- recorded and thereafter transcribed word for word by the researcher.

Thereafter the researcher and the research assistant, together, read all of the data and identified parts of the text that were useful and responded to the aim of this study. The meaning units were condensed into shorter meanings, and each of these were given a code. Thereafter these codes were abstracted, which means to raise the underlying message to a higher logical level by creating categories and sub-categories (Thyme, et al., 2013, (Cresswell.,2013 p 179-180) which also functioned as topics to present the result.

4.2.4.12 Trust worthiness.

The Lincoln and Guba (1990) criteria for qualitative research outlined that, Credibility, conformability, dependability, and transferability were used to assess the data's trustworthiness. The reliability or truth value of qualitative research and the openness of the study's methodology are essential to the validity and use of the conclusions (Connelly, 2016). Many qualitative researchers agree with the criteria stated by Lincoln and Guba (1985). The researcher built a strong relation with caregivers and children in order to increase credibility, and every participant engaged with the research setting and data analysis period for an extended length of time. When there was disagreement of opinion with a supervisor in Addis Ababa who was located locally, talks were held to come to a consensus. For the checking of results by the research team members, a summary of the interviews and results was presented online for research assistants, both voice recording and field note documentation. The conformability and dependability of the data were assessed through member checks by colleagues and participants. In addition, external checks were carried out by two nurses, two physiotherapists, and one doctor who had not participated in the study and confirmed the accuracy of the study.

4.2.5 Result of psychosocial impact analysis

4.2.5.1 Participants profile

In this study the participants were comprised of: (1) adult current caregivers of burn injury children, (2) children with burn injury aged 10-18 years old, (3) current children with burn injuries age 5-9 years' old who were admitted to the above-mentioned hospitals in Addis Ababa from 21st

August 2022 to 20th November 2022. The characteristics of the participants of the study and socio demographic data results were presented in tables for each group of the study below.

4.2.5.2 Characteristics of caregivers (n=12).

The table below explains the composition of the care givers who participated in the study and their statement.

Table 4.1: Composition of the participants (n=12) – Caregivers.

Participant #	Age	Sex	Marital status	Educational level	Residence	Facility
1	23	F	M	Primary	A.A	A
2	19	F	S	Primary	A.A	B
3	34	F	M	Secondary	A.A	C
4	21	F	M	Primary	A.A	A
5	37	F	M	Primary	A.A	C
6	34	F	M	Elementary	A.A	B
7	24	F	S	Primary	A.A	A
8	22	M	D	Secondary	A.A	C
9	26	F	M	Primary	A.A	B
10	26	F	M	None	A.A	B
11	25	M	M	Primary	A.A	A
12	26	F	SEP	Collage	A.A	C

Key: M= Married S= single D= Divorce Sep = Separated Aa= Addis Ababa F= Female, M= Male, Facility = Hospitals

Statement paragraph for each caregiver participants.

Table: 4.2 The table below explains the statement of each respondent (caregivers) who participated in the study.

Case # & Gender	Meaning unit	Condensed meaning	Code	Subcategory	Category
1(F)	"You know; my child was burned by flame while I was next to him. Surprisingly, I cannot believe what happened to him, and 'I feel bad.'"	Feeling bad , uncertain	Feeling guilty Family bondage Disbelieve	Inability to sleep, restlessness	Post burn depression syndrome
2(F)	It is not easy for me to forget in my life what happened to my child in my absence. Education on prevention is very important for mothers.	Not taking care for her child during the injury time , suggesting importance of education	Regret Left alone Bad memories education	Unhappy life Education to reduce burn	Feeling bad for the situation. Prevention
3(F)	"Uh "All my friends are no more visiting me because I am not visiting them, and I lost my Job because of my child burn injury.	Loss of jobs and friends	Loneliness and unsecure future Cause lack of income	Lack of Economic and social support Loneliness	Isolation
4(F)	.. since that night I always see flash in my dream, and it disturbed my sleep	Bad memories and stressful life	Restless Insomnia Healthy instability	Lack of sleep Nightmare	Depression and psychosis
5(F)	"Well' My child fell down and got burned while coming to great me...I feel very sad. I want them to dress the wound frequently	Blocking objects on the way while the child was playing ,delay on dressing wound	No playing place Small kitchen area Limited rooms	Raising awareness about the burn injury in the kitchen area	Education and motivational speech
6(F)	I am living in a small house, and I cannot afford to have a big house in	Those who are living in Addis Ababa like me not	One or two rooms	Socio economic status of the family	Importance of the family and standard of community accommodation

Case # & Gender	Meaning unit	Condensed meaning	Code	Subcategory	Category
	Addis Ababa. For those who are living like me, the chance is high that their children will suffer burn injuries.	afford a big house			
7(F)	I feel bad my child is not running after the burn injury, and I am worried about his future. educating the public is a good idea	Physical Impact of burn injuries	Contracture, Scar tissue Pain	In adequate Rehabilitation service	Importance of rehabilitation and prevention of Disability
8(M)	“Umms, ... I hate that evening when my child got burn injury, I took him to the clinic and they referred me to Yekatit hospital, without helping my child. Now my child is ok and my family is also visiting me. But always he cries because of pain	Lack of adequate health service in the local clinic or health post for burn injury	Few equipment and health staff. No adequate medication No medical staff to take care for burn injuries at clinic level	Inadequate services	Importance of well-established rehabilitation centre
9(F)	The hospital is doing well with my child treatment and they taught us about how we prevent burn injury every week, my child is at Abet hospital. I know Cheshire foundation who come to our village occasionally.	Satisfied with the service, education class at Abet Hospital Awareness of the community rehab	Received adequate care No training	Increased awareness on burn prevention Identification for training	More focused training manual needed, to maintain standard of rehabilitation of burn Empowering the caregiver through community mobilization and training.
10(F)	we were drinking coffee on the veranda and while my child was playing he fell down on the hot charcoal,	Very afraid and using liti traditional first aid mechanism as burn injury	Gap in first aid knowledge and prevention strategies	Need more scientifically approved prevention methods	Indication for First aid education and burn injury Prevention material

Case # & Gender	Meaning unit	Condensed meaning	Code	Subcategory	Category
	my husband applies Liti on him and we rushed to yekatit 12 Hospital and my child was admitted, I Still remember the way how we” shocked by that incident”, however, thanks God my child wound is healing gradually. But the changing of dressing is very long days.	first aid pre-hospitalisation More material needed at local clinic level	Delay in changing dressings on wound	Evidence based budgeting	Resource limitation
11(F)	“You know” Because of my child burn injury I am stigmatized by my friends and I am taking care of my child at home, and no one visiting me. My child is not walking and developed contracture on the knee. My contract was terminated following the burn injury of my child.	No more socialization and child developed contracture	Isolation Activity and participation limitation Job loss Financial constraints	Stress, depression Poverty Limited resource	Stress related illness Disability
12(F)	“you know” Since my child got a burn injury my husband left me alone. There is no counselling at the hospital, I missed social gathering, and I do not have sleep. “I am proposing to have social support group in the hospital for burn injury	Proposal for Community social support group establishment, financial burden, there was no psychosocial counselling service	Social support group, Poverty Lack of counselling	Isolation from community gathering Involvement of spiritual fathers for counselling’s	Establish community social support group on burn injury victims.

Case # & Gender	Meaning unit	Condensed meaning	Code	Subcategory	Category
	victims and caregivers”.				

4.2.5.3. Characteristics of Children’s and statements of 10-18 years old children (n=5).

The table 4.3 below explains the composition of the children aged 10-18 who participated in the study and their statement.

Table 4.3 composition of the children

Participant #	Age	Sex	Educational level	Residence	Facility	Cause of injury
1	12	M	Grade 6	A.A	A	Flame burn
2	14	F	Grade 7	A.A	C	Flame burn
3	13	M	Grade 5	A.A	B	Hot water burn
4	17	F	Grade 11	A.A	A	Flame burn
5	16	F	Grade 10	A.A	C	Scald burn

Statement paragraph

Below is the response to the interview. Each statement represents the participants’ view.

Table 4.4 Statement of the participants (children 10-18Yrs) (n=5)

Case # & Gender	Meaning unit	Condensed meaning	Code	Subcategory	Category
1(M)	...my close catch a fire and I got burn on my hand, shoulder and chest. I was brought up by my uncle, and I missed my exam. Oh, I have been almost two weeks at burn unit. I am not happy with my hand appearance ‘	Living with uncle, Worried about school Student Hand and shoulder burn Depression	Flame Chest, shoulder and hand burn Student Worried	Delay in schoolwork Lack of prevention knowledge Loss of independence	Activity limitation Knowledge gap Depression
2 (F)	Ok, I still remember what happened to me in that day.... I was playing with my brother and I fell on the hot water in our kitchen, and my brother called my mum and she took me to the clinic later I was transfer to a burn centre. because of changes in my appearance caused	In appropriate placing of hot liquid in a kitchen Lack of parental guidance Mother absent	Recalling the event. Above normal temperature of water Major burns	Kitchen wall Financial burden	Education Psychosocial support need

	by burn, I am uncomfortable in the presence of my friends.		Poor protection		Isolation
3(M)	Burn is very bad, since I got burned I am not going to school because of pain in my leg and the students do not like playing with me. I always staying at home and watching television with my cousin it is very boring	Understanding the impact of burn. Limited activity Participation limited.	Boring life Health risk life Un happy life	Lack of interest Activity limitation and participating limitation	Depression Disability
4(F)	Since the date of my injury, I do not have enough sleep, the wound is itching, pain full and irritating me. My mum is always giving me a pain killer and a massage on my leg. I worry about what others say about my body. with looking at her scars, because it	Lack of enough sleep due to Itching and pain and forced to Taking pain killer	Anxiety Irritability Caregiver Dependence on drug Restless	Insomnia Drug abuse	Drug addict Activity and participation limitation

	reminded her of everything that had happened.				
5(F)	My injury caused me not to stand on my feet and I always supported to stand and walk. I have been attending a physiotherapy since the accident. My family are always with me and visit me at the hospital every day. The hospital staff were good and supporting me with counselling's and giving a lecture on burn prevention which is I am interested to know more	Activity limitation and Participation limitation which lead to depend on someone. On rehabilitation and receiving good support from the health workers On rehabilitation Health worker support	Limited activity Positive for life Rehabilitation	Motivation to improve Psychosocial support	Self esteem Confidence to overcome the situation

4.2.5.4 Characteristics of children of 5-9 years old children (n=5).

The table below explains the composition of the children aged 5-9 years who participated in the study. Table 4.5 below

Table: 4.5 Composition of children 5-9 age (n=5)

Participant #	Age	Sex	Educational level	Residence	Facility	Cause of injury
1	5	M	K/garden	A.A	A	Scald burn
2	7	F	Grade 1	A.A	C	Scald burn
3	9	M	Grade 3	A.A	B	Flame burn
4	6	F	Grade 1	A.A	A	Candle burn
5	8	M	Grade 2	A.A	A	Scald burn

Below statement table for children 5-9 years (n=5).

(All names are pseudonyms)

Table 4.6 statement of the children (n=5)

Case # & Gender	Meaning unit	Condensed meaning	Code	Subcategory	Category
1(M)	I am afraid tea and porridge because last time I got a burn injury on my hand and leg children laughing at me at school	Flame burn My upper body was affected. Children laughing	Flame Stigma Upper limbs , burns	Isolation Poor protection	Fear Stigmatization
2 (F)	Yes, I am seven years old. My name is Ababa. My mum, carried me to a hospital on that day and they covered my wound with closeness at the hospital. I cannot walk now. I was playing with my sister	Covered with close the wound first aid application And able to walk and run.	Wound management Limited movement Contracture, limited range of motion	Activity limitation and participation limitation	Activity limitation Management of wounds Participation limitation Contracture
3(M)	My name is Taye. After the burn injury, I do not get enough sleep at night, I am afraid to sleep alone and I sleep with my younger brother, I have pain in my neck. I was playing with my brother when I got a burn injury	And able to sleep Pain on the neck. Family bondage and activity	Restless Family support Pain		Insomnia Self-perception
4 (F)	Ok, my name is Fikrete, and I am six-year-old. I am afraid to touch the fire or hot water. I was playing with my brother at home. I like playing and dancing at the school	Afraid of a fireplace. socializing with family and friend's classmate Like dancing	Fear Family involvement Dancing	Good support	Fear of hot objects and fire Anxiety
5(M)	My name is Abush, and I am 8 years old. I was	Stove on the floor	Stove, floor Nightmare	Floor cooking	Nightmares

Case # & Gender	Meaning unit	Condensed meaning	Code	Subcategory	Category
	running to the house and kicked the stove. Since then I have had nightmares and I do not have a good sleep at night I can't run. I like my school because we play together football. At home I want to watch animal movies.	Nightmare Socializing playing Animal movies Not run	Watching movies Animal No good sleep Contracture	Interested on nature	Insomnia Contracture

4.2 6 Result of the sociodemographic characteristics of the participants.

4.2.6.1 Socio demographics Characteristics data of the participants (caregivers).

A total of 12 participants (83.3 %) were females and the remaining were males. Seventy-five percent (n=9) of the caregivers were below 27 years old. Sixty-six percent were married. The majority of participants (n=7, 53, 3%) completed primary education (Table 4.7).

Table 4.7: Socio -demographic characteristics of caregivers (n: 12).

	Demographic characteristics	(n:12)	(%)
Gender	Male	2	(16.7%)
	Female	10	(83.3%)
Age	Below 27 years	9	(75%)
	Above 28 years	3	(25%)
Education	None	1	(8.3%)
	Elementary	1	(8.3%)
	Primarily	7	(53.3%)
	Secondary	2	(16.7%)
	Tertiary	1	(8.3%)
Marital status	Married	8	(66.7%)
	Single	2	(16.7%)
	Divorce	1	(8.3%)
	Separated	1	(8.3%)
Facility	A	4	(33.3%)
	B	4	(33.3%)
	C	4	(33.3%)

4.2.6.2 Socio- demographic characteristics of children 10-18 years.

The majority of the children 3 (60%) were below 15 years old and 2 (40%) above 16 years old (40%) of the children were at primary and secondary school respectively. Female children (60%) show dominance above the male children (40%) (Table: 4.5).

Table 4.8 socio demographic data of children 10-18 years (n=5).

	Demographic characteristics	(n :5)	(%)
Gender	Male	2	(40%)
	Female	3	(60%)
Age	Below 15years	3	(60%)
	Above 16 years	2	(40%)
Education	Primary	2	(40%)
	Junior Secondary	1	(20%)
	High school	2	(40 %)

4.2 6.3 Socio demographic data of children 5-9 years (n=5).

In relation to the gender a majority of the children were male n=3 (60%). Most of the participants were above 7 years old n=3 (60%). As for the educational level, according to Table 4.6, forty percent were in grade 2, and twenty percent were in grades 1 and 3.

Table 4.9 socio-demographic data of children 5-9 (n=5).

	Demographic characteristics	n	5	(%)
Gender	Male	3		(60%)
	Female	2		(40%)
Age	Below 7years	3		(60%)
	Above 8 years	2		(40%)
Education	Kindergarten	1		(20%)
	Grade 1	2		(40%)
	Grade 2	1		(20%)
	Grade 3	1		(20%)

4.2.6.4 Overview of the qualitative result.

The chosen design of this study was qualitative and explorative in order to present valuable reflections of each individual (Polit & Beck., 2008). During the analysis process, two comprehensive categories summarizing the psychological reflections of caregivers and children post-burn injuries were identified. Namely, psychological problems and disability; in addition, seven subcategories emerged that were perceived as challenges to the management of psychological impact among the caregivers and children in Addis Ababa. In Ethiopia, children with burn injuries had no post-discharge community follow-ups (Gebreabe, et al., 2019; Teshale, et al., 2021). Due to these challenges, it has a negative impact on the psychological health of burn injury survivors and caregivers. The results are explained in the following sections using the direct quotations and responses of the participants. In this thesis, the interpretation of the results was from the point of view of a physiotherapeutic approach rather than a purely medical approach.

Table 4. 10 Overviews of the result.

Category	Subcategory
Psychological problems	Lack of counselling facility
	Guilty feeling
	Depression ,fear anxiety
Disability	Activity limitation
	Participation limitation

4.2.6.5 Psychological problems

A burn injury event and subsequent hospitalization are potentially distressing for children, to explain the child's experience of a paediatric burn injury (Egbert, et al., 2020). The burn injury affects both the caregivers and children's psychological wellbeing (Wiechman and Patterson, 2004; Abachi, et al., 2017). This was revealed by the data analysis that most of the children 0–7 years old and the caregivers had difficulty sleeping, loneliness, nightmare, and fear of the hot liquid compared to the children between 10 and 18 years old. The caregiver often felt that they had lost all their friends because of their child's burn injuries, and the caregiver had no one to speak to in the event of an emergency. Table 4.1: caregivers (#3 and #12).

.. “Since that night I always see flash in my dream, and it disturbed my sleep “(caregiver #3(F)).

“You know” Since my child got a burn injury my husband left me alone and my mother is the one supporting me and my child. I missed social gathering, and I do not have sleep. “I am proposing to have social support group in the hospital for burn injury victims and caregivers”.
(Caregiver#12, (F), # 1(F), #2(F), #3(F)).

4.2.6.6 There was no counselling facility at the hospital.

The frequent response re-occurring on the analysis was the issue of no counsellor at the hospital for burn victims.

“A mother with 7 years old boy who sustained right leg noted, that psychological trauma is not easy to get rid of it, without proper intervention and support from the health professionals, but as I have been observing in this hospital no one approached and offered counselling for my child and myself. No proper children playing ground “. (Caregiver F # 12)

According to the opinion of other participants I am stressed when I see my child condition there is no one is offering a counselling to my child as the result I always feel going to my pastor to pray. There was a shortage of social workers and clinical psychologists at the facility. (Caregiver F # 7)

4.2.6.7 Guilty feeling.

Two of the participants of caregivers reported that since the burn injury to their children they experience the feeling of guilt and difficulty in sleeping. *“Since that night I always see flash in my dream and it disturbed my sleep “Female F # 4, “Well’. My child fell down and got burned while coming to greet me...I feel very sad. After posing she continue “Gebrel lijjen adanew lersu misgana yigbaw” this was the Amharic word which translated into “the Angel Gabriel saved my child and glory to him” (Female # 5).*

4.2.6.8 Depression.

The literature shows that post burn depression is a common manifestation on a patient admitted for long time in the hospital (Egberts, et al.,2020, Van-Niekerk et al.,2020).

“Ok, I still remember what happened to me in that day. I was playing with my brother, and I fell on the hot water in our kitchen, and my brother called my mum, and she took me to the clinic later I was transferred to a burn centre. because of changes in my appearance caused by burn, I am uncomfortable in the presence of my friends, and I am unhappy.” (Child F # 2)

4.2.6.9 Disability.

Due to the impact of burn injuries, the daily activities of the children and caregivers were affected. Disability was one of the manifestations among the children and the caregivers (Woolard, et al., 2023) Burn survivors often complained of difficulties when performing activities and experienced participation limitations of post-burn (Van-Niekerk, et al., 2020; Lerneval, et al., 2023). The study participants reported that pain and limitation of the range of motion in the joint were significant problems at the post-burn stage among the children. The following two quotations outline the significant activity limitations experienced by children.

“My name is Abush and I am 8 years old. I was running at the house and kicked the stove. Since then I have had nightmares and I do not have a good sleep at night I can’t run. I like my school because we play together football. At home I want to watch animal movies. (child # 5(m)

“My mum is always giving me a pain killer and a massage on my leg. I worry about what others say about my body. with looking at her scars, because it reminded her of everything that had happened.”. (child # 4(F)

4.2.6.10 Activity Limitation.

Activity limitation is defined as difficulties an individual may have in executing activities or a task on that particular time (WHO, 2001). The execution of an activity or task can be explained further by analysing the general aspects of carrying out single or multiple activities. This quantifies the level of activity completed by individuals and the quality of their lives. This study looks at the interplay of mental and physical components in performing activities following burn injuries.

“My close catch a fire and I got burn on my hand, shoulder and chest. I was brought up by my uncle, and I missed my exam. Oh, I have been at burn unit almost two weeks. I am not happy with my hand appearance” (child #1)

Because of my child burn injury, I am stigmatized by my friends, and I am taking care of my child at home, and no one visits me. My child is not walking and developed contracture on the knee. My contract was terminated following the burn injury of my child” Caregiver # 11

4.2.6.11. Participation limitation.

According to WHO, 2001, definition Participation limitations are problems an individual may experience in involvement in the daily activities of a living situation. Literature suggests that most children develop post-burn contracture, adhesion, and hypertrophic tissues that prevent activity participation such as walking running, hearing, dancing during social gatherings, weeding, or worship time (Braddock and parish, 2000; WHO, 2001) One of the participants stated that,

,

“My injury caused me not to stand and walk on my feet and I always supported to stand and walk. I have been attending a physiotherapy since the accident. My family are always with me and visit me at the hospital every day. The hospital staff were good and supporting me with counselling’s and giving a lecture on burn prevention which is I am interested to know more” (child #3)

4.2.6.12. Rehabilitation.

Limitation of movement and scars were two of the issues raised as complaints among the children and the caregivers. Some of the caregivers and the children were not aware of the rehabilitation process for burn injuries or where to find the public burn injury rehabilitation facilities in Addis Ababa. Burn survivors often complained of difficulties with the activity and participation limitations of post-burn. The short version of the International Classification of Functioning, Disability, and Health (WHO, 2001) defines body functions as the physiological function of the body system, including psychological function. The study analysis shows that pain, stress, and limitation of the joint range of motion were significant problems at the post burn stage among the children. The following quotation explains a significant scar issue for a child.

“Looking at my scars, because it reminded me of everything that had happened.” (Child # 4)

Continued rehabilitation and counselling will be very important for recovery to take place.

4.2.7 Discussion.

This thesis looked at how burn injuries affected children's and caregivers' psychosocial well-being. In order to get insightful insights from each participant, a qualitative and exploratory approach was selected for this study (Polit & Beck, 2008). This approach helped to achieve the study's goal. According to caregivers, joining a social support group is probably a good way to enhance care after a burn injury. It is generally acknowledged that group psychological counselling and peer support are important for burn victims, and that they can help them become more confident and integrate into society (Vlastelica, 2014; Dang, et al., 2014). In HICs, social and peer support is essential to burn survivors' recovery; but, in LMICs, these groups are essentially non-existent (WHO., 2008). Two accounts of burn injury psychosocial support groups in South Africa have been found in the literature (Wiechman and Patterson, 2004; Barnett et al., 2017); the other one is from Malawi. Support groups have an immense opportunity to increase the psychological health of not only the patients, but also their caregivers.

As seen in the results of this study, caregivers have a significant responsibility in caring for a survivor, which is heightened when they are additionally caring for more than one child at home. In this under-resourced setting, like Ethiopia, such as supporting the child and the caregivers might be a vital tool to minimize stigma and promote burn injury prevention awareness in the community. Thus, it reduces barriers to burn patients' reintegration into society (Vlastelica., 2014, Gebreabe, et al., 2019).

Rehabilitation and aftercare are vital aspects of burn care (Serghiou, et al.,2017). However, the participants in this study highlighted an inability to return for aftercare, whether due to monetary difficulties or a knowledge gap on importance of continuous rehabilitation and psychosocial support. One study conducted in a South African hospital found that one-third of the patients never returned for follow up care. The qualitative study conducted by Renecken et al., 2021 in Kwazulu Natal Hospital in South Africa highlighted the difficulties that the survivors of burn injuries face in returning to the facilities for continuation of treatment after initial care at the hospital. On a literature search, no study was found regarding burn survival follow-up care in Ethiopia (Gebreab, et al., 2019, Tibebu, et al., 2021). Support may have a role in filling these gaps. To assist with adherence to continuation of rehabilitation after initial care at the hospital, a transportation could be initiated to aid families in need. In previous studies, HIC's have employed different transportation strategies, including travel reimbursement, offering a shuttle service, and providing taxi passes, to assist in aftercare for chronic diseases (Knudson, et al.,1988). Rehabilitation care needs to be readily accessible for burn injury survivors to improve their outcomes and quality of life. This study found that access to physiotherapy and occupational services was not available for the majority of patients, as it required the clients to pay for the services at the hospital. According to the research, most burn injury victims come from low socioeconomic backgrounds (Park et al., 2009., Tibebu., 2021). This may be one of the reasons why many Ethiopian caregivers and burn injury survivors choose not to attend follow-up clinics or rehabilitation services because of financial limitations. The notions of follow-up and after-care are interchangeable and rely on outside variables like financial resources and the severity of the damage.

4.2.7.1 Limitation of the study

The study had a number of significant limitations, the most of which were caused by the time and financial constraints of the researcher. Due to the fact that the sample was limited to people who could be reached and resided in Addis Ababa metropolitan area, it was small. Due to the exclusion of individuals who may have qualified as caregivers for burn victims based solely on where they lived, selection bias may have been introduced, favouring those in better socioeconomic situations. The limited travel budget of the researcher also resulted in excluding some potential participants. It is, therefore, possible that the most disadvantaged and those with even less access to rehabilitation services were excluded from the study. The ability of the study participants' children to think back on and explain their experiences varied. As a result, it's possible that the experiences of kids who are more adept at communicating with themselves will be more fully represented in their stories than those of kids who aren't. Another drawback of the chosen design was that it did not allow for the observation of the children's and the caregivers' post-burn reactions from the time of admission to the point of discharge, which would have yielded important data

4.2.7.2 Challenges in conducting psychosocial research in children.

The National Children's Bureau makes a number of general recommendations about suitable methodology for research with children (Shaw, Brady & Davey., 2011). For instance, researchers ought to make an effort to create a casual environment and let the child know that the voice recording isn't an exam. Additionally, there are particular concerns to take into account while doing qualitative or quantitative research on children. Shaw et al. (2011), for instance, recommend that kids under the age of twelve don't fill out self-report surveys unless there is adequate help available in case they have difficulties. The age distribution and unique circumstances of each participant

should be taken into account when selecting outcome measures that are appropriate for a given research issue. In this study, obtaining valid informed consent from the child's parents or guardian was a challenge. In addition, getting a responsible officer for research activities at the study site was a challenge. The other challenging issue was getting the participants on the time due to a traffic challenges in driving in Addis Ababa. Despite this, study was conducted with support from the caregivers. However, after extensive counselling, the parents showed willingness to sign consent for their children. and there were no trained caregivers in medical vocabulary to interpret the meaning of the word that the child was trying to express himself to the investigator. This was one of the challenges I experienced in this study. The challenges may vary depending on the type and extent of the study; the study site, age categories, and method used to collect the data from the children could be the challenges for investigators (Ngoran, et al.,2019).

4.2.7.3 Conclusion.

The study achieved its objectives. One of a family's most painful experiences can be burn injuries, which can lead to a variety of psychosocial issues (such as sadness, anxiety, social challenges, appearance-related concerns, and handicaps). As the first study on psychosocial impact of burns at three hospitals among children and caregivers of burn injury victims in Addis Ababa, this study identifies the gap in understanding the burden of caring for a child with a burn injury. Paediatric burn injuries in Ethiopia pose substantial medical, psychosocial, and economic challenges that require urgent and coordinated interventions. The research findings indicate that burns among children are prevalent and often occur due to unsafe household environments, lack of caregiver awareness, and inadequate access to emergency care. The psychosocial impact on both children and their caregivers is profound, affecting mental health, social reintegration, and overall quality of life. Additionally, economic burdens, including treatment costs and lost income for caregivers,

further complicate the long-term recovery process. The findings of study 2 suggests establishing a psychosocial support system in the facility for the children and caregivers. Strengthening the available rehabilitation facilities with skilled manpower such as allied professionals (occupational therapists, clinical psychologists, orthotics, and prosthetics), it is important to implement evidence-based budget allocation in relation to the rehabilitation of burn injury victims in Addis Ababa.

4.2.8 Recommendation.

Based on the findings of the study I recommend the following.

1. Expanding Rehabilitation and Psychosocial Support Services

- Increase access to physiotherapy, occupational therapy, and nutritional support for burn survivors to improve their long-term health outcomes.
- Develop hospital-based and community-based counselling services to address trauma and social reintegration challenges for burn victims.
- Establish school reintegration s, ensuring that children recovering from burns receive necessary accommodations and emotional support.
- Create caregiver support networks to provide emotional and financial assistance to families managing long-term burn care.

2. Strengthening Burn Prevention Initiatives

- Implement national public awareness campaigns to educate communities on household burn hazards and safety practices.

- Enforce stricter home safety regulations, including safer cooking practices, use of fire-resistant materials, and proper storage of inflammable liquids, cooking gas, candle and petrol at home.

Chapter 5: Study 3 First aid practice Knowledge among the caregivers of children with current burn injuries in Addis Ababa.

5.3.1. Introduction

In study 3, the first aid knowledge of caregivers in Addis Ababa is defined as what exactly the caregivers apply or a common practice for hot liquid and flame burn injuries as a first aid measure on the affected part of the skin when the burn injuries happen in the home environment. Literature indicates that in most countries, people are using various materials as first aid; for instance, in Saudi Arabia, people are applying eggs, toothpaste, and traditional herbs (Kattan et al., 2016). In the United Kingdom, toothpaste, in Nigeria, eggs; in Ethiopia, butter, litti, and traditional herbs (Gebreabe, et al.,2019, Gate, et al.,2022,). In Bangladesh, Banana leaves and toothpaste were common first aid materials (Kattan et al.,2016). Appropriate implementation of first aid following a scald or flame burn injury will minimize the level and depth of tissue damage (Kattan, et al., 2016, Potokar, 2016). The standard method of first aid for burn injuries is to apply normal drinking water for 20 minutes to the affected part of the body (Potokar, 2015, Kattan, et al.,2016, Anon,2023). In Ethiopia, there is a paucity of literature on community-level knowledge of pre-hospital burn management (Gete, et al.,2022). In addition, applying normal drinking cool water as a first aid measure reduces the costs associated with the complications of burns and tissue damage resulting from them; as a result, the need for surgical interventions to repair tissue damage is reduced (Farzan et al .,2023) Electrical and chemical burns are out of the scope of this study.

5.3.2 The aim of study 3

To assess the knowledge gap in practicing first aid knowledge on burn injury among the current burn injury children's caregivers.

5.3.3 Objective of the study

The main objective of the study was to assess the practicing knowledge of first aid among the current burn injury caregivers in Addis Ababa.

5.3.4 Methodology

Qualitative and Quantitative hospital based cross sectional study. This study aimed to examine the caregivers' first aid practice on current caregivers in Addis Ababa with burned children and related factors towards burn first aid. A "quantitative hospital-based cross-sectional study" is a research design where data is collected from a sample of caregivers within a hospital at a single point in time, using measurable variables to analyse relationships or prevalence of a specific health condition or factor, without manipulating the data (Farzan,etal.,2023). Open-ended questions are those that cannot be answered with a simple "yes" or "no." Instead, they require respondents to provide more detailed and thoughtful answers. As a result, both qualitative and quantitative data were used in this study. The researcher thinks that open-ended questions can inspire fresh ideas from the public, helping future policymakers make well-informed decisions about comprehensive burn management plans.

5.3.4.1 Study design

A multi-centre cross sectional survey was carried out. In this study caregivers were randomly grouped to their nearest health facility.

5.3.4.2 Source of study population

All caregivers who had a child with a burn injury and who received treatment at the hospitals.

5.3.4.3 Study population

Target population was those caregivers who witnessed a burn injury on children less than 18 years and received treatment for burn injuries in three selected hospitals in Addis Ababa.

5.3.4.4. Study setting

Hospital(A), Hospital(B) and Hospital (C) in Addis Ababa

5.3.4.5 Instrument

An interview guide and semi structured questionnaire adapted from Nega and Lindtjørn. (2002) and Teshale and Alemayeu (2017) and modified by the researcher was used. Two blinded research assistants were used to test the questionnaire, which was modified from the literature search, to see whether the questionnaire's phrasing was clear. The questionnaires were suitable for gathering data from caregivers. Although the questionnaire was translated into Ethiopian national language, hospital staff members who spoke the local language were chosen to assist with the translation. Ten study participants were then given the translated version in the burns outpatient department to see if there were any unclear words or sentences in the questionnaires. The burn unit nurse from hospital A and one physiotherapist from hospital B were invited to read the questionnaires in order to validate them. The particular change that was made was the definition for burn injury in Amharic. The questionnaire consists of sections that cover the demography and practice of first aid towards the burn's injury and open-ended questions. (Appendix, 5.1. Page, 257).

5.3.4.6 Sample size

In this study, a total of 94 caregivers were recruited using a single population proportion formula with the assumption that 6.4% ($p=0.064$) the prevalence of burn injuries was considered an appropriate number per hospital with a 95% Confidence interval and a 5% margin of error. $P=6.4\%$ prevalence of burn injury among children; Level of Confidence =95%; Margin of error (d) = 5%

$$n = \frac{(Z_{\alpha/2})^2 \times P(1-P)}{d^2}$$

$$d^2$$

n = minimum sample size required, p = prevalence of burn injury, d = margin of error and $Z_{\alpha/2}$ standard normal value at $(1-\alpha)$ 100% confidence level.

$$N = \frac{(1.96)^2 \times 0.064(1-0.064)}{(0.05)^2} = 94.$$

$$(0.0025)$$

5.3.4.7 Procedure.

In this study, the study population was stratified into three catchment areas, such as Yekatit 12 Hospital Catchment Area, Addis Ababa Burn Emergency and Trauma Hospital Catchment Area, and Myungsung Christian Medical Centre. The total number of caregivers was proportionately allocated according to the number of clients with burn injuries in each catchment area. All consecutive caregivers with current burn injury children who were treated for burn injuries at the three selected hospitals in Addis Ababa were recruited. All caregivers who had a follow up at the clinic were approached to participate in the study and requested to sign the informed consent (Appendix 4.4, Page, 249). An explanation of the project was given by a research assistant or researcher before administering the self-administered closed-ended and open-ended questionnaires to the caregivers in the health facility during the appointment date with doctors at the clinic before the dressing of the wound.

5.3.4.8 Ethical consideration

Three Ethiopian research sites gave permission, and the University of Witwatersrand provided ethics clearance (Appendix, .3.3,3.4,3.5,3.6, Page, 230,231,232, and 233). The research assistants obtained the informed consent of the caregivers before distributing the questionnaires. The researcher stored all the data in a safe box to be thrown away after three years.

5.3.4.9 Data analysis

A descriptive analysis was carried out to assess the current level of caregivers first aid implementation knowledge for children with scald and flame burn injuries. Data was encoded into Microsoft Excel worksheets and imported to the Statistical Package for the Social Sciences (SPSS, Version 28.0.1.0 (142) software for analysis. Open ended question was used in questionnaires. The purpose of the open-ended question was to entice responders to elaborate on their thoughts and feelings about burn injuries. Responses to open ended questions were categorized into themes/pattern.'. The analysis for open ended questions was carried out in three steps. 1. organizing the response ,2. identifying the common pattern and 3, interpreting and summarizing the findings. Descriptive data was expressed as frequencies and percentages. Cross-tabulations between variables were performed. The significance of correlations was tested using the chi-square test for categorical variables. *P* values <0.05 were considered statistically significant.

5.3.4.10 Inclusion criteria

All caregivers that attended the outpatient follow-up clinic for burn injuries.

5.3.4.11 Exclusion criteria

Caregivers who had a background in the health care profession. Section 5.3.5 provides the results of the study.

5.3.5 Result

5.3.5.1 Socio demographic characteristics of participants

The responsible family members, friends, coworkers, or guardians who spent the majority of the patient's stay with them and managed their care during the patient's hospital stay are referred to in this study as caregivers. A total of 94 caregivers were eligible for analysis in this study. 37 (39.4%) of the participants were from Hospital (C), and 29 (30.9%) were from Hospital (A). The remaining percentage was from Hospital B). Among the 94 caregivers, 65 (69.1%) were female, while 29 (30.9%) were male caregivers. 40 (46.8%) of the caregivers were in the age range of 31–40 years. Regarding the area of residents, 61 (64.9%) were from the urban area of Addis Ababa. Most participants had no formal schooling (36.2%).

Table 5.1: Socio-demographic characteristics of caregivers (n=94)

Category		Frequency	Percent
Hospital			
	Hospital (A)	29	30.90%
	Hospital (B)	28	29.80%
	Hospital (C)	37	39.40%
	Total	94	100%
Sex			
	Male	29	30.90%
	Female	65	69.10%
	Total	94	100%
Age group			
	16-20	10	10.60%
	21-30	27	28.70%
	31-40	44	46.80%
	41 and above	13	13.80%
	Total	94	100%
Location			
	Urban	61	64.90%
	Rural	33	35.10%
	Total	94	100%
Education			
	None	34	36.20%
	Primary	27	28.70%
	Secondary	18	19.10%
	Tertiary	15	16.00%
	Total	94	100%

5.3.5.2 Occupation

The majority of the caregivers were housewives 35 (37.2%) followed by businesspeople 24 (25.5%) (Figure: 5.1).

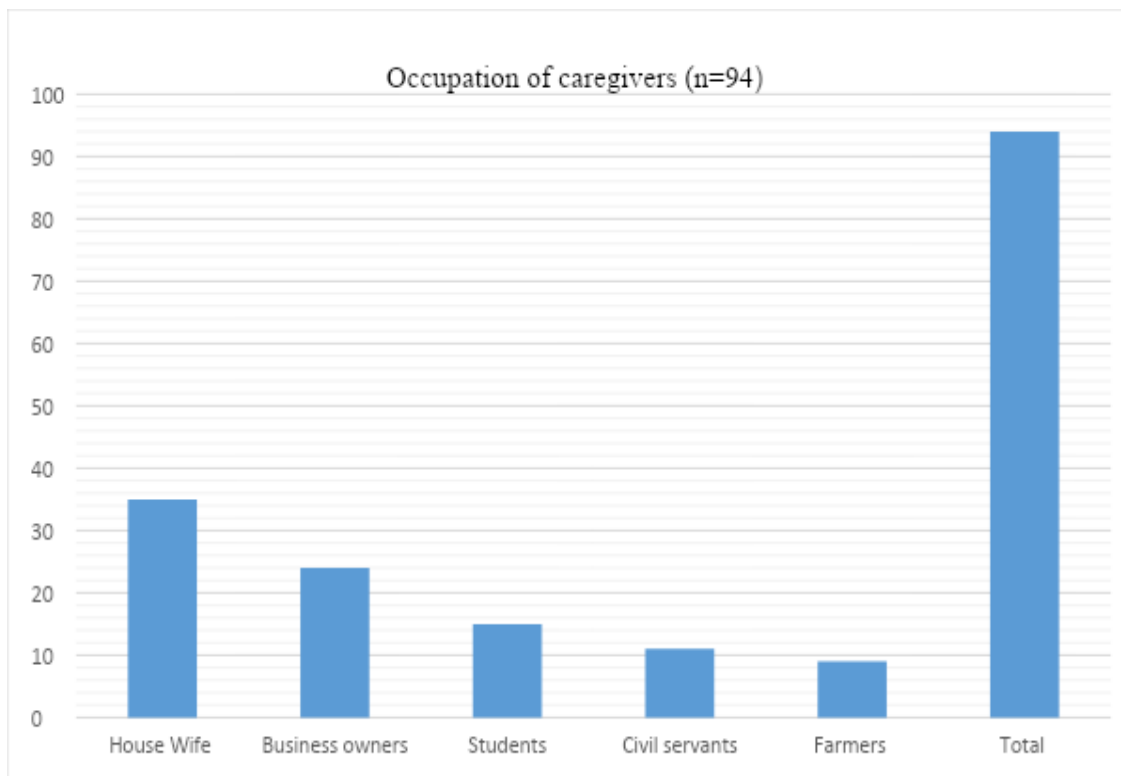


Figure 5.1: Occupations of caregivers (n=94).

5.3.5.3 Primary caregiver

Mothers were the primary caregivers for 61 (64.9%) of the 94 participants, with fathers accounting for 23 (24.5%). Other caregivers were siblings 6 (6.4%), aunts 3 (3.2%), and others (a social worker) 1 (1.1%).

Table 5.2 Primary caregivers (n=94)

Caregivers	Frequency	Percent
Mother	61	64.90%
Father	23	24.50%
Aunt	3	3.20%
Sibling	6	6.40%
Others (social worker)	1	1.10%
Total	94	100%

5.3.5.4 Material used as a First aid at home

Most of the caregivers 30 (31.9%) applied cool water, 29 (30.9%) Litti a (dough for bread), and honey. 7 (7.4%) applied for first aid at home, whereas 22 (23.3%) of the caregivers used animal manure, salt, sugar, milk, butter, and traditional herbs as first aid at home. 6 (6.4%) caregivers applied nothing at home. (See table 5.3 below.).

Table 5.3: First aid at home (n= 94)

First aid material	Frequency	Percent
Cool water	30	31.90%
Litti (dough of bread)	29	30.90%
Honey	7	7.40%
Sugar	7	7.40%
Milk and butter	6	6.40%
Animal manure	2	2.10%
None	6	6.40%
Salt	3	3.20%
Soil	2	2.10%
Traditional herbs	2	2.10%
Total	94	100%

Table 5.4 outlines how long cool tap water was applied to the child's burn injury. 15 (50%) of the caregivers applied water according to the standard practice, and 7 (23.3%) applied cool water below the standard time.

Table 5.4 How long cool tape water was applied.

Minutes	Frequency	Percent
0-10 Minutes	7	23.3%
11-20minutes	15	50.0%
21-30 minutes	4	13.3%
I do not know	4	13.3%
Total	30	100%

5.3.5.5 Do you know about the burn injury prevention in Addis?

Most of the participants, 85 (90.4%), were not aware of any in Addis; only 5 (5.3%) respondents were aware of the burn prevention in Addis. 4 (4.3%) responded unknown. Regarding the availability of the prevention in the catchment area, 23 (24.5%) participants responded yes, and 69 (73.4%) responded no. The remaining 2.1% was unknown. In relation to the source of information, the majority of the participants (12.8%) got information from their friends, and 6 (6.4%) got information through the radio (Table 5.5, below).

Table 5. 5 Awareness of availability of prevention in Addis Ababa (n=94)

		Frequency	Percentage
Do you know about the burn injury prevention in Addis?	Yes	5	5.3%
	No	85	90.4%
	I do not know	4	4.3%
Is there any prevention in your catchment area?	Yes	23	24.5%
	No	69	73.4%
	I do not know	2	2.1%
How did you know about the availability of prevention s in your area?	On television	1	1.1%
	Radio	6	6.4%
	Newspaper	1	1.1%
	Friends	12	12.8%
	Poster flyer	1	1.1%
	Others	76	75..5%

The following paragraph highlights the caregiver's response to the open-ended question (see tables 5.6, 5.7, 5.8,5.9).

5.3.5.6 How do you define a burn injury?

38 (40.4%) participants indicate that burn injury causes deformity, 30 (31.9%) responded as bad injury, and the remaining 26 (27.6%) responded as burn injury affects economy and painful injury, respectively. (Table 5.6 below)

Table 5.6 Response on basic understanding of burn injury(n=94)

		Frequency	Percent
How do you define a burn injury?	Painful injury	15	16.0%
	Very bad	30	31.9%
	Effects economy	11	11.7%
	Cause deformity	38	40.4%
Total		94	100.0

5.3 .5.7 What is a fire hazard in the house?

28 (29.8%) exposed electric wire, 25 (26.6%) leaking cooking gas, 21 (22.3%) open fire, 16 (17.0%) and 4 (4.3%) I do not know. sentence below explains the feedback of the respondents.

Table 5.7 open question on fire hazard knowledge awareness of caregivers

		Frequency	Percent
What is a fire hazard in the house?	Exposed electric wire	28	29.8%
	Open fire/flame	21	22.3%
	Leaking cooking gas	25	26.6%
	Open petrol or fuel	16	17.0%
	I do not know	4	4.3%

5.3.5.8 What were the causes of burn?

Majority 45 (47.9%) responded by saying hot liquid, whereas 17 (18.1%) responded with benzene or petroleum, 14 (14.9%) responded with charcoal, and 11 (11.7%) responded with a candle. The remaining 7 (7.5%) responses were cigars, and chemicals were the cause of burns.

Table 5.8 knowledge on the cause of burn.

		Frequency	Percent
What was the cause of burn	Candle	11	11.7 %
	Benzene or petrol	17	18.1%
	Charcoal	14	14.9%
	Hot liquid	45	47.9%
	Electricity	2	2.1%
	Cigar	3	3.2%
	Chemical/Acid	2	2.1%

5.3.5.9 What should be done to prevent burn injury?

Forty-four (46.8%) responses highlighted the importance of educating caregivers; 22 (23.4%) responded by protecting children from coming to the kitchen; 15 (16.0%) responded by keeping inflammable items in a safe place at home; and 10 (10.6%) respondents indicated that first aid training would be necessary to prevent burn injuries (see table 5.9 below).

Table 5.9 what should be done to prevent burn injury (n=94)

Question	Response	Frequency	Percent
What should be done to prevent burn injury?	Educating the community	44	46.8%
	Avoiding children not coming to the kitchen area	22	23.4%
	Keep safe place inflammable items	15	16.0%
	Use appropriate place for smoking	3	3.2%
	First aid training	10	10.6%

5.3.5.10 Chi-square test statistical analysis on the data

The investigator wants to know which catchment area caregivers used more cool tap water as first aid for their children than the other facilities, according to the standards. Therefore, cross-tabulation analysis was performed on some variables. The result shows that the majority of the caregivers (46.7%) from the Hospital (C) catchment area applied cool tap water according to the standards, which means a continuous flow of cool tap water for 20 minutes on the affected part of the skin. Chi-square test =1.255a, P-value =0.974, differences between facilities were, however, not statistically significant. However, clinically, the finding was important to estimate the number of caregivers who had basic knowledge of first aid applications in the catchment area of Addis Ababa. This finding will help as a base line of data during the planning of a burn injury prevention education for caregivers in Addis Ababa by health authorities.

Table; 5.10 Facility in relation to application of water on skin with burn injury (n=30)

		Facility and *water application by caregivers			
Minute of water application		A	C	B	Total
	1-10 minutes	2 (28.6%)	4(57.1%)	1(14.3%)	7(100%)
	11-20 minutes	5(33.3%)	7(46.7%)	3(20%)	15(100%)
	21-30 minutes	2(50%)	1 (25%)	1(25%)	4(100%)
	I do not know	1(25%)	2(50%)	1(25%)	4(100%)
					30(100%)

Further inferential test conducted revealed that the majority of the caregivers were female, 33 (50.8%), and in the age group of 31–40, 10 (19.2%) caregivers were below 21 years old, and only 8 (12.3%) were over 41 years old. The Chi-square test was 2.849, and the P-value was 0.416. This result rejects the null hypothesis and supports the alternative, indicating that the majority of caregivers were over the age of 31. In other words, children's burn injuries are not associated with the age of their caregivers and sex of caregivers. sentence below explains the feedback of the respondents.

Table: 5.11 Age group of caregivers in relation to sex (n=94)

Gender	Gender * age group					
		16-20 Age group	21-30 Age group	31-40Age group	41 and above	Total
	Male	2 (6.9%)	11 (37.9%)	11(37.9%)	5 (17.2%)	29 (100%)
	Female	8 (12.3%)	16 (24.6%)	33 (50.8%)	8 (12.3%)	65(100%)
						94 (100%)

The gender of caregivers and the age group were found to be significantly correlated ($r = 0.924$, P value $<.001$) at the 2-tailed Spearman's test, which was used to test the null hypothesis regarding the association between gender and age group for burn injuries. Reject the alternative hypothesis; in summary, there was significant association or relation between the age of male and female caregivers and the age group of burn injury children noted in this study. (Table; 5.12 below)

Table;5.12 gender and age group (2x2) crosstab

		Age	Age group
Female	Correlate coefficient	1.000	924****
	Sig.2-taild		<.001
	N	94	94
Male	Correlation coefficient	924**	1.000
	Sig 2-taild	<.001	
	N	94	94

**. Correlation is significant at the 0.01 level (2-tailed).

5.3.6 Discussion

Burns can occur from a number of sources, including cooking with hot oil, drinking coffee and tea straight from the pot, and using hot water directly from water heater (Chirongoma, et al.,2017, Farzan, et al.,2023). This study was conducted in an effort to assess the awareness of first aid and practice knowledge of caregivers in Addis Ababa who are currently taking care of their children at the hospital and on subsequent visits to the hospital. This study provided general information about the current caregiver's knowledge of first aid material and the practice of first aid measures at home. The study revealed that cool tap water was used by only (31.9%) of the caregivers as a first-aid measure. However, some of the caregivers were not applying water at the recommended time of 20 minutes. The standard time frame for the application of cool tap water on the affected part of the skin of the body was 20 minutes (Kattan, et al., 2016, Price, et al.,2021). A study reported in Zimbabwe that the provision of first aid by most caregivers was incomplete or inadequate, although some caregivers had sufficient knowledge of first aid utilization. (Farzan, et al.,2023). The results highlighted that (30.8%)of caregivers used Litti (Dough used for traditional bread in Ethiopia). This finding aligns with the study conducted by Gate, et al., (2022) at AaBET Hospital, where some of the caregivers were using Litti as first aid in Addis Ababa. The study conducted in Bangladesh concurs with our finding that the majority of caregivers were using banana leaves as a first aid for burns. The result shows that the majority of the caregivers were from Addis Ababa (64.9%) and (35.1%) were from the rural part. This concurs with a study conducted in Saudi Arabia where the majority of the caregivers were from the urban area of Saudi-Arabia (Halawa et al.,2015, Kattan, et al.,2016). From a clinical point of view, understanding the correct application of cool tap water is very important, particularly when dealing with children. Because if the total body surface area is large, keeping the water running for more than 20 minutes

will cause hypothermia, and at the same time, applying the water for less than 20 minutes will not prevent the depth of burn in the tissue (Kattan, et al., 2016, Potokar., 2016). Therefore, it is very important to maintain the standard time of 20 minutes when applying the water for a better outcome of wound healing by reducing the heat so as not to go deep into cutaneous and subcutaneous tissue (Panke & Macleod., 1985, Rybarczyk,et al.,2017). The findings of this study should be given attention and consideration by the health authority and different stakeholders who are working on child burn injury prevention in Ethiopia to start community mobilization and a widespread campaign on educating mothers and young adolescent girls. Because investing in education for a targeted group like young girls will minimize the frequency of burn injuries in the long term. When an educated young woman has a family, she will implement her knowledge of burn injury prevention education with her family members. Thus, the number and level of morbidity and mortality from burn injuries may be reduced. Therefore, it is important to focus on a long-term plan for burn injury prevention and reducing mortality

5.3.7 Conclusion.

This study highlights the significant gaps in burn first aid knowledge and practices among caregivers in Addis Ababa. The findings indicate that the majority of caregivers lack proper awareness of burn injuries, with many resorting to traditional remedies such as Litti, banana leaves, and even animal manure. These practices increase the risk of infection, prolonged hospitalization, and severe complication including sepsis and tetanus. Only a small proportion (31.9%) of caregivers applied cool tap water as a first-aid measure, and even fewer adhered to the recommended duration of 20 minutes, which is essential for effective burn treatment. The study also emphasizes the impact of caregivers' educational background on burn injury management. Limited formal education correlates with poor first-aid knowledge and an increased likelihood of

using harmful traditional treatments. Urban caregivers exhibited slightly better awareness than their rural counterparts, aligning with global findings that urban populations generally have more access to health information. From a clinical perspective, ensuring the correct application of cool tap water is crucial in paediatric burn management. Using water for less than 20 minutes fails to halt tissue damage, while excessive cooling may induce hypothermia, especially in children. Therefore, widespread education on proper burn first-aid practices is necessary to prevent long-term morbidity and mortality.

5.3.8 Recommendation.

Based on the finding of study 3, I recommend the following;

1. Improving First Aid Knowledge and Practices

- Develop culturally appropriate training materials on burn first aid, emphasizing the correct use of cool tap water for 20 minutes.

2. Enhancing Burn Prevention and Public Awareness

- Launch nationwide educational campaigns through television, radio, social media, and community outreach s to raise awareness about burn risks and safe cooking practices.
- Integrate burn prevention education into school curricula, particularly targeting young girls and mothers who are primary caregivers.

Promote the use of safer cooking equipment and household modifications to reduce burn hazards.

3 Addressing Harmful Traditional Practices

- Launch targeted campaigns to discourage the use of unsafe traditional remedies such as Litti, banana leaves, and animal manure.

- Work with traditional healers and community elders to promote evidence-based burn care and integrate safe practices into cultural healing approaches.
- Establish monitoring mechanisms to track and regulate traditional treatment methods that pose health

Chapter 6: Study 4:

Post-burn health-related quality of life (HRQoL) of children aged less than 18 years and the. Socioeconomic impact of burn injuries on current caregivers in Addis Ababa.

6.4.1 Introduction

The notion of Health - Related Quality of Life (HRQOL) is broad , complex and multi-dimensional and it is open to subjective interpretations (Atapattu, et al.,2024).This part of the research focuses on identifying the socioeconomic impacts of burn injuries and health-related quality of life (HRQoL) on post-burn children in relation to physical (such as mobility), social (such as playing with friends), emotion (for example, feeling angry with a classmate), and cognitive aspects of children. Health-related quality of life is an outcome measure that reflects a patient's perception of his or her health condition in terms of physical, emotional, psychological, and social wellbeing after an injury (Eiser & Jenney.,1996). The World Health Organization defines mobility as changing basic body positions and moving from one position to another. For example, getting up from the chair to lie down on a bed and getting into and out of positions of kneeling, squatting, running, or climbing (WHO.,2001). Therefore, this study focuses on the activities of the children following the burn injury and the socioeconomic status of the caregivers.

6.4.2 Aim of the Study

The main aim of the study is to better understanding of the impact of burn on the post burn quality of life in children and socioeconomic status of the caregivers in Addis Ababa Ethiopia.

6.4.3 Objective of the Study

To assess post-burn health-related quality of life (HRQoL) among the children aged less than 18 years and the socioeconomic impact of burn injuries.

6.4.4 Methodology

Quantitative study method.

6.4.4.1 Source of population

Inpatient and outpatient departments of above-mentioned hospitals.

6.4.4.2 Study population

The study population for this study was those children less than 18 years of age who visited inpatient and outpatient departments and are currently on consecutive review for burn injuries with doctors in the above-mentioned hospitals for medical care for the past six months.

6.4.4.3 Study setting

Hospital (A), Hospital(B) and Hospital (C) in Addis Ababa.

6.4.4.4 study design

A cross-sectional survey design was the method employed in this investigation. Data is gathered from a sample at one particular moment in time for a cross-section survey from patient interviews and hospital-based records.

6.4.4.5 Instrumentation tool

The PedsQoL 4.0 Version (5-point Likert scale) questionnaire and the Household and Economic Social Status Index (HESSI) questionnaire were used (Appendices 6.1, 6.2 Page, 265 and Page, 267). Permission to use Paeds QoL questionnaires was received from the Mapi Research Trust in France. (Appendices 6.3, 6.4, Page, 269, and Page, 270). PedsQL are a 23-item measurement tool designed to measure health-related quality of life for paediatric patients, via a self-report and a parent proxy report. A 5-point response scale is used across the child self-report (for ages 5 to 18) and parent proxy-report for age 0-4. (0 = never a problem; 1 = almost never a problem; 2 = sometimes a problem; 3 = often a problem; 4 = almost always a problem). A 5-point scale is used for the young child's self-report (ages 5 to 7) (0 = not at all a problem; 1=almost never a problem 2= sometimes a problem; 3 = a lot of a problem,4 almost always a problem). Items are reverse-scored and linearly transformed to a 0–100 scale (0 = 100, 1 = 75, 2 = 50, 3 = 25, 4 = 0), so that higher scores indicate better HRQOL. This instrument yields a total score of physical health summary and psychosocial health summary scores. The physical health summary equivalent to the mean value of physical functioning subscale, and a psychosocial health summary score based on the mean of emotional functioning, social functioning, and a school functioning subscale. see table 6.1 below. Health related questions are important outcome measures for paediatric burn in clinical trials (Landfeildi, et al.,2021). On the contrary, the assessment of paediatric HRQoL is complicated by the developmental sequences of the children (Johnson & coons,2017, Landfeild,2021). As allied health professionals, physiotherapists focus on mobility, activity, and participation limitation, although there are no specific or standardized tools to measure the post burn HRQoL on children except for scare and burn-specific pain anxiety (Brooks & Groups,1996). Thus, the Likert scale data analysis approach was preferred to determine post-burn health related quality of life in the physical, emotional, social, and school function domains.

Table: 6.1 Quality of health-related questions

Item statement	N= 0	AN=1	ST=2	OF=3	AA=4
1. It is hard for me to walk more than one block					
2. It is hard for me to run					
3. It is hard for me to do sports activities or exercise					
4. It is hard for me to lift something is heavy					
5 .It is hard for me to take a bath or shower by my self					
6. It is hard for me to do chores around the house					
7 .I hurt or ache					
8 .I have low energy					
9 .I feel afraid or scared					
10..I Feel sad or blue					
11. I Feel angry					
12. I have Trouble sleeping					
13. I worry about what will happen to me					
14. I have Trouble getting along with others					
15. Other kids Do not want to be my friend					
16 .Other Kids tease me					
17 .I cannot do things that others kids my age can do					
18 .It is hard to keep up when I play with other kids					
19. It is Hard to pay attention in the class					
20. I Forget things					
21. I have Trouble keeping up with my schoolwork					
22. Miss school of not feeling well					
23. I Miss school to go to the doctor or Hospital					

Please note; N= Never, AL = Almost never, ST= Sometimes, OF =Often, AA =Almost always

6.4.4.6. Sample size

The same formula from Study 1 was applied for a sample size calculation (Magnani., 1997, Smith and Day., 1984).

P = 6.4% prevalence of burn injury among children; Level of confidence =95%; Margin of error (d) = 5%

$$n = \frac{(Z_{\alpha/2})^2 \times P (1-P)}{d^2}$$

n = minimum sample size required, p = prevalence of burn injury, d = margin of error and $Z_{\alpha/2}$ standard normal value at a (1- α) 100% confidence level. $N = \frac{(1.96)^2 \times 0.065 (1-0.064)}{0.05^2} = 94$ participants.

6.4.4.7 Procedure

Consecutive children less than 18 years old and their caregivers attending Hospital (A), Hospital (B), and Hospital (C) paediatric out-patient clinic for their initial follow-up visit one-week post-discharge were approached by a research assistant who is a trained physiotherapist and a clinic staff member. The research assistant and the staff were asked by the caregivers and the children to participate in the study. Permission was asked by the hospital to access the child's medical file. The Paeds QoL questionnaire was administered to the children one-week post discharge and 12 weeks post discharge (Morita, et al., 2006). The caregiver's information was gathered before the child was attended to by a doctor or nurse for wound dressing. The information sheet, translated into Ethiopian national language Amharic (Appendix, 4.3, Page, 248) was given to caregivers and children over 9 years old. A verbal explanation was conducted in addition to the information sheet. Once written informed consent was received, a trained physiotherapist and registered nurse collected the information from the caregivers and the children. The Household and Economics Social Status Index (HESSI) questionnaire was distributed first in the outpatient clinic, followed by PaedsQoL questionnaires. It took about 20–30 minutes to fill out the questionnaires. Socioeconomic status data were collected using an open-ended, semi-structured, interviewer-administered questionnaire (Appendix 6.6, Page, 272, Appendices 6.1 and 6.2, Page, 265 and Page, 267).

6.4.4.8 Ethical consideration

Informed consent and informed assent for children 9 years of age was obtained from the caregivers and children, prior to assessment.

6.4.4.9 Inclusion criteria

All children and caregivers who were attending the outpatient burn injury follow-up clinic.

6.4.4.10 Exclusion criteria

Those children who were not willing to participate in the study were excluded from the study.

6.4.4.11 Data analysis

The data was analysed using Likert-scale data analysis procedures. The Likert scale was invented by an American psychologist named Rensis Likert in 1932. While scholars in the 1930s employed closed-ended questions and objectives to make their research valid, Likert observed that there was a need to measure people's perception, attitude, and effort in their physical activities (Wanjohi & Syokau., 2021). To create the total scale score, the mean was computed as the sum of all the items over the number of items answered on all scales. The four dimensions physical, social function, emotional and school function summary scores were calculated, and a five-point Likert scale was employed (Shahid, et al., 2018). One of the assumptions of the Likert scale was that opinions were measurable. In this study, the following formula was used to determine the total score of the Likert scale: Total scores on the Likert scale were first calculated by multiplying the frequency of each response option by its corresponding Likert scale score.

Total score = sum (fix Likert scale score)

Where f_i = frequency of each Likert scale score (number of respondents)

I= Likert scale score namely, Never (0) Almost never (1) sometimes (2) Often (3) almost always (4). For instance, Total scores for Statement 1 were as follows: $(4*0) + (18*1) + (49*2) + (22*3) + (1*4) = 186$. Determination of Likert scale mean scores in this study.

The mean score was calculated by dividing the total scores by the total number of respondents.

Mean Score = $\sum (f_i \times \text{Likert Item Score}) \div \text{Number of Respondents}$.

For example, $(4*0) + (18*1) + (49*2) + (22*3) + (1*4) = 186/94 = 1.9$, Mean score = 1.9

Table: Table 6.2 Frequency and Mean score table (Frequency *100 / 94)

PQoL Statement	N=0	F(%)	AN =1	F (%)	S =2	F (%)	OF=3	F (%)	AA=4	F (%)	Total score	Mean score
1. It is hard for me to walk	4	4.3%	18	19.1%	49	52.1%	22	23.4%	1	1.1%	186	2.0
2.Hard to me to run	5	5.3%	14	14.9%	33	35.1	41	43.6%	6	6.4%	227	2.3
3.Hard to do sport	4	4.3%	34	36.2%	39	41.5	13	13.8%	4	4.3%	167	1.8
4. Hard to lift	6	6.4%	28	29.8%	31	33	15	16.0%	14	14.9%	191	2.0
5.Hard to take a bath	7	7.4%	34	36.2%	41	43.6	7	7.4%	5	5.3%	157	1.7
6.Hard to run around house	3	3.2%	27	28.7%	42	44.7	16	17.0%	6	6.4%	183	1.9
7.Hurt or ache	6	6.4%	12	12.8%	42	44.7	31	33.0%	3	3.2%	201	2.1
8.Have low energy	14	14.9%	39	41.5%	27	28.7	7	7.4%	7	7.4%	142	1.5
9.I feel afraid or scared	11	11.7%	27	28.7%	26	27.7	23	24.5%	7	7.4%	176	1.9
10.I feel sad or blue	4	4.3%	13	13.8%	22	22.6	39	41.5%	16	17.0%	238	2.5
11.I feel angry	5	5.3%	10	10.6%	46	48.9	28	29.8%	5	5.3%	206	2.2
12.I have trouble sleeping	15	16.0%	17	18.1%	21	22.3	27	28.7%	14	14.9%	196	2.1
13.I worry about what will happen	2	2.1%	24	25.5%	23	24.5	26	27.7%	19	20.2%	224	2.4
14.I have trouble getting along with others	7	7.4%	10	10.6%	25	25.6	36	38.3%	16	17.0%	232	2.5
15.Other kids do not want to be my friend	6	6.4%	13	13.8%	24	25.3	26	27.7%	25	26.6%	239	2.5
16. Other kids tease me	3	3.2%	12	12.8%	24	25.5	35	37.2%	20	21.3%	245	2.6
17.I Cannot do things that other my age can do	4	4.3%	11	11.7%	29	30.9	30	31.9%	20	21.3%	239	2.5
18.It is to keep up when I play with other kids	7	7.4%	37	39.4%	26	27.7	13	13.8%	11	11.7%	172	1.8

PQoL Statement	N=0	F(%)	AN =1	F (%)	S =2	F (%)	OF=3	F (%)	AA=4	F (%)	Total score	Mean score
19.Hard to pay attention in class	45	47.9%	22	23.4%	12	12.8	8	8.5%	7	7.4%	98	1.0
20.I forget things	9	9.6%	25	26.6%	38	40.4	8	8.5%	14	14.9%	181	1.9
21.I have trouble keeping up with schoolwork	17	18.1%	37	39.4%	19	20.2	8	8.5%	13	13.8%	151	1.6
22.I miss school because of not feeling	27	28.7%	35	37.2%	16	17	7	7.4%	9	9.6%	124	1.3
23 I miss school to go to the doctor	4	4.3%	26	27.7%	35	37.2	12	12.8%	17	18.1%	200	2.1

6.4.5 Study 4 Result.

To assess the patterns, circumstances and characteristics of burn injuries of children admitted to Yekati 12 Hospital (A), Myungsung medical centre (B) Addis Ababa burn emergency and trauma Hospital (C) in Addis Ababa.

6.4.5.1 Introduction

Quality of life post discharge in Ethiopian health facilities is poorly researched. It is also not known whether poor socio-economic factors contribute to the high incidence of children with burn injuries who are admitted to the three study three-study centre in Addis Ababa Paediatric Burns Unit. This cross-sectional study aims to assess the socio-economic and clinical factors which predict quality of life in children with burn injuries in a burn's unit in Addis Ababa.

.6.4.5.2 Characteristics of Household and economic social status (HESSI) of caregivers.

The majority of households were run by females n=81 (86.2%). The majority of caregivers were between 18- and 25-years old n=36 (38.3%). n=40 (42.6 %) of the females were married. Regarding education, n=31 (33.0%) of fathers had no formal schooling, whereas n=43 (45%) of mothers had completed or enrolled in primary school. See Table 6.3 below.

Table: 6.3 Socio demographic characteristics of caregivers (n=94).

Variable		Frequency	Percent
Gender	Male	13	13.8%
	Female	81	86.2%
Age group	18-25	36	38.3%
	26- 35	35	37.2%
	36-45	18	19.1%
	46 and above	5	5.3%
Mother Education	Formal education	18	19.1%
	Primary	43	45%
	Junior	20	21.3%
	Secondary	8	8.5%
	Collage	5	5.3%
Father education	Formal schooling	31	33%
	Primary	27	28.7%
	Junior	20	21.3%
	Secondary	11	11.7%
	Collage	5	5.3%

6.4.5.3 Socio demographic characteristics of children

In relation to gender, the majority of the participants were female, 56 (59.6%). The age group between 7-9 and 10 and 15 was more affected by burn injuries than other groups. More participants were from the Hospital (A) catchment area, followed by Hospital (C) (table 6.4 below).

Table 6.4: Socio demographic characteristics of children participants. (n=94)

Variable		Frequency	Percent
Gender	Female	56	59.6%
	Male	38	40.4%
Age group	7-9	39	41.5%
	10-15	45	47.9%
	16-18	10	10.6%
Facility	Hospital (A)	42	44.7%
	Hospital (B)	10	11.7%
	Hospital (C)	41	43.6%

6.4.5.4 Household information about caregivers in Addis Ababa.

The data shows that n = 73 (77.7%) of the house has no separate bathroom, and regarding the kitchen, n = 46 (48.95%) of the house has a single room and no separate kitchen. Regarding separate sleeping rooms, 81 (86.2%) households had no separate sleeping room in the house. In relation to the caregiver's income per month, the data shows that the majority of the caregivers were getting between 3501 and 4500 birr per month, which is equivalent to USD 66–75 (1 USD = 35.00 ET currency Birr by the time this information was collected). The family house composition was 5–6 people (42.6%) followed by 7–10 people (32%) occupant in the house. (See table 6.5, Page, 156 below)

Table: 6.5 House holed information of caregivers in Addis Ababa (n=94).

Variable		Frequency	Percent
Separate bathroom	Yes	21	22.3%
	No	73	77.7.%
Separate kitchen	Yes	48	51.1%
	No	46	48.9%
Separate room for sleeping	None	81	86.2%
	One	11	11.7%
	Two	2	2.1%
Income of the caregivers per month	1501-3000 birr	6	6.4%
	3001-3500 birr	16	17%
	3501-4500 birr	49	52.1%
	4501 and above	23	24.5%
Family house composition	2 people	3	3.2%
	3-4 people	19	20.2%
	5-6 people	40	42.6%
	7-10 people	32	34.0%

6.4.5.5 Measurement of Quality of Life in this study.

In this study, the four domain which were the predictors of quality of life are as follows; physical function, emotional functioning social function and school function. The average quality of life ratings was 160 one week after being released from the burn unit and 190 three months later. For the psychological and physical components, the anticipated "normal" score is 100 each, for a total score of 200. According to the PedsQL, children with a "normal" quality of life should score 200.

Only 54 children returned for the three month follow up visit. The main reason for this was unwillingness of the caregivers due to Pandemic of COVID 19 Virus in Addis Ababa during data collection period and psychological fear of COVID 19 Virus by the caregivers. The situation was beyond the control of investigators. Therefore, it was difficult for the principal investigator to carry on further data analysis in this study. The table below shows the quality-of-life scores at their initial assessment and the three-month follow-up assessment. The findings of this study show that children who have a three-month post discharge from a burn injury have a minimally lower score in quality of life than the expected normal score. The improvement in the PedsQL overall scores suggests that the quality of life for children is good despite being burnt. Although children with physical and social response during the assessment showed a high health related quality of life compared to the responses of emotion and cognitive components. These leads to stress, poor schoolwork performance and isolation. The severity of the burn (degree of the burn and cause of the burn) was found to be a significant clinical predictor of quality of life ($p=0.01$). The poor socioeconomic status was clearly evident in demographic data of the participants. (Table 6.6 Page,158) below post burn quality of life score.

Table :6.6: Quality of life Mean score post burn

Domain	Mean	Total
Physical initial assessment	15.5	15.2
Physical follow-up	18.2	18.2
Gap or difference	3.3	3.3
Psychosocial initial assessment	33.1	33.1
Psychosocial follow up assessment	28	28
Gap or difference	5	5
Quality of life initial assessment	160	160
Quality of life follow up	190	190

6.4.6 Discussion

The primary objective of Study Four was to assess post-burn health-related quality of life (HRQoL) among children under 18 years old and identify the socio-economic impact of burn injuries on post-burn HRQoL. Measuring HRQoL is essential in understanding the subjective burden of burns on survivors (Spronk, et al., 2018). However, there is no consensus on an internationally accepted HRQoL assessment tool (Spronk, et al., 2018). A systematic review by Haraldstad, et al., (2019) emphasized that most quality-of-life (QoL) studies in health and medical fields face conceptual and methodological challenges. Therefore, there is a need for a systematic review to identify HRQoL instruments used in burn cases and examine recovery patterns (Spronk, et al., 2018; Renecken, et al., 2021).

From a physiotherapy perspective, post-burn quality of life in this study was determined based on the average score of each statement item. The study adhered to the WHO guidelines for disability in measuring quality of life, which define QoL as an individual's perception of their position in life in relation to their objectives, expectations, standards, and concerns, within the context of their culture and value systems (WHO, 2012). The study aimed to determine the clinical and socio-economic factors that predict QoL in children with burn injuries.

The challenge of defining and measuring QoL has persisted over the years. Milstein et al. (1987) noted that QoL is a multifaceted construct that extends beyond the direct physical or mental effects of treatment. Eiser & Jenny (1996) argued that QoL reflects the perceptions of the child or family regarding the impact of treatment rather than merely the severity of the illness. Given this, comprehensive rehabilitations are essential to mitigate post-traumatic stress and enhance functional independence among burn survivors (Raipure et al., 2023).

All subjects in this study came from similar socio-economic backgrounds and were treated in three burn unit hospitals in Addis Ababa. Paediatric burns, while often nonfatal, significantly affect the health and development of young children (Brady, et al., 2020). The study findings indicate that physical and social domains of HRQoL were rated higher compared to emotional and cognitive domains. These results align with Attapattu, et al. (2024), whose study in Australia found lower post-burn HRQoL scores for emotional and school functioning among children.

The socio-demographic data reveal that 48.9% of participants had no separate kitchen, and 77% lived in homes without a separate room. These findings are consistent with studies conducted in Western Kenya (Odoni, et al., 2020; Atapattu, 2024), which identified scald burns and socio-economic factors as major contributors to burn injuries. Overcrowded living conditions, particularly in single-room households with multiple children, increase the risk of burn injuries. In Ethiopia, a large proportion of rural households lack separate kitchens, further heightening burn risks among young children (Frank, et al., 2001; Ashley., 2007).

6.4.7 Conclusion

Quality of life is a broad and multifaceted construct with various definitions (Greenham, et al., 2022). The WHO emphasizes that QoL includes an individualized component based on subjective experiences (Milstein, et al., 1987; Greenham, et al., 2022). Childhood is a critical period for the development of social, physical, and cognitive functions (Milstein, et al., 1987). The study findings suggest that while children demonstrated higher QoL in physical and social domains, their emotional and cognitive/school performance was significantly affected. These limitations negatively impact school performance and contribute to psychosocial difficulties.

Public education on fire safety, particularly within home environments, is essential to protect children and other vulnerable groups. Physiotherapists play a crucial role in advocating for and conducting research to develop standardized post-burn HRQoL assessment tools tailored to physiotherapy interventions.

6.4.8 Recommendations

Burn injuries are unpredictable and can have lifelong consequences depending on the severity and location of the burn. The study results highlight a decline in children's QoL, particularly in emotional and cognitive/school domains. Therefore, the following recommendations are proposed:

1. **Psychosocial Support:** Immediate psychosocial support should be integrated into all burn unit facilities in Addis Ababa from the first day of treatment to mitigate long-term psychological distress and cognitive impairments.
2. **Caregiver Education:** Caregivers should receive targeted education on burn prevention, emphasizing fire safety measures and first-aid response.
3. **Community Awareness s:** Grassroots-level awareness campaigns should be implemented to educate communities on burn injury prevention, particularly in rural areas where separate kitchens are uncommon.
4. **Standardized HRQoL Assessment Tools:** Future research should focus on developing standardized HRQoL assessment tools specifically designed for physiotherapy applications in burn rehabilitation.

Chapter 7 study 5

Chapter 7 Study 5 Current children burn injury prevention in use in Addis Ababa.

7.5.1 Introduction.

Organized burn care is possible in the developed world because there is direct or indirect involvement of the government, universal health insurance coverage, legislation like the right to health in place, and a high level of public safety awareness (Gupta, et al., 2010, Chirongoma et al., 2017). Such organized burn care does not exist in developing countries like Ethiopia (Gupta, et al., 2010, Geberabe, et al., 2019). Burn injuries were thought to be preventable but are still a prevalent global health problem, especially in low- and middle-income countries, including Ethiopia (Denekew, et al., 2021). According to the 2016 Ethiopian Demographic and Health Survey (EDHS) report, burn injuries represent (8.7%) of all significant injuries in Ethiopia (Denekew, et al., 2021). The burn scenario was grave not only due to the high incidence but was also compounded by the absence of organized burn care at the primary and secondary health care levels (Gupta, et al., 2010, Teshale & Alemu., 2017). The estimated annual burn incidence in India was approximately 6-7 million per year. The high incidence was attributed to illiteracy, poverty, and low levels of safety consciousness in the population (Gupta, et al., 2010). Studies indicate that burns represent a substantial percentage of injuries in the paediatric population, and the estimated yearly burning incidence for children in Addis Ababa is between 4% and 15% of all paediatric injuries (Mulatu., et al., 2022).

7.5.2 Aim of the study.

To identify children, burn injury prevention in use in Addis Ababa.

7.5.3 Objectives of the study.

To assess the current children's, burn injury prevention practice in use in Addis Ababa.

7.5.4 Methodology.

Qualitative study

7.5.4.1 Study design.

This study had an explorative, qualitative approach. Interviews were conducted to obtain relevant information. This was considered to best fit the study; hence, it was work-related experiences and observation by community members.

7.5.4.2 Source of the population.

The program officer working at the above-selected hospitals and the desk officer working with children at burn injury prevention-related activities were the sources of population.

7.5.4.3 Study population.

The determination of the sample size was based on the literature (Creswell, 2007p.156), which suggests that the goal of a qualitative study is to gather comprehensive, thorough data about every issue rather than to examine a small number of people or sites. One or two people will supply sufficient information for narrative research (Creswell, 2007, p. 157). The study's objectives dictated the sample size. In this study the selection of key informants was based on the availability of senior community leaders and government representatives with expertise in burn prevention initiatives. Purposeful sampling strategies were used to choose the sample size. Four voluntarily agreed participants who are residents of Addis Ababa were selected for this study.

7.5.4.4 Study setting.

The interviews were conducted at a multi-centre in Addis Ababa, namely, the Ministry of Health headquarters, the Addis Ababa fire brigade prevention desk, and AaBET hospital burn unit.

7.5.4.5 Instrumentation

Interview guide, voice recorder, and field note (Appendix, 7.4 Page, 281, Appendix 7.6, Page, 284).

7.5.4.6 Sample size.

The study used a purposive, non-random sampling strategy since there is no hypothesis being tested and no associated level of confidence in any test result in this study (Safamejad, et al., 2018), The participants were selected through personal contacts based on criteria of availability and subject matter knowledge of prevention. A total of three officers dealing with burn injury prevention and one community leader from Addis Ababa were selected (Table 7 .1 page, 166). One officer from each facility, namely from the Addis Ababa fire brigade prevention desk, the AaBET hospital burn unit, and the Ministry of Health Injury Prevention Division. The term ‘key informant’ refers to a person who can provide detailed information and opinion on a particular subject based on his or her knowledge of this particular issue (Magupa, 2018).

7.5.4.7 Procedure.

Verbal and written information (Appendices, 7.1,7.3,7.5,7.6 Page, 275, Page, 280, Page,283 and Page,284) about the study was given to each potential key informant. Participation was voluntary, and the respondents were informed that they could withdraw from the study at any time. All information was treated confidentially. Individual verbal and written consent were obtained from the participants at the beginning of each interview and voice recording (Appendix 7.6 Page, 284). An interview guide with closed-ended and open-ended questions was used. There was flexibility in the interview guide to offer space for key informants to raise other issues that they might consider to be pertinent. All interviews were conducted in the Amharic language.

7.5.4.8 Ethical consideration.

For the use of information, anonymity consent was obtained from the participants before conducting the interviews (Appendix, 7.6 Page, 284).

7.5.4.9 Data analysis.

The data was analysed using content analysis. Content analysis uses a descriptive approach in both the coding of the data and its interpretation of qualitative counts of the data (Morgan.,1993, Creswell., 2003). The recorded interviews and field notes were transcribed and then analysed manually using content analysis. Codes were identified. The codes were sorted into categories, and subsequently, the subcategories were exposed or identified.

7.5.4.10 Characteristics of the participants.

The table below explains the composition and characteristics of the key informants who participated in the research.

Table 7.1 Characteristics of the participants of Key informant on burn prevention (n=4)

Participant #	Name	Age	Sex	Position	Number of years in service
1	Participant 1	45	F	Burn unit head	8years
2	Participant 2	34	M	Injury prevention head	5years
3	Participant 3	42	F	Burn injury prevention head	5 years
4	Participant 4	50	M	faith based organization in Addis Ababa.	10years

7.5.4.11 Statement of the participants.

The table below shows the statement of each participant who participated in a burn prevention study.

Table 7.2 statement of the participants (n=4)

Case # & Gender	Meaning unit	Condensed meaning	Code	Subcategory	Category
1(F)	“You know “Some of the house was built in a risky area for flood and fire accident in Addis Ababa near to the river and no passage in time of emergency like fire. The organization has school program which conducted in school and women association. The challenges are the law enforcement agency is unable to control those who sell the inflammable liquid next to the roadside for the motorist mostly in rural area of Addis Ababa...	Risk for fire and flood next to the river house built. Educational program in school and women association Poor law enforcement in the country regarding inflammable items	Fire Flood Education program Women association, Law enforcement, inflammable liquid. Money generating purpose	Fire Awareness raising Inflammable liquid Law enforcement	Burn prevention
2 (M)	Uh, at the ministry level we do not have a burn prevention program. However, it is under injury prevention section we are working with other stake holder and some Nongovernmental organization working on prevention. We have established a road map for implementation of prevention programs in the near future.	No prevention at ministry level Working with stake holders Developing road maps for future	Accountability Prevention strategy Networking	No prevention program	Responsible office necessary at ministry level to organize prevention at federal level.

3(F)	In our facility, “pause” we receive the burn injury patient from all over the country and we teach them once a week an awareness raising education to our patient and caregivers. but I do not know if other burn care centre doing the same, may be! Yekatit 12 burn unit. We do not conduct outreach prevention program because of limited manpower in the unit.	Continue burn prevention awareness in the facility. No outreach services for the follow-up Shortage of skilled manpower at the unit to conduct outreach	Awareness on burn injury prevention Motivating other facilities	Transfer knowledge Motivational speech	Empowerment health workers
4 (M)	“Okay” I am the resident of Addis Ababa and lived for more than 10 years. Burn is a big problem in our neighbourhood. I remember once I was called to pray for one child affected with burn injury... I heard only one time on radio about prevention of the burn, it was good message, and I encourage to continue such message to the public regularly involving the church and mosque leaders to support the program. Try to involve the police to control illegal selling of petrol to the motorists	Resident of Addis Ababa 10 years lived in the city Witnessed burn injury One-time only radio message on burn prevention. Involvement of others stake holder in prevention is necessary Law enforcement officer to be involved	Resident Witnessed burn injury Radio message once Networking with others Law enforcement	Social media usage Networking with other organization	Communication skills

7.5.5 Result study 5.

The results of the study on current burn prevention program in Addis Ababa are presented in the tables below.

7.5.5.1 Socio demographic data of key informant participants.

The majority of the participants (100%) were from Addis Ababa. Regarding gender, both females (50%) and males (50%) equally distributed. 75% of the participants were above 40 years old, and 25 were below 39 years old. All participants were 4 (100%) were married, and 3 (75 %) of the participants) had more than five years of working experience in the field of burn injury management and prevention-related areas.

Table 7.3 socio-demographic data (n=5).

		Number	Percent (%)
Gender	Male	2	(50 %)
	Female	2	(50 %)
Age	Above 40 years	3	(75%)
	Below 39 years	1	(25%)
Resident	Addis Ababa	4	(100%)
	Outside Addis Ababa	0	(0%)
Marital status	Married	4	(100%)
	Not married	0	(0%)
Work experience	5 years	2	(50%)
	8 years	1	(25%)
	10 years	1	(25%)

7.5.5.2 Overview of all of the results of the study 5

In this study, during the analysis process, four major categories emerged from the data, such as prevention programs, responsible offices for burn injury prevention programs, empowering health workers, and community and communication strategies. Further subcategories were formed. The categories and subcategories are presented in Table 7.4 below.

Table 7.4 overview of the result

Category	Subcategories
Prevention program	Fire hazard
	Inflammable liquid
	Law enforcement
Responsible office for burn prevention program	At head quarter
	At regional level
	At grass root level
Empowering health workers and community	Motivational speech
	Training material
Communication strategy	Use of social media
	Networking strategies with government and non-government organization working on burn prevention

7.5.5.2.1 Prevention

A re-occurring subject when interviewing the key informant was a burn prevention program issue, both at the management level and community leader level. This was considered a basic issue to minimize the level of disability and mortality among children and caregivers. Programs for prevention education are regarded as one element of the management of burn injuries.

7.5.5.2.2 Fire hazard

Many of the respondents' responses highlighted the danger of fire in the lives of individuals and property damage. The implementation of a burn injury program reduces the damage. For this reason, capacity-building training is very important.

“In our facility, “pause” we receive the burn injury patient from all over the country and we teach them once in week an awareness raising education to our patient and caregivers. but I do not know if other burn care centre doing the same, may be! Yekatit 12 burn unit.” (Participant #1). The information on the burn prevention program was limited according to one of the participants.

7.5.5.2.3 Selling of Inflammable liquid on the street

According to the respondents' report, some of the participants raised concerns about the sale of inflammable liquids, such as gasoline, or petrol at an official selling-out lets in the town. This is a very dangerous substance because it easily ignites and causes extensive damage to property and human lives.

“The challenges are the law enforcement agency is unable to control those who sell the inflammable liquid next to the roadside for the motorist mostly in rural area of Addis Ababa.”

(Participant # 1)

This is one of the major issue which is difficult to control in the country because of no regulatory or accountable functional office in regional state in Ethiopia.

7.5.5.2.4 Law enforcement

During the discussion, the issue of poor management of law enforcement emerged many times. And it was also a concern for the health workers because people can easily get access to buying gasoline or petrol from the street.

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“The challenges are the law enforcement agency is unable to control those who sell the inflammable liquid next to the roadside for the motorist mostly in rural area of Addis” (participant #1 participant #2)

“..... I encourage to continue such message to the public regularly involving the church and mosque leaders to support the program. Try to involve the police to control illegal selling of petrol to the motorist “(participant # 4)

The participants highlighted that this is a very crucial issue because getting access to highly combustion liquid is very dangerous. Therefore, all government and non-government organizations must work together to minimize the danger.

7.5.5.2.5 An availability of responsible officer for burn prevention program

During the interviews, one of the interviewees mentioned that there was no burn prevention program separate from other injury programs, but it was under the injury prevention program at the health ministry level.

” Uh, at the ministry level we do not have burn prevention program however, it is under injury prevention section ” (participant # 2)

This is common in the regional office and at the wereda level in Addis Ababa. There is no specific, effective, and functional office that deals with burn prevention programs in Addis Ababa government settings.

7.5.5.2.6 Empowering health workers

One of the highlights of the interview was that teaching on burn prevention at the health facility was not regularly conducted, and it was proposed to increase burn prevention knowledge through mass media platforms or social media access.

“In our facility, “pause” we receive the burn injury patient from all over the country and we teach them once in week an awareness raising education to our patient and caregivers. but I do not know if other burn care centre doing the same, may be! Yekatit 12 burn unit. We do not conduct outreach prevention program because of limited manpower in the unit” participant #2.

7.5 6 Discussion

Burn injuries are a leading cause of morbidity and mortality, with the burden of disease being disproportionately higher in low- and middle-income countries (LMIC) (Peck.,2016, Price, et al.,2021, Wiechman and Patterson.,2004, Rencken, et al.,2021,). This study was conducted in an effort to assess the current burn prevention practices in use in Addis Ababa. The results provided general information about Addis Ababa's burn prevention program. The burn prevention program has led to a significant reduction in morbidity and mortality among children with burn injuries in

HICs compared to LICs (Price, et al.,2021). This study identified four major gaps in relation to burn prevention activities in Addis Ababa that contributed to the incidence of burn injuries among children in the Ethiopian context. 1. The analysis of the key informant interviews indicated that there was no effective burn prevention program run by the government health department at the local and national levels, although the Addis Ababa fire brigade conducted a school burn prevention program that was not covering the whole Addis Ababa resident. A systematic review published in 2015 indicated that there was limited information on burn prevention program implementation and evaluation data in LMIC's (peck.,2016, Price, et al.,2021). The attempt was made to get a sample of the burn prevention program from the burn unit centre in Addis Ababa, but it was unsuccessful. 2. Most of the key information highlighted the unlimited access for underage children to dangerous inflammable gases such as petrol and gasoline gas for sale. This indicates a clear gap in the management of inflammable substances in the city, particularly in the surrounding villages.

The study conducted by Kennedy & Knapp, in 1997 indicates that 95% of male children sustained burn injuries caused by storing inflammable substances, such as gasoline, at home. Another study conducted by Putril, et al., (2021) shows that petroleum gas-related burn injuries have increased over recent years and have become a public health issue in Indonesia, India, and China. There were no statistics on children's burn injuries with petroleum gas from Addis Ababa to Camper in other studies. 3. There was limited publicity or information dissemination on burn prevention on mass media, such as prevention posters on highways, schools, and community gathering points. 4. There were limited or no strategies for networking with community leaders and faith-based organizations to increase awareness of the burn prevention program. Thus, evidence-based, targeted community-level, combined projects are necessary to drive forward burn prevention

through specific environmental interventions and supplementary educational programs. Therefore, a burn prevention program could play a significant role in increasing burn prevention awareness in the community.

7.5.7 Conclusion of study 5

The result of this study shows some highlights that the participants were suggested four main areas, namely the need to intensify burn prevention programs in the community, to strengthen law enforcement authority, and to develop networking strategies with government and non-government organizations working on burn and injury prevention, like the Addis Ababa Fire Brigade organization. Future interventions should consider these gaps and establish a targeted, simple, and effective burn injury prevention program. The Ottawa health promotion model can help with benchmarking for future burn prevention programs in Addis Ababa. The city of Addis Ababa hosts many international organizations headquarter offices, including the African Union, the Africa CDC, the Economic Commission for East and Central Africa (ECA) and more than 90 countries embassy offices.

7.5.8 Recommendation

. It is recommended that policymakers consider and give priority to an effective, efficient, and sustainable burn prevention program in Addis Ababa. Stronger emergency and rescue control mechanisms, which contribute towards minimizing the extent and level of disability. Therefore, the following are suggested based on the study findings,

Capacity-building training for health workers, women associations, and schoolchildren

Develop and set standard guidelines for monitoring and evaluating the prevention program and the burn injury response team regularly.

Establishing a fire-related emergency evacuation team and prevention strategies for mass burn causality in Addis Ababa and beyond.

Chapter 8 General

Discussion and recommendation

8.1 Introduction

Burn injuries are a leading cause of morbidity and disability, with the burden of disease being disproportionately higher in low- and middle-income countries (LMIC) (Wesson, et al.,2013, Price, et al.,2021,). Regarding children's burn injuries in Addis Ababa, with existing data, it is difficult to estimate the true burden of burn injuries on the general population of Addis Ababa, and little is known about the epidemiology of burn injuries in the population that is not present in the burn care facilities in Addis Ababa (Gutema et al.,2006).

It is crucial to investigate this information gap further. Assessing the pattern, circumstances, psychosocial impact, and contributing variables of activity constraints on children and caregivers with burn injuries in three chosen Addis Ababa hospitals was the primary goal of the study. Five separate studies were used in a multiple technique approach to address the study's goals and research issue.

8.2 Research setting and phase of the study

Three burn care hospitals in Addis Ababa, which treated patients with burn injuries, including children, were the sites of the study. Three steps were taken in the thesis process. A quantitative study using a hospital record was conducted in the first stage, followed by a qualitative study using voice recordings and interviews, and a final quantitative study examining the socioeconomic factors of caregivers with burn injuries and the quality of life following a burn injury. Hospital officials need to solve this administrative gap since it was made impossible to obtain the data of

all admitted children in one of the hospitals due to inadequate record-keeping. Scald and flame burns constituted the majority of the causes of burn injuries.

8.3 Key Findings and Discussion of Results.

Burn injuries among children in Addis Ababa represent a significant public health challenge, with far-reaching physical, psychological, and socioeconomic implications. This study aimed to assess the patterns, circumstances, and psychosocial impacts of paediatric burns while also evaluating first aid knowledge, quality of life post-burn, and current burn prevention practices. The findings contribute to a growing body of literature on burn injuries in low-resource settings and highlight crucial areas requiring intervention

8.3.1 Patterns and Circumstances of Paediatric Burns

One of the most critical findings was the high prevalence of scald and flame burns among children, particularly in households with limited kitchen facilities and overcrowded living conditions. Scald burns, often caused by hot liquids, were the most common type of injury, predominantly affecting children aged 0–4 years. This aligns with studies from similar low-income urban settings in sub-Saharan Africa and South Asia, where dense housing, open-flame cooking, and inadequate supervision are common risk factors. In contrast, developed countries have seen a decline in paediatric burns due to improved kitchen safety standards, stricter regulations on hot water temperature, and widespread burn prevention campaigns. Gender disparities were also observed, with more female children affected than males. This trend has been reported in other developing nations, where young girls are more likely to be engaged in domestic chores, increasing their exposure to burn hazards. This highlights the need for gender-sensitive prevention strategies that acknowledge cultural and societal norms.

A major gap identified in the study was the inadequate hospital record-keeping, which made it difficult to obtain comprehensive data on all admitted children. This limitation underscores the need for improved documentation and a national paediatric burn registry, similar to initiatives in high-income countries, where centralized databases help track burn injury patterns and outcomes more effectively.

8.3.2 Psychosocial Impact on Children and Caregivers

Burn injuries are among the most traumatic experiences for children and their families. The study revealed a significant psychosocial burden on both burn survivors and their caregivers, manifesting in emotional distress, social difficulties, and appearance-related concerns. Many children experienced anxiety, depression, and social withdrawal, negatively impacting their quality of life and school performance. These findings are consistent with research from Brazil and India, where burn survivors reported prolonged psychological distress and difficulties reintegrating into society. In developed countries, structured psychosocial support programs, including cognitive behavioural therapy and peer support networks, have been shown to mitigate the emotional impact of burn injuries, an approach that could be adapted for Ethiopia.

Caregivers also faced immense psychological stress, exacerbated by financial hardships and caregiving responsibilities. The socioeconomic background of many families meant that caregivers had to leave work or reduce their working hours, leading to further financial strain. This is a common challenge in low-resource settings, as seen in studies from Bangladesh and Nigeria, where caregivers struggle with the dual burden of medical expenses and lost income. The study highlights the urgent need for psychosocial support systems in hospitals, including counselling services, peer-support groups, and school reintegration programs for burn survivors.

8.3.3 First Aid Practice Among Caregivers

A particularly alarming finding was the poor knowledge and practice of first aid for burns among caregivers. Many participants demonstrated misconceptions about burn injury first aid treatment, with some applying harmful substances such as animal manure and traditional herbs to fresh burns. These practices not only increase the risk of infection but also contribute to prolonged hospital stays and complications such as tetanus. Similar findings have been reported in rural India and parts of Latin America, where traditional healing practices often conflict with modern medical recommendations.

By contrast, in high-income countries, structured first aid training programs have significantly improved burn outcomes. Countries such as Australia and Canada have successfully implemented nationwide campaigns promoting immediate cooling of burns with running water, a strategy proven to reduce burn severity and improve healing. Ethiopia could benefit from a similar approach by integrating burn first aid education into school curricula, community health programs, and public awareness campaigns.

8.3.4 Quality of Life Post-Burn and Socioeconomic Impact on Caregivers

Quality of life (QoL) assessments revealed disparities in how burn survivors and caregivers perceived their well-being. Physical and social responses were relatively better compared to emotional and cognitive functioning. Children who received adequate medical care and had strong family support reported higher QoL, whereas those with extensive burns and scarring faced ongoing difficulties. This aligns with global research indicating that social reintegration and access to rehabilitation services are key determinants of post-burn well-being.

From a socioeconomic perspective, this study found that a significant proportion of caregivers lived in overcrowded conditions, with 48.9% of participants reporting no separate kitchen and 77% lacking a separate room. These findings reinforce the link between poverty, burn risk, and recovery outcomes. Developed countries have addressed similar challenges by providing financial assistance to burn survivors, offering subsidized rehabilitation services, and implementing housing safety regulations. Ethiopia could consider policy interventions such as targeted financial support for burn-affected families and improved housing policies to reduce burn risks.

8.3.5 Burn Prevention Practices in use in Addis Ababa

Current Addis Ababa's burn prevention initiatives are still insufficient. According to this study report, street vendors were selling highly inflammable materials like gasoline on the street. These have the potential to be harmful, resulting in fatalities and widespread property damage. Despite the high burden of paediatric burns, there are no standardized burn prevention programs or regulations enforcing safer cooking practices, handling of inflammable liquids at petrol station and at home and home safety measures. The study highlights the urgent need for:

- Legislative advocacy to implement fire safety regulations, similar to those in Western Europe, where strict housing codes mandate child-safe kitchen designs and temperature regulators on water heaters.

- Integration of burn prevention education into primary healthcare services, as seen in Thailand and South Korea, where community-based education programs have successfully reduced paediatric burn incidence.
- Community outreach programs to promote safer cooking methods strategies, modelled on public health interventions in South Africa and Brazil, where improved stove designs and parental awareness programs have led to significant reductions in burn injuries.

8.4 Gaps and Limitations

Despite its strengths, the study had several limitations that hinder a comprehensive understanding of paediatric burns in Addis Ababa:

1. **Limited Population Coverage:** The study only included children who were admitted to hospitals or sought treatment, excluding a potentially significant number of burn victims who could not access medical care due to financial or logistical constraints. This creates a gap in estimating the true prevalence of burn injuries.
2. **Inadequate Data Management:** Poor hospital record-keeping made it impossible to retrieve complete data from one of the hospitals, limiting the study's scope and reliability.
3. **Lack of Observational Data on Accidents:** The study relied on retrospective self-reports from caregivers, which may introduce recall bias. Observational data collected at the time of the accident would have provided more accurate insights into the circumstances surrounding burn injuries of the children.

4. **Short Follow-Up Period for Quality of Life (QOL) Assessment:** The research timeframe was not sufficient to capture long-term health-related quality of life outcomes, limiting the understanding of post-burn recovery and rehabilitation challenges.
5. **Limited Exploration of Preventive Measures:** While the study acknowledged the need for prevention, it did not sufficiently explore existing burn prevention initiatives or evaluate their effectiveness.

8.5 Conclusion

This study provides crucial insights into the burden of paediatric burns in Addis Ababa, yet significant gaps remain in understanding the full scope of the issue. A shift towards community-based research, long-term impact assessments, and policy-driven preventive measures is necessary. Addressing these research gaps will not only improve burn management but also contribute to reducing the incidence and severity of paediatric burns through targeted interventions and informed policymaking. By advancing these research agendas, Ethiopia can work towards a more comprehensive and effective approach to burn prevention, treatment, and rehabilitation for children. Health promotion model of World Health organization strategy will provide effective and efficient community mobilization frame work.

8.6 Recommendation

According to the World Health Organization (WHO), burns are a major global public health problem, causing approximately 180,000 deaths annually, with most fatalities occurring in low- and middle-income countries. The WHO emphasizes that children and women are at the highest risk, particularly in settings where open fires and unsafe cooking practices are common. Key recommendations as follows;

- Improving cooking and housing safety. Advocating for safety cooking stove
- Strengthening First Aid Training: Immediate and correct first aid can significantly reduce burn severity. The WHO promotes education campaigns emphasizing the importance of cooling burns with clean running water for at least 20 minutes and avoiding harmful traditional remedies.
- Enhancing Burn Care Systems: Many low-resource countries lack specialized burn care facilities. The WHO supports the establishment of regional burn centres, skin banks, and rehabilitation programs.
- Policy and Legislation: The WHO encourages governments to implement strict safety regulations, including fire safety codes, flammable fabric standards, and childproof lighters.
- To conduct community based epidemiological study

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Appendices.

Appendix 1.1 Application letter for the hospital access.

Study title: The profile and psychosocial impact of burn injuries among children and their caregivers in Addis Ababa Ethiopia.

Federal Democratic Republic of Ethiopia

Addis Ababa city administration health bureau

Addis Ababa, Ethiopia

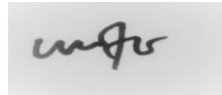
03/08/2021

Dear Sir,

Re: Issuance of supporting letter.

I am a postgraduate student in the department of Physiotherapy at University of Witwatersrand in Johannesburg South Africa. I am expected to conduct a research study as part of the requirements for Doctoral Degree (PhD) in physiotherapy. The title of my research study will be “The profile and psychosocial impact of burn injuries among children and care givers in Addis Ababa Therefore, I request your esteemed office to issue me supporting letter for the health institutions which I am intended to undertake my research such as, 1. Myungsung Christian Medical Centre, 2. Yekatit 12 hospital burn unit and 3. Addis Ababa Burn Emergency and Trauma Hospital.

Thank you. Worku W Herbaye PhD student: _



Supervisor: Associate Professor Ronel Roos_



Appendix 3.1 Introduction sheet in Amharic.

Study title: The profile and psychosocial impact of burn injuries among children and their caregivers in Addis Ababa Ethiopia.

ሰሜ : ወርቁ : ወልደገዮ ርገሰ : ሕርባዬ ይባላል ::

በ የግንባርነት አፍ ውት ዋ ተርስራንድ በፋካፊትይ አፍ ሄለዝይ ሳይንስ በ ደቡብ አፍሪካ ጆሃንስበርግ ከትማ የ ገእቻድ (P.H.D) የ ሶስተኛ ዲግሪ ተማሪ ሰህን ጥናተን የማድርገው : በየካቲት ሀሽፒታል, በኮሪያና በ አቢት ሀሽፒታሎች : ሰህን, ጥ ናቱም የምያቅከረው :: በሰብአዊ የአሳት ታጠሎ ጉዳት በደርስባቸው ህፃናትና አስተማማኝነት ላይ የሚደርስባቸውን የሰነድበናውና የማህበራዊ ጉዳት ላይ የተሞረኩ ነው :: ጥናቱ የተሳካ እንደሆነ : የተሳታፊዎች ጠ ቃ ም መረጃ መስጠት እስፈለገ ነው :: የጥናቱ ተሳታ ፍ ዎች የሚሆኑት ዕድሜ ያቸው ከ እስራ ስምንት ዓመት በታች የሆኑት ህፃናት ሕክምና ከላይ በተጠቀሰው በ ሶስቱ ሀሽፒታል ውስጥ እየተደርግላቸው ያሉትና አስተማማኝነት ያቸው, እንዲሁም በታጠሎ ተመላላሽ ሕክምና ከፍል ውስጥ ከትትል ያላቸው ህጻናት ሆነው በ አማርኛ ቁዋንቁዋ መናገር የምቺሉ እንደሆነም : ፍላጎታቸውን ለመግልፅ ፈቃደኛ የሆኑት ብቻ ናቸው :: ታል መጠየቁን የማድርገው አስተማማኝነቱን በሀበርት ሆኛችሁ ሰህን ህጻናት ደግሞ እንድ በ እንድ ነው :: በዚህ ላይ ላረጋግጥሎት የምፈልገው የርስዎ ማንነት ለማንኛውም ሰው አይገለ ፅም :: ይህም እር ሶ የ ሚሰጡት መረጃ የ እርስዎ በመሆኑ ማሰጥ ራወትቱ የተጠበቀ ይሆናል :: በቃላ -መጠይ ቅ ወትት የደምፅ መቆጃ መሳርያ መጠቀም መረጃዎቹን በትክክል ለመያዝ ስለምርባኝ እ ጠቀምበታለሁ :: ሆኖም በ ካስት የተቀ ዱ ድምፅዎች ማንም በማያቸኝ ቦታ በቁፍ ተቆፈረው ይ ቀመጣሉ :: ይህም የሚሆነው በእርሶ ፈቃድ ኝ ነት ብቻ ነው :: ጥያቄ ዎችን አለመምለስ ወይ ም በጥናቱ ላይ ተሳታፊ አለመሆን ይቺላሉ : ነገ ርግን እርሶ ለጥያቄዎቹ የሚሰጡት እውነተ ኛ ምላሽና በጥናቱ ላይ መሳተፍ የጥናቱ ውጤት መልካም እንደሆነ ያደርገዋል :: ከላይ በተገለጠው ሃሳብ ከትስማሙ ስምዎንትምን በፍርማ እንደያረጋግጡልኝ በትህትና እጠይቃለሁ :: ለጥናቱ መሳካት ሰፊምያደርገልኝ ትብብር ዎ ከልብ እመሰግናለሁ ::

የተሳታፊ ፈርማ  ሰነድ ታ ሳ ገ ገ ገ
ቀን 22/05/2012
የመረጃ ሰብሳቢ ስም : 
ፈርማ : 
ቀን 30/05/2012

Appendix 3.2 Data capture sheet.

Study title: The profile and psychosocial impact of burn injuries amongst children and their caregivers in Addis Ababa Ethiopia.

Data collection tools (Hospital record)

Record Code:.....

Part one socio-Demographic Information.

1. Hospital name

1	Yekatit 12 hospital	
2	Addis Ababa burn emergency and trauma hospital	
3	Myungsung Christian Medical Centre	

2. Gender

1	Male	
2	Female	
3	Unknown	

3. Age

4. Age group

1	0-4	
2	5-9	
3	10-18	

5. Care givers

1	Mother	
2	Father	
3	Aunt	
4	Sibling	
5	Grand mother	
6	Other	

7	Unknown	

6. Location of Residence

1	Urban	
2	Rural	
3	Unknown	

Part two factors contributing to burn injuries

7. Type of burn

1	Thermal	
2	Chemical	
3	Electrical	
4	Radiation	
5	Others	
6	Unknown	

8. Aetiology of burn

1	Flame	
2	Hot liquid	
3	Electrical	
4	Charcoal	
5	Hydrochloric acid	
6	Hot metal	
7	Candle light	
8	Gas stove	
9	Kuraze	
10	Matches	
11	Others	
12	Unknown	

9. Degree of burn

	1 st Degree	
	2 nd Degree	
	3 rd Degree	
	4 th Degree	

10. Area of burn

Burn area	1 st degree 0	2 nd degree 1	3 rd degree 2	Mixed 3	Not burned 4

1	Head and neck anterior					
2	Head and neck posterior					
3	Anterior trunk					
4	Posterior trunk					
5	Rt Buttock					
6	Lt Buttock					
7	Rt thigh anterior					
8	Rt thigh posterior					
9	Rt lower leg anterior					
10	Rt lower leg posterior					
11	Lt thigh anterior					
12	Lt thigh posterior					
13	Lt lower leg anterior					
14	Lt lower leg Posterior					
15	Rt upper arm anterior					
16	Rt upper arm posterior					
17	Rt Lower arm anterior					
18	Rt lower arm posterior					
19	Lt Upper arm anterior					
20	Lt upper arm posterior					
21	Lt Lower arm anterior					
22	Lt lower arm posterior					
23	Rt hand anterior					
24	Rt hand posterior					
25	Lt hand anterior					
26	Lt hand posterior					
27	Rt foot anterior					
28	Rt foot posterior					
29	Lt foot Anterior					
30	Lt foot posterior					
31	Rt hand					
32	Gentalia					

11. Percent of Total body surface area (TBSA %)

1	0-10	0
2	11-25	1
3	26-35	2
4	36-45	3
5	46 and above	4
6	Unknown	5

12. For How many days admitted in the hospital?

1	1-3 days	
2	4 - 15 days	
3	16-21 days	
4	22-35 days	
4	36 and above days	
5	Unknown	

13. First aid treatment used at home

1	Nothing	0
2	Cooling water	1
3	Colligate	2
4	Coffee powder	3
5	Salt	4
6	Oil	5
7	Litti ,dough of bread	6

Part three treatment received in the hospital

14. Physiotherapy

1	Every day	
2	Twice in a week	
3	Three times in a week	
4	Once in a week	
5	No physiotherapy	
6	Unknown	

15, Occupational therapy

1	Every day	
2	Twice in a week	
3	Three times in a week	
4	Once in a week	
5	No occupational therapy	
6	Unknown	

16. Clinical psychologist/social worker

1	Every day	

2	Twice in a week	
3	Three times in a week	
4	Once in a week	
5	No clinical psychology	
6	Unknown	

17. Dietician

1	Every day	
2	Twice in a week	
3	Three times in a week	
4	Once in a week	
5	No dietician	
6	Unknown	

18. Haemodynamic test

1	Blood sugar	
2	Urea	
3	Creatinine	
4	Sodium	
5	HB	

19. Body weight

1	0-10 Kg	
2	11-20Kg	
3	21-35Kg	
4	36 and above Kg	

20. Inhalation injury

1	Yes	
2	No	

21. Non-surgical treatment given:

1	Analgesics	
2	Counselling	
3	Splinting	
4	Physiotherapy/occupational therapist	

22. Number of IV fluids:

1	1000-1500ml	
2	1501ml to 2000ml	
3	3001ml to 3500ml	
4	3501ml to 4000ml	
5	None	

23. Number of pints of Blood:

1	1000-1500ml	
2	1501ml to 2000ml	
3	3001ml to 3500ml	
4	3501ml to 4000ml	
5	None	

24. Number of days on Antibiotics:

1	5days	
2	6-10 days	
3	11-15 days	
4	16-21 days	
5	21 and above	
6	None	

25. Number of days on non-narcotic analgesics

1	5days	
2	6-10 days	
3	11-15 days	
4	16-21 days	
5	21 and above	
6	None	

26 Number of days on narcotic analgesics

1	5days	

2	6-10 days	
3	11-15 days	
4	16-21 days	
5	21 and above	
6	None	

27. Surgical Interventions (e.g. Debridement, skin graft, amputation etc.)

1	Debridement	
2	Skin-graft	
3	Amputation	
4	z-plasty reconstructiv e	
5	Others (suture, esch)	

28.How many times was the patient operated under general An aesthesia? ...

1	One time	
2	Two time	
3	Three time	
4	Four times	
5	None	

29. Complications (e.g. wound infection, septicaemia, renal failure etc.)

1	Wound infection	
2	Contracture	
3	Amputation	
4	Septicaemia	
5	Renal failure	

30.Wound culture done?

1	Yes	

2	No	
3	Unknown	

31.Results of wound culture

1	Positive for pathogenic bacteria	
2	Negative	
3	Unknown	

32. Did the patient die?

1	No	
2	Yes	
3	Unknown	

Worku

Appendix 3.3 University of Witwatersrand Medical Ethics clearance

Study title: The profile and psychosocial impact of burn injuries among children and their caregivers in Addis Ababa Ethiopia.

UNIVERSITY OF WITWATERSRAND
JHANNESBURG

R45 Mr VVV Harbaya

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)
CLEARANCE CERTIFICATE NO. M51195

NAME: Mr VVV Harbaya
(Principal Investigator)

DEPARTMENT: School of Therapeutic Sciences
Department of Physiotherapy
Medical School
University

PROJECT TITLE: The profile and psychosocial impact of burn injuries among children and their caregivers in Addis Ababa, Ethiopia.

DATE CONSIDERED: 2021/11/26

DECISION: Approved unconditionally.

CONDITIONS: Please note the comments in Annex 1 attached.

NOTE: If contact information regarding student study participants is required, please contact the Registrar's office - <Registrar@wits.ac.za>

SUPERVISOR: Dr R Roos, Professor V Ntsepe

APPROVED BY: Dr CIB Penny Chababson, HREC (Medical)

DATE OF APPROVAL: 2022/05/12

This Clearance Certificate is valid for 5 years from the date of approval. An extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and **ONE COPY** returned to the Research Office secretariat on the 3rd floor, Philip Tobias Building, Parktown, University of the Witwatersrand, Johannesburg.

I/We fully understand the conditions under which I/we are authorized to carry out the above mentioned research and I/we undertake to comply with all applicable laws, regulations, policies and procedures of the University of the Witwatersrand, Johannesburg and the HREC (Medical) and to ensure that the research is carried out in accordance with the conditions of approval and to ensure that the research is carried out in accordance with the conditions of approval and to ensure that the research is carried out in accordance with the conditions of approval.

I/We declare that the research is carried out in accordance with the conditions of approval and to ensure that the research is carried out in accordance with the conditions of approval.

Signature of Principal Investigator: *[Signature]* Date: 13/05/2022

Appendix 3-4 Yekatit 12 hospital Medical Ethics Clearance.

Study title: The profile and psychosocial impact of burn injuries among children and their caregivers in Addis Ababa Ethiopia.

Yekatit 12 Hospital Medical College Research and Publication office

Date: 06/02, 2022

To: all departments that may apply
Yekatit 12 Hospital Medical College

Y12HMC IRB approval letter

Protocol number: 026/22

Title: the profile and psychosocial impact of burn injuries among children and care givers in Addis Ababa Ethiopia.

Principal investigator: WORKU WOLDEGOIRGIS

Application type: initial ☒ Amendment ☐ Renewal ☐

IRB Decision

☒ Approved
☐ Approved on conditions
☐ Not approved

Approval Period: one year (07/02, 2022 to 06/02, 2023)

Obligations of the principal investigator

- To comply with standard international and national scientific ethical guidelines
- To submit biannual report once in six months
- To submit the final report of this research project

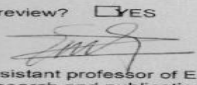
Note:

- Any change to the approved protocol or consent form must be approved through the amendment process prior to its implementation.
- Any adverse or unanticipated events should be reported within three days to the IRB of the college.

We, therefore, request the respective department/s to provide support for the commencement and conduct of the study.

Does the protocol require national research ethics review? ☒ YES ☐ NO

Regards


Ephrem Mammo (Assistant professor of Epidemiology)
Research and publication coordinator

CC
PI
IRB



Appendix 3.5 Human research clearance certificate Myungsung hospital.

Study title: The profile and psychosocial impact of burn injuries among children and their caregivers in Addis Ababa Ethiopia.

MYUNG SUNG HOSPITAL
MCM
COMPREHENSIVE SPECIALIZED HOSPITAL
ኮምፕረክሲቭ ስፔሻላይዝድ ሆስፒታል

TEL(1): 251-1-629 29 63
TEL(2): 251-1-662 84 28
TEL(3): 251-1-629 46 02

FAX: 251-1-629 27 95
Email: msmcmct@gmail.com
P.O.Box: 15478 Addis Ababa, Ethiopia

Ref: MCM Comp. spec #153/22 Date: 21-01-2022
#TC #?

To: **Mr Worku Woldegiorgis Herbaye**
Student number: 2338595
Faculty of Health sciences, Department of Physiotherapy
University of Witwatersrand Johannesburg, South Africa.

Re: **Permission to conduct the study.**

This is to inform you that we have examined your research proposal. The ethics clearance is granted, subject to the following condition and valid until 20/01/2023.

1. Any envisaged amendments to the research proposal that has been granted ethical clearance must be submitted to the Human research committee using appropriate application form.
2. Adverse events research proposal deviation or non-compliance must be reported within stipulated time frames using adverse event reporting form.
3. It is required that this ethical clearance certificate will be renewed annually.

MCM Comprehensive specialized Hospital Ethics Committee wishes you all the best for your studies.

Yours faithfully,

Dr. Solomon Hakele
Deputy Medical Director

Appendix 3.6 Human ethics clearance certificate AaBET Hospital.

Study title: The profile and psychosocial impact of burn injuries among children and their caregivers in Addis Ababa Ethiopia.

Ref. No. PH22/1-123
Date: 24/12/2021

Institutional Review Board (IRB) of St. Paul's Hospital Millennium Medical College (SPHMMC)
Ethical Clearance

Research Title The profile and psychosocial impact of burn injuries among children and caregivers in Addis Ababa Ethiopia

Principal Investigator: Mr Worku Herbaye

The IRB of SPHMMC has reviewed the above mentioned research proposal and made the following decision:

- Approved:- X
- Approved with recommendation:- _____
- Approved on condition :- _____
- Disapproved:- _____

The decision is valid for 12 months and the research should be conducted in compliance with the protocol/proposal approved by the IRB of SPHMMC. Any subsequent revision/amendment of the protocol/proposal needs approval before conduct of the research. The researcher should also submit written summaries of the research status to the IRB every 03 months. Upon the conclusion of the study, manuscripts and thesis work to the final/completed research project needs to be submitted to the IRB.

IRB Chair: _____
Signature: _____
Date: March/23, 2022

CC:

- Vice Provost for Academic and Research
- IRB
- Mr Worku Herbaye
- SPHMMC

Handwritten signature: Mantema Borale (MD)
Printed text: Mantema Borale (MD) Associate Professor Research Director



Appendix 3.7 Information sheet for care givers

Study title: The profile and psychosocial impact of burn injuries among children and their caregivers in Addis Ababa Ethiopia.

Greeting.

I /We, Worku W Herbaye are planning to do a research on children burn injuries and caregivers in Addis Ababa.

You have been invited to take part in a research study. Before you decide whether to take part in it, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information and ask if there is anything that is not clear or if you would like more information. If you decide to take part you may keep this leaflet. Thank you for reading this.

What is the research about?

This research is done to study the profile and psychosocial impact of burn injuries amongst children and their caregivers in Addis Ababa Ethiopia. The study aims to find out the extent and the level of burn injuries among the children aged 0-18 years. , to assess the first aid knowledge among the current caregivers , and to assess the current burn injury prevention activities in use in three selected hospitals in Addis Ababa . This will help us to make suggestion for proper budget allocation to treat burn injury victims and for making a plan how to prevent burns injury in the future. The study will take place in Addis Ababa at Yekatit 12 Hospital, Addis Ababa burn emergency and trauma hospital and Myungsung medical Centre.

Benefits of being in the study.

There is no direct benefit from this study. However, by participating in the study you will receive expert advice on each visit to the clinic from multi-disciplinary team of professional's .The long term benefit of this study is the possibility of better management of burn injury and reduction on

the level and extent of disability and psychological stress due to burn injuries among the children and caregivers.

How is the research done?

Questionnaires' will be distributed and it will take 15-30 minutes to fill on the paper and the research team will collect the form from burn unit clinic. The questionnaires' are translated into Amharic language and if you have problem with the language someone will translate for you. In addition to a questionnaire with your permission interview will be recorded .

Do you have to participate?

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to not to take part in the study you are still free to withdraw from the study at any time without giving a reason.

If I choose to participate will there be any payment due to me?

You will be paid by principal investigator a local public transport fee with in Addis Ababa on the day of interview or focus group discussion.

What happens if you decide to take part?

If you decide to participate, we will ask you to take part in filling/answering questionnaires. The questionnaire filling will last around 20-30 minutes. We don't do any tests or examinations and you will not be subject to any harm or inconvenience apart from the time we take for the interview. If you agree to take part, you will still be free to refuse to answer any of the questions that you don't want to.

What happens to the information you provide?

All transcriptions will be de-identified and it will not be possible to re-identify the participant. All information shared, on questionnaire will be kept confidential and stored in a password protected file, for three years after publication of the study. The information we collect during this study will remain confidential and will be strictly used for the purpose of the study. The information will be kept with the principal investigator. Your name and the name of your organization will not be recorded on the answer sheet.

What will happen to the results of the study?

The results of the study will be shared with the University of Witwatersrand and the Department of physiotherapy in the faculty of Health sciences. The results may be published in scientific journals. Summary of the findings will also be published in the Ethiopian Medical Journal and Ethiopian newspapers so that people become aware of it.

Who is doing the study?

The study is done by a PHD student in collaboration with the Muynsung Christian Medical Centre in Addis Ababa and University of Witwatersrand department of physiotherapy in the faculty of Health sciences.

Who has reviewed and approved this study

Before this study was approved to start, it was reviewed in order to protect your interests. This review was done first by the Department of physiotherapy, and then secondly by the Faculty of Health Sciences post graduate assessors committee at the University of Witwatersrand Johannesburg. The study was approved in both presentations.

Who is funding this research study?

I am personally funding the study and partial funding has been made available through the Children burn and Wound care Ethiopia.

Output of the study.

The output of the study will be disseminating of the findings of the study to an appropriate policy maker, in the form of presentation, and publication in a journal. The information will also increase awareness among the caregivers and community members in Addis Ababa. In addition, this study establishes the gap on first aid Knowledge for burn injury victims in Addis Ababa health facilities and propose strengthening strategies on existing facilities.

Contact for Further Information

If you have any questions or concerns please don't hesitate to contact the chief investigator, Mr Worku Woldegiorgis Herbaye, Tel 00251934774736 or 00251934336703 Please note that you will be given a consent form with this information sheet. Please read the consent form and sign it if you agree to take part in the study. If you have any concern over the way the study is being conducted, please contact the chairperson of this committee who is professor clement penny, who may be contacted on telephone number 0027 117172301. Thank you very much for taking part in our study.

Thank you for reading this information sheet

Worku Herbaye

September, 2021

Appendix 3.8 Amharic translation of information sheet

Study title: The profile and psychosocial impact of burn injuries among children and their caregivers in Addis Ababa Ethiopia.

አባሪ 3

በጥናት ውስጥ የሚሳተፉት እንክብካቤ ሰጪዎች እና ቁልፍ ጠቋሚዎች የመረጃ ቅጽ

የጥናቱ ርዕስ

የታጠሉ ጉዳዮች በአዲስ አበባ፣ ኢትዮጵያ በሚገኙ ህጻናት እና እንክብካቤ ሰጪዎች ላይ የሚኖራቸው ስነ ልቦናዊ ተጽእኖ እና አጭር ታሪክ

ስላምታ

እኔ፣ ወርቁ ደብሊው፣ አርባዬ በህጻናቶች የታጠሉ ጉዳዮች እና እንክብካቤ ሰጪዎች ላይ በአዲስ አበባ ጥናት ለማድረግ እያቀድኩ ነው።

እርስዎ በጥናት ምርምር ውስጥ የሚሳተፉ ተጋብዞታል። በዚህ ውስጥ ለመሳተፍ ከመወሰኑ በፊት፣ እርስዎ መርምሩ ለምን እንደሚደረግ ማወቅ እና ምን እንደሚነኩት ማወቅ ጠቃሚ ይሆናል። እባክዎን የሚከተለውን መረጃ ለማንበብ ጊዜዎን ይውሰዱ እና ግልጽ ያልሆነ ማንኛው ነገር ካለ ወይም ተጨማሪ መረጃ የሚፈልጉ ከሆነ ይጠይቁ። እርስዎ በዚህ ውስጥ ለመሳተፍ የወሰኑ ከሆነ ይህንን መጠይቅ ይዘው ሊያቆዩ ይችላሉ። ይህንን ስላንበቡ አመሰግናለሁ።

መርምሩ ስለምንድን ነው? ይህ ምርምር የታጠሉ አደጋዎች አጭር ታሪክ ጥናት የማድረግ እና ታጠሉ በህጻናት እና በእንክብካቤ ሰጪዎች መካከል በአዲስ አበባ ውስጥ ያላቸውን የስነ ልቦና ተጽእኖ ለማጥናት ነው። ጥናቱ ከ0 እስከ 18 አመታት መካከል በሚገኙ ህጻናት ላይ የታጠሉ አደጋዎች መጠን ልክ እና ደረጃ ለማግኘት የታለመ ነው። በአሁኑ ጊዜ በሚገኙ እንክብካቤ ሰጪዎች ያለው የመጀመሪያ ደረጃ እውቀት ለመገምገም፣ በአሁኑ ጊዜ በአዲስ አበባ ውስጥ በተመረጡ ሶስት ሆስፒታሎች በጥቅም ላይ የሚውሉትን የታጠሉ አደጋ መከላከያ ተግባራት ለመገምገም ነው። ይህ የታጠሉ አደጋ ጉዳት ሰለባዎችን ለማከም አግባብነት ያለው የበጀት አመዳደብ ሀሳብ ለመስጠት እና ለወደፊቱ የታጠሉ አደጋ ለመከላከል እቅድ ለማድረግ ይጠቅመናል። በአዲስ አበባ የካቲት 12 ሆስፒታል፣ አዲስ አበባ የታጠሉ ድንገተኛ እና ጉዳት ሆስፒታል እና ሜንግሳን ህክምና ማህተም ውስጥ ይካሄዳል። በዚህ ጥናት ውስጥ የመሳተፍ ጥቅማጥቅሞች

10/10/2018



በዚህ ጥናት ውስጥ በመሳተፍ የሚገኝ ተጥተኛ ጥቅማ ጥቅም የለም፤ ይሁን እንጂ በጥናቱ ውስጥ ተሳትፎ በማድረግ ወደ ክልሊክ በሚመጡበት በእያንዳንዱ ወቅት ከክልሊክ የባለሙያ ቡድኖች የባለሙያ ምክር ያገኛሉ የዚህ ጥናት የረዥም ጊዜ ጥቅም የታጠሉ አደጋ በተሻለ ሁኔታ ለማስተዳደር የሚያስችል ሁኔታዎችን እና በታጠሉ አደጋዎች ምክንያት በህጻናት እና እንክብካቤ ሰጪዎች ላይ መካከል የሚደርሰው የአካል ጉዳተኝነት ደረጃ እና መጠን ልክ እና የስነ ልቦናዊ ጭንቀት ሁኔታ ለመተንሰ ነው።

እርስዎ መሳተፍ ይኖርበታል?

በዚህ ውስጥ ተሳትፎ ለማድረግ ወይም ላለማድረግ መወሰን የእርስዎ ፋንታ ነው። በዚህ ውስጥ ተሳትፎ ለማድረግ ከወሰኑ ይህ የመረጃ ቅጽ እንዲያይዙ ይሰጥዎታል እና የስምምነት ቅጽ እንዲፈርሙ ይጠየቃል። እርስዎ እና የእርስዎ ህጻን በጥናት ውስጥ ላለመሳተፍ ከወሰናችሁ ምንም ምክንያት ባለመስጠት በማንኛውም ጊዜ ከጥናቱ ለመውጣት ነጻነት ለመሳተፍ የመረጥኩ ከሆነ ለእኔ የሚገባኝ ማንኛውም ክፍያ አለ?

በቃለ መጠየቁ ቀን በአዲስ አበባ ውስጥ በሚኖረው ተቀዳሚ መርማሪ የአካባቢያዊ የህዝብ ትራንስፖርት ክፍያ ይከፍለዎታል።

እርስዎ ለመሳተፍ ከወሰኑ ምን ይፈጠራል?

እንደተንከባከቢ

1. ቃለ መጠየቅ

በጥናት ውስጥ እንደተንከባከቢ ለመሳተፍ የወሰኑ ከሆነ፤ እርስዎ ቃለ መጠየቅ እንዲያደርጉ እና መጠይቆችን እንዲሞሉ እንጠይቃለን። ቃለ መጠየቁ እና የድምጽ አተዳድ ከ20 እስከ 30 ደቂቃዎች ይፈጃል እና መጠይቆችን መሙላት ከ10 እስከ 20 ደቂቃዎች ይወስዳል። በዚህ ቃለመጠየቅ እና የድምጽ አተዳድ ጊዜ ውስጥ የእርስዎን ህጻን እንክብካቤ በሚያደርጉበት ጊዜ ያጋጥሞትን ተግባራት በሚመለከት እና በእርስዎ ጤና ላይ የተከሰ ማንኛውም ስነ ልቦናዊ ጭንቀት እንጠይቃለን። ማንኛውም መከራዎች ወይም መርምራዊ ስሜቶች እናረግም እና ለቃለ መጠየቁ ከምንወስደው ጊዜ በቀን በእርስ ላይ የሚደርስ ማንኛውም ጉዳት ወይም ምቹ ያልሆነ ሁኔታ አይኖርም ላለመስማት ከወሰኑ፤ እርስዎ መልስ መስጠት በማይፈልጉባቸው ማንኛውም ጥያቄዎች ላይ መልስ ላለመስጠት የሚያስችል ነጻ መብት አልዎት

2. መጠይቆች (የመጀመሪያ እርዳታ እውቀት እና የማህበራዊ ኢኮኖሚያዊ ሁኔታ)

04/10/2014



እንደ ተንከባካቢ ሆኖ በጥናት ውስጥ ተሳትፎ ለማድረግ ከወሰኑ በቃጠሉ ጉዳት ላይ የመጀመሪያ እርዳታ እውቀት አተገባበር የሚያሳይ መጠይቅ እንዲሞሉ እና የቤተሰብ እና የእኩዮሚያዊ ማህበራዊ ሁኔታ እዝል (ኤችኤስኤስአይ) መጠይቅ እንዲመሉ እንጠይቃቸዋለን። መጠይቆች በቀጥታ ለእርስዎ ይሰራጫሉ እና ከተመላላሽ ታካሚ ክፍል በሚኖረው የመሰብሰቢያ ቦታ ይሰበሰባሉ። የመጠይቆቹ መሙላት ሁኔታ ከ10 እስከ 20 ደቂቃዎች ይወስዳል። መጠይቆቹ በሚሞሉበት ጊዜ እርዳታ ከፈለጉ፣ ከእርስዎ መጠየቅ ላይ ጥያቄዎቹን በማንበብ እገዛ እናደርግዎታለን እና መልስዎትን ለመጻፍ (በቃል መጠየቅ አቅራቢ ለሚጻፉ መልሶች)።

እንደ ቁልፍ ጠቋሚ

ቃል መጠየቅ

በጥናት ውስጥ በአዲስ አበባ ውስጥ የቃጠሉ ጉዳት መከላከያ ቁልፍ ጠቋሚ በመሆን ለማሳተፍ የወሰኑ ከሆነ እርስዎ ቃል መጠየቅ እንዲደረግዎልዎ እና ድምጽ እንዲቀጣ እንጠይቃቸዋለን። ቃል መጠየቁ እና ድምጽ አቀዳዱ ከ20 እስከ 45 ደቂቃዎች ይፈጃል በዚህ መጠይቅ እና የድምጽ መትዳት ውስጥ እርስዎ ለማህበረሰብ የቃጠሉ መከላከያ ፕሮግራሞችን በመውሰድ ረገድ ስላጋጥሞት ተግባራዊነት እና በአዲስ አበባ ውስጥ ስላለ የቃጠሉ መከላከያ ፕሮግራም ስኬት እንጠይቃቸዋለን። ማንኛውም መብራሪያዎች ወይም መርምራዊዎች እናረግም እና ለቃል መጠየቁ ከምንወስደው ጊዜ በቀር በእርስዎ ላይ የሚደርስ ማንኛውም ጉዳት ወይም ምቹ ያልሆነ ሁኔታ አይኖርም ላለመስማት ከወሰነ፣ እርስዎ መልስ መስጠት በማይፈልጉባቸው ማንኛውም ጥያቄዎች ላይ መልስ ላለመስጠት የሚያስችል ነጻ መብት አልዎት እና ይህ የሆነ፣፣ታል ህክምና ላይ ጉዳት አያመጣም።

እርስዎ በሚሰጡት መረጃ ላይ ምን ይፈጠራል?

ሁሉም የተሳትፎ ልዩ ዝርዝር ሁኔታዎች እንዳይለዩ ይደረጋሉ እና ታሳታፊው ለመለየት አይቻልም። በቃልመጠይቅ ወቅት ያጋሩት ሁሉም መረጃ በሚስጥራዊነት ይያዛል እና በይለፍ ቃል በሚጠበቅ መዝገብ ጥናቱ ከታተመ በኋላ ለሶስት አመታት ይቀመጣል። እኛ በዚህ ጥናት ውስጥ የምንሰበሰበው መረጃ ሚስጥራዊ ሆኖ ይቆያል እና ለጥናቱ ዓላማ ብቻ ጥቅም ላይ ይውላል። መረጃው በተቀዳሚ መርማሪው ዘንድ ተይዞ ይቀመጣል። የእርስዎ ስምና ማንኛውም መለያ መረጃ በመልስ መስጫ ቅጽ ላይ አይመዘገብም።

04 18-12-2024



ቦጥናቱ ውጤቶች ላይ ምን ይከሰታል?

የጥናቱ ውጤቶች ከዊት ዊተርሳታንድ ዩኒቨርሲቲ እና የፊዚዮ ቱራፒ ትምህርት ክፍል የጤና ሳይንሶች ፋካልቲ ጋር እንዲጋራ ይደረጋል። ውጤቶቹ በሳይንሳዊ ጆርናሎች ይታተማሉ። የግኝቶቹ ማጠቃለያ ከዚህ በተጨማሪ በኢትዮጵያ ሜዲካል ጆርናል እና በኢትዮጵያ ጋዜጣዎች እንዲተርጉ በማድረግ ለህትመት ተቀባይነት ያገኙ ከሆነ ህዝቡ ስለእነዚህ እንዲያውቅ ይደረጋል። የእርስዎ ስም ወይም እርስዎን ለመለየት የሚጠቅም ማንኛውም መረጃ በህትመቶች ውስጥ ጥትም ላይ አይውልም።

ጥናቱን የሚያካሂደው ማን ነው?

ጥናቱ የሚደረገው በዊተርሳታንድ ዩኒቨርሲቲ እና የፊዚዮ ቱራፒ ትምህርት ክፍል የጤና ሳይንሶች ፋካልቲ በተመዘገበ የዶክትሬት ዲግሪ ተማሪ የሚደረግ ነው።

ይህንን ጥናት ያሻሻለው እና ያጸደቀው ማን ነው?

ይህ ጥናት ከመጀመሩ በፊት የእርስዎን ፍላጎቶች ለማስጠበቅ እንዲሻሻል ተደርጓል። ይህ ማሻሻያ በመጀመሪያ የተደረገው በፊዚዮ ቱራፒ የትምህርት ክፍል ነው እና በ2ኛነት በዊተርሳታንድ ዩኒቨርሲቲ ጆሃንስበርግ የጤና ሳይንሶች ፋካልቲ፣ ድህረ ምረቃ ገምጋሚዎች ኮሚቴ ተደርጓል። ጥናቱ በሁለተኛው አቀራረቦች ጸድቋል። ማሻሻያው ይህ ጥናት እንዲካሄድ ፍቃድ ከመስጠታቸው በፊት በሆስፒታሉ ጭምር ተደርጎ ነበር።

ይህንን የምርምር ጥናት በገንዘብ የሚደግፈው ማን ነው?

እኔ በግሉ ለጥናቱ የሚያስፈልገውን ድጋፍ እያደረግኩ ነው እና በክፍል የጥናቱ ገንዘብ በህጻነት ታጠሎ እና ጉዳት እንክብካቤ በኢትዮጵያ አማካኝነት የተገኘ ነው።

የጥናቱ ውጤት

የጥናቱ ውጤት በአቀራረብ አይነት እና በጆርናል ውስጥ እንዲታተም በማድረግ አግባብነት ላላቸው ፖሊኦሙጨዎች የጥናቱ ግኝቶች ይሰራጫሉ። ከዚህ በተጨማሪ መረጃው በጎልማሳ ህጻናት ላይ የታጠሉ መከላከያ ስልቶች እውቃታቸውን ይጨምራል። በአዲስ አበባዎች የታጠሉ ጉዳቶች መልሶ ልማት አገልግሎቶች ጥራት ላይ ይሆናል በዚህ ተጨማሪ ይህ ጣናት በአዲስ አበባ የጤና ፋሲልቲዎች ውስጥ በስነ ልቦናዊ አገልግሎቶች ላይ ያሉትን ክፍተቶች ለመለየት ለረዳ ይችላል እና ለታጠሉ ጉዳት መከላከያ እና አመራር በነባር ፋሲልቶች ላይ የማጠናከሪያ ስልቶችን ሀሳብ ያቀርባል።

14 18.12.2014



የተጨማሪ መረጃ ተጠሪ

ማንኛውም ጥያቄዎች ወይም የሚመለከቷቸው ነገሮች ካልዎት፣ እባክዎን ዋና ጥናት አድራጊ አቶ ወርቁ ወልደጊዮርጊስ ሀርባዬ ስልክ 00251934774736 ማግኘት ይችላሉ። እባክዎን ከዚህ የመረጃ ቅጽ ጋር የስምዎን ቅጽ አብረው ይሰጥዎታል። እባክዎን የስምዎን ትሕትና ያንብቡ እና በጥናት ውስጥ ለመሳተፍ የተስማሙ ከሆነ ይፈርሙ። ጥናቱ በሚካሄድበት መንገድ ላይ ማንኛውም ጥያቄ ካልዎት፣ እባክዎን የዩኒርስቲ ስነ ስርዓት ኮሚቴ ሰብሳቢ የሆኑትን ፕሮፌሰር ክሊመንት ፔኒ በስልክ ቁጥር 0027117172301 ማግኘት ይችላሉ።

በዚህ ጥናት ውስጥ በማትፎ እናመሰግናለን።

ይህንን የመረጃ ቅጽ በማንብብዎ እናመሰግናለን።

ወርቁ ሀርባዬ ነሐሴ 2012



Appendix 4.1 One on one child friendly interview guide.

Study title: The profile and psychosocial impact of burn injuries among children and their caregivers in Addis Ababa Ethiopia.

Tell me your name.

Are you afraid to touch fire or hot liquid? if yes tell me more

Do you have any nightmare at the night following your burn injury?

What were you doing during the time of accident?

What are the main problem you have right now after the burn injury?

Does the burn injury affect your school work? if yes explain

Thank you.

Worku w Herbaye

September, 2021

Appendix 4.2 Information sheet for the children 9-18 years old

Study title: The profile and psychosocial impact of burn injuries among children and care giver's in Addis Ababa Ethiopia.

Greeting.

Introduction

We, Mr. Worku Woldegiorgis Herbaye principal investigator and Nurse Darartu Teshome, and Ayal worku a research assistant planning to conduct a Research on children burn injuries and its impact on care givers. Research is a process used in seeking new knowledge. We would like to find out cause of burns, location of accident, psychological and social problems caused by burns and what things influence your quality of life after being burnt. We want to collect information on all children who have had sustained a burn injury and discharged from hospital during six-month period.

Invitation to children

We are inviting you to take part in a research study and asking for your permission to include you in the research study.

What involved in the study.

We are planning to conduct an interview with you and other children above 9 years old. We will be asking you a few questions about how are you feeling and about your health before and after you have left the hospital and ask you a few questions about your personal experiences about burn injury in general. We are going to use a questionnaire to collect information. The questionnaires' will be distributed and will be collected after you fill the answer in the clinic.

Risk of being involved in the study.

In this study there is no physical harm for you. We are asking you a few questions to answer about your burn injury and your experiences living with burn injury and the limitation you have following the burn injury. If you feel not comfortable during the interview, we will provide you professional counselling and take you for medical attention and we will discontinue the interview or working on the questionnaire. It will take you about 10-15 minutes to fill in the questionnaires and 20-45 minutes for focus group discussion. We will also explain what we will be doing and why to you verbally in a language you understand well. Whether or not you take part in this study, you will still receive appropriate medical care when you come for a follow up visits.

Benefits of being in the study.

The short term benefit of the study will be, you will receive expert advice on each visit to the clinic from multi-disciplinary team of professionals. The long term objectives of this study is the possibility of better management of burn injury and reduction on the level and extent of disability and psychological stress due to burn injuries among the children and caregivers.

Participation in the study.

Participation in this study is voluntary and you may withdraw from the study at any time.

Confidentiality

Your name will not be used on the data collection form; thus your confidentiality will be respected. During your group discussion the principal investigator will advise the participants to

maintain confidentiality pre and post discussion. You will be discussing with your age mate in secure and comfortable place with in the hospital environment. The information will be available to the principal investigator and his supervisors. However, there is no guarantee to maintain privacy in focus group discussions.

Output of the study.

The output of the study will be disseminating of the findings of the study to an appropriate policy maker, in the form of presentation, and publication in a journal. The information will also increase awareness among the adolescent children on burn injury prevention strategies and on quality rehabilitation services for burn injuries in Addis Ababa.

Contact for investigator

Principal investigator

Mr Worku W Herbaye

Tell, 267 71903384

physiotherapistworku@gmail.com

Research assistant

Ms Darartu Teshome

0025111144623

Supervisors

Associate professor Ronel Roos

0027 117173723

Associate professor Veronica Ntsiea

Contact details of HREC Administrator

This study has been approved by the Human Research Ethics Committee (Medical) of the University of the Witwatersrand, Johannesburg. The main function of this committee is to safeguard the rights and dignity of all human subject who agree to participate in a research. If you have any concern over the way the study is being conducted or performed, please do not hesitate to contact the office.

Chairperson of the committee, Professor Clement penny /Telephone 0027 117172301

e-mail: Clement.Penny@wits.ac.za, **Committee Secretariat, Telephone** 0027 117172700/1234

E-mail Rhulani.Mukansi@wits.ac.za

Thank you for reading this study information sheet.

Worku W Herbaye

September 2021

Appendix 4.4 Informed consent care givers /guardians.

Study title: The profile and psychosocial impact of burn injuries among children and their caregivers in Addis Ababa Ethiopia.

Consent form

I..... understand the purpose of this research project and give consent for my child.....to participate in the research. I have read and understood the information and my questions have been answered. I am fully aware of the procedures and the fact that they will not harm my child in any way. I am aware that I may withdraw my child from the research without any prejudice towards my child or myself.

Parent/guardian

Date

Thank you for participation.

Worku W Herbaye

September, 2021

Researcher

Date

Appendix 4.5 Informed assent for children 5-9 years.

Study title: The profile and psychosocial impact of burn injuries among children and their caregivers in Addis Ababa Ethiopia.

I..... agree that it is okay for the researcher to enrol me in this study. I understand what this study is about and understand what I am expected to do as part of it. I understand what has been explained to me about answering some questions. My questions have been answered. I know that taking part in this study will not harm me in any way. I am aware that I may withdraw from this study at any time without any notification.

Child

Researcher

Date

Date

Worku W Herbaye

September, 2021

Appendix 4.6 Informed assent form for children (10-18) years

Study title: The profile and psychosocial impact of burn injuries among children and their caregivers in Addis Ababa Ethiopia.

My name is Worku W Herbaye and I am doing a research study about burn injuries among the children and its prevention management. A research study is a way to learn more about something. One of your parents has already given their permission for you to be part of this study, and now it is your turn to decide. If you decide that you want to be part of this study, you will be asked to describe in a simple terms what will be asked of participants.

When we are finished with this study we will write a report about what was learned. This report will not include your name or that you were in the study. You will stop or exit from study at any time. Before we begin do you have any question? If you want to be in this study please write your name and sign below.

Name

signature

Researcher

signature

Worku w Herbaye, September, 2021

Appendix 4.7 Amharic consent form.

Study title: The profile and psychosocial impact of burn injuries among children and their caregivers in Addis Ababa Ethiopia.

ስሜ : ወርቁ : ወልደወርቅ ርገሰ : ሕርግዬ ይባላል ::

በ የንብርሰት ኦፍ ውት ዋ ተርስራንድ በፋካልቲይ ኦፍ ሄሊዝይ ሳይንስ በ ደቡብ ኦፍሪካ ጆሃንስበርግ ከትማ የ ፕላቸድ (PhD) የ ሶስተኛ ዲግሪ ተማሪ ስሆን ጥናተን የማድርገው : በየካቲት ሀሽፒታል, በኮሪያና በአቤት ሀሽፒታሎች : ስሆን, ጥናቱም የምያቀርብለው ::
በሰብአዊ የእሳት ቃጠሎ ጉዳት በደርስባቸው ህፃናትና አስተማማኝነት ላይ የሚደርስባቸውን የስነልቦናውና የማህበራዊ ጉዳት ላይ የተሞረኩኝ ነው :: ጥናቱ : የተሳካ እንደሆነ : የተሳታፈዎች ጠቃም መረጃ መስጠት አስፈላጊ ነው :: የጥናቱ ተሳታፊዎች የሚሆኑት ዕድመ ያቸው ከ አስራ ስምንት ዓመት በታች የሆኑት ህፃናት ሕክምና ከላይ በተጠቀሰው በ ሶስቱ ሀሽፒታል ውስጥ አየተደርግላቸው ያሉትና አስተማማኝነት, እንዲሁም በቃጠሎ ተመላላሽ ሕክምና ከፍል ውስጥ ከትትል ያላቸው ህፃናት ሆነው በ አማርኛ ቁጥንቁጥ መናገር የምቼሉ እንደሆኑ :: ፍላጎታቸውን ለመግልፅ ፈቃደኛ የሆኑት ብቻ ናቸው :: ቃል መጠየቁን የማድርገው አስተማማኝነቱን በህበርት ሆኝቸው ስሆን ህፃናት ደግሞ እንድ በ እንድ ነው :: በዚህ ላይ ላረጋግጥለሁት የምፈልገው የርስዎ ማንነት ለማንኛውም ሰው አይገለፅም :: ይህም እርሶ የሚሰጡት መረጃ የ እርሶም በመሆኑ ሚስጥ ራውጉቱ የተጠበቀ ይሆናል :: በቃል መጠይቅ ወቅት የድምፅ መቁጃ መሳርያ መጠቀም መረጃዎቹን በትክክል ለመያዝ ስለምርጃኝ እጠቀምበታለሁ :: ሆኖም በ ካስት የተቀዱ ድምፅዎች ማንም በማያገኝ ቦታ በቀጭ ተቆልፈው ይ ቀመጣሉ :: ይህም የሚሆነው በእርሶ ፈቃድ ኝነት ብቻ ነው :: ጥያቄዎችን አለመምለስ ወይም በጥናቱ ላይ ተሳታፊ አለመሆን ይቻላል :: ነገርግን እርሶ ለጥያቄዎቹ የሚሰጡት እውነተኛ ምላሽና በጥናቱ ላይ መሳተፍ የጥናቱ ውጤት መልካም እንደሆነ ያደርገዋል ::
ከላይ በተገለጠው ሃሳብ ከትስማሙ ስምምነትዎን በፍርማ እንደያረጋግጡልኝ በትህትና እጠይቃለሁ :: ለጥናቱ መሳካት ስልምያደርገላለኝ ትብብርዎ ከልብ አመሰግናለሁ ::

የተሳታፊ ፊርማ :  ስሜ ርገሰ

ቀን : 23/05/14

የመረጃ ሰብሳቢ ስም : 

ፊርማ : 

ቀን : 30/05/2012

Appendix 4.8 Interview guide for caregivers.

Study title: The profile and psychosocial impact of burn injuries among children and their caregivers in Addis Ababa Ethiopia.

1. Socio demographic characteristics of Respondents

Age_____

Sex_____

Marital status_____

Educational level _____

Place of residence: Rural_____

Urban_____

2. Would you tell me the reason why your child are admitted in burn unit?

Probing questions

a) Did you get checked in any other health institutions before you join were admitted in burn unit?

b) How long did you stay in burn unit with your child?

3. How your child exposed for burn injury?

Probing question

a. Who rescued your child from the burn injury?

b. Did the injury affect your social life? If yes

Probing question

How?

4 What are the services you are getting from the hospital?

Probing questions

- a) Did you get a psychological support from the hospital?
 - b) Did the provided services improve your social life?
5. Do you have a family member or relative visiting you since your child inflicted with burn?
- Injury?

Probing questions

- a) How often your family members visited you and your child?
 - b) Does your family member collaborate with the burn unit staffs in order to improve your emotional wellbeing?
 - c) Are there any restrictions to enter in burn unit for your family or relatives?
 - d) How do you feel about those restrictions?
- 6 What were your emotional reaction and responses about your child burn injury?

Probing questions

- a) Did you have an experience of depression, stress or feeling of hopelessness as result of your child burn injury?
 - b) Did you lose something because of your child burn injury?
- 7 . Did the burn injury affect your social interaction?

Probing question

Were there any strains, pressure or stigma you felt you faced because of your child injury?

8. What kind of improvement was observed on your health after your child took a treatment?

Probing question

- a) Do you get adequate medical treatment and counseling support from the hospital?

b) Do you get a psychological and social support from the hospital?

9. Has the burn injury predispose you or your child for disability? If your answer is yes, how do you think? to manage your future life?

Probing question

What kind of support you got from the hospital to facilitate your future life?

- 10 What do you expect from the hospital to fulfill your need regarding on your injury?

Thank you for your cooperation

Worku Herbaye

September, 2021

Appendix 4.9 Amharic translation of interview guide.

Study title: The profile and psychosocial impact of burn injuries among children and their caregivers in Addis Ababa Ethiopia.

አባሪ 8
ጥያቄ 2

የጥናቱን ዓላማና ስራዎችን ለሚመለከቱ ሰዎች መሆንዎን

1. የተገኘዎትበት ስራዎች ማህበራዊ ስነ ህዝብ ሁኔታዎች

እኔም _____

ደህንነት _____

የሕመም ሁኔታ _____

የሕመም ምክንያት ደረጃ _____

የሕመም ስራዎች ምክንያት _____

የሕመም _____

2. እርስዎን ህጻን ልጅዎ በታጠሰ ክፍል እንዲተካ የተደረገውን ምክንያት ለህጻንዎ ይናገሩ

የሕመም ምክንያት _____

3. ህጻን ልጅዎ በህክምና ታጠሰ ክፍል እንዲተካ ከመደረጉ በፊት በማንኛውም ሌላ የሕክምና ተቋም ተመርምሮ ነበር?

ሀ. ልጅዎ በታጠሰ ክፍል የተሞላ ለምን ያህል ጊዜ ነው?

ለ. ልጅዎ ለታጠሰ ጊዜው የተጠበቀ እንደሆነ ነበር?

የሕመም ምክንያት _____

ሀ. ህጻን ልጅዎ የታጠሰ አደጋ ሲያጋጥመው ማን አተረፈው?

ለ. ጉዳዩ የሕመምን ማህበራዊ ኑሮ ለይ ተደራሽ አድርጓል? አዎ ከዚህ

የሕመም ምክንያት : እንደሆነው?

4. እርስዎ ከሀኪም/ሕክምና ሰራተኛች/ሁኝ አገልግሎት ምን ዓይነት ጥያቄዎች

የሕመም ምክንያት _____



Appendix 5.1 Questionary on the knowledge and practice of first aid of care giver.

Study title: The profile and psychosocial impact of burn injuries among children and their caregivers in Addis Ababa Ethiopia.

Part one socio-demographic information.

Unique care giver identification #

1. Hospital name

Yekatit 12 hospital	0
Addis Ababa burn emergency and trauma hospital	1
Myungsung Hospital	2

1. Gender

Male	0
Female	1

2. Date of birth

Date	Month	Year

3. Age

	0
Unknown	1

4. Age group

10-15	0
16-20	1
21-30	2
31-40	3
41-50	4
Unknown	5

6. Primary Care givers

Mother	0
Father	1

Aunt	2
Sibling	3
Grand mother	4
Others (Neighbourhood s, social workers ,)	5

7. Location of Residence

Urban	0
Rural	1
Unknown	2

8. What did you apply for burn injury as a first aid mechanism at home?

Honey	0
Sugar	1
Salt	2
Cool tap water	3
Animal manure	4
Milk and butter	5
Soil	6
Leaf's from a tree	7

9. Did you know any burn injury prevention program in Addis Ababa?

Yes	0
No	1
I do not know	2

10. Is there any educational program on burn injury prevention in your hospital or health centre?

Yes	0
No	1
I Don't know	2

11. If yes for question 8 how did you know it?

On Television	0
Radio	1
News paper	2
Friends	3
Poster, flyers	4
Others , specify	5

12. How long did you apply cool tape water on burned surface?

1-10 Minutes	0
11-20 Minutes	1
21-30 Minutes	2
I do not know	3

13 How long did it take you to reach the hospital after burn injury to your child?

10 minutes	0
20minutes	1
30minutes	2
1hours	3
2hours	4

14 Did you have any training on first aid for burn injury?

Yes	0
No	1
I do not know	2

15 If yes for the above question when was it?

3month ago	0
6month ago	1
1year ago	2
2year ago	3

16. Your Education

None	0

Primary	1
Secondary	2
Tertiary	3

17. Occupation

House wife	0
Business	1
Student	2
Employed	3
Farmer	4

18. What is burn injury to you?

1. _____
2. _____
3. _____
4. _____

19. How do you recognize burns?

1. _____
2. _____
3. _____
4. _____

20. What are the cause of burn?

1. _____
2. _____

3. _____

4. _____

21. What should be done to prevent?

1. _____

2. _____

3. _____

4. _____

Worku W Herbaye

September, 2021

. Appendix 5.2 Amharic translation of questionnaire.

Study title: The profile and psychosocial impact of burn injuries among children and their caregivers in Addis Ababa Ethiopia.

ቅጽ(15)

ጥናት 3

በአዲስ አበባ፣ ኢትዮጵያ ውስጥ ባለ የእንክብካቤ ሰጪዎች ባላቸው የመጀመሪያ ደረጃ እርዳታ

እውቀት እና ተሞክሮ ላይ የተዘጋጀ መጠይቅ

ክፍል 1 -ማንበራዊ - ዲሞክራሲያዊ መረጃ

የእክለኛ እንክብካቤ ሰጪው መለያ ቁጥር #

1. የሆስፒታል ስም

የካቲት 12 ሆስፒታል	0
የአዲስ አበባ የታጠሉ፣ ድንታኛ እና	1
ጉዳት ሕክምና ሆስፒታል	2
ሚኒስቴር ሆስፒታል	2

2. ጾታ

ወንድ	0
ሴት	1

3. የትውልድ ቀን

ቀን	ወር	ዓ.ም

4. እድሜ

	0
አይታወቅም	1

5. የእድሜ ምድብ

10-15	0
16-20	1
21-30	2
31-40	3
41-50	4
አይታወቅም	5

Mes Aug 24, 2022



ክፍል ሁለት : እውቀት እና ተሞክሮን የተመለከቱ መረጃዎች

10.በቤትዎ ለታጠሉ ጉዳት ምን ዓይነት የመጀመሪያ ደረጃ እርዳታ ዘዴን ይጠቀማሉ ?

ማር	0
ስኬር	1
ጨጠ	2
ቀዝቃዛ የቢንቢ ውሃ	3
የእንስሳት ፍግ	4
ውተት እና ቅቤ	5
አፈር	6
ቅጠል	7

11.በአዲስ አበባ ውስጥ የሚገኝ ማንኛውም ዓይነት የታጠሉ ጉዳት መከላከያ ፕሮግራም ያውቃሉ?

አዎ	0
አይደለም	1
አላውቅም	2

12.በሆስፒታላችሁ ወይም በጤና ጣቢያችሁ በታጠሉ ጉዳት መከላከል ረገድ የሚሰጥ ማንኛውም የትምህርት ፕሮግራም አለ?

አዎ	0
አይደለም	1
አላውቅም	2

13. የጥያቄ ቁጥር 8 ምላሽዎ እዎ ከሆነ እንዴት አወቁ ?

በቲቪ	0
በራዲዮ	1
በደብዳቤ	2
ክንጽኞች	3
ፖስተር፣ ፍላጎር	4
ሌሎች ፣ ይገለጹ	5

Mes Aug 24,2022



14. በተቃጠለ ቦታ ላይ ቀዝቃዛ የቧንቧ ውሃ ስምን ያህል ቆይታ ይጠቀማል ?

ከ1-10 ደቂቃዎች	0
ከ11-20 ደቂቃዎች	1
ከ21-30 ደቂቃዎች	2
አላጠቅም	3

15. በሕጻን ልጅዎ ላይ የቃጠሎ ጉዳት በደረሰ ጊዜ ሆስፒታል ለመድረስ ምን ያህል ጊዜ ወሰደቦት?

10 ደቂቃዎች	0
20 ደቂቃዎች	1
30 ደቂቃዎች	2
1 ሰዓት	3
2 ሰዓታት	4

16. ለቃጠሎ ጉዳት የመጀመሪያ ደረጃ እርዳታ ማንኛውንም አይነት ስልጠና ወስደዋል ?

አዎ	0
አይደለም	1
አላጠቅም	2

17. ከላይ የተጠቀሰው ጥያቄ ምላሽ አዎ ከሆነ መቼ ?

ከ3 ወራት በፊት	0
ከ6 ወራት በፊት	1
ከ1 አመት በፊት	2
ከ2 አመታት በፊት	3

18. የቃጠሎ ጉዳት ማለት ለእርስዎ ምን ማለት ነው ?

- 1 _____
- 2 _____
- 3 _____
- 4 _____

Mes Aug 24, 2022



Appendix 6.1 Paeds quality inventory (age 0-9).

Study title: The profile and psychosocial impact of burn injuries among children and their caregivers in Addis Ababa Ethiopia.

ID#: _____
Date: _____

PAEDS QL

Paediatric quality of Life Inventory Acute Version

Parent report / caregiver (Ages 0-9)

Directions

On the following page is a list of thing that might be a problem for your child. Please tell us how much of a problem each one has been for your child during the past 7 days by circling.

0= If it is never problem

1= If it is almost never a problem

2= If it is sometimes a problem

3=If it is often a problem

4=If it is almost always a problem

.... There are no right or wrong answers.

If you do not understand a question, please ask for help.

In the past 7days, how much of a problem has your child had with.....

About my Health and Activates (problems with.....)	Never	Almost never	Some times	Often	Almost always
1.It is hard for me to walk more than one block	0	1	2	3	4
2. It is hard for me to run	0	1	2	3	4
3. It is hard for me to do sports activity or exercise	0	1	2	3	4
4 It is hard for me to lift something heavy	0	1	2	3	4
5.It is hard for me to take a bath or shower by my self	0	1	2	3	4
6.It is hard for me to do chores around the house	0	1	2	3	4
7.I hurt or ache	0	1	2	3	4
8. I have low energy	0	1	2	3	4

About my feelings (problems with.....)	Never	Almost never	Some times	Often	Almost always
1.I feel afraid or scared	0	1	2	3	4
2. I feel sad or blue	0	1	2	3	4
3. I feel angry	0	1	2	3	4
4 I have trouble sleeping	0	1	2	3	4
5.I worry about what will happen to me	0	1	2	3	4

How I get along with others (problems with.....)	Never	Almost never	Some times	Often	Almost always
1.I have trouble getting along with other kids	0	1	2	3	4
2. Other kids do not want to be my friend	0	1	2	3	4
3.Other kid tease me	0	1	2	3	4
4 I cannot do things that other kids my age can do.	0	1	2	3	4
5.It is hard to keep up when I play with other Kids	0	1	2	3	4

About school problem (problems with.....)	Never	Almost never	Some times	Often	Almost always
it is hard to pay attention in the class	0	1	2	3	4
2. I forget things	0	1	2	3	4
3. I have trouble keeping up with my school work	0	1	2	3	4
4 I miss school because of not feeling well	0	1	2	3	4
5.I miss school to go to the doctor or hospital	0	1	2	3	4

Worku W Herbaye

September, 2021

Appendix 6.2 Paeds quality inventory (Ages 10-18).

Study title: The profile and psychosocial impact of burn injuries among children and their caregivers in Addis Ababa Ethiopia.

ID#: _____
Date: _____

PAEDS QL

Paediatric quality of Life Inventory Acute Version

Adolescent Child report (Ages 10-18)

Directions

On the following page is a list of thing that might be a problem for you. Please tell us how much of a problem each one has been for you during the past 7 days by circling.

- 0= If it is never problem
- 1= If it is almost never a problem
- 2= If it is sometimes a problem
- 3=If it is often a problem
- 4=If it is almost always a problem

There are no right or wrong answers.

If you do not understand a question, please ask for help.

In the past 7 days how much of problem has this been for you.....?

About my Health and Activates (problems with.....)	Never	Almost never	Some times	Often	Almost always
1.It is hard for me to walk more than one block	0	1	2	3	4
2. It is hard for me to run	0	1	2	3	4
3. It is hard for me to do sports activity or exercise	0	1	2	3	4
4 It is hard for me to lift something heavy	0	1	2	3	4
5.It is hard for me to take a bath or shower by my self	0	1	2	3	4
6.It is hard for me to do chores around the house	0	1	2	3	4
7.I hurt or ache	0	1	2	3	4
8. I have low energy	0	1	2	3	4

About my feelings (problems with.....)	Never	Almost never	Some times	Often	Almost always
1.I feel afraid or scared	0	1	2	3	4
2. I feel sad or blue	0	1	2	3	4
3. I feel angry	0	1	2	3	4
4 I have trouble sleeping	0	1	2	3	4
5.I worry about what will happen to me	0	1	2	3	4

How I get along with others (problems with.....)	Never	Almost never	Some times	Often	Almost always
1.I have trouble getting along with other kids	0	1	2	3	4
2. Other kids do not want to be my friend	0	1	2	3	4
3.Other kid tease me	0	1	2	3	4
4 I cannot do things that other kids my age can do.	0	1	2	3	4
5.It is hard to keep up when I play with other Kids	0	1	2	3	4

About school problem (problems with.....)	Never	Almost never	Some times	Often	Almost always
1.It is hard to pay attention in the class	0	1	2	3	4
2. I forget things	0	1	2	3	4
3. I have trouble keeping up with my school work	0	1	2	3	4
4 I miss school because of not feeling well	0	1	2	3	4
5.I miss school to go to the doctor or hospital	0	1	2	3	4

Worku W Herbaye

September 2021

Appendix 6.3 Mapi trust application for the use of tools.

Study title: The profile and psychosocial impact of burn injuries among children and their caregivers in Addis Ababa Ethiopia.



Appendix 6.4 Mapi permission to use for educational purpose.

Study title: The profile and psychosocial impact of burn injuries among children and their caregivers in Addis Ababa Ethiopia.



Appendix 6.5 health related quality of life question.

Study title: The profile and psychosocial impact of burn injuries among children and their caregivers in Addis Ababa Ethiopia.

Item statement	N= 0	AN=1	ST=2	OF=3	AA=4
1. It is hard for me to walk more than one block					
2. It is hard for me to run					
3. It is hard for me to do sports activity or exercise					
4. It is hard for me to lift something is heavy					
5 .It is hard for me to take bath or shower by my self					
6. It is hard for me to do chores around the house					
7 .I hurt or ache					
8 .I have low energy					
9 .I feel afraid or scared					
10..I Feel sad or blue					
11. I Feel angry					
12. I have Trouble sleeping					
13. I worry about what will happen to me					
14. I have Trouble getting along with others					
15. Other kids Do not want to be my friend					
16 .Other Kids tease me					
17 .I cannot do things that others kids my age can do					
18 .It is hard to keep up when I play with other kids					
19. It is Hard to pay attention in the class					
20. I Forget things					
21. I have Trouble keeping up with my school work					
22. Miss school of not feeling well					
23. I Miss school to go to the doctor or Hospital					

Key: 0= Never a problem 1=almost never 2=sometimes 3=often 4=almost always.

Appendix 6.6 Householed and Economic Social Status Index (HESSI) of caregivers.

Study title: The profile and psychosocial impact of burn injuries among children and their caregivers in Addis Ababa Ethiopia.

Record Code:

Household and Economic Social Status Index. (HESSI).

Who provide the information below _____?

1. Family structure /house hold composition (Score 0-10)

1.A. Marital status of mother

- 1 . Never married
- 2 . Married but not now living with partner (eg, divorce, separated)
3. Widowed
4. Never married but now living with partner
5. Married and presently live with partner

2.B. House maintain membership; how many people currently dwell in the household?

Number 18 and older _____

Number 6-18 yrs old _____

Number below 6 yrs. old _____

3.C. Is there an adult relative now residing in the house hold? 0. No 1 yes

If yes who are they in relationship to the child? _____

II Social status in the community (education occupation [less than 18])

A. Mother's education what is the highest level of education attained by mother?

1. Less than standard three
2. Primary school (standard 3-4)

3. Junior secondary (standard 5-7)
4. Senior secondary (standard 8-9)
5. Matric /high school graduate/ vocational training diploma
6. 1-2yr collage, technician
7. 3-4 yrs. of university

B. Education of mother's partner: what is the highest level of education?

1. Less than standard three
2. Primary school (standard 3-4)
3. Junior secondary (standard 5-7)
4. Senior secondary (standard 8-9)
5. Matric /high school graduate/ vocational training diploma
6. 1-2yr collage, technician

What are the names, occupation and industry of the primary wage earners in the house?

Name	occupation	industry
1. _____		
2. _____		
3. _____		

Access to finances who in the family earns money? Check all that apply

-mother, father, partner, parent, and Sibling/Aunt/Uncle

III Housing accommodation.

A. In what type of housing do you live?

0. None, Homeless ,1Shack,2 Hostel 3. Room, garage ,4. Flat cottage ,5. Home shared with other family (is), 6. Home that is not shared with other families

B. Does your home have

1) A separate kitchen 0. No 1. Yes

2) A separate bath room 0. No 1. Yes

a) In your home how many separate rooms are there just for sleeping?

(Circle one number) 0 1 2 3 4 or more

b) what type of toilet facilities does your home have?

0. None ,1. Pit or Bucket 2. outside flush toilet 3. Inside flush

C) Do you own or rent a home?

d) Neither, 1. Rent,2. Purchasing on bond,3. Own 4.

How much do you pay monthly for rent or bond?

Birr_____ for service charge _

e) For electricity

(Highest in the last year) Birr_____

(The Lowest) _____

e) Maternal well being

Do you have any problem you might like to talk over with a doctor?

0. No 1. Yes (specify) During the past 3 month have you had any physical or emotional condition for which you have been receiving treatment or taking dictation? No 1. Yes (specify) Have you ever had any serious physical handicap? 0. No 1. Yes

Worku w Herbaye, September 2021

Appendix 7.1 information sheet for key informants.

Study title: The profile and psychosocial impact of burn injuries among children and their caregivers in Addis Ababa Ethiopia.

Name of Investigators:	Worku W Herbaye (PhD student)
Student Number:	2335895
Faculty:	Department of Health Science University of Witwatersrand,
First Supervisor:	Dr, Ronel Roos Department of Health Science , University of Witwatersrand, Johannesburg South Africa.
Second Supervisor:	Professor Veronica Ntsiea Department of Health Science University of Witwatersrand, Johannesburg South Africa
Research assistant	Sister Daratu Teshome

You have been invited to take part in a research study. Before you decide whether to take part it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information and ask us if there is anything that is not clear or if you would like more information. If you decide to take part you may keep this leaflet. Thank you for reading this.

What is the research about?

This research is done to study the psychosocial impact of burns, to find out the extent and the level of burn injuries among the children aged 0-18 years, and to find out the current burn injury prevention program in use in three selected Hospital in Addis Ababa. This will help us to make suggestion for proper budget allocation to treat burn injury victims and for making a plan how to prevent burns injury in the future.

Benefits of being in the study.

There is no benefit for the participation in this study. However, you will receive expert advice on each visit to the clinic from multi-disciplinary team of professionals. The long term benefit of this study is the possibility of better management of burn injury and reduction on the level and extent of disability and psychological stress due to burn injuries among the children and caregivers.

How is the research done?

This study will last three months which we will try to interview and to collect information from all caregivers (in case of children) with burn injury and adolescent children in Addis Ababa. In addition, we will collect information from key informant to find out any challenges on burn injury prevention program in Addis Ababa.

Do you have to participate?

We are here with you because we intend to ask those who are involved in burn prevention program and policy makers for burn injury prevention program in Addis Ababa. We want to collect information from burn prevention program officers and who has experiences in the field. It is up to you to decide whether or not to take part. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a consent form. If you decide to not take part, you are still free to withdraw from the study at any time without giving a reason.

What happens if you decide to take part?

If you decide to participate, we will ask you to take part in an interview. The interview will last around 30-60 minutes. During this interview we will ask questions about your challenges on the prevention program, key performance area, organizational capacity, internal process, extent and level of burn injury in the last few years and the outcome of the prevention program in Addis Ababa. We don't do any tests or examinations and you will not be subject to any harm or inconvenience apart from the time we take for the interview. If you do not agree to take part, you will still be free to refuse to answer any of the questions that you don't want to. We will also contact the authority to take some information about current burn prevention program and coverage area in general in Addis Ababa.

What happens to the information you provide?

All transcriptions will be de-identified and it will not be possible to re-identify the participant. All information shared during the focus group discussion will be kept confidential and stored in a password protected file, for three years after publication of the study. The information you provided during this study will remain confidential and will be strictly used for the purpose of the study. The information will be kept with the principal investigator. Your name and the name of your organization will not be recorded on the answer sheet.

What will happen to the results of the study?

The results of the study will be shared with the University of Witwatersrand and the Department of physiotherapy in the faculty of Health sciences. The results may be published in scientific journals. Summary of the findings will also be published in the Ethiopian Medical Journal and Ethiopian newspapers so that people become aware of it.

Who is doing the study?

The study is done by a PHD student in collaboration with the Myungsung Christian Medical Centre in Addis Ababa and University of Witwatersrand department of physiotherapy in the faculty of Health sciences.

Who has reviewed and approved this study

Before this study was approved to start, it was reviewed in order to protect your interests. This review was done first by the Department of physiotherapy, and then secondly by the Faculty of Health Sciences post graduate assessors committee at the University of Witwatersrand Johannesburg. The study was approved in both presentations.

Who is funding this research study?

I am personally funding the research study and partial funding has been made available through the Children burn and Wound care Ethiopia.

Output of the study.

The output of the study will be disseminating of the findings of the study to an appropriate policy maker, in the form of presentation, and publication in a journal. The information will also increase awareness among the adolescent children on burn injury prevention strategies and on quality

rehabilitation services for burn injuries in Addis Ababa. In addition, this study establishes the gap on psychosocial services in Addis Ababa health facilities and propose strengthening strategies on existing infrastructures.

Contact for Further Information

If you have any questions or concerns please don't hesitate to contact the chief investigator, Mr Worku Woldegiorgis Herbaye, Tel 00251934774736. Please note that you will be given a consent form with this information sheet. Please read the consent form and sign it if you agree to take part in the study.

Thank you for reading this information sheet

Worku Herbaye

September 2021

Appendix 7.2 Amharic information sheet.

Study title: The profile and psychosocial impact of burn injuries among children and their caregivers in Addis Ababa Ethiopia.

አባሪ 8

ጥናት 2

የእንክብካቤ ሰርቢዎች ታላላቅ መረጃ

1. የተንከባከቢዎች ማህበራዊ ስነ ህዝብ ሁኔታዎች

እድሜ _____

ጾታ _____

የጋብቻ ሁኔታ _____

የትምህርት ደረጃ _____

የመኖሪያ ቦታ ገጠር _____

ከተማ _____

2. እባክዎን ህጻን ልጅዎ በታጠሰ ክፍል እንዲተኝ የተደረገበትን ምክንያት ሲነግሩኝ ይችላሉ?

የምርመራ ጥያቄዎች

ሀ. ህጻን ልጅዎ በዚህ የታጠሰ ክፍል እንዲተኝ ከመደረጉ በፊት በማንኛውም ሌላ የጤና ተቋም ተመርምሮ ነበር?

ለ. ልጅዎ በታጠሰ ክፍል የቆየው ለምን ያህል ጊዜ ነው?

3. ልጅዎ ለታጠሰ ጉዳት የተጋለጠው እንዴት ነበር?

የምርመራ ጥያቄዎች

ሀ. ህጻን ልጅዎ የታጠሰ አደጋ ሲያጋጥመው ማን አተረፈው?

ለ. ጉዳቱ የእርስዎን ማህበራዊ ኑሮ ላይ ተጽእኖ አድርጓል? አዎ ከሆነ

የምርመራ ጥያቄ : እንዴት?

4. እርስዎ ከሆስፒታል የሚያገኙት አገልግሎቶች ምንድን ናቸው?

የምርመራ ጥያቄዎች

የ 18-12-2014



Appendix 7.3 informed consent for key informant.

Study title: The profile and psychosocial impact of burn injuries among children and their caregivers in Addis Ababa Ethiopia.

Consent form

I..... understand the purpose of this research project and give consent to participate in the research. I have read and understood the information and my questions have been answered. I am fully aware of the procedures and the fact that they will not harm me in any way. I am aware that I may withdraw from the research at any time without any prejudice towards myself.

Key informant

Date

Researcher

Date

Thank you for the participation.

Worku w Herbaye

September, 2021

Appendix 7.4 Interview guide tool for burn prevention officers.

Study title: The profile and psychosocial impact of burn injuries among children and their caregivers in Addis Ababa Ethiopia.

1. Can you tell me how long you were serving in burn injury prevention program?
2. Do you have burn injury prevention program in the hospital or health centre in Addis Ababa?

Probing question

- a) How do burn injured patients get burn injury prevention education in the hospital?

Probing question

What are the criteria to give burn injury prevention program in school?

3. Did the burn injury prevention program reduce or improve the level and extent of burn injury among the children in Addis Ababa? If yes,

Probing question

How? and explain further

- 4) What type of response have you received from the community regarding your prevention service in Addis Ababa?
- 5) What level of burn prevention program you provide to the community on a daily basis? such as primary, secondary or tertiary prevention program.?
- 6) Did you notice the burn injury prevention program increase awareness in the community and schools?

7) How do you express burn injury prevention program net working with other organization or stake holder?

8) What are the challenges regarding on the provision of burn injury prevention program in Addis Ababa?

Probing question

How do you improve or change?

Thank you for your cooperation

Worku Herbaye

September, 2021

Appendix 7.5 Informed consent for anonymous use of information.

Study title: The profile and psychosocial impact of burn injuries among children and their caregivers in Addis Ababa Ethiopia.

Informed Consent form

I..... Understand the purpose of this research project and give consent to participate in the research. I believe the principal researcher and his research team will protect my personal information closely so no one will be able to connect my information that identify me. The information in this study will be used only for research purpose and that will not reveal who I am. Therefore, I voluntarily allow only the research team to use my personal information captured in this study. I am aware of that; the University law requires the research team to show the information of the study for educational purpose.

Research participant

Researcher

Thank you for participation.

Worku W Herbaye

September, 2021

Appendix 7.6 informed consent for voice recording.

Study title: The profile and psychosocial impact of burn injuries among children and their caregivers in Addis Ababa Ethiopia.

Voice Recording Permission consent

I hereby give permission for Mr Worku Herbaye a PhD student at University of Witwatersrand faculty of health sciences, department of physiotherapy, to record our interview as a voice recording and to use the transcription of the voice recording as information to analyse in his thesis at the university of Witwatersrand.

I understand that the voice recordings will be kept in a safe place and locked away for a period of three years following completion of the study.

Participant Name: _____ **DOB:**

Child's Name: _____ **DOB:**

I hereby consent to the participation in interviews and the voice recording.

Signature of Participants: _____ **Date:**

Address of Parent/Guardian:

Contact number(s):

E-mail:

Worku Herbaye

September, 2021

