MANAGEMENT OF CHILDHOOD BURNS AND FALL-RELATED INJURIES IN THE NEW JUABEN MUNICIPALITY OF GHANA

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DECLARATION

I hereby declare that except where specific references have been made, this thesis is the result of my own research conducted under the guidance of my supervisors. This work has not been submitted in part or in whole to any institution for the award of a degree.

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DEDICATION

To my parents,

Mr. and Mrs. Siaw Duodu.

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N. A. S.

LIST OF ABBREVIATIONS AND ACRONYMS

AAP	-	American Academy of Paediatrics
AIPN	-	Australian Injury Prevention Network
BARIDEP	-	Brong-Ahafo Rural Integrated Development Project
CDC	-	Centre for Disease Control
CHPS	-	Community-based Health Planning and Services
C I	-	Confidence Interval
DALY	-	Disability-Adjusted Life Years
E A	-	Enumeration Area
ECOSOC	-	Economic and Social Council
FGD	-	Focused Group Discussion
GDHS	-	Ghana Demographic and Health Survey
GLSS	-	Ghana Living Standard Survey
GPRS 1	-	Ghana Poverty Reduction Strategy I
GPRS II	-	Growth and Poverty Reduction Strategy II
GSGDA	-	Ghana Shared Growth and Development Agenda
HBM	-	Health Belief Model
ICD	-	International Classification of Diseases
IE&C	-	Information Education & Communication
ILO	-	International Labour Organization
ISCAP	-	International Society for Child and Adolescent Injury Prevention
MDA	-	Ministries, Departments and Agencies
MDG	-	Millennium Development Goal
MFMER	-	Mayo Foundation for Medical Education and Research
MMDA	-	Metropolitan Municipal and District Assemblies

MTHS	-	Medium Term Health Strategy
NAP	-	National Action Plan
NAPCIP	-	National Action Plan for Child Injury Prevention
NCCE	-	National Commission for Civic Education
NCIPC	-	National Center for Injury Prevention Control
NGOs	-	Non Governmental Organizations
NIMSS	-	National Injury Mortality Surveillance System
PREHETIH	-	Primary Health Training for Indigenous Healers
SHEP	-	School Health Education Programme
SWC	-	State of the World's Children
TBA	-	Traditional Birth Attendant
TBS	-	Traditional Bone Setter
TBSA	-	Total Body Surface Area
TMP	-	Traditional Medical Practitioners
UNDP	-	United Nations Development Programme
UNICEF	-	United Nations Children's Fund
UNCRC	-	United Nations Convention on the Right of the Child
WHO	-	World Health Organization
WRCIP	-	World Report on Childhood Injury Prevention

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ABSTRACT

The study explored how childhood burns and falls are managed in the New Juaben Municipality in the Eastern Region of Ghana. This was against the background that childhood burns and fall-related injuries are major public health concerns that manifest in frequent hospitalization, high treatment cost, long period of recovery, pain, scar and disabilities. To address these concerns, the study set out to determine the risk factors for these childhood mishaps, to explore the treatment practices and to determine parents'/caretakers' preventive practices for childhood burns and falls with the aim of bridging the knowledge gap and to improve on management practices of such injuries.

A cross-sectional descriptive design which employed both quantitative and qualitative methods of data collection was used for the study. Using the multi-stage sampling method as an overall sampling technique, the simple random sampling method was first used to select twelve out of the fifty-two communities in the New Juaben Municipality. The same simple random sampling method was employed at the second stage to select two enumeration areas from each community after which parents/caretakers were selected. A total of six hundred parents/caretakers of children from twenty-four enumeration areas in the municipality were selected for the community survey. Key informant interviews were also used to collect data to supplement information gathered from the survey. These sets of data were triangulated during the data analysis.

The study revealed that parents/caretakers socio-economic backgrounds and the physical environment in which they live predispose children to burns and falls and

that children living with parents/caretakers who are extremely poor (living below the daily minimum wage of GH¢ 5.24 per day as at July, 2013) were found to be 18.9 times more likely to be victims of burns compared to those who live above the daily minimum wage. Children living with parents who observe playground safety are 25 times more likely to prevent fall-related injuries as compared to children living with parents who do not observe playground safety.

When home-based treatment practices for burns and fall-related injuries were explored, the most preferred treatment regimen was found to be first, traditional, followed by allopathic health care and then a blend of the two treatment regimens. Among the major reasons for the high utilization of traditional health practices are affordability, accessibility, availability of traditional medical services and the fact that diagnosis and treatment modes are related to the cultural beliefs of the people (acceptability). Three broad measures are adopted to prevent childhood burns but the most preferred measure is the practice of not leaving children alone at home. This practice was found to be 3.2 times more likely to prevent childhood burns compared to a practice where children are often left alone at home.

It is recommended that the New Juaben Municipal Assembly should collaborate with the schools, families, religious groups, NGOs, and health institutions to educate parents and school age children on the significant risk factors to childhood burns and falls. In doing this, it is recommended that specific educational programmes targeting specific vulnerable groups, such as children in the different age cohorts and parents with different socio-economic status, should be promoted. Further research will be required to fill the gap created in the area of community and national initiatives that is

aimed at preventing childhood burns and falls. This will compliment the current study in providing a holistic view on management practices for such injuries in Ghana.

CHAPTER ONE

1.1 Global Efforts at Reducing Childhood Burns and Falls

Every child has the right to grow to adulthood in good health, peace and dignity (UNICEF,2007). It is also a known fact that young children are vulnerable and dependent on adults for their basic needs, such as food, health care and education. In many countries, they are forced to fend for themselves, often at the cost of their full development and education(UNICEF,2007;WRCIP, 2008). Some of such situations often predispose such vulnerable ones to injuries. It is in response to these vulnerabilities and many other reasons why the UN yearly evaluates the state of the world's children to determine how well children are being catered for in each country. For instance, in terms of worse performing countries, Ghana's under five mortality is 78 per 1000 births and it is ranked 34th in the world (UNICEF 2013). The worst country in terms of under five mortality rate is Sierra Leone, followed by Somalia and Mali respectively. The country with the lowest/best under five mortality rate (2 per thousand birth) is San Marino (UNICEF 2013).

Another index for assessing how well childrens' welfare are being met is to determine the extent to which countries have achieved the Millenium Development Goals (MDGs) since all these goals are expected to save the lives of children and to improve their well-being, (particularly goals 4,5 and 6.) The goal-4 aims at reducing child mortality, with the target of reducing under-five mortality rates by two-thirds over the period 1990-2015. The MDG-5 seeks to improve maternal health, with a target of reducing maternal mortality ratio by three-quaters by 2015

while the MDG-6 is to combat HIV/AIDS, malaria and other major diseases. The MDG Report 2013 which assessed the progress made in Africa towards the MDGs concludes that while Africa is the second fastest growing continent, its rate of poverty reduction is insufficient to reach the target of halving extreme poverty by 2015. Africa is also off-track in reducing child mortality and maternal health. However, some African countries including Ghana have made significant progress with MDG 2-achieving universal primary education; MDG 3-promoting gender equality and empowerment of women; MDG 6-combating HIV/AIDS,TB, malaria and other diseases; and MDG 8-global partnership for development (UNDP 2013).

The daily life-experiences and suffering most children go through when they have burns and fall-related injuries have been captured in two vignettes to highlight some of the conditions in which some of the world's children live. In one of the most rural parts of Boane District in Mozambique, a widowed mother with seven children is in tears as she tells the story of her eldest son, Jose. Jose broke his leg after falling from a coconut tree while collecting fruit for the family's breakfast. Now aged 17, he is permanently disabled. One of his legs had to be amputated because he did not receive immediate care. His mother recalls that neighbours tried to help soon after the fall, but that it took many hours to get him to the nearest health-care facility. On arrival there it was apparent that the fracture was compound, and the facility lacked the necessary equipment to handle his case. He was consequently referred to Maputo Central Hospital, a further three-hour drive away. It was after 17 hours before Jose was seen by an orthopaedic surgeon. Jose's mother has now lost her primary breadwinner. She reflects on their experience,

saying “these are the realities of the day-to-day life we have to deal with in Mozambique” (WRCIP 2008).

In another case, Yaw Mensah, a three-year-old boy was taken to the Regional Hospital in Koforidua, Ghana by the mother when the burns he sustained failed to improve after one week of home-based care at her Obawale village in the Yilo Krobo District in Ghana. Yaw was immediately admitted to the Accident and Emergency Centre for intensive care owing to the second degree burns he sustained which was life threatening. He was weak and was breathing slowly. The risk of death was still high because Yaw had developed infectious complication as his wound had become septic. The surgeon in-charge indicated that Yaw needed immediate surgical debridement and meticulous aseptic wound treatment. Yaw’s mother, amid crying explained to the surgeon that she did not know that Yaw’s condition was serious. She also explained that she did not have enough money to send him to the hospital and he had not been registered with the National Health Insurance Scheme. After being on admission for a week, Yaw recovered considerably. The deep wound sustained had closed up and his general condition stabilized. Even though, Yaw was discharged a week later, he had to go home with a disfigured right arm and large scars on the chest because the Regional Hospital does not have the needed facilities for reconstructive surgery. This facility is present only at the Korle-Bu Teaching Hospital, in the national capital, Accra.

The cases of Jose and Yaw Mensah are not isolated ones among children in low income countries, but they bring to the fore a number of concerns as to whether parents are providing adequate care and protection for their children at home, and

what governments are doing to increase access to health care and treatment as well as reduce childhood burns and falls.

Childhood burns and fall-related injuries are among the most devastating of all injuries and major global public health crises due to the high rate of hospitalization, high cost of treatment, long periods of recovery, pains and the fact that many are left with permanent scarring and disabilities (Forjouh 2006; Kendrick et al., 2008; Peck et al., 2008; WHO, 2008). Childhood burns are the fourth most common type of trauma worldwide, following road traffic accidents, falls and interpersonal violence (WHO, 2008). Approximately 90 percent of all childhood burns and fall-related injuries occur in low to middle income countries and regions that generally lack the necessary infrastructure to reduce the incidence and severity of such injuries (Murray and Lopez 2006). The most severe injuries are associated with heat-related injuries and falls from a height. Older children are more susceptible to fractures than their younger counterparts and younger children have high incidence of burns and scalds than the older children (Jones et al., 2002). In industrialized countries the largest number of injuries occur in the living/dining room. However, most serious injuries also occur in the kitchen/cooking area (Jones et al., 2002). It is estimated that every year more than 67,000 children suffer from burns in the kitchen.

Morbidity from paediatric burns and falls are much more common and represent significant burden on health care facilities around the world. Among children under 15 years, fire-related burns are the 11th leading cause of disability-adjusted life years (DALYs) lost. Non-fatal falls are ranked 13th (Chandran et al., 2010). In many low income countries, falls are the most common type of childhood injury seen in

emergency departments, accounting for between 25% and 52% of assessment (Bartlett, 2002). A summary from the league table of child death by injury in high income countries indicates a decline of over 50 % in the incidence of all fall related-injuries over the past three decades. In Africa, the median incidence of falls among children and youth aged less than 22 years is 41 per 100 000 population, while in Central and South America, the rate varied from 1378 to 2700 per 100 000 population aged less than 20 years. In Asia, the median incidence was 170 per 100 000 population aged less than 18 years (Hyder et al., 2007; Del Ciampo et al., 2001).

In considering the global efforts at preventing childhood burns and falls, numerous organizations, agencies, centres and groups such as WHO, UNICEF, CDC, Save the Children, Ottawa Charter, Alma-Ata and Jakarta Declaration working groups and nations, have contributed and continue to contribute to the efforts at reducing the global burden of childhood injuries in general and particularly of childhood burns and falls.

A major WHO and UNICEF initiative at injury prevention was to build the structures for the promotion of health and wellbeing of people in general. These had the ripple effects of forming effective frameworks for injury prevention interventions at the international and national levels. The Ottawa Charter for Health Promotion which called for the identification of the prerequisites for health, methods of achieving health promotion as well as identifying five key action areas for intervention such as building a healthy public policy, creating a supportive environment, strengthening community action, developing personal skills, and reorienting health services, formed an effective framework or model in public health on which health promotion

interventions could be adopted. According to the Australian Injury Prevention Network (AIPN) (2012), most injury experts have adopted the Ottawa Charter model of health promotion as a pathway to preventing injuries at all levels.

After building the structures and models for a smooth take-off and nations and organizations pledged their commitment to the various declarations, the next major step at reducing child injury at the global level was the effort of WHO and UNICEF to jointly prepare a World report on child and adolescent injury prevention. The report was intended to help transfer knowledge into practice by capturing the best practices so that what has proven effective in decreasing the burden of child injury in some countries, can be adapted and implemented in others, hopefully with similar results. The World Report was also aimed at getting child injury on the policy agenda, widening the provision of information on effective action that would prevent injury, identifying existing gaps in knowledge and action, stimulating an increase in the response of health systems to injury, and encouraging an increase in research into child injury topics (WHO 2006).

Many countries have responded to the call for incorporating child injury into their national agenda. One of such countries is the United States of America. As part of its efforts at preventing childhood injuries, the U.S. Department of Health and Human Services in collaboration with the Centre for Disease Control and National Centre for Injury Prevention and Control have established a National Action Plan for Child Injury Prevention (NAPCIP). This plan serves as an overarching framework to guide the actions of those responsible for the health and safety of children and adolescesnts (NAPCIP 2012).The NAPCIP is structured into six domains and each consists of a set of goals and recommended actions for achieving such goals. The domains include

injury data and surveillance, research, communication, education, training, health systems and health care, and policy.

In South Africa, the National Injury Mortality Surveillance System (NIMSS) revealed that in 2003, 28.4% of all injury deaths was the results of road traffic injuries. Of this, children constituting 17% of all pedestrian and passenger fatalities (Harris et al., 2004). In view of the high rates of road traffic fatalities, the government's primary attention is on reduction of road traffic accidents and has adopted a number of measures to protect children in the traffic environment. Some of the initiatives relating to child road safety include empowering the Department of Transport to undertake educational campaigns with "Arrive Alive Campaign" being the most notable and providing funding for road traffic injury research (Ashley et al., 2008). Areas requiring intervention to reduce road traffic accidents in South Africa are improvement in road environment quality, driver fitness, pedestrian safety and fitness, reforms of regulatory and monitoring institutions and targeted communication campaigns to challenge public attitudes and, behaviours and practical road safety training in schools (Ashley et al., 2008).

In the case of Ghana, the National Commission on Children was established in 1989 to advance the welfare and development of children and to coordinate all essential services for children in the country. This outfit was upgraded to the status of a ministry (Ministry of Women and Children's Affairs) in 2001 and is now named Ministry of Gender, Children and Social Protection .The purpose of the upgrade is to intensify the promotion of women and children's welfare in Ghana. The Ministry is

mandated to initiate, coordinate and monitor gender responsive issues, ensure equal status for women and promote the rights and protection of children.

The Ghana Government, recognizing that children are vulnerable and require special protection appropriate to their age, ratified the UN Convention on the rights of the child, and was the first country to do so in February, 1990 after the convention came into force in 1989. Ghana has also ratified the following international conventions which seek to protect children:

- ILO Minimum Age Convention, 1973.
- African Charter on the Rights and Welfare of the Child, 1990.
- ILO Convention on Worse Forms of Child Labour, 1999.

Preventing children from work at an early age is an effective way of preventing avoidable injuries in most agricultural enterprises, especially on private farms and in situations where children are employed to harvest high tree crops (WRCIP 2008). The ILO Minimum Age Convention of (1973), sets the age at which children should not be allowed to work at 15. The Convention recognizes that two years before a child reaches the minimum legal age, that child can do 'light work'(work for not more than 14 hours a week, and that does not interfere with his/her schooling). Children under the minimum working age who are engaged in more than light work are in child labour. UNICEF additionally considers a child to be in child labour if he/she does domestic work for 28 hours or more a week. There is also agreement that some instances of child labour are so dangerous that they must be eliminated as a matter of priority and children withdrawn from them immediately. These include slavery, prostitution, forced labour, and recruitment into militia, as well as occupations that

harm the child's safety, morals or health. These 'worst forms' are set out in detail in ILO Convention, 1999 (No.138) on the Worst Forms of Child Labour (Kane 2002). As much as the ILO Convention has the propensity to prevent injuries, it is worthy to note that there is a limit to which this convention can be applied due to cultural variations and a definition of a child. It is culturally required of parents to train their children in their practicing vocation. As a result of this cultural requirement most children irrespective of the ILO Convention follow their parents especially during vacation to offer a helping hand as well as learn on the trade. Families in this cultural milieu do not consider such children under apprenticeship as child labour and this contradicts the ILO convention.

1.2 Statement of the Problem

Childhood burns and falls are major public health concerns globally due to the high prevalence and associated burden of injury (WRCIP 2008). These childhood injuries are a significant area of concern from the age of one year and progressively contribute more to the overall rates of death until children reach adulthood. It is estimated globally that, 67,000 children suffer from burns every year and in the case of fall-related injuries, 58,000 children with about 90% occurring in low income countries (WRCIP 2008).

In Ghana, many studies have acknowledged the high rates of paediatric burns and falls (Forjouh, 1996, Budu, 2005 and Aries, 2007) and hospital reports confirm that these two injuries are the leading causes of hospitalization due to injuries (Aries 2007). For instance, an extract from the 2012 report from the Reconstructive Plastic

Surgery and Burn Centre at Korle Bu Teaching Hospital in Accra published in the 20th February, 2013 edition of the Daily Graphic, indicated that there were 9,859 fatal burn cases treated at the Centre in 2012 and 37% of that number were children aged less than 10 years. These are mainly referral cases from the regional hospitals and the polyclinics and thus the number is under represented since most of the burn cases are treated at the various hospitals with few referrals made. It is also worth noting that many of the burns cases are treated at home, the majority by traditional medical practitioners (Anyinam 1987, Adae-Mensah 1992 and Forjouh 1996). This suggests that data on prevalence of childhood burns and falls collected from allopathic health care centres alone do not give the true reflection since it is mainly collected from one treatment regimen. Unfortunately, due to poor record management at most of the traditional health centres, getting reliable data on such injuries is difficult.

Considering the rate of childhood burns and falls in the study area, there are reported cases of acute burns on regular basis in several hospitals and clinics. For instance, the Eastern Regional Hospital records an average of four (4) admissions of such cases per week (Eastern Regional Hospital Report 2011). This implies that the burden of such injuries is enormous to the victim, family, society and the nation at large. The extreme situation is the loss of life or permanent disability with its attendant emotional and psycho-social problems which are very devastating. In certain situations families are not able to mobilise the needed resources for prompt treatment.

The increased rates of paediatric injuries require that there are well established facilities and centres to manage such injuries so as to decrease mortalities and morbidities associated with such injuries and to achieve the best possible quality of

life for children after treatment. Unfortunately, the only Reconstructive Plastic Surgery and Burns Centre is located in the Korle-Bu Teaching Hospital in the national capital, Accra. All of the hospitals in the municipality are under-resourced to manage acute burn cases leading to a situation where all such cases are referred to Korle-Bu in Accra. In 1999 the Government of Ghana embarked on health sector reforms to improve access and quality of health service (Salisu and Prinz 2009). However, the health situation in Ghana is still far from satisfactory. Medical facilities are under resourced and are not evenly distributed across the country, constraining access to care especially with regard to rural communities. This inequity in health service delivery partly explains why the preference for traditional medical practitioners in the treatment of childhood burns and falls in Ghana is on the increase (MOH 2005 and Aries et al., 2007). The details on the regional distribution of health facilities and key health personnel are presented in tables 1.1 and 1.2 respectfully.

Table 1 Health facilities by type and ownership

REGION	Teaching Hospital	Regional Hospital	Psychiatric Hospital	District And Other Hospitals				Polyclinics		Health Centres And Clinics				Maternity Home	CHPS	Total
				Mission	Govt	Q Govt	Private	Mission	Govt	Mission	Govt	Q Govt	Private	Private	Govt	
Ashanti	1	1		17	23	14	50		1	31	145	3	101	99	24	510
Brong Ahafo		1		11	10	4	2			13	128	0	23	38	40	270
Central		1	1	3	11	1	7			8	75	2	20	27	67	223
Eastern		1		6	14	5	9		2	14	165	2	29	29	247	523
Greater Accra	1	1	2	1	10	8	44		8	2	59	6	105	61	12	320
Northern	1			4	9	2	5		4	24	102	2	10	5	69	237
Upper East		1		1	4	0	0			12	55	1	12	1	91	178
Upper West		1		3	3	3	2			15	61	0	4		72	164
Western		1		4	12	5	11		2	19	88	1	38	36	112	329
National Total	**3**	**9**	**3**	**57**	**109**	**48**	**135**		**18**	**148**	**1081**	**18**	**366**	**318**	**795**	**3110**

Source: Ghana Health Service 2010 Annual Report

Table 2 Trend in Doctor, Nurse & Midwife/Population Ratio

REGION	DOCTORS			NURSES			MIDWIFES	
	2009	2010	2011	2009	2010	2011	2010	2011
ASHANTI	8,288	7,184	7,704	1,629	1,971	1,568	1,800	1545
BRONG AHAFO	16,919	22,967	16,103	1,822	1,891	1,495	1,539	1,515
CENTRAL REGION	22,877	18,218	20,442	1,518	1,538	1,309	1,781	1,688
EASTERN REGION	16,132	15,801	16,065	1,181	1,356	1,173	1,349	1,801
GREATER ACCRA	5,103	4,099	3,712	1,069	1,017	1,255	1,197	1,160
NORTHERN REGION	50,751	18,257	21,751	1,934	2,067	1,547	1,981	2,050
UPPER EAST REGION	35,010	31,214	38,642	1,125	1,141	914	1,303	1,265
UPPER WEST REGION	47,932	27,050	38,267	1,136	1,163	950	1,063	1,122
VOLTA REGION	26,538	32,605	23,660	1,174	1,422	1,242	1,428	1,443
WESTERN REGION	33,187	31,190	26,044	1,581	1,690	895	2,015	2,039
NATIONAL TOTAL	**11,929**	**10,423**	**10,034**	**1,497**	**1,489**	**1,240**	**1,538**	**1,478**

Source: Ghana Health Service 2012 Annual Report

1.3 Rationale for the Study

In Ghana, the burden of injury associated with paediatric burns and falls is high as a result of the high prevalence of such injuries. For instance in 2010, childhood falls accounted for 8% of years lived with disability (YLDs) with children aged 0-4 years. Ghana is ranked 7th for age-standardized YLD rate (Global Burden of Disease, 2010). The high rate of hospitalization, the cost of treatment, long period of recovery and the fact that many are left with permanent scars and disabilities make such injuries a major public health concern (Forjouh et al., 2006 and Peck et al., 2008). It is in this direction that WHO and UNICEF are calling on governments to determine strategies of preventing childhood unintentional injuries such as burns and falls. The current study is aimed at determining the risk factors and the preventive practices of such injuries. Knowledge on such risk factors should be an important input for health promoters to plan for specific educational interventions that will address the knowledge gap which affect parents' ability to prevent such injuries. Again, assessing the preventive practices for childhood burns and falls would help researchers determine preventive practices which are effective from ineffective ones. Knowledge on these practices could be added to literature to widen the knowledge base on preventive practices to childhood burns and falls.

Literature search on childhood burns and falls in this study has shown that a lot more studies have been conducted on various aspects of these injuries in developed countries while there are few studies conducted in developing countries especially in Africa with Ghana being no exception. However, WRCIP (2008) has advocated the need to intensify research and to act on evidence-based research in preventing childhood injuries such as

burns and falls. The few researches conducted on childhood burns and falls in Ghana suggest that they are neglected areas of study which need to be revived in order to reduce the incidence and the associated burdens. The importance of this current study cannot be underestimated in terms of its role in helping to address this problem.

Studies on paediatric injuries in Ghana have shown that the most preferred treatment regimen for childhood burns and falls is by traditional modes (Forjouh 1996 and Budu 2005). The need to determine how the traditional health practitioners treat these injuries and the challenges they encounter in the treatment processes are necessarily given their large patrons. This information could help in assessing the effectiveness in treating such injuries and remedial actions taken to improve such systems. Training needs of the traditional practitioners could be ascertained to help improve on their services.

1.4 Objectives of the Study

The study aimed at exploring how childhood burns and falls are managed in the New Juaben Municipality of Ghana with the motive of improving the preventive and treatment practices of such injuries.

The specific objectives were to:

1. Determine the risk factors and the associated contributions to childhood burns and falls.
2. Explore the treatment practices for childhood burns and falls at home.
3. Determine parents/caretakers preventive practices for childhood burns and falls.

1.5 Research Questions

In an environment where there is high prevalence of childhood burns and falls, how to prevent as well as manage such injuries are major public health concerns. As part of addressing these concerns, the study seeks to find answers from parents/caretakers of children on the following questions;

a) What are the major risk factors for childhood burns and falls in the New Juaben Municipality?

b) What are the common treatment practices for childhood burns and falls in the New Juaben Municipality?

c) Which preventive practices are employed in reducing childhood burns and falls in the New Juaben Municipality?

1.6 Hypotheses of the Study

Based on the objectives and the conceptual framework of the study (which is presented in the next chapter), three hypotheses were set to guide the study.

H_o: Poverty is a significant risk factor associated with childhood burns and falls in the study area.

H_1: Poverty is not a significant risk factor associated with childhood burns and falls in the study area.

Hypothesis two

Ho: There is a significant relationship between household preventive practices (do not leave children alone at home, prevent children from playing at kitchen, train children not to play with fire/lighter/matches) and childhood burns prevention.

H_1: There is no significant relationship between household preventive practices (not leaving children alone at home, prevent children from playing at kitchen, train children not to lay with fire/lighter/matches) and childhood burns prevention.

Hypothesis three

Ho: There is a significant relationship between education of parents/caretakers on home/playground safety practices and prevention of childhood fall-related injuries.

H_1: There is no significant relationship between education of parents/caretakers on home/playground safety practices and prevention of childhood fall-related injuries.

1.7 Scope of the Study

The study is limited to childhood burns and falls even though there are a number of other childhood injuries. The choice of these two injuries was necessitated by the fact that they are the leading causes of hospitalization in the study area (Eastern Regional Hospital Annual Report, 2011). The study is also limited to household and traditional health practices for preventing and treating childhood burns and falls.

1.8 Definition of key terms and concepts

The key concepts and variables defined are directly related to the objectives of the study. Apart from defining who a child is which sets the age limit for children, the other socio-demographic variables such as sex, marital status, and education were not operationalized because the general definitions were used.

1.8.1 A Child

The definition of a child as used by the Convention of the Right of the Child was adopted for the study. This refers to a person below the age of eighteen years unless the laws of a particular country set the legal age for adulthood younger (UNICEF 2005). This age was used because in Ghana, the legal age for adulthood is set above eighteen years. Another reason for the choice is that the aim of the study was to explore the vulnerabilities of all the age cohorts bearing in mind that some age cohorts are more predisposed to childhood injuries than the others. As a result of this, the following categorizations were made during data collection and analysis: 0-4 years, 5-9years, 10- 14 years and then 15-< 18 years.

1.8.2 Foster child

This refers to a child separated from the biological parents or not living with the biological parent. This variable was defined in this context because studies have shown that in many low income countries, a child's susceptibility to injury increases when he/she is not living with the biological parents (Mull et al., 2001, Delgado 2002 and Poulos 2007).

1.8.3 Poverty

There are various definitions for poverty and each of these is often based on the purpose to which they were defined. In one definition, it is seen as a state of one who lacks a certain amount of material possession or money (Wikipedia 2011). In another, it is referred to as denial of choices and opportunity (UN 2012). The World Bank defines extreme poverty as living on less than US$ 1.50 per day and moderate poverty as living on between US$2- 5 a day(World Bank 2007). The World Bank's definition was used as a basis for defining poverty for the study. It is defined as living below the daily minimum wage of GH¢5.24 per day as indicated by the Tripartite Committee in 2013. The applicability of this definition is questionable since it is difficult to determine how much one earns in a day. Many people have different sources of income that is not usually accounted for. Others are peasant farmers who consume what they produce and therefore determining the cost of living per day or month is difficult. Despite the problems associated with the use of this definition, it is able to give a rough idea of the number of people living below the daily minimum wage.

1.8.4 Overcrowding at home

This is difficult to define since all the definitions do not fit into the Ghanaian context of overcrowding which refers to too many people living in a household or a situation where all available bedrooms are occupied in a household. Due to this difficulty, Blake et al., (2007) definition was adopted. They defined overcrowding at home as a situation where two people of the opposite sex have to sleep in the same room, unless the two are married

or one is or both of them are under ten years. Blake's definition was used because it is easily quantifiable even though it is placed outside the Ghanaian context. A likely implication for using Blake's definition is that conclusions drawn based on this definition might be out of tune with the Ghanaian context and care needs to be taken when generalizing such outcomes.

CHAPTER TWO

2.0 LITERATURE REVIEW

Introduction

In the past much research has been conducted on various aspects of child health and welfare. This area continues to attract researchers' attention because there is still much to be done in reducing child morbidity and mortality especially among low income countries. The health status of children is a critical international index for assessing the level of national development. Thus, the lower a country's rate of infant mortality, all things being equal, the higher the rate of development in that country.

Review of the literature is based on broad thematic areas such as etiology/risk factors, health-seeking behaviour, treatment practices and preventive practices. A review of the literature on these themes is essential in strengthening the theoretical base, in widening the scope of the study as well as in deepening knowledge and understanding of the thesis topic.

2.1 Risk Factors to Childhood Burns and Falls

The World Report on Child Injury Prevention (2008), had categorized the causes of childhood burns and falls into three namely, child-related, agent-related and environmental causes. This classification even though very simplified plays an important role in identifying as well as differentiating the numerous risk factors of childhood burns and falls into their respective categories.

2.1.1 Child - Related Burns and Falls

Chung et al. (1996), Sheridan et al. (1997) and Burns Survey Center (2009) have indicated that the age of a child is a major threat which most often predisposes children to burns. The studies also found that children aged less than two years are very vulnerable to contact burns than older children. This is due to the fact that such children most often reach out to objects due to their curiosity and their inability to detect danger. It was identified that burns to the palm was among the most frequently admitted cases for emergency care in most hospitals (Sheridan et al., 1997). The study further found that the kitchen is often the area in the home where burn injuries occur to children in that age cohort while bathroom was identified to be the next most cited area where children get burnt. It was found that setting water heater at a high temperature was the main cause of scald burns in children. Even though the two studies (Chung et al., 1996 and Sheridan et al., 1997) studies are quite dated, they are very relevant in explaining the basic causes of childhood injury. It was found that due to their low cognitive development they are very vulnerable to injury. Keep Kid Healthy (2010) found that scald burns are the most common burn injuries in young children.

Another set of age-related injury studies were conducted by Ying and Ho (2001); Sever and Cekin, (2007); Goodis,(2008);Forjouh,(2008).The results of recent studies go to strengthen the basis of the previous age –related injuries studies. In a related study, Ying and Ho (2001), identified that boys older than 6 years tend to be curious about how fire ignites and as such begin playing and experimenting with igniting fire through the use of matches, lighters or fireworks. The study also identified that in most cases, younger

siblings are injured while watching the experimentation of their older brothers. Even though this study did not cover all the age categories of children as defined by WHO (only children aged less than 15 years with acute burn cases used) the findings are consistent with those of other studies that the most common type of burns were of domestic origin, followed by play-related burns and that toddlers were more susceptible to burns than any age cohort. Sever and Cekin, (2007) focused on unusual infant burns for all age cohorts of children in Harran in Turkey and found that thermal burns were the most common type in children because of flames, scalds contacts or radiation. The study further identified that among toddlers, scald burns from hot liquids accounted for over 80% of all thermal injuries. Forjouh et al. (2008), indicated that children age between 18 and 23 months had the highest incidence of burns in Ghana. Even though this study used burn scars as proxy to determine the incidence of burns, it was very useful as a crude method of estimating the incidence of burns in Ghana. The reliability of this proxy method of determining the incidence needs further investigation to justify the replication of such a method.

Many studies (Women's Education in India 2010; Wardatul 2001; and Cleland et al., 1988) indicated that women's low educational levels adversely affect the health and living conditions of children since infant mortality rate is inversely related to female literacy rate and educational level. The study further indicated that education equips mothers with the knowledge of scientific causes of diseases and with proper preventive and curative measures. It also empowers mothers to make and implement proper and timely decisions regarding their children's health.

Many studies have been conducted on age and cognitive development of children and their association with fall-related injuries. Some of the most notable include National Center for Injury Prevention and Control, Center for Disease Control and Prevention (2002); Flavin et al. (2006); Diane and Craig (2003). The most common issue that runs through the findings of these studies is that children younger than five years of age are at the greatest risk of fall-related injuries due to their low level of psycho-motor development which does not match their cognitive and intellectual development. The studies also identified that infants between the ages of 1 and 2 years are extremely vulnerable as it is at this stage that they begin to crawl and learn how to walk. It was further identified that childhood falls constitute the most common cause of injury and were responsible for more open wounds, fractures and brain injuries than any other type of injury.

In a related study, Bartlett (2002) identified that although most falls associated with young children might be considered a normal part of their development and a learning process, infants' curiosity to explore their surroundings is generally not matched by their capacity to gauge or respond to danger hence their high rate of injury. These are very relevant in explaining the basic causes of childhood injury. A weakness associated with these studies was that they used only data on children on admission in hospitals, leaving out out-patients and cases not taken to health facilities. This means that the studies are mainly on acute cases and might lead to the loss of important information such as the incidence and pattern of minor fall-related injuries in the study areas.

Another demographic factor that has direct relationship with childhood injury is the sex of a child. Studies by Adesunkanmi et al. (1999); Morrongiello and Dawber, (2000); Krug et al. (2000) and Daine and Craig, (2003) identified that males are more susceptible to fall-related injuries than females and toddlers are the most vulnerable. Reasons for the sex differentials might be due to the socialization process and personality traits such as impulsiveness, hyperactivity and aggression that are more commonly associated with boys than girls. Hence, the increased rate of fall-related injuries among boys than girls.

The study by Adesunkanmi et al. (1999) was the only study that examined all the facets of fall-related injuries such as age, sex, location of fall, pattern of injury and seasonal variation. This is one of the few classic studies that have comprehensively dealt with the the nature and trends of fall-related injuries in sub-Saharan Africa. The study indicated that most fatalities due to fall occur during the rainy season and that major fall occur at rooftop, balcony and household furniture. The study further revealed that head and face were the most frequently injured body regions and the skull was the most common bone fracture. Behera et al. (2009) reported on fatal accidental falls from height in children from South Delhi (India) and found male children to suffer more fall-related fatalities than females and the most common places of falls were from rooftop. A weakness in this study was that it used only secondary data compiled from report of medical and legal autopsies for a period of 10 years and did not use any primary sources. Despite this weakness, the method is very informative in revealing the trends of fatal injuries due to fall over the 10 year period.

2.1.2 Agent-Related Burns and Falls

Most often, childhood burns and falls are associated with unsafe consumer products and equipment as well as the use of inflammable substances. The study of the National Safe Kid Campaign, (2010) on fire safety and burns at the Lucile Packard Children's Hospital at Stanford observed that the leading cause of home fire and related injuries is home-cooking equipment. However, most fire-related deaths are from residential fires ignited by smoking materials such as cigarettes. It was found further, that the most common cause of product-related thermal burn injuries among children aged 14 years and below are hair curlers, curling irons, room heaters, ovens, gasoline and fireworks.

Nursal et al. (2003) in a cross-sectional study on electrical burns in southern Turkey found that unsafe electrical appliances, plugs, wires and other connections increase the risk of electrical burns among children. The study further found that easy access to electric cooking or heating appliances for children is a major predisposing factor. Ugburo et al. (2003) conducted a prospective study of patients suffering from kerosene explosion burns in some low-income communities in Nigeria and indicated that most explosions occurred due to kerosene contamination with petrol for illegal gains. It was also observed that most of the accidents occurred while people were refueling a lighted lantern and that the right upper limb holding the lantern was usually more severely affected than the left. In a related study, Olaitan et al.(2007) also found that kerosene lantern/ stove and petrol explosion in Nigeria.

In the case of fall- related injuries, Watson et. al, (2000) conducted a study on customers product related injury on children at Melbourne and observed that the most common non-fatal injuries occur among children aged less than one year. The study further observed that push chairs, baby bouncers, baby walkers and prams were common products which usually cause severe injuries from falls. The study further found that the use of bunk beds and conventional beds among children has also lead to severe injuries among those age cohort.

Recent studies on products for leisure activities for older children include Black and Amadeo (2003); Brudvik, (2006), Knox and Comstock, (2006); Knox et al. (2006) and Vioreanu et al. (2007). Some of the common observations in these studies were that falls are a common form of sport and recreational injuries in children and adolescents. It was further identified that the use of such products as skateboard, bicycles, in-line skate, Heely's, ice-skate, swing ropes and trampoline have high incidence of limb fractures, sprains and head injuries. Mott et al. (1994) in a related study on public playgrounds found that falls from playground equipment had led to severe injuries resulting in many hospital admissions.

Petridou et al. (2002) studies on playground injuries in Great Athens indicated that most of the injuries occur due to inadequate safety standards such as having inappropriate and insufficient surface materials, and inadequate handrails or guardrails. Kids Health (2008) reported that parents can help prevent playground accidents by taking some precautions

such as ensuring that there is adult supervision at the playground and making sure that the equipment is appropriate to a child's age and maturity level.

2.2 Environment-Related Threats to childhood Burns and Falls

2.2.1 The Physical Environment

Cummins and Jackson, (2001) reported on the built-up environment and children's health in North America and identified that the built environment is an important resource for the healthy development of children. At the same time, the built up environment is often the source of all related injuries due to the inherent structural hazards some of which include the presence of dangerous or inappropriate features, and the absence of protective features. The study also found that the major causes of injury in the physical environment include poor lighting in buildings and in the streets, lack of building maintenance in especially low income rented housing and lack of window guards in high rise buildings. The Committee on Injury and Poison Prevention (2001) also observed that falls from height is a problem in urban areas, especially for children living in multiple- storey, often deteriorating, low-income housing. The Committee further reported that fall from one or two storey buildings are more frequently nonfatal, but second-storey falls may cause serious injuries.

Van Niekerk et al. (2007), focused on caregivers experiences and knowledge in childhood burns in low income communities in South Africa. It was identified that majority of childhood burns occur in the home and at the kitchen in particular among low income communities. It was also identified that the location of the heating equipment

within the home and the structure of the kitchen are major risk factors. The study further observed that establishment of work space at the kitchen is a cause of most injuries at the kitchen. Kellet and Tipple (2000) reported on use of homes as workplaces for income-generating activities within the domestic setting and found that besides the availability of workspace, domestic arrangements and the time of execution of those activities may greatly increase the exposure of a child to burns.

2.2.2 The Socio-Economic/Cultural Environment

According to a study by Poulos et al. (2007), in New South West Wales in Australia, illiteracy among family, overcrowding at home, inadequate supervision of children and absence of laws regulating building safety were found to have contributed to increased incidence of childhood burns. This study confirms the findings of Delgado et al. (2002) that crowding, poverty and poor maternal education and lack of running water are significant risk factors of burns in Lima-Peru. It was also reported, further that being the biological child of the head of household, and mother's position as the wife to the head of the household were significant socio-economic factors. The factor most strongly related to an increased risk was the lack of running water. The reason is that shantytown houses in Lima without running water represent the poorest of the poor. The residents need to boil large quantities of water and preserve it for drinking and other domestic purposes. These large volume of heated water requirements in addition to having to cook in the open compound are major causes of burns for children.

Mull et al. (2001) reported on injury in children of low-income Mexican American and non-Hispanic white mothers in the U.S.A. This ethnographic study found that poor economic conditions which normally emanate from illiteracy, poverty and unemployment have the capacity to disrupt social networks which usually lead to poor supervision of children. The study further found that in most cases children are made to become caregivers to younger siblings a condition which increases children's susceptibility to fall in most low-income households. Findings by Drachler et al. (2007) provide a broader perspective on child supervision by indicating that falls among children do occur even in situations under adult supervision, but the rate of falls is higher among low-income families than high-income families due to the poor environmental conditions. Hendricks et al. (2005) reported on farm injuries in the U.S.A and indicated that the group most at risk on farms comprises children. The study also indicated that falls accounted for 41% of all injuries among children on the farm. In a related study, Pickett et al. (2007) found that over 50% of all falls from heights in the farm occur among children who are not working but who live on the farm.

The studies conducted in Peru, USA and England have shown a positive relationship between child burns and falls and socio-economic factors. On the contrary other studies from Holland, Brazil, and Greece have found that children from low socio-economic status were at a lower risk of burns (Petridou, et al., 2001; Rossi et al., 1998; Werneck and Reichenheim, 1997 and Rijn et al., 1989). In Ghana, however, Forjouh et al. (1995) observed no significant differences between burn repeaters and non-repeaters based on socio-economic indicators in a case-controlled study of Ghanaian children. Though there

are no current literature on the negative relationship between socio-economic status and childhood burns and falls, the outdated literature has brought to the fore that socio-economic factors are significant predisposing factors in childhood burns and falls.

2.3 Health-Seeking Behaviour for Childhood Burns and Falls

2.3.1 Health-Seeking Behaviour in Childhood Burns

Very few studies have been carried out on health-seeking behaviour for children suffering from burns. Almost all of such studies have been conducted in low-income countries and communities where material deprivation is high. These studies found health-seeking behaviour for childhood burns to be mostly related to social and economic factors. Mashreky et al. (2010) explored the health seeking behaviour of Bangladeshi parents of children with burn injuries and found that about sixty percent of parents sought health care from unqualified service providers. The study further found that the educated and parents of higher income status chose qualified service providers while most parents with low income status and low educational status used unqualified service providers. The study also found that higher proportion of parents of urban residence chose qualified service providers compared to rural inhabitants.

In terms of sex differentials, studies by Mashreky et al. (2010), found no significant difference in health seeking behaviour of parents in choosing care providers for male and female children. Forjuoh et al. (1995) examined the determinants of modern health care use by families after childhood burns in Ghana and found that of the 617 children who

were treated for burns, 48 percent were taken to a health facility for treatment while the rest were given home based treatment. Of those who were taken to a modern health facility 26 percent were sent within 24 hours of the event 26 percent after a day and 3 percent after a month. The major reasons for the delay in seeking modern care were lack of knowledge about the seriousness of the burn injury and financial constraints.

Sokrin and Lenore (2007) also found that in Kampong Chnang in Cambodia, many parents preferred the use of indigenous herbal drugs for childhood ailment due to problems relating to accessibility and affordability. It was found further that most of the time, government health facilities did not have in stock the essential drugs required for children and the aged. Poor attitudes of health professionals in many government health facilities were found to be another setback accounting for the underutilization of government health facilities. In the case of rural communities in Guatemala, Van der Stuyft et al. (2006) identified that the use of modern drugs dominates in the treatment of childhood illnesses at home as compared to herbal drugs. Drug vendors were also identified to be major service providers for childhood illness. Self-medication and parental prescription of drugs to affected children were also found to be high among the study population. Roger (2001) also found in Dili in East Timor that home-based treatment for childhood burns was a common practice. Most parents were found to either purchase drugs from the drug store or prepare their own herbal medication for the treatment of childhood burns. The study found the mixture of coconut oil and onion to be the most commonly used herbal medication for childhood burns. Where and when home-

based care were not successful, the doctor was identified as the first health provider contacted.

2.3.2 Health Seeking Behaviour for Childhood Falls

A study by Tallo (2001) on folk etiology of cough among rural Boholano mothers in the Philippines, identified falls among children to be among the major causes of cough. The study further found that cough occurs when there is a sprain or dislocation of tissues or nerves due to a fall or when children are mishandled. As per the study findings, there is a general perception that a child suffering from such ailment can only be diagnosed and treated by a traditional healer using his magico-religious powers (manghihilot) and that midwives or physicians are not capable of diagnosing or managing it. The belief that manghihilots have exclusive power to diagnose and treat cough due to falls drives most mothers to the manghihilots to heal the affected children. Tallo's (2001) study is remarkable for current ethnographic studies because it reveals the power of folk nosology and perceptions in health seeking behaviour, a factor which is often overlooked in urban community studies. Ghosh (2001) also made another important contribution to the understanding of health seeking behaviour through the impact of women's education. The study found that in India there was high gender bias in the treatment seeking behaviour for children and that illiterate and middle school educated women were found to seek health care from traditional practitioners more than women with higher education.

Mbagada et al. (2005) found that in rural Kenya, most mothers purchased and administered drugs to their injured children without seeking medical attention from qualified health professionals. The most commonly reported reasons for not seeking medical attention from qualified health practitioners are inaccessibility of government health facilities, poor services and unaffordability of private hospitals/clinics. In a related study in Malawi, Chibwana et al. (2009) found that most childhood ailments were managed at home due to unavailability of drugs at most government hospitals, inaccessibility to government hospitals and the trust in traditional medicine. Although not specific on childhood falls, the Mbagada et al. (2005) and Chibwana et al. (2009) studies are important for this current study in that they reveal the importance of accessibility, affordability and availability of services at health facilities as major determinants in health seeking behaviour for children.

In an unrelated study, Rogger (2001) identified that in East Timor, most caregivers do not act alone in taking decisions regarding their child's health. The study identified that at least two to three persons are consulted on where, when and how to contact a service provider for common childhood illnesses such as malaria, diarrhea and ARI. Among the most frequently consulted significant others were spouses, mothers, mother-in-laws and friends. In a study by Chibwana et al. (2009), lack of empowerment of women/caregivers in decision making affects prompt treatment of malaria among children in Malawi. The frequent absence of the family head or other key decision makers such as oldest woman on compound contributed to delays in seeking care. The study further found that most men delayed in seeking care and only acted when the child's health condition has worsened.

As far back as 1994, Senah et al. examined the socio-cultural context of infant morbidity and mortality in the Kassena- Nankana district of Ghana and found that one of the cardinal duties of the compound head was to seek for the welfare of the members of his compound. Thus, in terms of health seeking behavior, he is solely responsible for prompting, directing as well as instructing all mothers in his compound as to where and when to seek health care for sick children. This study by Senah et al. (1994), though out dated, is important in revealing the effects of power/ authority in patriarchal family set up on health-seeking behaviour. In such set ups, in the absence of the head of compound, indecision or wrong decision taken for the affected child would have negative consequences for the affected child.

2.4.1 Preventive Strategies for Childhood Burns

WRCIP (2008) has proposed interventions needed to prevent various types of burn injuries among children. These are highlighted in three broad approaches namely: engineering, design and environmental measures; the introduction of legislation and standards; and educational measures. Many studies have adopted these broad approaches in their methodologies. For instance, a study by Bruce et al. (2008) on prevention of burns among children in fuel wood using homes in rural Guatemala, identified stoves as commonly linked to childhood burns. The study also indicated that developing safe stoves and moving them out of doors and off the ground would not only reduce the number of burns sustained by children but also reduce their exposure to indoor fumes in

rural Guatemala. In a related study, Madubansi and Schackleton (2004) studied fuel wood use in South Africa and found that even though the use of fossil fuel for heating and cooking contributes to the increased incidence of childhood burns in most low-income communities, its usage will continue until such time the cost of electricity and all essential appliances become affordable to such communities. Much earlier on, Rivara, (1998) had reported that modification and presetting of water heaters in the United States from a higher temperature to a lower one (60ºc to 49ºc) had the capacity of reducing scald burns among children. The report acknowledged that as a result of the ability to reduce scalds through reduced heater temperatures, most homes in the United States have opted for the use of lower temperature heaters.

Another practical approach to the prevention of childhood burns being advocated for by the WHO is the introduction of legislation and standards. The impact of these have been reported by many Ballesterous, Jackson and Martin, (2005) found that programmes of intervention which combined legislation on the use of smoke alarms with installation and education had the greatest impact of reducing fire-related burns than programmes which offered only education or installation or both programmes. . In a related study, Han et. al, (2007) evaluated the effectiveness of a combined educational and legislative approach in preventing scald burns in Canada. The researchers found that educational and legislative approaches to reduce thermostat settings on electric thermal pots were capable of reducing 56% of scald burns. Mac Arthur (2003) also found that to prevent scald burns, there is the need to promote education together with enforcement of laws regulating the use of low temperature of hot water from household taps. With increasing urbanization

and observed trend in the increased use of heaters in urban homes, such measures will become relevant to the Ghanaian context.

The US Home Fire Protection (2004), identified that even though the promulgation of laws on mandatory use of residential fire sprinkler systems had proved to be very effective means of fighting fire. Unfortunately though the law requires its installation in newly constructed homes, it is not widely used in most homes. No studies were found on legislation and standards for Africa, to facilitate a comparison of the level of commitment between the developed countries and the developing countries.

The studies reviewed have shown that enforcement of laws on consumer safety as well as educations on burns prevention have the power to reduce child burns. The question one needs to ask is how many of the developing economies have the power as well as the political will to enforce such laws on standards. The situation in Ghana is no different from other developing countries. For instance the 1992 constitution of Ghana and the Children's Act 1998(Act 560) enjoins all stakeholders of children's welfare to protect them from harm and all forms of abuse, enforcement of these laws has been a problem for the government. Until this could be done the impact of such law will not be felt in most developing countries because of their fragile judiciary and legislative systems. Despite this problem, the reviewed literature on the prevention of Childhood burns has indicated that the use of engineering measures which seek to modify unsafe products and structures to make them child friendly are effective means of preventing burns. The review has also indicated that promulgation and enforcement of laws especially on safety

standards coupled with educational programmes are preventive strategies worth implementing in childhood injury prevention programmes.

2.4.2 Prevention of Fall-Related Injuries

According to the World Report on Child Injury Prevention [WRCIP] (2008), the prevention of childhood injuries especially fall-related injuries are of critical importance worldwide, given the large numbers of morbidity, the high cost of treatment and the significant risk of death particularly from head injuries. The report advocates for a preventive measure that will strike a balance between promoting a healthy development of children and at the same time recognizing the vulnerabilities of children with the understanding that children are living in environments designed primarily for adults. To overcome this, Mackay et al. (2006) worked on practical approaches of reducing fall related injuries among children and identified that there is the need for engineering measures which takes into consideration identification, replacement and modification of unsafe products. The study further identified the need to modify the environment to make it child-friendly and also the need to promulgate and enforce laws which reinforce the use of certified technology and at the same time provide educational awareness which will influence behaviours on child safety practices. With reference to the promulgation of laws, the American Academy of Paediatrics, (2001) found that since the introduction of both the mandatory and voluntary standards for baby walkers in Canada and the United

States, the tipping over of these items and structural failures associated with them had reduced hence reducing the injuries associated with their use.

The study of Sherkers and Ozanne-Smith (2004) indicated that even though promulgation of laws and regulations on standards are effective approaches in reducing fall related injuries, lack of adequate enforcement can render such approaches ineffective. Spiegel and Lindaman, (1997) reported on the practical approaches of reducing fall-related injuries among children and found that the use of individual counseling and mass media campaign in addition to free distribution and installation of window guard were effective in reducing the incidence of falls from high-rise buildings in low-income areas in New York. A weakness in this study was its inability to recommend sustainable ways of free supply and installation of the window guards. This is more so, since it came more than two decades after the famous study dubbed "the child can't fly" developed by the New York City Department of Health in the early 1970s. This study had recommended voluntary reporting of all fall cases to a health facility coupled with intensive parental education on preventive strategies and free easily-installable window guards.

Anne and Marcus (2010) found that children from low-income families are more likely to be injured from falls due to the deteriorating conditions of the building lack of maintenance and lack of safety equipment such as window guards. No study was found on prevention of childhood falls in Ghana and/ or other African countries. This shows that it is an unexplored area of child health that needs to be focused on in Ghana and this current study seeks to bridge this knowledge gap. Drawing inferences from the available

studies (Anne and Marcus, 2010; WRICP,2008; Mackay et al., 2006; Spiegel and Lindaman1997), it can be suggested that childhood fall-related injuries are preventable on the basis of appropriate practical interventions which are accessible to all especially to low-income families globally. Such interventions should include education and awareness campaigns on child and product safety, promulgation and enforcement of laws on standards and on the environment, engineering and provision of safety products and equipment.

2.4.3 Barriers to Childhood Burns Prevention

Lehna and Myers (2009) explored relationships among nurses perception of burns, prevention, knowledge and their perceived ability to teach about burns prevention. The study found that all nurses, regardless of specialty area, have poor burn prevention knowledge, which is correlated with their perceived lack of knowledge of burn prevention. Even though this study was based on anonymous survey which used only 10 item burn prevention knowledge test, the study identified the need to address gaps in knowledge on burns prevention even among health professionals who are thought to have much knowledge on such issues due to their training.

Langley (1994) looked at the personal and social barriers that health researchers tend to overlook in considering injury prevention strategies in New Zealand. The study found that there had been undue focus on the child in injury prevention studies even though the child is just one element in a complex mix of factors which lead to an injury event. It

therefore called for broad based study on injury prevention for an accelerated progress. The study also identified that perception of injury as a chance occurrence could be a barrier in injury prevention. Also ignorance of risk factors of childhood injuries by caregivers was identified as a barriers to childhood injury prevention. In a related study, a decade and half later, Mashreky et al. (2010) found that the major barrier to burn prevention in Bangladesh was lack of safety education. It was found that when safety education is instituted it would improve knowledge and practice on injury prevention in most rural communities in Bangladesh. In the case of Cape Town, South Africa, Ashley et. al(2008) identified four(4) types of barriers to scald prevention, to include limitations in the physical environment which was mainly due to physical or spatial arrangements and characteristics of the home environment that impair human activity. Insufficient electricity infrastructure and limited access of families to electricity were the second set of barriers to scald prevention identified by the study. The third set of barrier according to Ashley et al (2008) had to do with found to be competing demands on the caretakers which included chores, work, unexpected demands, which conflict with child care. Hardship which was generally associated with general material deprivation was also identified as a barrier to childhood injury prevention (Ashley 2008).

Jaye, et al. (2001) looked at hot tap water scald prevention and identified technological barriers to hot tap water safety as a major challenge to scald prevention. The study found that faulty and inaccurate thermostats and tempering of values to be a major cause in hot water scald prevention. Poverty was also identified to be an underlying factor why most low income families normally suffer from hot water scald. Most low income families live

in rented housing facility where most of their landlords were not committed to hot water safety, and as such do not undertake regular maintenance of water heaters in their buildings. The study also found that the perception people hold on the use of very hot water was a barrier to scald injury prevention. Most people perceive the use of very hot water to be hygienic for domestic purposes. This misconception has led to many people adjusting thermostats on water heater to high temperatures which normally predispose such people especially children to scald burns

The review of literature on this sub-theme has indicated that there are a number of barriers to childhood burn prevention and, these include personal and socio-economic, behavioural and technological factors. Until these challenges are addressed no meaningful progress can be achieved in any childhood burn injury prevention interventions.

2.4.4 Barriers to Childhood Falls Prevention

Smithson et al., (2010) embarked on a study to determine barriers to and facilitators of the prevention of unintentional injury in children at home. The study found that non enforcement and compliance of building codes constituted barriers to effective implementation of childhood fall-related injury prevention interventions. It was found, further that the non-enforcement of building codes had contributed to a lot of childhood fatalities resulting from falls from balconies and windows. Other findings of the study are that poor socio-economic status of families, inexperience, poor upbringing and illiteracy

were among the major barriers parents face in preventing childhood falls. In an earlier but related study, Culvenor (2002) had identified poor constructional designs, lack of building standards and irregular assessment of public auditoria for public safety as barriers to childhood fall prevention.

The Health Index (2003) reported that poor parental attitudes and lack of knowledge on risk factors and prevention of childhood fall-related injuries were the major causes leading to hospitalization of children between 0 – 9 years of age in the United States of America. The Colorado State Emergency Medical and Trauma Service Advisory Council (2000) developed a strategic plan for injury prevention and identified among others that the main barrier to fall prevention was lack of public awareness about the risk of fall injuries among all ages. Due to this barrier, it was difficult to reach all target groups with fall prevention messages. The plan also revealed that there was a challenge of monitoring success chalked in injury prevention since the database was on deaths or hospitalization of falls patients alone. The strategic plan recommended that there should be improvement in and maintenance of data collection and dissemination. This should focus on injury prevention efforts and also to establish guidelines and evaluation measures for injury prevention programmes that are based on current evidence – based research and literature.

The review of the health index (2003) and the study by Culvenor (2002) are significant to this study because they have shown that childhood falls are not only limited to the home or at the play ground but most often also occur at public places. The findings of the

studies have also indicated that poor parental attitudes and lack of knowledge of risk factors to childhood falls are major barriers to childhood falls prevention. Unfortunately all the literature that were reviewed on barriers to childhood burns and falls prevention came from the developed countries, no current literature was found on such issues originating from Sub –Saharan Africa. This signifies that not much work has been done on barriers to childhood burns and falls in Sub-Saharan Africa in general and, Ghana in particular. It is hoped that this current study will help fill that knowledge gap.

2.4.5 Self - Efficacy and Childhood Burns Prevention

Not many studies had been carried out on self-efficacy with regards to most public health issues. This is due to the fact that the concept of self-efficacy is relatively new and its acceptability had been a matter for debate among public health researchers (Glanz et al., 2002). In the case of childhood injury prevention, Gielen and Sleet (2003) stressed the need to include self-efficacy as a major construct in determining preventive strategies for injuries. The study further emphasized the power of self-efficacy in modifying individual behaviors. The findings of Gielen and Sleet (2003) are consistent with Rosenstock et al. (1988) studies which recommended that the concept of self-efficacy should be added to the Health Belief Model due to its inherent power to motivate people through the use of " can do" power.

A study by Cardenas and Simons-Morton (1993) on the effect of anticipatory guidance on mother's self-efficacy and behavioural intention to prevent burns caused by hot tap

water found that self-efficacy had a statistically significant relationship with the prevention of scald injury than other independent variables such as intentions, knowledge and attitude. This implies that the ability of mothers to feel competent in adjusting the temperature of thermostats on tap water is very important in preventing scalds among children. In a similar study, Gielen et al. (2010) explored the impact of fire and life safety messages on children using videos. The study sought to understand whether safety messages should be communicated positively by focusing on the positive outcomes of doing the appropriate behaviour or negatively by focusing on the negative outcomes of doing the inappropriate behaviour. The study found that children who saw the positive video were significantly more likely to have high self-efficacy for correctly handling burns and fire than children who saw the negative video. The Gielen (2010) study is of great importance to this current study because it has revealed the power of video messages in the positive re-enforcement and the building of competencies in children in preventing injuries in general and childhood burns in particular. The implications of Gielen (2010) study are enormous, for the Ghanaian context because many children in Ghana particularly in urban area have access to television sets and video players and are interested in watching programmes on such devices on a daily basis thus, the use of these devices can be a good method of educating children on injury prevention in general and burns and falls prevention in particular.

Guilfoyle (2009) looked at self-efficacy and mothers' supervision and found that mothers with high self-efficacy for preventing childhood injury and also had high knowledge on child development were seen to be better supervisors in terms of child injury prevention

than mothers with low- self-efficacy and with low level of knowledge on child development. Morrongiello and Kiriakou (2004) also found that most mothers did not educate their children on home safety practices because they felt they lacked the needed knowledge to undertake such a task. The study also found that most mothers felt they were not capable of preventing childhood injuries because it is an act of fate which will occur when it will.

2.4.6 Self-Efficacy and Childhood Falls Prevention

Legters (2002) found that fear of fall is not so much an issue for children but for the elderly because fall is greatly associated with poorer health status and functional decline. The study found that people with low fall-related self-efficacy tend to have poorer health status. Hendrickson (2005) found in his study on culturally appropriate interventions on home safety, that mothers' with stronger self-efficacy for safety behaviour had fewer perceived barriers in in-home hazards than those with lower self-efficacy.

According to a study by Beiren et al. (2008) mothers' ability to prevent childhood falls through the use of stairs gate depends on mothers' adequate use of the stairs gate, perceived response efficacy, self-efficacy and perceived benefits of childhood injury due to fall from stairs.

The literature reviewed on self-efficacy on childhood burns and falls prevention has indicated the importance of self-efficacy in health-seeking behaviour for injured children. The studies have indicated that people with higher self-efficacy have better propensity to

prevent childhood burns and falls than those with low self-efficacy. This implies that studies on self-efficacy have far reaching effects since these have the potential of modifying individual behaviour into action. It is therefore necessary to whip up interest of researchers to conduct more studies on self-efficacy on injury prevention in order to reduce childhood injury prevention, at a faster rate.

SUMMARY

Literature was reviewed on core thematic areas which were directly related to the research questions. The review was based on epidemiology, etiology/threats, cues to action and health–seeking behaviour, local preventive strategies and barriers to childhood burns and falls. The literature review on these issues on childhood burns and falls helped in strengthening the theoretical base of the study, broadening the scope of the study as well as deepening knowledge and understanding of these critical issues. The review had revealed that much work had been carried out on the epidemiology and treatment of childhood burns and falls in developed countries. In the case of studies conducted on childhood burns and falls in developing countries, there were studies in the areas of risk factors, clinical management and preventive practices. Areas that need refocusing are attitudes and practices to home-based care and treatment as well as traditional modes of treatment of childhood burns and falls. Bridging this knowledge gap should provide a more comprehensive view of studies conducted on childhood burns and falls from both developed and developing countries as well as from allopathic and traditional treatment regimen.

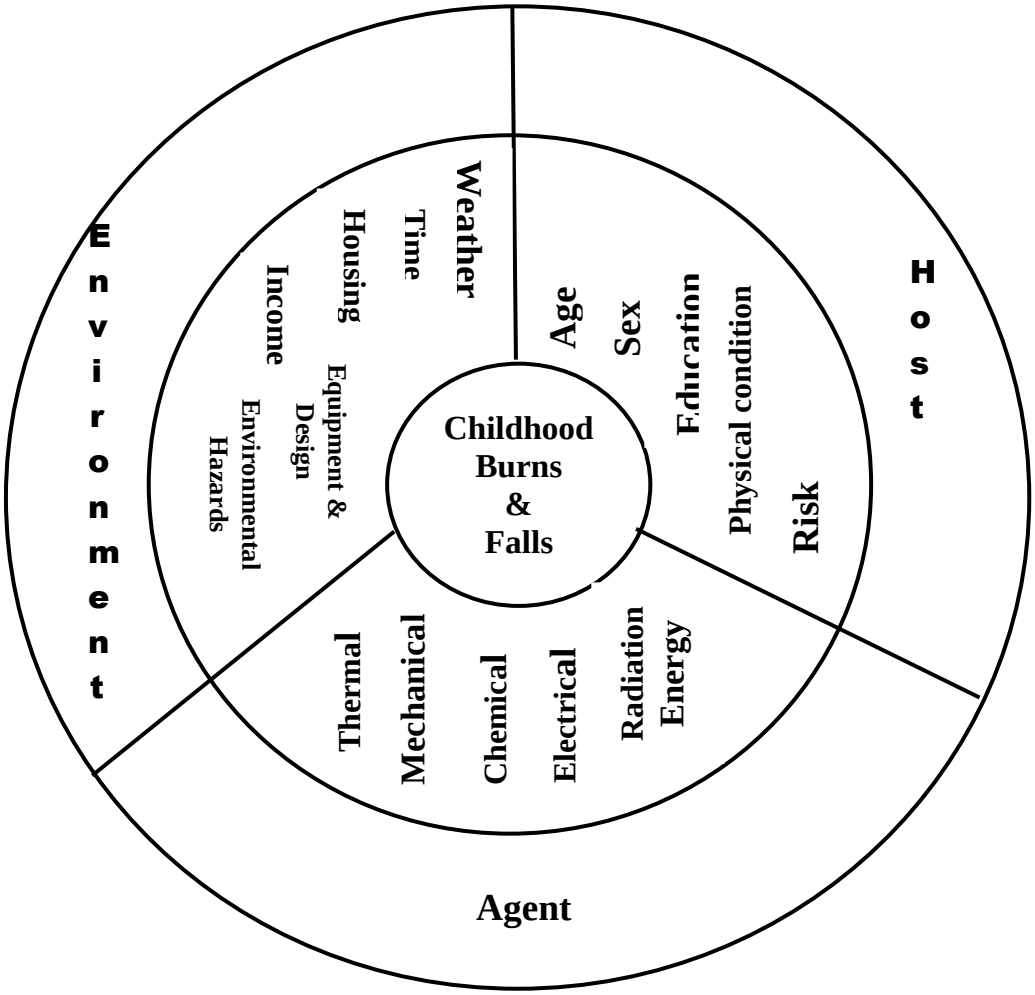
2.5 Conceptual Framework

This study considered a number of theoretical frameworks which seek to provide guidelines for preventing childhood injuries. Based on the study focus of exploring household practices influencing the treatment and prevention of childhood burns and falls, frameworks which are directly linked to individual and household interventions were assessed with the aim of guiding the study.

The first model considered was the Epidemiological Model also known as the Epidemiological Triad or Triangle. It is the best known, but most out dated model of communicable diseases. In 1948, James Gordon proposed that the epidemiological model could be applied to understand and prevent injuries and since then the model has formed the basis of many studies in injury prevention and control (Rivara 2001). The model is useful in showing the interaction and interdependence of agent, host, environment and time in the investigation of injury. The agent is the cause of injury; the host is the person at risk of injury; the environment includes those surroundings and conditions external to the person that cause or allow injury transmission; and the time accounts for the duration of the cause of injury. For instance the interaction among a child's age, or sex, or his/her physical condition and the environmental conditions within which the child is raised as well as the presence of a heat source may lead to childhood burns. This model is essential in giving direction to the current study because the model allows discovering of multiple causes/risk factors and also accepts multiple solutions to prevent childhood burns and falls. A weakness with this model is that it over emphasises the agent and the host in the interactions in the environment to cause an injury. Another weakness with the use of his

model is that it is not effective for showing the pathways for treating childhood injuries. As a result of this, the Socio-Ecological Model and the Haddon Matrix were introduced to support the use of the Epidemiological Model [Figure 2.1].

Figure 1 Epidemiological Model Applied To Childhood Injury



The second framework considered as a guide for this study is the "Es" of injury prevention. This model was chosen to compliment the Epidemiological Model in determining the preventive practices for childhood burns and falls. The Epidemiological Model only permit the use of multiple preventive practices but does not give a clear path for injury prevention. As a result, the concept of the 4 "Es" which considers education, enforcement, environment and engineering as major factors for injury prevention was considered.

Educational strategies for childhood injury prevention are probably the most familiar (Warda et al. 1999). These strategies attempt to initiate behaviour change by informing a target group about potential hazard, explaining risk, and persuading people to adopt safer behaviour. It can also be used as an advocacy tool to inform policy makers about issues and as part of social norm change. Education will not always cause individual to change their behaviour, but it can make them more receptive to additional injury prevention strategies (Geilen et al., 2002). Educational interventions may be most effective when combined with other strategies such as a policy change. The concept of enforcement attempts to reduce dangerous behaviours through legislation and its enforcement legislation can target behaviours by individuals, manufacturers and local governments. Examples of state injury laws include banning of fireworks/crackers and enforcement of building codes. All these always would be useless if they were not enforced. In addition, education plays a key role in informing people of their responsibilities under the laws. Although more time consuming, the impact is more significant and sustained than education alone (WRCIP 2008). Environmental interventions make changes to the environment or product design (engineering) to automatically protect everyone. This is sometimes called passive or automatic interventions because it requires no work on the part of the individual (Cohen and Swift 1999).

Many injury prevention professionals have added a fifth E to the list- Evaluation. The aim is to create the awareness that not every potential intervention has been proven effective and also not every proven intervention will be effective in every circumstance. Thus, it is a best practice in injury prevention to use interventions that have been

evaluated and shown to be effective and to evaluate all injury prevention programmes to learn if the programme is preventing injuries or if there is something about the circumstances or implementation that are limiting the effect of the programme(WRCIP 2008).

The third framework of this study was the Haddon matrix. It is the most commonly used theory in the injury prevention field, developed by William Haddon, the father of modern injury epidemiology in 1970. The matrix built on the epidemiologic model by holistically addressing factors relating to the child(Host), the injury event (Agent), the environment, the product and the systems in the society and respond to these issues using a combination of strategies extending from prior to the injury event(Christoffel and Gallagher 2006).

Adopting this method of analysis helps to develop a tiered approach to injury prevention which include behavioural, environmental and policy change (McClure et al., 2004). The matrix of four columns and three rows combines Public Health Concepts of host – agent – environment as targets of change with the concepts of primary, secondary and tertiary prevention (Runyan 1998).

The factors defined by the columns in the matrix refer to the interacting factors that contribute to the injury process while the rows refer to the phases at which change would have its effect. It is made up of the pre-event, event and post-event stages by identifying interventions that fit within each cell of matrix [Table 2.1

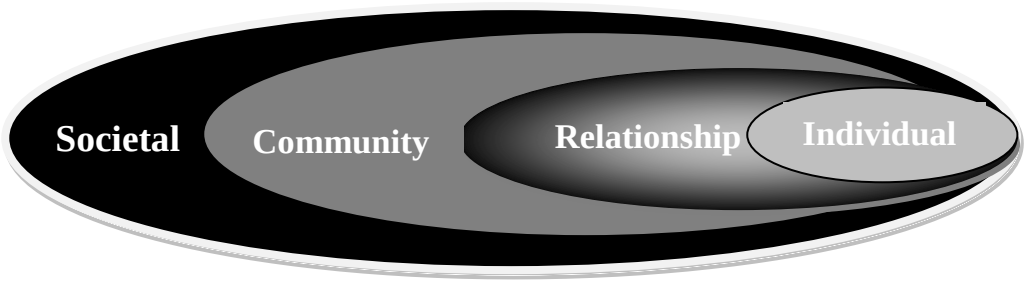
Table 2.1 Haddon Matrix applied to the risk factors for fire -related burns among children

Phases	Factors			
	Host (Child)	**Agent**	**Physical environment**	**Socio – economic environment**
Pre – event	Developmental issues, including experimentation; age; gender; vulnerability – including disabled children, refugees, street children; lack of supervision; parents smoking in the home or in bed; lack of knowledge about risk of fire in the home.	Storage of flammable substances in the house; combustibles, matches or lighters accessible to children; unsafe stoves or lamps; fireworks.	Housing in slums or congested areas; overcrowded households; no separation between cooking area and other areas; absence of flame – retardant household materials.	Poverty; unemployment, illiteracy among parents; siblings who died of burns; lack of fire – related building codes and their enforcement; lack of policies or laws on smoke alarms, sprinkler systems, access to hydrants; lack of policies or laws on flammability standards.
Event	Unmaintained smoke alarms and sprinkler systems; child not wearing flame – retardant clothing; poor knowledge about evacuation procedures	Lack of sprinkler systems; lack of fire hydrants or other access to a supply of water	Lack of functioning smoke alarms; lack of clear and easily accessible escape routes; lack of access to telephone to call for help	Poor access to information and resources to minimize risk; inadequate communications infrastructure for calling emergency health services
Post – Event	Inaccessible first – aid kits; lack of knowledge by caregivers and community about what to do immediately after a burn	Flammability of household materials and children's clothing; toxicity of smoke and burning household materials	Poor emergency on fire department response time; poor rescue and treatment skills; lack of access to water; inability to transport to medical care promptly	Inadequate burns care; inadequate access to burn centres and rehabilitation services; insufficient community support for those who have suffered burns.

Source: 2008 Report on Childhood Injury Prevention

The last model considered for studying childhood injury prevention is the Social Ecological Model (SEM) developed by Bronfenbrenner in the 1970s. The SEM is a conceptual framework employed in public health that is particularly useful for understanding the causes of injuries in which individual human behaviour plays a large role. The model recognises that human behaviour is affected by a complex interplay of individual, relationship, social, cultural and environmental factors. It explores the relationship between individuals and the systems in which they live especially in the family, community and the society as a whole. The details are presented in Figure 2.2

Figure 2 SOCIO-ECOLOGICAL MODEL (SEM)



The first level (individual) identifies biological and personal history factors that increase the likelihood of becoming a victim of childhood injury. Some of these factors are age, sex, education and income of parents. Prevention strategies at this level are often designed to promote attitudes, beliefs and behaviours that ultimately prevent childhood injury. Specific approaches may include education and life skills training. The second level examines closer relationships that may increase the risk of experiencing childhood injuries. According to 2009 CDC report on injury prevention and control, person's closest social circle-peers, partners and family members – influence their behaviour and

contribute to their range of experiences. Prevention strategies at this level may include mentoring and peer programmes designed to reduce childhood injuries, foster problem solving skills, and promote healthy relationships. The third level explores the settings, such as schools, workplaces, and neighbourhoods, in which social relationships occur and seek to identify the characteristics of these settings that are associated with becoming victims of childhood injury. Prevention strategies at this level are typically designed to impact the environment, processes and policies in a given system. Social norm and social marketing campaigns are often used to foster community climates that promote healthy relationships. The last level looks at the broad societal factors that helps create an environment in which childhood injury is encouraged or inhibited. These factors include social and cultural norms. Other large societal factors include the health, economic, education and social policies that help to maintain economic or social inequalities between groups in society.

The SEM helps to understand how comprehensive prevention strategies can be applied to all the social spheres in which individuals live. Each social sphere contains influences on how individual's behaviour can either increase or decrease the risk of injury. Thus, each social sphere represents both risk as well as potential points for intervention. A major limitation of this model is that research based on this model is more demanding than behavioural research at a single level. This is because the model requires developing and collecting measures of influence at multiple levels, and the number of disciplines represented in the investigation and conceptualises and implements interventions at multiple levels. Despite the increased demands involved with the use of this model, it is

an effective way of affecting behaviour change through implementation at multiple levels.

CHAPTER THREE

3.0 THE RESEARCH FIELD SETTING

Introduction

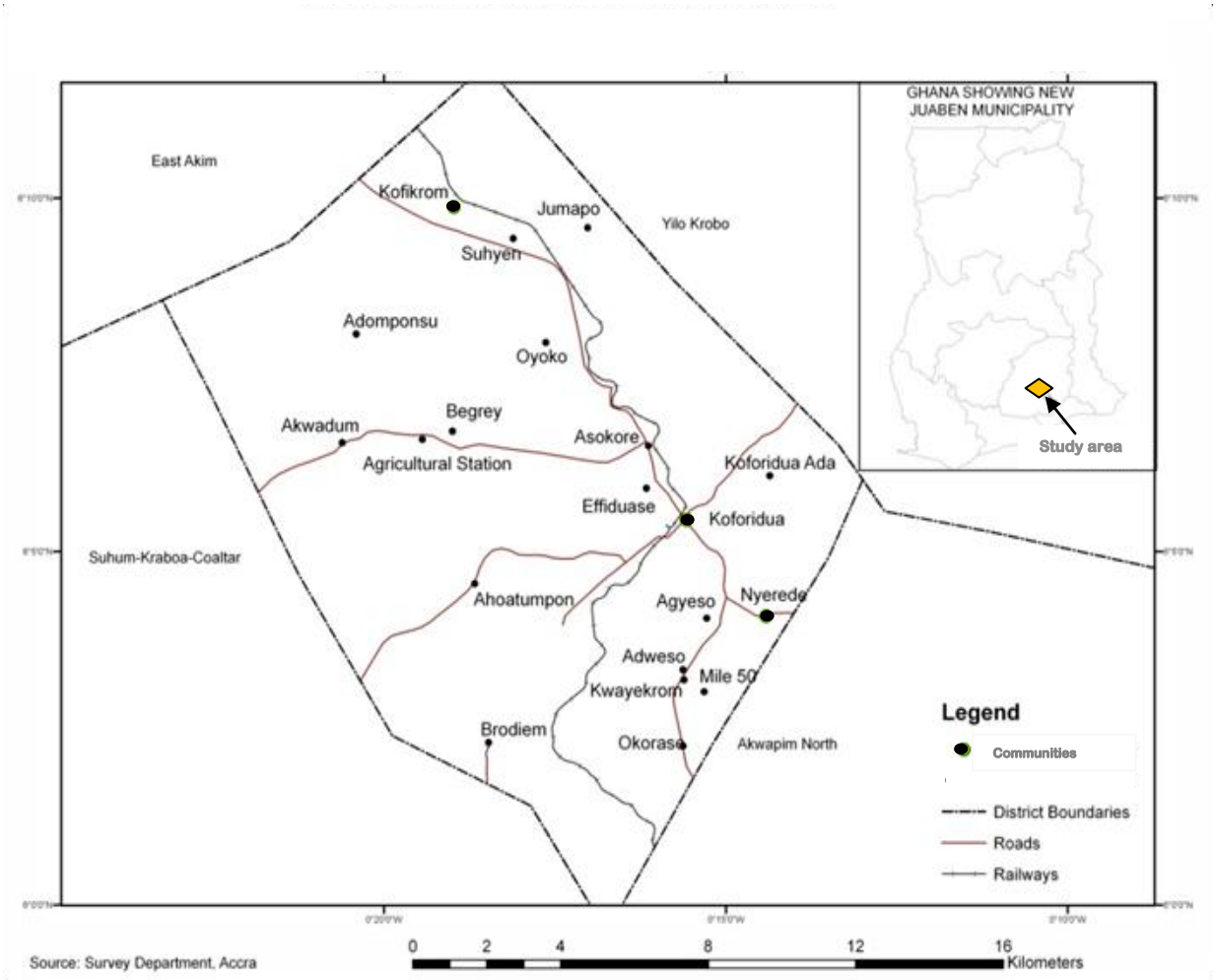
The description of the study area is critical in understanding the socio-demographic and the cultural milieu in which children are raised. It will also help to understand the attitudes and practices associated with the management and prevention of childhood injury in the study area. This is because every indigenous group has a unique way of preventing or coping with life threatening events and as such a careful study of the profile of the study area will help in understanding these issues. This chapter highlights the geographical location, population structure, history, indigenous practices at protecting children, economic and financial organization, health, education and utility services available in the study area and how they affect child welfare and protection.

3.1 Geographical Location

New Juaben Municipality is located in the Eastern Region of Ghana. The Municipality covers an estimated area of 110 square kilometers, constituting 0.57% of the total land area of the Eastern Region. It shares boundaries with East Akim Municipality on the North-East, Akuapim North District on the East and South and Suhum Kraboa Coattar District on the West. Koforidua which is the Municipal and Regional Capital is 85 Kilometers from the national capital Accra. The proximity of the study area to other municipalities as well as the national capital, Accra had been a major factor contributing to the rapid urbanization in the study area. This is because the municipality is more

resourced in terms of infrastructural development and service facilities than the neighbouring municipalities hence attracting more people especially the active labour force and their dependants. This situation has created a high demand for essential services with its attendant problems in the study area. The details of the geographical location are shown in figure 3.1.

Figure 3.1 MAP OF NEW JUABEN MUNICIPALITY SHOWING THE STUDY AREA



3.2 Population

The 2010 Population and Housing Census indicated that the Municipality has a population of 183,727. Comparing this with the 2000 population of 136,768 it is seen that the municipality is growing at a fast rate (0.34%) and there is the need to control such a growth in order to mitigate the problems associated with rapid urbanization. Females out number males in the municipality, constituting 51.5% while Males constitute 48.5%.

According to the 2010 Census, people age under 15 years constitute 35% of the population, those between 15-64years constitute 60% while those above 65% years constitute 5% of the population. This signifies that New Juaben Municipality has a fairly young population with a dependency ratio of 64.7 per 100 persons in the 15-64 age group.

The municipality has 52 communities with most of them having small population size that do not measure up to the threshold population of 5000 to qualify for the provision of essential services such as police stations, hospital or clinic and institution of higher learning. Nevertheless, Koforidua, the regional and municipal capital perform most of the functions such as social, economic, political, and educational functions on behalf of the deprived communities under her ambit. Accessibility, to these essential services such as health care and second cycle education which are mostly limited to the regional capital (Koforidua) had been a major challenge for people living in the peri-urban communities. This situation has led to the influx of many people into the municipal capital in order to access these services. Some of the major communities which are accessible to essential

services in the municipality are; Adweso, Ada, Akwadum Asokore, Atakyem and Effiduase.

3.3 Historical Background

The history of New Juaben as captured in the Ghana National Achieves document ADM 11/1437 indicated that New Juaben is a resettlement town. The people who established the town were native of the Asante Kingdom and their original settlement was at Ejisu Juaben.

The people of the Asante Kingdom lived harmoniously and pursued their common agenda of preserving their last trade outlet to the sea at the old coastal fort of Elimina which had come under the control of the British between 1869 and 1872. After unsuccessful attempt through war, the Asantehene (Mensa Bonsu) gave up the dream of extending the trade route to the sea and began rebuilding Kumasi because of the devastation caused by the war. The Asantehene also began to reassert his authority over rebellious communities. Juaben was considered one of the rebellious communities because it had defied the Asantehene's orders and killed some traders from Kumasi. As a result of this, Kumasi attacked Juaben for insubordination and most of the people of Juaben took refuge in the British protectorate of the Gold Coast colony.

Chief Ampaw of Kukurantumi granted the British Colonial government a portion of his stool land between Kukurantumi and Adweso, to the Southest of Kyebi for the

rehabilitation of Juaben refugees. This was the origin of the modern state of New Juaben with its capital at Koforidua.

3.4 Economic Activities

The green scenery on the Obuotibiri Mountain which flanks the municipality and the array of fresh agricultural products which are placed at various vantage points for sale along the main access road to the municipality carries one message to any visitor that agriculture plays a major role in the economic life of the people in the municipality. According to the New Juaben Municipal Assembly (2006) report agriculture constitutes 28.1% of the economic activities in the municipality and it is ranked 2nd after services (44.5%) while industry is the least, 27%. Most of the farmers engage in peasant farming and the most common crops engaged in include vegetables, maize, cassava, plantain, cocoyam and yam. Other industrial crops like oil palm are processed into palm and kennel oil. Cash crops like kola and cocoa are also produced in the municipality. Most of these farmers and their families live in farmsteads which are in deplorable conditions. They have no access to portable water, electricity and health facilities. Some children in such farmsteads have not been enrolled for basic education because they cannot walk long distances for their education even though they have the right for free basic education. Ghana Living Standard Survey (2000) report on peasant farmers in Ghana revealed that they live in extreme poverty and in deplorable conditions. This confirms the general state of peasant farmers in the study area. Children in this harsh environment are the worse victims.

In the case of the service sector, the public sector is more developed than the private sector with most of the public sector employees being civil servants. Petty trading is the major occupation for most of the people in the private sector. There is only one major manufacturing organization in the municipality-Intravenous Infusion Ghana Limited. Small scale bakery is among the most common manufacturing activity in the municipality (Ghana Statistical Service, 2002).

The Civil servants and traders in the municipality often leave home to their places of work very early and close in the evening. Due to this situation many of such workers are not able to supervise their children well at home because of their continued absence from the house as a result of work schedules. Inadequate supervision of children has most often led to childhood unintentional injuries especially during play time.

It is a common phenomenon in most homes for most working mothers to prepare their children's afternoon and evening meals early in the morning before going to work so that when the children return from school they can just warm up the food and eat. This practice of some families had compelled some children to cook at an early age making them very susceptible to burns.

3.5 Health Institutions

There are a number of institutions within the health delivery system in the New Juaben Municipality. The Municipality has three (3) hospitals namely Regional Hospital, Koforidua, St Joseph Hospital and the Seventh Day Adventist Hospital.

The Regional Hospital Koforidua (RHK) was established in 1926 and it is the oldest hospital in the municipality. The hospital was built with the aim of providing comprehensive secondary level in-patient and out-patients healthcare services of high quality to the people and communities in and around Eastern Region. The daily average number of patients the out-patients department cater for is 646 while in-patient bed complement is approximately 326.

KRH provide medical cover in OPD in the following specialties for adult patients (18 years and above) and they are examined at the OPD of the hospital. The hospital has 52 doctors, 2 medical herbalists, 1 medical assistant, 272 nurses, 7 pharmacists, 4 pharmacy technician, 6 dispensary assistant,14 biomedical scientists, 3 laboratory technicians, 1 laboratory assistant, 1 radiologist, 1 radiographer, 1 X-ray technician, X-ray assistant, 4 administrators, 11 anaesthetists, 2 dental technicians. 2 clinic assistant, 2 optometrist, 2 opticians, 111 orderlies, 1 physiotherapist, 1 physiotherapist assistant. Major problems confronting the hospital is the inadequate bed capacity to cater for the ever-growing patient attendants and the need for refurbishment of the wards.

In the case of the St. Joseph Hospital, Koforidua, it is a private Catholic Health Institution. It was established in 1959 by the Hospitaller Order of St John of God, from the Castilian Province in Spain. All Catholic Health Institutions operate in accordance with the doctrines of the Church and health-related guidelines, through policies formulated by the National Catholic Health Service [NCHS] and that of the Hospitaller Order, the owners of the Hospital. The hospital works in close collaboration with the Diocesan Health Service and the Department of Health of the National Catholic Secretariat. The Hospital is a member of the Christian Health Association of Ghana (CHAG), which is an Association of Christian Healthcare Providers, and an agency of the Ministry of Health.

The primary focus for setting-up the hospital was to offer healthcare service in orthopaedics & traumatology. However, over the years the services have grown to include some general health care services such as general medicine, general surgery and public health care.

The Hospital is a 200 bed health facility. It has 12 doctors and of this number, 5 are orthopaedic specialists, 2 general surgery and 1 paediatrics. There are 130 nurses, 18 pharmacists, 7 laboratory technicians, 3 biomedical scientist, 7 physiotherapists and 1 administrator in the hospital. The hospital is a referral facility receiving orthopaedic patients from hospitals all over the country and the neighbouring country such as Togo, Ivory Coast, and Burkina Faso among others.

The Seventh Day Adventist Hospital is the youngest and the smallest of the hospitals in the Municipality. It was established in 2006 to offer general medicine and public health services to the people in the Municipality. It has bed capacity of 60, 3 doctors, 3 medical assistance, 52 nurses, 8 midwives, 2 pharmacists and 5 laboratory technicians. The main problems affecting the smooth operation are the short supply of nurses and the small bed capacity at the facility.

In addition to the three (3) hospitals in the Municipality, there are five (5) government clinics, ten (10) private clinics, over fifty (50) herbal clinics and fifteen (15) maternity homes. There are over forty (40) pharmacy shops, five (5) traditional bone- setting facility, and three (3) private medical laboratories in the Municipality.

The most commonly used health facilities for the treatment of childhood burns and fall-related injuries are the Regional Hospital, and the Saint Joseph's Hospital. This is because they are the only health facilities with paediatricians, surgical experts in burns and orthopaedics. Again, they are the only two hospitals with intensive care units for children in the municipality as well as the only referral hospitals in Eastern Region. The status, facilities and the availability of experts make the Regional Hospital and Saint Joseph's Hospital the most preferred health facilities for the treatment of burns and fall-related injuries in the municipality. Notwithstanding this, some parents engage the services of traditional bone-setters, herbalist and spiritualist on specific childhood ailments including fracture, dislocation and minor burns for which they perceive the

traditionalist to have better cure than the orthodox health practitioners. The use of prayer camps and other faith-based camps in the diagnosis and treatment of ailment is gaining prominence in the study area since a lot of these camps are found in almost every community in the study area.

Almost all the Western biomedical health facilities are concentrated in the municipal capital and its immediate environs creating a problem of access to professional health care in the remote areas in the municipality.

3.6 Educational Institutions

The Municipality has many educational institutions running from pre-school to tertiary. These institutions are run by government, private individuals and religious bodies. There are forty- three (43) public pre-school and seventy (70) private ones making a total of one hundred and thirteen (113) pre-school institutions in the Municipality. In addition to this, there exist one hundred and twenty- eight (128) primary schools, out of which eighty-four (84) are public schools and forty- four (44) private. There are also seventy-four (74) junior secondary schools out of which fifty-three (53) are public and twenty-one (21) are privately owned.

Access to basic education is not a problem in this municipality due to the Free Compulsory Universal Basic Educational policy being implemented by the Government of Ghana. This policy direction has ensured that all the fifty-two communities in the municipality have at least one public basic school. Increased access to basic education in

the municipality is a major step in reducing illiteracy and its associated problems. However, there is a sharp inequity in the establishment of basic schools between rural and urban communities in the municipality and this has resulted in a situation where basic schools in the rural areas are sparsely situated disenfranchising young children who cannot walk long distances to school from starting their basic education at the right age. Thus, most children in the rural areas have to defer going to school until they are matured enough to walk long distances to school. The resultant effect is that where the home environment is harsh due to extreme poverty and there is the problem of walking long distance to school, children in such environment turn to suffer more injuries. This is because such children are most often left alone at home or are made to accompany their parents to farm despite the high risk of injury at the farm.

In the case of post-basic education, the municipality has the highest number of Senior High Schools, vocational and technical schools in the Eastern Region. It has six (6) public and eight (8) private Senior High Schools. There are four tertiary institutions namely, the Seventh Day Adventist Training College, Nurses Training College, Koforidua Polytechnic and All Nations University College. As in the case of the basic institutions, all the second and third cycle institutions are also clustered in the municipal capital, Koforidua making access to secondary education difficult for most people living in the peri-urban communities. This situation has been a major challenge in reducing illiteracy rates in the municipality since only 13.4% of males and 9.7% of females in the municipality have had secondary education (Ghana Statistical Service 2005). This situation is problematic in enhancing quality of life of the people in the municipality

more so since female education is known to be relevant in reducing poverty, infant mortality, maternal mortality and population growth rates in most countries (UNFPA, 2003; WHO, 2004; UNICEF, 2005).

3.7 Utility Services

Koforidua township and its immediate surrounding areas are supplied with pipe-borne water from the Densu River. However, a great number of communities in the municipality do not have access to pipe-borne water. Most communities are served with boreholes and hand-dug wells. Streams are another available source of water in some communities. The use of untreated water in most households in the municipality is high due to the high cost of treated water, its erratic supply and limited access to pipe-borne water services. This situation has accounted for the seasonal outbreak of water-borne diseases such as cholera and typhoid especially during the dry season in many communities. According to the New Juaben Municipal Health Directorate, the municipality recorded 321 cholera cases early in 2011 with 2 deaths (Ghana News Agency, 2011). In such situations low income families and rural communities are the worst hit and children and the aged are the worse victims since parents are not able to afford the high cost of treated water.

In the case of electricity supply, most parts of the municipality are linked to the national grid. However, many rural communities are yet to benefit from the Rural Electrification Project embarked on by the Government of Ghana under the Ghana Poverty Reduction Strategy (GPRS)-1 project. This is a contributory factor to the low growth rate of agro-

based industries in these deprived communities. Thus, the lack of hydro-electric power and employment opportunities have compelled most rural youth to migrate to the municipality with the hope of finding employment.

Post and telecommunication services are among the essential services the municipality can boast of. The municipality has six (6) post offices, two (2) postal agencies and five (5) commissioned agencies. There is also Expedited Mail Service (EMS) and other courier services in the municipality. All these services are not very reliable and many people have stopped utilizing such services.

3.8 Financial Institutions

The financial institutions in the municipality are classified into two, namely banking and non-banking. There are 21 banking institutions and ten (10) non-banking institutions in the municipality. Out of these, about 80% are operational in Koforidua while the rest are located in the surrounding communities. These institutions have helped to facilitate the growth of business enterprises through granting of credits and loans as well as rendering other financial-related services. The introduction of micro-credit schemes for small and medium scale entrepreneurs in most banks has been a major platform for granting access to credit to customers with weak financial base especially petty traders in rural communities. Many of such banks have been effective in granting credits to many petty traders since the banks do not require collateral but ensure that the petty traders keep and maintain a minimum balance with the bank.

Summary

Even though New Juaben has achieved the status of a municipality, many of its communities lack basic infrastructural and service facilities such as health posts and clinics, second cycle schools and pipe-borne water. The over concentration of basic infrastructural facilities in the municipal capital (Koforidua) and its immediate environs is a contributory factor to overcrowding and high population concentration in the municipality.

CHAPTER FOUR

4.0 RESEARCH METHODS

Introduction

This chapter gives an account of the study design, methods and steps taken in conducting the survey. The methods used are important as they reflect on the quality of the data collected, findings and interpretation of the data. The chapter details out the study tools and techniques employed for data collection. The study population, and how the study sample was selected are also described and details of the study variables are also provided. Data handling is important for data quality and as a result, the processes involved in handling data are considered in addition to the methods of data analysis. The chapter finally acknowledges the weaknesses and limitations of the study design.

4.1 Research Design

This study employed the cross-sectional descriptive design using both quantitative and qualitative research techniques. This design was used because according to Abrahamson and Abrahamson (2000) it is a useful way to gather information on important health-related aspects of people's knowledge, attitudes and practices as is popularly done in 'KAP' Surveys. It is also often used as a basis for health-policy decision as the design ensures that only current rather than obsolete information is used. Creswell et al. (2007) describe mixed methods as a research approach with philosophical assumptions as well as methods of inquiry, with its central premise being that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either approach alone. Triangulation of results from mixed methods

approach has its origin in navigation, military strategy and surveying (Kohlbacher 2005). The term triangulation in social research is used in a less literal sense to describe the use of a combination of multiple empirical research methods to investigate a phenomenon (Wolfram Cox and Hassard 2005). According to Wolfram Cox and Hassard (2005), the implicit assumption in much of the social science literature on triangulation 'is of developing a more effective method for capturing and fixing of social phenomena in order to realize a more accurate analysis and explanation'. Jick (1979 in Kohlbachoer 2005) emphasized that researchers can improve the accuracy of their judgment by collecting different kinds of data bearing on the same phenomenon. The intention is that the combined techniques complement each other (Wood et al., 1998). Wood et al. (1998) further explained that complementing is useful in situations such as helping to confirm research findings, one study being used to generate research hypothesis for another, or one study being used to help explain the findings of another.

This study enhances the quality of its data by adopting two approaches. The first one is the development of multiple theories about the same research problem. Multiple hypotheses were derived from the theoretical framework of the study, which consisted of multiple theories such as the epidemiologic model, the Haddon matrix, the concept of '4 Es' in injury prevention and the ecological model. The testing of the hypotheses resulted in the consolidation of the multiple theoretical perspectives about childhood burns and falls prevention in Ghana. Second, the use of multiple methods of data collection, which was the combination of both qualitative and quantitative instrument material, provided methodological triangulation. Hence, in order to understand complex human

phenomenon where there are diversities in the subject under study, a multidisciplinary approach favoured by triangulation needed to be adopted, and this was the approach used in this study. The use of multiple disciplines of psychology, sociology, medicine, public health, nursing, and knowledge from multiple study models such as ecological model, were all incorporated to provide a rationale for understanding the risk factors, treatment practices and preventive practices for childhood burns and falls in the study area.

4.2 Study Variables

The variable list provides a summary of information on the various study variables, indicators, measurements and how the variables have been defined for use in the study. The variables are basically from three domains: child and parents/caretakers demographic variables, factors related to mechanism of paediatric injuries and environmental factors. Apart from defining who a child is which sets the age limit of the child considered in this study, the other socio-demographic variables such as sex, marital status, and education were not operationalized because the general definitions were used. The details are presented in appendix 10.

4.3 Sampling Issues

4.3.1 Sample Size Determination

In calculating the sample size for the study, the Godden's (2004) formula for infinite population was used. The main assumption underlying the use of the formula is that the population should be greater than 50,000. The adult population for New Juaben

Municipality from the 2010 Population and Housing Census was 83,018, hence the use of the formula;

$$SS = \frac{Z^2(p) \times (1-p)}{C^2}$$

Where

SS = Sample size

Z = Z statistic for a level of confidence

P = percentage of population picking a choice expressed as decimal

C = Confidence interval, expressed as a decimal

Using the estimates of

Z = 1.96 for 95% confidence level

P = 0.5

1 – P = 0.5

C = 0.04

$$SS = \frac{3.8416 \times 0.5 \times 0.5}{0.0016} = 600$$

$$\therefore SS = 600$$

4.3.2 Sampling Procedures

A multi-stage sampling method was used for the study and this involved three stages. The first stage comprises the selection of communities for the study, the second stage

involved the selection EAs while the third stage involved the selection of individuals who were caregivers in the selected houses within the selected communities.

In all, there are 52 communities in the municipality and using the simple random sampling method, twelve (12) communities were selected. This was to reduce the number of communities to be studied for the sake of convenience. However, care was taken to ensure that fairly large number of communities was selected for the study because communities in the municipality are heterogeneous. As indicated by Ratray (1976) and Neuman (2007), ethnographic studies involving heterogeneous communities must have a wider coverage for the sake of representativeness of the variables concerned.

The second stage involved the selection of EAs. The use of EAs in this process was based on the fact that the list of all houses in the various communities from which individuals will be selected is not available. As a result of this, the researcher decided to use the enumeration areas (EAs) demarcated by Ghana Statistical Service for the 2010 Population and Housing Census. This was the way to get a list of houses in the selected communities for the study. The simple random sampling method was employed again to select two (2) Enumeration Areas (EAs) from each of the twelve (12) communities selected. It was estimated that there were at least five (5) EAs in each community.

In the last stage, As all the EAs are almost of the same size and as a result, a proportionate number of twenty-five (25) houses were randomly selected using the house numbers from each EA by the lottery method. Parents/caretakers from the houses selected were brought together to form the total sample size (600) for the study.

On entering the selected house, and in a situation where a spouse was not available, the one present was selected for the administration of the questionnaire. In a situation where both spouses were present, the preference was for the female. In the case of caretakers who are not spouses, the preference was still for the female. This is because issues concerning child care are mostly dealt with by women and this explains why most of the studies on health-seeking behaviour for children are limited to mothers and female caretakers (Mbagada et al., 2005; Mashreky, 2010).

4.4 Data Collection Instruments

Based on the study focus of exploring risk factors as well as determining household practices influencing the treatment and prevention of childhood burns and falls, two main instruments were used for the data collection. These were a semi-structured questionnaire and an in-depth interview guide and were based on the conceptual framework used since the models were basically applied to understand and prevent childhood injuries. (See appendices 2 and 3). The semi-structured questionnaire was chosen bearing in mind that it is less rigorous in use as such will allow new ideas to be brought up during the interview as a result of what the interviewee said. It was also chosen based on the fact that the researcher was interested in exploring parents'/ caretakers' attitude and practices affecting treatment and prevention of childhood burns and falls. This required the use of a more flexible instrument other than the structured questionnaire. According to Lynn (2001), the beauty of using the semi-structured questionnaire is the ability to probe as new and interesting issues emerge. It is a good strategy for obtaining more in-depth data.

The semi-structured questionnaire was used mainly for the community-based and the household survey where parents and caretakers of children constituted the study population. This questionnaire comprised one hundred and twenty four (124) close-ended and open-ended questions. The open-ended questions, though limited in number, gave the respondents the opportunity to respond freely to the questions under discussion without restricting their responses. This method also helped the researcher to obtain detailed information on the phenomena under study. In addition, the instrument included other questions on risk factors/threats, cues to action and health-seeking behaviour, home-based care, local preventive strategies adopted for childhood burns and falls, and the barriers to childhood burns and falls prevention.

The questionnaires were administered to parents or caretakers, to explore their beliefs, attitudes and practices in the management and prevention of childhood burns and falls in their respective households. The study assumed that every parent has ideas, skills, practices and strategies he or she uses in preventing and /or treating childhood injury. It was therefore deemed necessary to uncover these local beliefs and practices associated with childhood injury. The understanding of these perceptions and practices may help form strong basis for effective interventions in childhood injury prevention and treatment.

The face-to-face method of administering questionnaires was used despite its inherent problems of high cost and time consumption. The reason for using this method was borne out of Kumekpor's (2002) submission that its use establishes a strong rapport,

collaboration and exchange of information beyond the specific interview. This method has the advantage of having a high response rate and the opportunity to clarify as well as probe into issues regarding the study. The face-to-face method of administering the questionnaire was also seen to be the best method for the study population due to its relatively high rate of illiteracy.

The use of the in-depth interview guide was based on the fact that specialist health personnel and other key stakeholders in child care and protection have same information which would help enrich the study. Wertz et al. (2011) found the use of in-depth interviews to be most appropriate for situations in which one wants to ask open-ended questions that elicit depth of information from relatively few people on their feelings and perspectives on a subject.

Based on the above background, two separate key informant interview guides were developed for the study. These are for parents whose children were on admission and key health personnel for childhood burns and falls. An interview guide for parents whose children were on admission for burns and fall-related injuries was developed in order to capture among others, first hand descriptive information on the circumstances leading to the occurrence of the injuries. The parents were selected because they are often the first point of call whenever information on a child is required and because most parents are directly involved in the health-seeking behaviour of their children and also are observers of whatever experiences their children go through.

This interview guide was developed based on the four core components of the study namely, the socio-demographic characteristics of the affected child and the mother, risk-factors for burns and falls, treatment-seeking behaviour and preventive strategies for burns and fall-related injuries (See appendix 3). A preliminary study revealed that apart from the Regional Hospital and the Saint Joseph's Hospital (both in the New Juaben Municipality), which admit children with burns and injuries, the remaining treatment centres did not have children on admission. Based on this, interviews were conducted in the two health facilities involving all mother whose children were on admission (five (5) mothers at the Regional Hospital and seven from Saint Joseph's Hospital). The reason for interviewing all the parents from these two facilities was due to the small number of this category of parents in the study population.

The second in-depth interview was conducted for all key personalities in the various health facilities in the municipality. Such key informants included nursing officers in charge of childhood injury, pharmacists, drugstore keepers, elderly women, herbalists and traditional bone setters. The purpose of these key informant interviews was to determine how they prevent as well as treat childhood injuries and the challenges they face with their prevention and treatment. A total of twelve (12) in-depth interviews were conducted comprising two informants from each category of facility. They were purposively selected based on their experience and the number of clients attended to. The reason for widening the base of the in-depth interview was to gather detailed and diversified information on the study.

In most of the time, the qualitative analyses were carried out first in exploring why and how issues of childhood injuries occur. The understanding gathered was used to establish associations among key variables of study using the quantitative tools of analysis appropriate in each case. The in-depth interview guide for key informants is presented as appendix 4.

4.5 Data Quality Assurance

To minimise errors and biases associated with such studies, the following precautionary and quality assurance measures were taken:

4.5.1 Training of Research Assistants

Six research assistants were recruited from the Statistics Department of the Koforidua Polytechnic. The research assistants were drawn from this department because the researcher works in that department and has worked with many of the students on similar assignments. The six chosen were second year students who have benefited from courses on research design. The Research Assistants were trained on the following sub-themes: rapport building, listening and probing skills, as well as design of data collection instruments and tools. The main task of the Research Assistants was to administer the semi-structured questionnaires to the respondents in the study area. The main difficulty encountered in the engagement of the TAs was language barrier. The New Juaben Municipality is made up of diverse communities with majority being the Akan, Guan, Ewe and Ga. This requires that the TAs should be fluent in at least one of these Ghanaian languages in addition to English language so that they can easily translate the

questionnaires from English to the aforementioned languages as and when required. Unfortunately, none of the second year statistics students could speak the Guan language. This meant that a student from other departments who understands the Guan language had to be looked for and trained before he/she could be brought on board to assist in the data collection exercise. The search and the training of the additional staff increased the days of training from three days to four days since additional day was devoted exclusively for him on basic data collection skills in order to catch up with his colleagues.

4.5.2 Pre-Testing of Tools

The tools used for data collection (questionnaire and interview guide), were pre-tested, to ensure their reliability and appropriateness. According to Neuman (2007) pre-testing an instrument helps improve the reliability of the instrument in question. The questionnaire and the interview guide were pretested in two phases: In the first phase, the instruments were tried on four doctoral students at the School of Public Health to ensure that all the variables required for the study, with respect to the objectives, conceptual framework and the hypotheses, have been taken into consideration. The process also ensured that the questions asked were clear. Feedback from this pre-test enabled the researcher to review the instrument on the basis of syntax, spelling and comprehensibility. In the second phase, two communities out of the fifty-two communities in the New Juaben Municipality were randomly selected for the pre-testing. The communities were Atakyem and Asikasu. These selected communities were similar in character to the remaining communities. Questionnaires were administered to twenty-five parents in each

community, making a total of fifty interviews for the pre-testing of the structured questionnaire.

4.5.3 Monitoring and Supervision of Fieldwork

There were daily monitoring and supervision of field activities. For instance, the Research Assistants were monitored, to ensure adherence to research protocols and to ensure completeness of data collected, on a daily basis. The researcher was the field supervisor and he undertook quality control exercises on the field. He often sat in during questionnaire administration sections to observe whether the right processes were being followed. In cases where there were lapses, the field supervisor immediately resolved the problem with the research assistant concerned. As part of the monitoring process, the researcher also ensured careful editing and data cleaning on a daily basis.

4.5.4 Double Data Entry

Double data entry was another data quality measure employed. Each of the two data entry clerks were tasked to enter the survey data separately so that the two data sets could be compared to determine any errors during the data entry process so that any differences identified as a result of misread responses could be rectified before data were analyzed.

4.6 Data Processing and Analysis

4.6.1 The Quantitative Data

After careful editing and cleaning, the questionnaires were coded and data entered into the computer. The Statistical Package for Social Science Students (SPSS) software Version 17 was used for the analyses. SPSS was used because it is user friendly, useful

in analyzing large data sets and also powerful in performing the statistical tests which were required by this study, i.e. bivariate and multivariate logistic regression.

As a first step in the analysis, descriptive statistics were employed to analyze and interpret the socio-demographic characteristics of the respondents through the use of frequency tables, and percentages. The analysis of the socio-demographic characteristics was important in understanding the interplay between threat of childhood injury and the various socio-demographic variables of the study. In order to establish the relationship between the background characteristics of parents and caretakers of children and their choice of treatment and preventive practice for childhood burns and falls, cross – tabulation and chi – square were used.

Another important statistical tool used in the test of hypothesis was the logistic regression. This was run using SPSS version 17. The variables were chosen based on the objectives of the study as well as the demands of the conceptual framework used. This advanced statistical tool (logistic regression) was used to determine the likelihood of occurrence of the various risk factors and how much each risk factor contributes to childhood burns and falls. A further test was conducted using the linear multiple regression to determine the association between poverty and other related factors such as overcrowding, level of education and relationship with the child to determine how much poverty influences these co – factors. The test was set at 95% confidence interval.

4.6.2 The Qualitative Data

All data collected through key informant interviews were audio-recorded, transcribed verbatim and analyzed using core content analytical steps. The audio-recording of interviews was a way of eliminating errors such as omissions and misrepresentation of facts. It was also meant to facilitate the process of the interview. The content analytical approach to qualitative data analysis reduces complications associated with having to handle bulky data at a go. Moreover, content analysis has the capacity to handle and analyse both quantitative and qualitative data sets through triangulation.

Based on the objectives and the conceptual framework of the study, the specific core themes derived from childhood burns and falls management and prevention were developed for the content analysis. These included determining the risk factors to childhood burns and falls, exploring treatment practices and determining preventive practices to such injuries. These analyses were carried out manually.

4.7 Ethical Issues

Dealing with a study of this nature would definitely involve some ethical issues which border on people's attitudes, beliefs and practices. When these ethical concerns are managed well, they could help achieve research integrity since responsible conduct for research would be taken into consideration. It is however not simple to achieve research integrity, especially when dealing with human subjects. This has led to an on-going debate on how animals and human subjects should be treated in research from the time of the Nuremberg trial for Nazi war criminals in 1946 to date (Dodd 2003).

Bearing in mind the significance of ethics in the conduct of research and the fact that ethics has expanded from providing protection for human subjects to include ethical guidelines that encompass all parts of research from research design to the truthful reporting, the following steps were taken to protect the interest of study participants in this current study.

4.7.1 Informed Consent

The use of informed consent was meant to give participants the choice of whether to take part or not. The consent form used, basically summarized the goal and objectives of the study and the possible implications in terms of benefits and disadvantages of one's participation. The consent message was given to health workers, parents/caretakers of children and children aged above 12 years who were on admission for burns and fall-related injuries. The consent form was given to those who can read so they could make an informed decision on their participation. In the case of the study units who could not read and understand the consent form, it was read and explained in their local dialect. Majority of the respondents did not see the need for the researcher to go through the informed consent with them despite the education given by the researcher on its relevance. They felt that ones they have agreed to be part of the study they should not be taken through the bureaucratic processes of signing official documents. Others thought that the study is just a social survey but not experiment where the use of their specimen could have adverse effects on them therefore there is no need for the informed consent. Such

perceptions from respondents suggest the need to intensify education on ethical issues in research.

The form had a column which a participant signed or thumb printed after he/she agreed to be an interviewee based on his/her understanding of the consent statement. The consent statement also had provisions that allowed a study participant to withdraw at a later date without any negative consequences. Most health workers and parents/caretakers who were approached to be recruited as study participants voluntarily agreed to be interviewed. In the end, all study participants who were recruited continued their participation in the study through to its conclusion.

4.7.2 Confidentiality

Before interviews, for instance, the researcher fully discussed the issue of anonymity and confidentiality with participants and assured them that their identities would not be disclosed in the study findings or any study-related publications. In the case where quotations and categorical statements made by the interviewees needed to be presented instead of generalising the issues, pseudo-names were used to conceal the identity of the respondents in question. The assurance of the use of pseudo-names encouraged most of the participants to share their real life situations without any reservation.

4.7.3 Ethical clearance

The issue of negligence of parents/caretakers which is often associated with paediatric injuries was carefully taken into consideration in the design of instrument for data collection since it is considered to be one of the sensitive issues in paediatric injury research and most importantly in KAP surveys. In addition to negligence, the general attitudes and practices of parents/ caretakers in treating and preventing childhood burns and falls were also carefully considered. The Ghana Health Service Ethical Review Committee reviewed the data collection instrument and approved the survey in accordance with the guidelines for research involving human subjects (ID number: GHS-ERC 3).

Summary

The research design, the methods of data collection, data presentation and analysis as well as ethical concerns of the study have been presented and justified. The nature of the research objectives supported the use of both quantitative and qualitative methods of data collection and analysis. The use of triangulation of these methods has been justified, since this approach would offer detailed information to address the objectives of the study.

CHAPTER FIVE

5.0 RESULTS OF THE SUDY

Introduction

The study was guided by three research objectives: i) determine the risk factors for childhood burns and falls; ii) explore the treatment practices for these childhood mishaps and iii) ascertain the practices for preventing these events. The results of this study are presented in four sections and in the following order: a) socio-demographic characteristics of the respondents, b) risk factors, c) treatment practices and d) preventive practices for childhood burns and falls. Bivariate and multivariate analyses were conducted to supplement the qualitative and quantitative data and to deepen understanding of the local management of paediatric burns and fall-related injuries. The data analysis begins with the socio-demographic characteristics of parents and caretakers.

5.1 Socio-Demographic Characteristics of Parents/Caretakers

To help understand the interplay between the socio-demographic characteristics of parents/caretakers and the various dependent variables of the study, there was the need to analyse and capture some of the key variables such as sex, age, marital status, and occupation, level of income and level of education of the parents / caretakers. It is considered that knowledge of these basic characteristics would help enhance understanding of parents' beliefs, perceptions, knowledge, attitudes and practices on childhood burns and falls.

A total of 600 parents / caretakers of children participated in the study. Out of this number, 20.7% were males while 79.3% were females. This gender disparity was deliberate because in Ghana child care is considered one of the important domestic roles of women. It was found that only 1.5% of the parents and caretakers were below 20 years of age with another small percentage (6.5%) aged more than 60 years. The majority of parents/ caretakers were between 30-39 years. The study revealed that 63.8% of the parents and caretakers were married; 16.7% have never married, 8.5% were divorced, 6.5% were separated, and 5.0% widowed. These characteristics suggest that the majority of the parents/ caretakers were adults.

The educational status of the parents was found to be fairly high as only 11% of the parents/caretakers have no formal education; 15.2% have only basic education, and 32.8% have formal education up to middle school or junior high school level. It was also found that 15.5% of parents have up to secondary level of education.

This study found that 90.5% are employed while 10.5% are unemployed. Of those who are employed, 44.2% are traders, 18.2% artisans, 16.5% government employees and (4.2%) farmers. Considering the occupational background of these parents/caretakers, it is evident that the majority of them are engaged in some form of employment and therefore are more likely to care for their children better than the few unemployed. The nature of employment of parents is also known to influence child care (Delgado 2002). It was however found that their income levels are generally low in the study area, having implications for the general wellbeing of children. For instance, 43.6% of the employed respondents earn less than one hundred Ghana Cedis per month ($250.00). This suggests

that many parents in the study area live below the daily minimum wage of GH¢ 5.24 implying that they are economically poor. The details of the socio-demographic characteristics are presented in Table 5.1

Table 5.1 Distribution of Respondents, by sex, age, marital status, level of education, occupation and level of income

Socio-demographic variables	Frequency(N=600)	Percentage
Sex		
Male	124	20.7
Female	476	79.3
Age		
Less than 20 yrs	9	1.5
20-29	157	26.2
30-39	203	33.8
40-49	126	21.0
50-59	66	11.0
60_{+}	39	6.5
Marital Status		
Single	100	16.7
Married	381	63.8
Separated	39	6.5
Divorced	51	8.5
Widowed	29	5.0
Level of Education		
No Education	66	11.0
Primary School	91	15.2
JHS/Middle School	197	32.8
SHS/Secondary School	93	15.5
Vocational/Commercial	42	7.0
Tertiary	111	18.5
Occupation		
Unemployed	63	10.5
Apprentices	26	4.3
Traders	265	44.2
Artisan	109	18.2
Farmers	25	4.3
Government Employees	100	16.6
Labourers	12	2.0
Level of Income in GH¢($1=GH¢2)		
Less than 100.00	262	43.6
100.00 – 200.00	211	35.2
200.01 – 300.00	77	12.8
300.01 – 400.00	24	4.0
400.01 – 500.00	16	2.7
Greater than 500.00	10	1.7

*** Cell total = 600** ***Cell Percentage = 100%**

5.2 Risk Factors for Childhood Burns and Falls

According to UNICEF (2001) injury is the leading cause of child death in both high and low income countries, accounting for approximately 40% of deaths in children aged 1-14 years. In Ghana, childhood injuries at home are classified among the top ten causes of morbidity. The first three causes are malaria, upper respiratory tract infections and diarrhoea (GHS 2005). Considering how common childhood burns and fall-related injuries are in the study area, the 2011 Eastern Regional Hospital report indicates that there are reported cases of acute burns on regular basis with an average of four admissions per week in each of the three hospitals in the municipality. This record excludes outpatient cases which obviously may be higher than the admitted cases. It must also be noted that this record is only from the allopathic treatment regimen but there are other available treatment regimens such as the indigenous traditional practice of which the statistics are not available.

According to Howe (2006), the rising proportion of child death attributable to injuries is partly associated with the lack of understanding of the risk factors for such injuries. In using the Epidemiologic Model to guide this study, the risk factors to childhood burns and falls have been categorized into three: child (host), agent and the environment. These risk factors are strongly tied to socio-economic and demographic background of the child, parents and the family as well as the physical environment within which they live.

In order to determine the risk factors which significantly influence the incidence of childhood burns and falls, a logistic regression analysis was conducted using sex, age of

the child, marital status, poverty, fostering, overcrowding at home, education on safety precaution and cooking behaviours of parents as predictors. For the predictors whose levels were more than two (age and marital status), dummy variables were used.

The risk factors for burns and falls were analyzed separately because the injuries as well as the conditions influencing them may not be the same even though in some cases some of the factors are similar.

5.2.1 Risk Factors for Childhood Burns.

As a first step, the significance of all the independent variables as a set was considered using the omnibus test of model coefficient and it was found that the set of variables was significant in predicting childhood burns (chi= 462.819, P<0.001 with 12 df). After the test, contributions of each individual independent variable to childhood burns were also analyzed. Considering sex of a child as a risk factor, girls are 15% less likely to be victims of burns as compared to boys and the 95% CI [-68.8%, 57.5%], p = 0.637, but this is not a significant finding.

In terms of the age as a cofactor, children less than 5 years are 2.96 time more likely to be victims of burn as compared to those in 15-18 years group and the 95% CI [1.08, 8.20]. P = 0.037, this finding is significant. Children aged 5-9 years are 1.8 times more likely to be victims of burn as compared to those aged 15-18 years and the 95% CI [1.80, 4.86]. P = 0.245, this finding is not significant. In the case of children aged 10-14 years,

they are 1.9 times more likely to be victims of burns than those aged 15-18 years and the 95% CI [0.72, 4.82], p = 0.367, but the finding is not significant.

The study further examined poverty as a risk factor to childhood burns and found that children living with parents/caretakers who are extremely poor (living below the daily minimum wage of GH¢ 5.24 per day) are 18.9 times more likely to be victims of burns compared to those who live above the daily minimum wage and the 95% CI [8.0, 44.27], p < 0.001, and this finding is significant.

In terms of marital status, it came out that children born to single parents are 12.2% less likely to be victims of burns as compared to children whose parents are deceased (widowed) and the 95% CI [-287%, 80%],p = 0.863, and is not significant in influencing childhood burns. Children living with parents who are married are 13.1% less likely to be victims of burns than those whose parent are deceased and the 95% CI [22.9%, 77.9%], p = 0.836 while children living with divorced parents are 2.2 times more likely to be victims of burns as compared to those living with widowed parents and the 95% CI [0.40, 11.99], p = 0.367 but this is not significant.

It was found that children born to parents with some formal education are 54% less likely to be victims of burns compared to those born to parent without formal education and the 95% CI [-63%, 61%], p 0.131, and is significant.

The study further found that children living in an overcrowded home are 9.3 times more likely to have burns compared to children who are not living in an overcrowded home and the 95% CI [4.67, 18.41], $p < 0.001$, this factor is significant in influencing childhood burns.

Considering education on safety precaution as a risk factor to childhood burns, children who are living with parents who have knowledge on safety precaution are 8.3 times more likely to be free from burns compared to parents who are without such education and the 95% CI [4.38, 16.67], $p < 0.001$, and this result is significant.

With respect to cooking behaviour, the study found that children living with parents who observe good cooking behaviour standards are 4.2 times more likely to be free from burns compared to parents who do not keep to such standards at the kitchen and the 95% CI [2.3, 8.26], $p < 0.001$, and it is significant [Table 5.2].

Table 5.2 Logistic regression of occurrence of childhood burns on associated risk factors

Variable	OR	Lower 95% CI	Upper 95% CI	p-value
Sex of child				
Male	1.00	-	-	-
Female	0.85	0.43	1.69	0.64
Age of child (years)				
15 – 18	1.00	-	-	-
0 – 4	2.96	1.07	8.20	0.04
5 – 9	1.80	1.80	4.86	0.25
10 – 14	1.86	0.72	4.82	0.20
Poverty				
Poor	1.00	-	-	-
Extremely poor	18.88	8.05	44.27	<0.001
Marital status				
Widowed	1.00	-	-	-
Single	0.88	0.20	3.87	0.863
Married	0.87	0.23	3.29	0.836
Divorced	2.19	0.40	11.99	0.367
Education				
No Education	1.00	-	-	-
Some education	0.46	0.39	1.63	0.131
Relationship with Child				
Biological	1.00	-	-	-
Foster	0.02	0.01	0.06	<0.001
Overcrowding				
Not overcrowded	1.00	-	-	-
Overcrowded	9.28	4.67	18.41	<0.001
Education on safety precautions				
Had no knowledge	1.00	-	-	-
Had knowledge	8.33	4.38	16.67	<0.001
Cooking behaviour				
Standards not kept	1.00	-	-	-
Standards kept	4.17	2.13	8.26	<0.001

Findings from the Odds Ratio in Table 5.2 are consistent with the finding of the qualitative data on the risk factor for childhood burns. The qualitative data also show the interrelationships between poverty and other variables in explaining the risk factors for

childhood burns. It was observed that due to poverty, most parents and caretakers are constrained in giving care and welfare to their children. For instance, the inability of some parents to enrol their children in pre-school affect child safety at home. This often results in a situation where younger children are left in the care of older siblings and as a result of inadequate care, avoidable injuries occur. It is seen that cultural changes which have led to the breakdown of the extended family and the fact that it is expensive to maintain large families in cities, some parents are not able to get support from the extended family in the care of their children.

The problems associated with overcrowding in many homes are as a result of the inability of some low income families to rent or acquire spacious accommodation. The response of a parent revealed that overcrowding at home normally hinders implementation of safety measures, making children in such settings vulnerable to injuries. The parent remarked:

> *Hm, I feel very bad for housing my fairly large family in this small uncompleted apartment. I could not renew my tenancy agreement when it expired due to the exorbitant rent being charged by the landlord. As a result I was compelled to prepare two rooms in my uncompleted building to house my family. I am not the only one confronted with such a problem. Two of my friends have also moved into their uncompleted building because of the high rent they have to pay. I am worried because I know of the hazards associated with keeping children in a congested and above all uncompleted building where children have easy access to the kitchen and hot items, but under this circumstance I have no option than to pray that nothing bad happens to my children.*

Interview with the nursing officers in charge of the surgical wards of the Eastern Regional Hospital and Saint Joseph's Catholic Hospital, confirmed the situation of parental negligence and poverty. The nurses revealed that in most of the cases of

childhood burns presented to their facilities were mainly due to avoidable causes associated with poor care and handling and the victims are mostly children less than five years. This is what the Nursing Officer at the Regional Hospital had to say:

> *Almost all the cases presented for admission are second to third degree burns which have caused extensive damage to the epidermis and some part of the dermis. The worrying part, however, is that almost all the burn cases are due to negligence and poverty. I wonder why a mother would leave hot soup uncovered and in the reach of a toddler and go to attend to other things that would generate income at home. It is regrettable that some children go through such ordeals due to their mother's negligence.*

An interview with one of the mothers whose daughter was on admission for burns confirmed the nursing officer's claim but explained that it is not the wish of mothers to be irresponsible, but that there are circumstances beyond their control. She indicated that it is the wish of every mother that her child grows healthily, live in a well-protected environment and have proper care and nurturing. However, according to her, most mothers are constrained by poverty. She recalled how she was unable to enrol her three year old daughter in a nearby nursery and could also not carry her on her back each day while hawking. She indicated:

> *I have regretted leaving my three year old daughter in the care of my younger sister who could not take good care of her for the few hours I spent each morning selling my wares. If I were to have a little money to send her to the nursery, I do not think she would be in the house to suffer from such a burn.*

The case of this mother and many others show how poverty and related causes can contribute to childhood burns. A further probe on what they can do to address this systemic poverty revealed that they did not know what to do since most of them kept quiet on the issue. When it came to what the government can do to ameliorate their

plight, many were quick to respond that the government should create more jobs so that they could be employed in the formal sector. This reveals the mind set of some parents on their preference for formal sector employment even though they are already engaged in the informal sector.

5.2.3 Risk Factors for Childhood Falls.

The study found that girls are 6.1 times more likely to be victims of falls - related injuries than boys and the 95% CI [2.68, 13.93], $p < 0.001$, and it is significant.

In terms of age, children less than 5 years are 29.6 times more likely to have fall- related injuries than children aged 15-18 years and the 95% CI [7.33, 119.35], $p < 0.001$, and a significant risk factor. Children aged 5-9 years are 2.9 times more likely to be victims of fall-related injuries than those aged 15 - 18 years and the 95% CI [0.86,9.86], $p = 0.086$, but not significant. Children aged 10-14 years are 13% more likely to be victims of fall-related injuries than those aged 15-18 years and the 95% CI [-66%, 276%], $p = 0.837$, but also not significant.

Considering poverty as a risk factor to fall-related injuries, it came up that children living with parents who are extremely poor (living below the daily minimum wage of GH¢5.24 per day) are 14.93 times more likely to be victims of fall-related injuries than those who live with parent who live above the daily minimum wage and the 95% CI [6.80, 32.26], $p < 0.001$, and it is significant in influencing fall-related injuries.

With respect to marital status as a risk factor, children born to single parents are 81.1% times less likely to be victims of fall-related injuries are compared to children whose parent are widowed and the 95% CI [-39.3%, 97.4%], p = 0.102, but not significant. Children born within wedlock (to married parents) are 97% less likely to be victims of fall- related injuries as compared to children whose parents who are widowed and the 95% CI [80%, 97.6%], p = 0.439, but not also significant . It was indicated that children born to parents who have divorced are 58% less likely victims of fall-related injuries as compared to children living with parents who are widowed and the 95% CI [-273%, 66%], p = 0.213, and it is not significant finding.

Another risk factor considered is education of parents. It was found that children living with parents with some formal education are 80% less likely to be victims of fall-related injuries than children living with parents with no formal education and the 95% CI [-63%, 61%], p < 0.001, and it is significant.

Children living with foster parents are 5.1 times more likely to be victims of fall-related injuries than children living with their own parents and the 95% CI [0.06, 2.58], p < 0.001, and it is significant.

When overcrowding at home as a risk factor to fall-related injuries was considered, it was indicated that children living in overcrowded homes are 18.2 times more likely to be affected by fall- related injuries than those who do not live in overcrowded homes and the 95% CI [5.15, 64.05], p < 0.001, and it is significant.

It was found that children who live with parents who have inadequate education on safety precaution at home are 14.9 times more likely to be victims of fall-related injuries than children living with parents who have adequate education on safely precaution and the 95% CI [6.75, 32.68], $p < 0.001$, and it is significant.

The study further found that children living with parents who observe playground safety are 25 times more likely to prevent fall-related injuries as compared to children living with parents who do not observe playgrounds safety and the 95% CI [10.1, 50.0], $p < 0.001$, and it is a significant risk factor for fall-related injuries.[Table 5.3].

Table 3.3 Logistic regression of occurrence of childhood falls on associated risk factors

Variable	OR	Lower 95%CI	Upper 95%CI	p-value
Sex of child				
Male	1.00	-	-	-
Female	6.11	2.68	13.93	<0.001
Age of child (years)				
15 – 18	1.00	-	-	-
0 – 4	29.58	7.33	119.35	<0.001
5 – 9	2.91	0.86	9.86	0.086
10 – 14	1.13	0.34	3.76	0.837
Poverty				
Poor	1.00	-	-	-
Extremely poor	14.93	6.80	32.3	<0.001
Marital status				
Widowed	1.00	-	-	-
Single	0.19	0.03	1.39	0.102
Married	0.03	0.004	0.20	0.439
Divorced	0.43	0.05	3.73	0.213
Education				
No Education	1.00	-	-	-
Some education	0.39	0.20	1.63	0.131
Relationship with Child				
Biological	1.00	-	-	-
Foster	2.58	1.26	5.12	<0.001
Overcrowding				
Not overcrowded	1.00	-	-	-
Overcrowded	18.17	5.15	64.05	<0.001
Education on safety precautions				
Inadequate	1.00	-	-	-
Adequate	14.85	6.75	32.68	<0.001
Poor playground safety				
No	1.00	-	-	-
Yes	25.00	10.10	50.00	<0.001

The key informant interview suggests that there is poor playground safety at all the public play grounds and parks in the municipality. For instance the Jackson's Park which is the main playground for children do not have supervisors and attendants to supervise children when playing. The main games at the park include table tennis, basketball and cycling. The park has been paved with concrete instead of being padded with lawns and thus exposes children to serious injuries in the event of a fall. Many of the bicycles rented out to children at the park are not in good condition (have faulty brakes and tyres) and without helmet making children who use such equipment very vulnerable to injuries. It was found that due to poor safety practices at Jacksons Park, most parents do not allow their children to visit the facility. A sentiment raised by a mother whose son was on admission at Saint Joseph's Hospital captures the story:

> *I work in Accra but my child lives with the grandmother here in Koforidua. My child is becoming recalcitrant because my mother is ageing and is not able to supervise him well. The very things the grandmother tells him not to do are the things he will do. He has been told not to go to Jackson's Park to ride bicycle but he has turned deaf ears to it. And now here he is with a broken arm after falling from a bicycle. I do not know what to do to him. May be after his recovery he will come and stay with me in Accra.*

Demographic characteristics such as the age and sex of a child were found to be associated with childhood falls. An interviewee stated that after school the daughter is always with her in the kitchen preparing the family dinner but the boy will always sneak out to ride bicycle at Jackson's Park with his friends. In terms of age differentials, another mother when interviewed, indicated that children at a younger age (0-4 years) even though very curious, turn to be more submissive to their parents than their older siblings (5-9 years) and that toddlers

are more predisposed to fall-related injuries than the older ones because they are now gaining mastery in walking and coordinating their body movement as they grow.

5.3 Management of Childhood Burns and Falls

This section, first presents the home-based treatment practices for childhood burns and falls after which the preventive practices are presented.

5.3.1 Home-based treatment practices for childhood burns.

An interview with key informants (elderly women, herbalist, drug store keeper and nursing officer) revealed that the use of traditional measures in the treatment of childhood buns and fall – related injuries is common in the study area. The types of home-based treatment for childhood burns were ascertained and three main modes of treatment were identified: the use of purely Western drugs, purely traditional herbal drugs and the combination of Western and traditional drugs. The use of gentian violet solution is the most dominant in treating childhood burns at home because it is readily accessible in all pharmacy and drug dispensing shops. The gentian violet solution is easy to use and it is over-the-counter (OTC) medicine. A mixture of ampicillin capsules and palm kennel oil is another common local treatment for childhood burns. In addition to this, a mixture of burnt snail shells and palm kennel oil was also identified. This is what one grandmother said in an interview:

> *As for me, whenever I buy snails, I do not throw the shells away. I wash them, dry, burn and grind them into a powder. I just have to mix it with palm kennel oil and a drug for treating wound for children is ready. It is used for all types of wounds including burns. I do not know what will let me stop using this type of drug because it is very efficacious.*

This is what one mother said:

> *Ampicillin is good in curing wounds. When I mix this with palm kennel oil, it becomes very potent to heal all wounds less than a week.*

Another mother mentioned an instance where she used gentian violet solution to treat a minor burn at home because it was the only available drug at the time of the injury. Again, she felt it was more effective than other drugs prepared at home. However, there were instances in which home-based treatment for childhood burns failed to heal and as a result, the affected child was sent to a hospital for emergency treatment. This normally happens when the extent of injury is great as in the case of second and third degree burns or when appropriate drugs are not used for treatment. A nursing officer at the Regional Hospital stated:

> *I do not know why some parents would delay sending their children to the hospital for professional care immediately the children suffer from burns. Most often, parents come with the excuse that they thought it was a minor injury they can handle at home or they did not know that the case is serious. When you probe further you find out that the underlying cause of the delay is either financial constraints or the availability of some home-based drugs they think can heal the wound. I think mothers should be given education on the type of burns so that they can tell minor burns from the acute one that may require immediate attention.*

The findings from the interviews on the use of home-based treatment for childhood burns are in line with the findings of the survey which indicated that the use of traditional modes of treating childhood burns is higher (59.5%) than the use of other modes (orthodox 25.5%) and a blend of both traditional and orthodox (15.2%)[Table 5.4].

Table 5.4 Mode of treatment for childhood burns

Mode	Frequency	Percentage
Orthodox treatment	199	25
Traditional treatment	317	59.5
A blend of the modes	84	15.2
Total	**600**	**100**

The likely reasons for the preference of the traditional modes of treatment might be due the fact that the treatment is deeply rooted in their culture, it is easy to prepare, easy to use and inexpensive as compared with the orthodox drugs that require strict adherence to its administration and also have to be bought from either the drug store or the hospital.

It was further found that a common first-aid measure for childhood burns include either the application of shea butter, palm kennel oil, cola nut juice or raw eggs to the affected area. The rationale for applying these substances is to soothe the pain and prevent large blisters forming.

Eno, one of the elderly women remarked in an interview as follows:

> *Whenever there is a case of burn, whether it involves a child or an adult, the first thing I normally do is to cool the affected area with water after which shea butter or palm kennel oil is applied to the affected area. Once this is done, the pains will subside and the main concern will be how to treat the wound.*

A young mother interviewed also said:

> *I know that in certain households some parents chew cola nut and use the juice to soothe burn pains. Even though I have never practiced it before, I think it works because I have seen it being administered to a lot of injured people.*

Agya Kofi, a herbalist, confirmed the use of cool water, shea butter, palm kennel, raw egg, cola nut juice and red clay as first-aid measures for burns in general. Agya Kofi indicated that these substances have soothing properties that help calm the burning sensation. A nursing officer however explained in an interview why the application of cool clean water alone must be used as first-aid for burns. She indicated that the use of substances other than clean cool water can introduce infections to the fresh wound and later complicate the treatment processes. An interview with a traditional bone setter however emphasized the fact that other substances in addition to clean water are used as first aid measure depending on the nature of injury and the experience of the practitioner.

These submissions suggest that there are various practices used as first-aid measures for childhood burns. Although most of such practices such as the use of shea butter, palm kennel oil, raw egg, cola nut juice and red clay are not supported by orthodox health workers, they remain first aid measures for childhood burns.

The relationship between the key socio-demographic characteristics of parents and the choice of treatment for childhood burns were explored with the aim of deepening understanding on the home-based treatment practices for childhood burn. It was found that apart from marital status which is not significantly related to the choice of mode of treatment (chi 1.969, p – value = 0.923), the remaining variables such as educational background, income per month, age of parents and parity were found to be significant . One needs to be cautious in using this finding as the chi square test was not followed with a regression analysis which gives much more detailed and exact relationship since that

was not the focus of the study. The aim was to cursory explain the likely relationships between the background characteristics of respondents and their choice of the treatment practices. The lack of the use of rigorous statistical analysis on this phenomenon is considered as a major limitation of this study [Appendices 11.5.2a-e].

5.3.2 Home-based treatment for fall related injuries

Parents /caretakers were asked to indicate how they treat fall-related injuries such as dislocation and fractures of their children at home and under what condition they seek professional care from hospitals /clinics. Most parents (53.5%) used orthodox drugs to treat fall-related injuries of their children. One-third of the parents (32.8%) used herbal drugs, mostly prepared at home to treat such injuries while a small number of parents (13.7%) used a blend of orthodox and herbal drugs for the treatment [Table 5.5].

Table 5.5 Mode of treatment for childhood fall-related injuries

Mode	Frequency	Percentage
Orthodox treatment	184	53.5
Traditional treatment	332	32.8
A blend of the modes	84	13.7
Total	**600**	**100**

Interview with key informants (elderly women in compound, drug store keepers, herbalist and nursing officers) suggests that first-aid practices are not overlooked by parents/caretakers, especially the elderly women in the treatment of fall- related injuries.

First-aid is given as a temporary measure while the affected child's case is studied by the elderly woman at home for proper diagnosis and treatment to be given. The main first-aid given is massaging the affected area with menthol-like ointment such as Omega Ointment, Deep Heat Ointment, Nerve & Bone Ointment or Robb. These are over-the-counter drugs. Massaging is done carefully bearing in mind that it can be dangerous especially where it can worsen a fractured situation. It was further found that parents most often keep such menthol-like ointments in their emergency kit so that whenever there is the need for them, they can be accessible.

Massaging with menthol-like ointment was found to play two key roles in the treatment process: to determine the type of injury, and the severity of injury. The elderly women interviewed indicated that when a skilful person massages a child with fall-related injury, that person can tell whether there is a fracture (a broken bone) and whether that injury is severe or not. Beside the use of menthol-like ointments for first–aid, the other practices such as massaging with shea butter or application of the mixture of red clay with shea butter were identified.

Nana Addobea, an elderly woman had this to say:

> *You cannot sit down unconcerned when your child complains about the pains he/she has sustained as a result of a fall. When it happens like this, I rush to my bedroom and get into the emergency kit for a hot ointment. Then I carefully massage the affected area with the ointment to determine the severity of the injury. This first assessment helps me to determine the types of treatment to be given subsequently.*

The drug store keeper suggested that most parents give first-aid to the affected children and that some first-aid drugs are even procured from his drugstore.

> *Most often parents rush to my shop to request hot ointments that can sooth the pain as well as reduce swellings associated with minor fall- related injuries. I normally give them robb or omega ointment since that is cheaper than deep heat or bone & nerve.*

In an interview with Agya Kofi, a herbalist, he indicated that most often when there is a minor fall-related injury, parents / caretakers repeat the administration of the first-aid drug for a period between 3-7 days after which the injury is healed. In the case of a major injury such as bone dislocation or fracture, a bone setter is called in to handle the case. Massaging with hot water and application of herbal drugs to the affected area is a common treatment practice for major injury. Agya Kofi added:

> *As for minor fall- related injuries they occur most often at home. Toddlers learning how to walk and run will fall and get hurt. When playing, a child can easily fall and have minor injury. The treatment is first a massage with hot ointment. Major injuries normally require specialist attention where herbal and traditional bone setters need to intervene to save the life of the child because in most cases the injury is life threatening. The yelling from the affected child alone will compel the parents to seek experts' attention promptly.*

The submission from Agya Kofi, the herbalist is in line with the traditional bone setter's submission that only major fall–related injury cases in the form of dislocations and fractures are presented to them for treatment in their facility. The main mode of treatment is through massage with hot water and application of herbal drugs. The herbalist added:

> *We have the best methods for treating fractures and dislocations. One needs not to go to the hospital for orthopaedic treatment since they cannot do it well. Most patients often end up having crooked legs due to improper treatment at the hospital. When it happens like that, we will have to break the bone again and refit it. With proper positioning, massaging and effective herbal drugs patients can walk again within three to six weeks depending on their body size, age and degree of fracture.*

The comment of Agya Kofi and the traditional bone setter imply that parents can determine minor- fall related injury from major ones. And that major injuries are most often sent to traditional bone setters for treatment instead of the hospital.

Awo, a caretaker also gave her perception about severe fall-related injury and how it can cause permanent disability or death of children. She recounted how a close relative's son fell into an open drain and suffered broken ribs and how the child died due to delay in sending him to either the hospital or the herbalist for treatment. She indicated that three days after the incident, the child started to cough and subsequently vomited blood before the child was rushed to the hospital. Based on this experience, whenever a child with severe injuries is brought to her, she recommends that the affected child be sent to the hospital or clinic for immediate treatment. This suggests that some parents/caretakers have the perception that it is not every type of childhood fall injuries that can be handled by the traditional bone setters.

Similarly, Auntie Elizabeth, the Nursing Officer said that it pays to have immediate professional health care whenever there is any form of childhood injury. In this way, the affected child can be properly assessed for effective treatment. She further bemoaned the poor attitude of some parents delaying seeking prompt medical attention whenever children are injured. She added:

> *The cost of early treatment for an injured child will always be far lower than whenever one delays and complications set in. If treatment is delayed, the child may lose his life or be permanently disabled. I become very much upset when a child is rushed into the health facility with an acute injury condition as a result of delays in seeking appropriate treatment. I have no regret reprimanding such parents who are so insensitive to the plight of children*

Auntie Elizabeth's comment implies that some parents/caretakers or traditional healers do not know the type of injuries they can conveniently heal and those that need medical attention from hospitals, a situation which often leads to delay in seeking treatment from hospitals.

Furthermore, the background characteristics of parents / caretakers of children were explored in relation to their preferred mode of treatment for childhood fall-related injuries. The results show that educational background, income, marital status and parity were found to influence the choice of treatment for childhood fall-related injuries. There is the need for caution when using this finding as a more rigorous statistical analysis was not used since that was not the focus of the study. The aim was just to explain the likely relationship among the background characteristics of parents and their treatment modes. The non-use of regression constitutes a major limitation for the study. The details are presented in appendices 11.5.3a-e.

5.4 Preventive Practices for Childhood Burns and Fall-Related Injuries

> *I have observed that every adult has knowledge and skills to protect children at home. Some of these skills are acquired through common sense knowledge or through elaborate training either formally or informally. The ability to use these skills helps to promote the safety of children (Nana Asi, a parent).*

The comment by Nana Asi is common among parents /caretakers of children in the New Juaben Municipality. It is among the reasons why newly delivered mothers are mentored by elderly women, especially their mothers or mothers in-law soon after delivery to either learn or sharpen their skills in proper handling and protection of the newly born baby. It

is also an underlying reason why the Ghana Health Service organizes ante-natal and post-natal clinics to educate mothers on diverse issues including safe handling and protection of new born babies. All these practices are to build the capacity of parents, especially mothers in reducing infant and child mortality (MOH 2005).

5.4.1 Preventive practices for childhood burns

Findings from the survey suggest that parents / caretakers of children adopt three (3) broad preventive practices for childhood burns. Most parents / caretakers (50.3%) are more likely to use restrictive measures to prevent childhood burns at home than to educate their children on preventive measures (22.3%) or keep hazardous substances safe (27.3%) [Table 5. 6].

Table 5.6 Preventive practices for childhood burns

Preventive practice	Frequency	Percentage
Restrictive measures	302	50.3
Safe keeping of hazardous substances	164	27.3
Educational measures	134	22.4
Total	**600**	**100**

Most parents / caretakers interviewed confirmed the three (3) preventive practices for childhood burns and explained that the main restrictive measures adopted were the practice of not leaving the children alone at home, locking up of kitchen when not in use, preventing children from playing in the kitchen and keeping a child at the back when

cooking. With reference to the use of education as a preventive measure, it was found that many parents / caretakers train their children not to play with fire or with fire ignition equipment such as lighters and match sticks. While the preventive practices adopted to ensure safe keeping of hazardous substance at home include covering hot water with the appropriate lid and keeping inflammable substances such as kerosene in tight container and under lock and key. A mother explained how she prevents paediatric injuries:

> *Children are so curious that they always want to know whatever goes on around when they are at the kitchen. Some would turn the lid of bowls to determine the type of food placed in there. Others would climb tables at the kitchen in order to reach out for food. Some would without authorization deep their hands in a bowl of food in order to taste it. Since children are unpredictable and can do anything, however dangerous it might be, I normally do not leave them alone at the kitchen. I keep a close watch at whatever they do whenever they are with me in the kitchen. In a situation where I think I have a divided attention and cannot do effective supervision I simply carry the youngest child at my back since she is the most vulnerable among the siblings. (Asantewaa,)*

Another mother, Konadu, also explained the behaviour of children at the kitchen and gave an instance where a friend's son out of curiosity got burnt when the boy attempted opening a bowl containing hot soup and the soup poured on his feet. Kunadu further explained that based on this experience and the understanding that children are curious, she often suggests to mothers that children under 8 years should not be made to run errands in the kitchen. The toddlers should also be kept at the back of their mothers whenever they need to accompany their mothers to the kitchen in order to restrict the movement of children at the kitchen since the kitchen is the most hazardous place in every home.

Maame Anima in an interview also indicated that a mother the kitchen should always be locked to prevent children from getting hurt there. She in addition indicated that households which do not have kitchens, but set open fire and cook should also restrict the movement of children in such an area even though it is a difficult thing to do.

Auntie Elizabeth, the Nursing officer, also indicated that restrictive measures alone should not be emphasized, but rather parents/ caretakers should make it their responsibility to educate as well as train their children on certain basic burn safety practices as well as ensure that hazardous substances are kept out of reach of children. The nursing officer's submission might have been borne out of the training and orientation received as a nurse and a public health educator who has been tasked to educate the public on effective primary health care practices. These are Auntie Elizabeth's comments:

> *Well, I think it is laudable to restrict children at the kitchen. But far more reaching strategies such as keeping hazardous and inflammable substance under key and lock and also educating the children at an early age on the need not to play with fire and or fire igniting substance must be embarked on.*

A mother remarked:

> *I am cautious about where I keep my kerosene, gas cylinder and even match box because my children are curious. The store room where I keep the kerosene is always locked and the kitchen as well. I always advise my children not to play with match box and cylinder. I keep a close eye on the children at all times in the house not only at the kitchen.*

The case of Auntie Elizabeth, Maame Anima and others show how most parents /caretakers prevent childhood burns at home by adopting the various restrictive, educational and safe keeping measures.

Each individual preventive practice for childhood burns was examined on the basis of its significance in influencing burns prevention. A covariate such as not leaving children alone at home was found to be 3.2 times more likely to prevent childhood burns compared to a practice where children are often left alone at home and the 95% CI [1.81, 5.70], $p < 0.001$, and it is significant. Not leaving children alone near heat sources were 2 times more likely to prevent childhood burns at home compared to a situation where children are left alone near heat sources. The 95% CI [1.61, 2.51], $p < 0.001$, and this preventive practice is significant.

Another major practice identified for preventing childhood burns was locking up the kitchen when not in use. This practice was 2 times more likely to prevent childhood burns than a practice of keeping the kitchen open all the time and the 95% CI [1.43, 5.04], $p < 0.001$, this is also significant.

It was also found that situations where children are often prevented from playing with fire are 3 times more likely to prevent childhood burns than a situation where children are not prevented from playing with fire. The 95% CI [3.02, 9.23], $p = 0.003$, and it is significant.

The study further found that instances where children are prevented from playing at the kitchen is 1.8 times more likely to prevent childhood burns compared to a situation where children are not prevented from playing at such a hazardous place. The 95% CI [1.06, 4.98], $p < 0.001$, this is also a significant finding.

In terms of mothers carrying their children at their backs when cooking, it was indicated that mothers who observe this practice are 2.4 times more likely to prevent childhood burns than mothers who do not keep such a practice and the 95% CI [2.00, 3.33], p = 0.011, it is a significant finding .

The practice of training children not to play with fire igniting materials such as lighters and matches was examined and found that households who train children on those issues are 1.28 times more likely to prevent childhood burns compared to households that do not restrict children from playing with such substances and the 95% CI [0.97, 3.05], p <0.001, this preventive practice is a significant finding.

The study also found that mothers who have been trained on fire safety practices are 1.03 times more likely to prevent childhood burns compared to those mothers who have not been trained and the 95% CI [0.51, 1.03], p = 0.728, but this is not a significant finding.

Considering the practice of proper storage of flammable substances, the study indicated that parents who are capable of keeping flammables safely at home are 12.5 times more likely to prevent burns than those parents who are not capable and the 95% CI [3.96, 25.50], p = 0.016 . This is a significant finding. [Table 5.7]

Table 5.7 Logistic regression of occurrence of childhood burns on preventive practices

Variable	OR	Lower 95%CI	Upper 95%CI	p-value
Not leaving children alone at home				
No	1.00	-	-	-
Yes	3.20	1.81	5.70	<0.001
Not leaving children alone near heat sources				
No	1.00	-	-	-
Yes	2.00	1.61	2.51	<0.001
Lock up kitchen when not in use				
No	1.00	-	-	-
Yes	2.02	1.43	5.04	<0.001
Prevent children from playing with fire				
No	1.00	-	-	-
Yes	3.30	3.02	9.23	0.003
Prevent children from playing at the kitchen				
No	1.00	-	-	-
Yes	1.81	1.06	4.98	<0.001
Keep children at the back of mothers when cooking				
No	1.00	-	-	-
Yes	2.44	2.00	3.33	0.011
Train children not to play with fire/lighter/ matches				
No	1.00	-	-	-
Yes	1.28	0.97	3.05	<0.001
Train mothers on fire safety practices				
No	1.00	-	-	-
Yes	1.03	0.51	1.19	0.728
Storage of flammable substances				
Poor storage	1.00	-	-	-
Safe storage	12.5	3.96	25.50	0.016

5.4.2 Preventive practices for childhood fall-related injuries

Nana Asi's comment cited earlier in this section, suggests that every adult has a repertoire of knowledge and skills for preventing childhood injuries as a result of the nature of socialization and network in society. This reveals the importance of childhood injury prevention in most homes since due to the burden associated it is considered as part of the responsibility of all adults in a household.

With reference to the prevention of fall-related injuries, three main preventive measures were identified. Of these measures, the use of restrictive measures such as provision of window locks, safety gates, restricted high chairs (67.8%) to prevent fall-related injuries are used more often than the use of either educational measures such as education on the dangers of climbing high objects and education on playground practices (12.7%) or ensuring safe keeping of slippery substances (19.5%). A mother has this to say about training and education of children on the preventive practices for fall-related injuries at home:

> *There is no point educating children aged less than three years since they cannot reason along with you or understand why they should not climb trees or high objects or engage in aggressive play which can cause them to fall. I only wait till my children are mature enough to understand why they should not do certain things before I start training them on issues such as how to prevent falling.*

Another mother gave a different opinion by saying that since she does not know the actual age to start preventive education for her children, whenever she sees the children engaging in injury risk behaviour, she cautions them to desist from that. She further added that it takes close supervision to identify risky behaviours of children. Without

close supervision, there cannot be any meaningful cautioning that can bring about behaviour change in children.

In the case of using restrictive measures to prevent fall-related injuries, most parents/ caretakers explained that they normally prevent their children from sleeping on high rise beds, climbing or sitting on walls or high objects. A mother remarked about the use of restrictive measures:

> *I think most parents are sensitive to the factors that can cause children to fall. So, parents undertake measures to remove these risk factors or restrict children from getting near to these sources or factors in other to prevent accidents. As for me, I ensure that my little baby sleeps in a baby's cot to prevent her from falling while sleeping. I scarcely sleep with her on my bed. If she has to sleep with me, I usually push her close to the wall while I sleep in front to prevent any mishap. For my older children, they sleep on a mat in the same room with me.*

Another mother, Boafoa also explained how fall-related injuries are prevented in her household:

> *In my house we do not allow children to litter the compound with banana peels since one can easily slip and fall especially children who are always running around. The grandmother is always on the look out to pick-up slippery substances and to mop the floor when there is a spill.*

Almost all the mothers interviewed indicated the need to prevent slipping by immediately cleaning slippery substances whenever they occur.

In order to identity factors significantly associated with the preventive practices of falls, the multiple linear logistic regression was used. It was found that provision of window locks at home is significant in preventing fall-related injuries at home. Households that often provide window locks are 3.5 times more likely to prevent fall-related injuries

compared to households who do not provide them and the 95% CI [1.83, 5.81], $p < 0.001$. This is a significant finding.

The study also found those households that provide safety gates at their premises are 2.6 times more likely to prevent childhood falls compared to those who do not provide and the 95% CI [0.88, 7.95], $p < 0.001$, and this is also a significant finding.

In considering restricted use of high rise beds as a factor for preventing childhood falls, the study found that households that restrict the use of such beds for children are 2.6 times more likely to prevent fall- related injuries compared to those who do not prevent their children from using such beds. The 95% CI [1.46, 4.70], $p < 0.001$, and it is significant preventive strategy.

It came up that households which restrict children from using high rise chairs are 9 times more likely to prevent childhood fall-related injuries than those households that do not prevent the use of such chairs and the 95% CI [4.57, 50.00], $p < 0.001$, and it is a significant finding.

In terms of supervised play as a preventive measure for childhood falls, it was indicated that households who supervise their children when playing are 2.4 times more likely to prevent childhood falls compared to households who do not supervise their children when playing. The 95% CI [1.34, 4.56], $p = 0.004$. This finding is a significant preventive measure.

The study also found that households that educate children on the dangers of climbing objects such as trees, walls etc. are 6.3 times more likely to prevent fall-related injuries than those who do not educate their children on the issues and the 95% CI [1.93, 21.74], p = 0.003, this is a significant finding. Again, households who educate children on playground safety are 2.7 times more likely to prevent childhood fall related injuries than those households who do not educate their children on such issues and the 95% CI [27.7%, 98.8%], p = 0554. This is not a significant finding.

It was also found that households who educate mothers on home safely practice are 8.3 times more likely to prevent childhood fall-related injuries compared to households who do not offer such education to mothers and the 95% CI [3.78, 83.33], p = 0.079, and the finding is not significant [Table 5.8].

Table 5.8 Logistic regression of occurrence of childhood falls on preventive practices

Variable	OR	Lower 95%CI	Upper 95%CI	p-value
Provision of window locks				
No	1.00	-	-	-
Yes	3.51	1.83	5.81	<0.001
Provision of safety gates				
No	1.00	-	-	-
Yes	2.65	0.88	7.95	<0.001
Restricted use of high rise beds				
No	1.00	-	-	-
Yes	2.62	1.46	4.70	<0.001
Restricted use of high rise chairs				
No	1.00	-	-	-
Yes	9.09	4.57	50.00	<0.001
Supervised play				
No	1.00	-	-	-
Yes	2.44	1.34	4.56	0.004
Cleaning of slippery substances				
No	1.00			
Yes	1.74	1.01	4.36	<0.001
Education on the dangers of climbing objects				
No	1.00	-	-	-
Yes	6.25	1.93	21.74	0.003
Education on playground safety				
No	1.00	-	-	-
Yes	2.69	1.10	71.88	0.554
Education on home safety practices				
No	1.00	-	-	-
Yes	8.33	3.78	83.33	0.079

CHAPTER SIX

6.0 DISCUSSION OF RESULTS

Introduction

Worldwide and particularly in developing countries, children continue to be maimed or die needlessly as a result of numerous causes including paediatric injuries. Under-five mortality rate has witnessed considerable improvement globally, between 1990 and 2013, the mortality rate declined by a third from 87 deaths per 1,000 live births. The rate still remains highest in Sub-Saharan Africa with 178 deaths per 1,000 live births in 2013 (UNICEF, 2013). WHO (2005) believes strongly that reducing paediatric injuries which cause about thirty percent (30%) of deaths among children will be an important contribution towards the achievement of MDG-4.

Since the adoption of the Millennium Declaration, Ghana has mainstreamed the MDGs into the country's successive medium-term national development policy framework, the Ghana Poverty Reduction Strategy(GPRS 1) ,2003-2005, the Growth and Poverty Reduction Strategy II),2006-2009 and the Ghana Share Growth and Development Agenda (GSGDA), 2010-2013. In spite of these policy frameworks child survival and welfare remain a major challenge since injuries and under- five mortality remain high (UNICEF, 2013). This chapter discusses, in more detail, issues related to the management of childhood burns and falls namely, the risk factors, the treatment practices and the preventive practices for childhood burns and falls, with the aim of exploring how to use the results of the study to improve child survival.

6.1 Risk Factors for Childhood Burns and Falls

The discussion is primarily anchored on the Epidemiologic and the Social Ecological Model which recognise that for an injury to occur, it requires the presence of an agent, a host and certain environmental factors. The models also recognise that human behaviour is affected by a complex interplay of individual, relationship, social, cultural and environmental factors. In line with these models, the study has found that the parents'/caretakers' socio-economic and demographic backgrounds and the system in which they live, especially in the family and community, predispose children to burns and falls. As a result, poverty, overcrowding at home, lack of education on safety precaution and separation of child from the biological parents (fostering) were found to be significant risk factors for childhood burns and falls. Most of these risk factors are from the socio-economic domain and confirm earlier studies from both high-income and low income countries that low socio-economic profile of children, parents/caretakers of children are major risk factors to childhood burns and falls. For instance, Hippisley-Cox et al. (2002) reported a high incidence of burns among children in low-income groups in Sweden. The study further revealed that the relative risk of being hospitalized for burns was 2.3 times higher for children living in low income families than those in the high income families. Similar findings have been made in New South West Wales in Australia (Poulos et al., 2007). In the case of Lima in Peru, the relative risk of being hospitalized for burns is higher than that in Sweden and New South Wales because the people of Peru are classified among the poorest in the world and are characterized by many shantytowns (Delgado et al., 2002). In the Ashanti Region of Ghana, Forjouh et al., (1998) observed a

high number of repeated burn cases among children living in rural and urban communities.

In the New Juaben Municipality, there is enough evidence that children living with parents of low economic status are at high risk of burns. This evidence means that the odds of having childhood burns in such a community are very high. For instance, children from extremely poor homes were found to be 18.9 times more likely to be victims of burns than children from poor homes and the 95% CI [8.0, 44.27], $p < 0.001$.

This situation may be attributed to various factors including the use of open kitchens and open fires, in such homes. In addition, most parents in the study area are unable to afford protective fittings at home and are also not able to enrol their children in day care institutions while they attend to their vocations. This finding contradicts the perception held by the nursing officers interviewed for the study in particular and the perception held by health professionals in general that parents are lazy and negligent in caring as well as preventing childhood injuries. The finding suggests that it is rather poverty and not negligence of parents which is a barrier to preventive efforts. As explained by Kaye (1962) and Nukunya (2003), giving the cultural milieu of the Ghanaian woman and the value she places on children, parents would go to any length to protect their children. Hence, the argument that parents, generally and wilfully neglect their children, is primarily untenable even though there are rare instances when some parents may be pushed by events and certain circumstances, to neglect and even abandon their own children. Such a situation however, cannot be generalised to cover every parent whose child suffers such injuries. This suggests a knowledge gap on risk factors on the part of health professionals who do not have full understanding of the socio-economic and

cultural factors which influence the behaviour of parents/caretakers in health-seeking for injured children. The lack of understanding is often reflected in the poor attitude and utterances of these health care providers, which often offend patients and drive them away from allopathic health institutions. Studies have found that this poor attitude of health personnel toward clients tend to negatively affect the quality health care in the country (Bannerman et al., 2002).

This study has also demonstrated that parents/caretakers are aware of the risk factors of paediatric burns and falls, but are most often unable to control such risk factors because they do not have the capacity to deal with such threats. As indicated in the results chapter, parents know of the dangers involved in living with their children in an uncompleted building, or living with their children in a poorly built environment. However, these parents are compelled by their low income status to live in such premises. Parents' knowledge of these risk factors despite the generally low level of public education on home/child safety practices by accredited state agencies such as the National Fire Service, NCCE, hospitals and schools, suggests that some informal child safety education, does take place. One possible avenue for such informal child safety education might be through socialization processes at home. According to Kaye (1962) informal training is often overlooked, but forms the basis of bringing up children in Ghana. The public health implications of this finding for health promotion are numerous. It is important that health professionals recognise the role of key personalities in the family setting such as head of compound, elderly women in the compound and mothers in-law in the socialization and training of young mothers and children on safety practices. As

indicated by Chibwana (2009), training of these key personalities in the family setting could sharpen their primary health care skills at home and also improve on the health-seeking decisions. Chibwana (2009), reports that empowering of such key people in Malawi has reduced delays in seeking prompt medical care for common childhood illnesses.

In addition to poverty, poor playground safety is a major risk factor to childhood falls and that children living with parents who observe playground safety are 25 times more likely to prevent fall-related injuries as compared to children living with parents who do not observe playgrounds safety and the 95% CI [10.1, 50.0], $p < 0.001$. This brings to the fore the question of who is responsible for providing an environment safe for the growth and development of children since the Convention of the Right of the Child requires that children should be protected from harm (Child Protection, 2011).

It is obvious that parents have the primary responsibility of ensuring that their children are protected, but given that many parents are impoverished and that extended family support has waned to the extent that some of the family heads are seen as mere ceremonial heads, there is the need for support outside the household and family to intervene to protect children. Though it is the duty of government to provide social services as well as basic infrastructure for every community such provisions are known to be inadequate, a situation that leads to a number of safety lapses. Such a situation demands that alternative sources are found to augment what individuals and the government can provide to improve on the physical environment within which children

live. To this end, Forjouh (2006) has proposed a primary intervention strategy which uses a community-based approach to provide felt needs for communities. This approach can be used to improve environmental conditions as well as provide education for parents on safety practices. Many health promotion experts have used the community participation approach on the basis that it shifts the emphasis of support from the individual to the community and then redistributes the burden in small portions to individuals. This makes the load of intervention lighter for individuals to bear (Hubley 1993).

The diversified nature of the risk factors of childhood burns and falls suggests that any attempt at prevention, should also use diversified approaches. Hence, the concept of the four 'Es' which are, Education, Enforcement, Environment and Engineering comes into play. This concept emphasises that at every level of childhood injury prevention, the stakeholders who are either the family heads, community leaders or Municipal/District Chief Executives should consider the use of education, enforcement of laws, environmental modification and engineering as necessary approaches. The concept of the four Es is consistent with the 2008 World Report on Childhood Injury Prevention, which recommended that the combined approach of childhood injury prevention should be considered. One problem associated with this approach is the difficulty involved in harmonizing individual programmes (Razzak et al., 2004).

Many risk factors for childhood burns and falls are similar in low income countries, especially countries in Asia and Africa. One significant observation is that most of the risk factors are poverty-related. This suggests that when the problem of poverty is

adequately addressed through individual, community and state interventions, childhood burns and falls could be reduced. This has also been acknowledged by most paediatric injury experts, (Warda et al., 1999, Hippisley-Cox et al., 2002, Delgado et al., 2002 and Poulos et al., 2007*).* According to IMF (2013) successful plans to fight poverty require country ownership and broad based support from the public in order to succeed. A poverty reduction strategy programme (PRSP) contains an assessment of poverty and describes the macroeconomic, structural, and social policies and programmes that a country will pursue over several years to promote growth and reduce poverty, as well as external financing needs and the associated sources of financing. They are prepared by governments in low-income countries through a participatory process involving domestic stakeholders and external development partners, including the IMF and the World Bank. It is therefore important for domestic stakeholders to take active part in the implementation of poverty reduction programmes in order to achieve many benefits.

6.2 Home-Based Treatment Practices for Childhood Burns and Falls

The aims of managing childhood injuries are to decrease mortality and morbidity associated with the injuries, and to achieve the best possible quality of life after treatment (WHO, 2009). As part of the management processes, home-based treatment practices were explored and it was found that the most preferred treatment regimen is the traditional modes, followed by the use of orthodox treatment and then a blend of the two treatment regimen. Many studies conducted in low-income countries and from rural communities have revealed similar outcomes. A survey in India found that only 22.8% of

patients had received treatment for burns from an orthodox health professional (Ghosh and Bharat 2000). Similar findings were made in East Timor (Roger 2001), rural Kenya (Mbagada et al., 2005) and in Malawi (Chibwana et al., 2009). Albertyn, et al., (2006) explain that the high utilization of traditional modes of treatment for childhood burns is primarily a result of the low cost, and availability of traditional drugs. Swartz (2011) also explained that traditional medicine has strong historical, religious and cultural roots. Practitioners of traditional medicine are usually well-known members of the community who command respect and are supported by public confidence in their abilities and remedies. A similar situation is found in the study area, where traditional healers are always with the people and are ready to treat ailments, on credit in terms of payment for services. The findings of Swartz's studies support Kleinman and Sung's (1997) and Nukunya's (2003), which indicate that indigenous health practice is a divine call and that the practitioners are appointed to serve humanity, but not for selfish gains. This explains why Addae-Mensah (1992) finds the use of traditional medicine in many Ghanaian societies to be very important due to its reliability and level of patronage.

Other studies have found traditional medicine to be effective because the practitioners specialize in specific diseases and illnesses, each with its diagnostic and treatment structures relating to the cultural beliefs of the people (Klienman and Sung, 1997; Twumasi 1988; and Anyinam 1987). A major health implication concerns the safety of herbal medicine. Anecdotal reports indicate that government should not only pay particular attention to traditional medicine but should also be concerned about other drugs which have been banned, but which are still in the public domain. This concern was

raised in the 2007 report of the WHO interregional workshop on the use of traditional medicine in primary health care. Member states were cautioned about the quality, safety, and efficacy of traditional medicine therapies and products and recommended that policy guidelines on traditional medicine development should be set by all member states. In Ghana, according to the MOH (2005), the policy relating to traditional medicine, focuses on eleven areas, including *"Practice of traditional medicine and regulatory legislation, Intellectual property right protection, Research and product development and Global networking and collaboration and integration of traditional medicine into national health system and commercialization."* The issues covered makes the policy rather comprehensive, which if fully implemented would add value to health delivery, in Ghana. A major concern with the policy is how soon the government can implement all the strategic thrusts, so the nation's health service can derive the full benefits of traditional medicine. To facilitate the implementation of the strategic thrusts and specifically to regulate the practice of traditional medicine, register practitioners and licence practices, regulate the preparation and sale herbal medicine, the Traditional Medicine Practice Act 575 was passed and accented to in 2000 (Ghana Legal 2013). The oversight Council is yet to make public its action plan towards the achievement of its mandate and as such the market is currently flooded with unregistered herbal products.

Another health care implication to be drawn from reasons unearthed for study participants' preference for the traditional modes of treatment for burns and falls is its recognition of cultural beliefs of patients in the traditional modes of treatment. An inference drawn from this observation is that patients are happy and willing to relate

positively with health care practitioners who respect their cultural beliefs and values. Thus, when health care practitioners are trained in this direction, human relations could be improved in most health care facilities.

This study explored the perspectives of parents/caretakers on home-based treatment for childhood burns and injuries and found treatment deficiencies in the administration of both first aid and the main treatment. For instance, instead of applying only cold clean water as first aid for burns, oils with soothing properties such as shea butter or palm kennel oil are used. This is a general problem identified by many studies, which public health education is required to address (WHO 2008 and WRCIP 2008). This study also found that many parents/ caretakers prefer the use of gentian violet solution to treat childhood burns and bruises, because it is readily accessible in all pharmacies and drug stores in the study area. The solution is also affordable, easy to use and does not require prescription before purchase. It is important to note that even though gentian violet solution is a preferred drug in many homes, the Ministry of Health of Ghana has banned its use in hospitals due to reports of adverse reactions, toxicity and the availability of more effective drugs for treating burns are available(MOH,2003). Indeed, Malaysia and the United States of America which had similar concerns about the safety of gentian violet withdrew the drug and all products containing it through their drug control authorities, in 1998 (WHO 1998). However, addressing issues concerning drug withdrawals with issues concerning efficacy and toxicity especially in developing countries must be discussed with a lot of caution since it is often linked with manipulations multinational pharmaceutical companies (politics of pharmaceutical

companies). These manipulations are often overlooked (Najmi et al., 1992 and Abraham 2002). According to Najmi et al. (1992), there is pressure to maintain the dependence of developing countries on western medical supplies. There are also attempts to limit the scope of how certain pharmaceuticals are procured, controlled and used. Despite these concerns, the continuous use of gentian violet in most homes, in spite of the introduction of more effective drugs, confirm assertions by Sjaak (2011), and Senah et al. (1994) that medicines constitute a nexus of social and cultural processes including knowledge, symbols and beliefs, politics, profit-making, and trust and conflict. Thus, the problem of health and suffering are related to use, non-use, and misuse of medication and there is the need to understand the reasons for such behaviour.

With the use of gentian violet and other drugs for treating paediatric injuries, the study found that patients' choices are based on alternatives that are available, cheap but which serves their purpose. Grotte (1998) found that the use of indigenous treatment for burns and falls should not be underestimated since many of such drugs are ancient remedies which have proven to be effective. For instance, the use of honey as wound dressing material has been tested and found to reduce infections, swelling, pain, odour and slough in dead tissues. It is also known to hasten healing with minimal scars. It is, therefore, not surprising to note that WHO through the Alma-Ata Declaration on Primary Health Care in 1978 called on countries and governments to include the practice of traditional medicine within the primary health approach since between 60-80% of the population in Asian and African countries depend on traditional medicine for their primary health care needs (WHO 2008).

In relation to the problems associated with treatment deficiencies in the use of traditional medicine, two possible health promotion interventions have been suggested. The first intervention has to do with public education on the use of specific drugs known to impair treatment of childhood burns and falls. This is important because parents cannot be blamed for the use of such drugs because no public education on the risk of using such medicines has been made; neither has the Ghana Food and Drugs Board made any effort at withdrawing such medicines from pharmacy shops. The second intervention has to do with training of traditional health practitioners to sharpen their skills in primary health care delivery with the aim of integrating them into the health system in Ghana as suggested by MOH (2005). Ideally, the Ministry of Health and the Ghana Health Services could bring the two treatment regimen together in highly effective ways. Even though attempts at integrating them has yielded little results due to problems such as mistrust and lack of cooperation. In several countries where health systems are organized based on primary health care approach, traditional medicine is well integrated and provides support in preventive care and treatment of common ailments. For example, in the People's Republic of China, the national list of essential medicines includes conventional medicines and traditional Chinese medicines and both are covered by the health insurance as well as a new cooperative medical scheme serving rural areas (ECOSOC 2013).

There are evidence-based studies in Ghana to justify the fact that training of traditional practitioners is feasible and such training would enhance primary health care outcomes. The Danfa Rural Health Project which begun in 1970 was to improve primary health care

and family planning in rural areas of Ghana. Traditional birth attendants were trained in villages to monitor pregnant women, recognise and refer high risk women to clinics, properly care for the umbilical cord and promote improved maternal and child health practices through health education. There was every indication that the training was successful since this pilot programme had been replicated in other parts of Ghana (Neumann and Lauro 1982). It is unfortunate that the service quality of many TBAs have been challenged by WHO due to improper supervision and lack of support in many developing countries. As a result of this, WHO has called for a stop in the use of TBAs even though in situation where there is severe shortage of midwives in some countries TBAs have a valuable place (Medical News Today 2011). Another related programme is the Brong-Ahafo Rural Integrated Development Project (BARIDEP). This was carried out from 1975-1980 by the Government of Ghana with assistance from WHO and UNICEF with the aim of training traditional birth attendants to promote health status and self-help projects. The outcome of the project was that the status of the TBAs in the rural communities was enhanced (Stromberg 1988). The Primary Health Training for Indigenous Healers (PREHETIH) project is one of the famous projects aimed at training traditional practitioners with the aim of facilitating cooperation and integration into the health system of Ghana. The results were that there was a high level of information retention, trainees were able to store herbal medicine well, care for the sick was significantly improved, relationship between allopathic practitioners and indigenous practitioners improved and the number of referrals between the traditional practitioners and other health workers increased in both directions (Warren et al.,1981).

6.3 Preventive Practices for Childhood Burns and Fall-Related Injuries

The prevention of burns and fall-related injuries among children is vital worldwide, given the extent of resulting morbidity, high cost of health care, and the risk of death (WRCIP 2008). According to Bishara et al. (2008) and WRCIP (2008), interventions employed must strike a balance between promoting the healthy development of the child and childhood injury prevention, though they acknowledge that very few preventive practices in low-income countries take into consideration these concerns.

The present study found that even though the vulnerability of children is recognized by parents/caretakers, the preventive practices at home are so restrictive that it becomes difficult for children to play and explore their physical environment. The study found as many as 67.8% of the parents/caretakers use restrictive measures at home, to protect children from injury because children are seen as curious and active. Additionally, there are inadequate safety features in most of the homes. It must be mentioned, also, that the restrictive tendencies of parents /caretakers of study participants might be due to poor environmental factors that usually characterize low-income communities.

Households in poor environments often feel that their children are not safe and must be restricted to places the parents/caretakers perceive to be safe. This supports the findings Cummins and Jackson (2001) that a poorly built environment can cause ailments, disabilities and deaths from the absence of protective features. As a result of this, children living in such environments must be protected to achieve optimal health and development. Craig (2010), Harvey et al. (2009), and Khambalia (2006) have argued that

though, restricting children's movement for the sake of protecting them from injury is good, it is seen as a short term measure. They contend that as children advance in age, they become more difficult to restrict at home, and so the power of restrictive practices, as preventive measures, loses its value. It is on this basis that most childhood prevention experts advocate for long term measures. Such measures include environmental modification, engineering, education and enforcement of regulations, hence the use of the concept of '4Es'in this study as an appropriate guide to injury prevention. In addressing the problem of childhood falls through engineering, WRCIP (2008) has recommended the use of adopting window safety mechanisms like the position locking device, to prevent children from opening windows. According to Safekids Campaign Fact Sheet in 2010, the use of window bars reduced deaths from window falls by 35%, in New Zealand.

In the study area, many landlords use window bars and safety locks in their homes to prevent burglary. However, it was found that the use of these window bars and locks is significant in preventing childhood falls since the tendency of jumping through windows while playing is high. The data show that households that often provide window locks are 3.51 times more likely to prevent fall-related injuries at home than households who do not provide them and the CI[1.83, 5.81]. Though the use of these window bars and safety locks in homes in the study area is coincidental, the public health value of such practices should be explained to the landlords so as to encourage others to take to the practice.

Another widely used strategy in the prevention of childhood injury is education on injury prevention. This involves increasing the awareness of the risk of injury and providing information on ways of minimizing such risks (WRCIP, 2008). This study, however, found that a few parents use the educational approach to reduce the incidence of childhood burns and falls. The rare use of the educational approach to prevent burns and fall-related injuries is attributed to the fact that in most cases the children are too young to understand the risk. Such factors, to a large extent, explain why the educational approach is not used to a significant extent in preventing such injuries. This finding is inconsistent with the findings from a number of studies which assert that using the educational approach alone is not an effective measure for minimizing childhood injury due to the difficulty of changing behaviour through education as a result of inattention (Morrongiello and Dawber, 2000, and Bartlett 2002).

Notwithstanding this, the 2008 report on childhood injury prevention emphasized the need for effective parental supervision of children as critical in educating children on injury prevention since parents need to consistently and persistently ensure that children adhere to safety precautions. The report identified lack of community awareness programmes for parents/caretakers, and inadequate school-based education for school age children on injury prevention as also contributing to the low use of the educational approach to reduce injury. This gap offers an avenue for national, regional and district intervention to address the problems associated with non-use of educational approaches to childhood burns and fall prevention.

Another finding is that even though there is low level of education among parents and lack of community-based awareness programmes, in the study area, parents are able to identify hazardous situations which can lead to childhood burns and falls. The tendency of parents/ caretakers to clean slippery substances such as oil from the floors whenever there is a spill and to pick up slippery substances such as banana peels from the floor indicate that these parents understand the mechanism of burns and falls and the associated risk. To do this irrespective of one's educational background might be due to indigenous knowledge. The need for such knowledge at a time when state agencies have not been able to provide adequate educational campaigns on childhood injury prevention gives a clear avenue for public health practitioners to promote indigenous practices and education on childhood burns and fall prevention. Ivan (2009) has argued that it is not enough for parents and health practitioners to understand the mechanism of injury, but also the levels of prevention so that a holistic approach to injury prevention can be achieved. He suggested that parents and practitioners should be able to delineate the three levels of prevention and understand that primary prevention aims at preventing the occurrence of injury. This level of injury prevention should be the foremost responsibility of all stakeholders, to either introduce interventions that physically prevent childhood injuries or through educational campaigns to create awareness on how to prevent such injuries. The aim of secondary prevention according to Ivan (2009) is to minimise damage when it occurs. For this, parents and health practitioners as well should be familiar with the strategies of minimising further injuries especially during the administration of first aid or during the process of conveying the patients to a health facility for treatment. Lack of knowledge in this respect suggests that the Ghana Health

Service together with other relevant stakeholders for example, the Ghana Red Cross Society need to intensify public education on secondary prevention of injuries. Tertiary prevention involves the efforts following the incident that will optimise the outcome of injury regardless of injury severity. This covers follow-up medical care and rehabilitation. Understanding of these levels of prevention is critical in determining the success of childhood burns and falls prevention interventions, at all levels. The significance of this to public health cannot be underestimated because of the huge burden associated with injury.

This study has demonstrated that individual preventive practices are not very effective in reducing childhood burns and falls. This is because as children grow, some of the preventive practices, especially the restrictive ones, lose their power. Based on this, the combined strategy which gives a holistic approach to childhood injury prevention needs to be considered. Such strategies combine restrictions on the use of highly inflammable substances such as petrol at home or the use of fireworks/crackers, and education on safety practices and restrictive activities at home can yield far reaching results in reducing the incidence of burns. The use of such strategies must necessarily take into consideration the background characteristics of the parents/caretakers which can potentially influence their ability to either educate or restrict the child at home. There is also the need to be cautious of the environment that contributes significantly to such injuries. In a country where frequent power outages have become the norm, there is the tendency to use candle, kerosene, petrol as alternative sources of power, which can be a potential source of burns for children particularly. Thus, the combined approach to

childhood injury prevention has become an emerging concept in injury prevention and, the 2008 WHO report on childhood injury prevention and the 2008 World Report on Childhood Injury Prevention have called for the adoption of this approach in national, community-based and local interventions.

In all, five (5) theoretical models guided this study. First, the Epidemiologic Model not only provided a guide for the review of literature, but was also useful in the data analysis. This model was useful in categorising the factors of paediatric injuries into agent, host and environment-related factors. This offered a logical ordering of factors that enhanced the presentation and discussion of factors, especially on the risk factors to childhood burns and falls. The model was however, not useful in determining the pathways for treating and preventing paediatric burns and falls because it lacks the capacity to explain complex relationships among variables. The isolation of circumstances surrounding prevention of childhood injury into host-agent-environment relationship is not sufficient; it makes the relationship too simplistic. However, the analysis of childhood injury prevention is not that simple, it involves a complex interplay of agent, host and environment-related factors, the Epidemiologic Model would not accommodate. Since the Model could not explain the complex interplay of factors influencing paediatric burns and falls, the Haddon Matrix and the Social-Ecological Model were adopted. They were effective in showing the pathways for synthesising the factors needed for treating and preventing paediatric injuries. For instance, the Haddon Matrix could explain how to align primary, secondary and tertiary prevention with pre-event, event and post event of injury occurrence. In the case of the Social-Ecological Model, it was introduced

purposely to explain the complex interplay of individual, social, cultural and environmental factors affecting paediatric burns and falls. It was useful in explaining the broad societal factors such as social and cultural norms, health, economic, education and social policies that help create an environment in which childhood burns and falls are either facilitated or prevented.

Though the Social-Ecological Model was useful, it could not give a clear pathway for preventing paediatric injuries. The fourth theoretical framework, the concept of '4Es', was used to strengthen the Social-Ecological Model. The concept of '4Es' proposes that every preventive practice should include educational, engineering, enforcement and environmental interventions. In applying this concept to the study, it was found that apart from environmental factors which were significant in preventing paediatric injuries, the other 'Es' such as education, enforcement and engineering were not effective at preventing childhood burns and falls. However the use of the concept was helpful in determining variables/ factors that need to be considered when preventing such injuries.

It is clear from the discussion that though all the models used were useful, no single model on its own was comprehensive enough to deal with the whole study. Thus, there was the need to combine them. This calls for further research into developing a comprehensive model that will consider all aspects of preventing and managing childhood burns and falls.

CHAPTER SEVEN

7.0 CONCLUSIONS, BROAD IMPLICATIONS AND RECOMMENDATIONS

Introduction

Over the past decade, a lot of progress has been made to reduce the burden of childhood burns and falls globally. Unfortunately, however, many children continue to be maimed or die from such incidents and to the affected children, families and communities at large, the impact is immeasurable. In the light of this global public health issue and for the fact that many evidence-based reports in Ghana generally and the study area in particular have acknowledged the high rate of paediatric burns and falls, necessitated this study (Forjouh 1996; Budu 2005; Aries 2007; 2011 Report Eastern Region Hospital; 2012 Report from the Reconstructive and Plastic Surgery and Burn Centre, Korle-Bu Teaching Hospital-Accra).

The study revealed that the socio-economic backgrounds of parents/caretakers and the physical environment in which they live predispose children to burns and falls and that poverty, overcrowded home, lack of education on safety precautions and fostering were significant risk factors to childhood burns and falls. For instance, children living with parents/caretakers who are extremely poor (living below the daily minimum wage of GH¢ 5.24 per day) were found to be 18.9 times more likely to be victims of burns compared to those who live above the daily minimum wage and the 95% CI [8.0, 44.27], p = <0.001. In the case of overcrowding, children living in such homes are 9.3 times more likely to have burns compared to children who are not living in overcrowded homes

and the 95% CI [4.67, 18.41], p <0.001. In terms of falls, children living in overcrowded homes are 18.2 times more likely to be affected by fall- related injuries than those who do not live in overcrowded homes and the 95% C.I [5.15, 64.05], p <0.001 while children living with parents who observe playground safety are 25 times more likely to prevent fall-related injuries as compared to children living with parents who do not observe playground safety and the 95% CI [10.1, 50.0], p < 0.001.

Questions on home-based treatment practices revealed that the most preferred treatment regimen was first, traditional, followed by allopathic health care and finally a blend of the two treatment regimens. Among the major reasons for the high utilization of traditional health practices are, affordability, accessibility and availability of traditional medical services and the fact that diagnosis and treatment modes are in tune with the cultural beliefs of the people. Three broad measures are adopted to prevent childhood burns but the most preferred measure is the practice of not leaving children alone at home. This was found to be 3.2 times more likely to prevent childhood burns compared to a practice where children are often left alone at home and the 95% CI [1.81, 5.70], p <0.001. In the case of prevention of childhood falls, the most significant measure is the provision of window locks as this was found to be 3.5 times more likely to prevent childhood fall-related injuries at home compared to a situation where such provision is not made at home and the 95% CI [1.83, 5.81], p<0.001.

The conclusions based on study findings and associated broad implications and recommendations are presented in the subsequent sections.

7.1 CONCLUSIONS

On the basis of the findings, three key conclusions are drawn in relation to risk factors, treatment and prevention practices for childhood burns and falls.

The study revealed that parents/caretakers socio-economic backgrounds and the environment in which they live predispose children to burns and falls. As a result, poverty, overcrowding at home, lack of education on safety precautions and fostering are found to be significant risk factors to childhood burns and falls. It was found also, that in many instances parents/caretakers are aware of the effects of these risk factors, but do not have the capacity to control them since most of the factors are poverty-related and the parents are financially constrained. These findings point to the absolute need for government and other stakeholders to intensify and upscale where necessary, poverty reduction strategies at all the levels of policy formulation, programme planning and implementation since improved economic conditions can reduce childhood burns and falls, and its associated burden of injury.

With regards to home-based treatment practices for childhood burns and falls, the study found that the most preferred treatment regimen is traditional methods, followed by the use of orthodox treatment methods and then a blend of traditional and orthodox treatment regimen. Among the major reasons for the high utilization of the traditional health

practices are affordability, accessibility and availability of services and the fact that diagnosis and treatment structures are aligned to the cultural beliefs of the people. Notwithstanding the fact that traditional health practices are perceived as meeting the primary health care needs of the people, some of these practices were found to be inadequate as treatment for these childhood injuries, a situation which calls for remedial action.

On preventive practices, the study found that three (3) broad practices are adopted for childhood burns and falls: restrictive measures, education, and safe keeping of hazardous substances. Most parents use more of restrictive measures at home to prevent childhood burns and falls than the use of education, and safe keeping of hazardous substances. A major reason for the preferred use of restrictive measures was the fact that children are perceived as curious and that their movement must be restricted in order to protect them from injury. Moreover, there are inadequate safety standards and poor environmental conditions in most homes. These suggest the need to put in place regulations and simple and affordable gadgets to enhance household safety and, similar measures to improve environmental safety, to make the home and its environs safe for children.

7.2 BROAD IMPLICATIONS OF STUDY RESULTS AND CONCLUSIONS

This study has shed light on the management practices of childhood burns and fall-related injuries in the New Juaben Municipality of Ghana, taking into account the risk-factors, treatment and preventive practices. The findings and conclusions from this study suggest practical implications for programming, policy, advocacy and knowledge dissemination.

7.2.1 Programme Implications

In the first place, it is noted that poverty is a hydra-headed phenomenon which affects all aspects of life and especially in the case of children, poverty compromises their nutrition, health, education and safety. In the context of our study, where the parents/caretakers are poor, the child is more likely to suffer from burns and fall-related injuries. Hence to ensure the safety of the child, there is the need for government, through the Ministry of Gender, Children and Social Protection, in collaboration with other stakeholders such as Ministry of Employment and Social Welfare, the Municipal and District Assemblies, related NGOs and Civil Societies to address the poverty issue by increasing programmes aimed at poverty-reduction and women's empowerment. For instance, collaboration between these stakeholders and employers, can strategize and establish more facilities and avenues for entrepreneurial and skills education/training for women. Skills training for unemployed women could focus on non-traditional areas where women are not usually involved, such as in ICT and product development. Efforts so far aimed at improving women's socio-economic status and empowerment in the light of MDG-1 and 3, indicate that it is unlikely for Ghana to achieve the set targets which seek to halve the proportion of the population in extreme poverty and to promote gender equality and women's empowerment by 2015. However, if all the stakeholders pool their various resources together to put together and implement practical and female-friendly skills training programmes for vulnerable women, some of these poverty related issues including those identified by this study will be addressed. Indirectly, such programmes

can even help to improve on key indicators in hunger eradication such as reduction in malnutrition and incidence of stunting and wasting in children.

Another critical concern is the inability of some parents to afford the cost of enrolling their children in pre-schools. This makes such children susceptible to injuries, because in most cases, they are left to the care of their older siblings who are also minors. This often leads to situations which result in poor supervision of such younger ones at home. There is the need, therefore for the Ministry of Education/Ghana Education Service to improve access to basic education by strengthening its FCUBE programme to ensure that there is improved access and retention of all school-age children, especially those children at the nursery and kindergarten levels. This can be achieved by expanding infrastructural facilities and services with the collaboration and support of other stakeholders such as the Municipal Education Oversight Committee, School Management Committee, and Parents Teacher Associations. Even though Ghana is unlikely to achieve universal primary education (MDG-2) by the target date, efforts are being made and currently primary school gross enrolment has been increased by 10%, bringing the total primary enrolment to 92.4% nationwide. More effort including recommendations emanating from this study, will be required to achieve the target (UNICEF, 2007).

Environmental sanitation has been placed high on the national agenda because of its importance to the health of the population but particularly of vulnerable children. It has been captured in the country's programme of economic and social development, as set out in the 'vision 2020' as a key element underlying health and human development. It

also identifies environmental protection and improved management of human settlements as key factors in rural and urban development. Against this background and, in recognition of the fact that there are these identified poor environmental conditions and inadequate safety features in the study area and that these contribute significantly to paediatric burns and falls, there is an urgent need to strengthen environmental sanitation policies in the study area. Even though, the National Environmental Sanitation Policy of Ghana (1999 revised in 2010) mandates the Ministry of Local Government and its partners such as the Metropolitan, Municipal, and District Assemblies to monitor and enforce sanitary regulations and environmental standards, the presence of open drains with choked gutters, flooding and inadequate street lights are common scenes in many communities making children in such environment susceptible to injuries. There is therefore the need for the Assemblies to partner with and collaborate with other stakeholders to plan for and put in place the necessary fittings and gadgets for environmental safety.

Lastly, the finding that training children and parents on home safety practices is not significant in preventing childhood burns and falls due to inadequate educational campaign suggests the need for stakeholders in child protection and welfare to embark on public education on home safety practices in the municipality. Institutions such as the Municipal Assembly, the National Commission for Civic Education, the Ghana National Fire Service, the Regional Health Directorate, the Municipal Education Directorate, faith-based groups and NGOs should come together to design home safety education campaigns targeting specific groups of children and parents in the municipality.

7.2.2 Policy Implications

The study also found that traditional health facilities are being used by a reasonable proportion of the population for various health conditions. This requires that the Ministry of Health and the Ghana Health Service and their many agencies at all the levels, take a more serious and pragmatic look at the role and structure of traditional medical practice in the country. Traditional health practitioners should be trained to enhance their capacity in the treatment of injuries and integrate them into the health system. For instance, the Traditional Medical Council whose main mandate it is to register, train and regulate traditional medical practitioners needs to be strengthened in order to ensure that only registered, trained and licensed practitioners are allowed to practice. This is to monitor their operations in terms of efficacy, standardization and ethical conduct. Such a training must be evidence-based thus calling for a properly designed and implemented needs assessment in all the areas of operation of traditional medicine.

7.2.3 Knowledge Implications

There is the assertion that traditional medical practitioners have won the hearts of their clients because their services are reliable, accessible and also related to the culture and values of the people. This suggests that there is synergy between the practice of traditional medicine and traditional society and that there is acceptable and enabling relationship between the practitioners and their patients. In a situation where annual OPD attendance rate has declined in some hospitals due to varied reasons including poor customer satisfaction, there is the need for allopathic health care practitioners to liaise

closely with traditional health practitioners and learn from them on such issues. For the purposes of better integration of the two regimen, the picture should not be created that the practice of allopathic health care is sacrosanct and without hitches and therefore it is only the traditional health practitioners who have problems and must learn from orthodox health practitioners. Until the issue of who needs to be trained and on what is determined in a more objective manner and, the values of traditional health practice is respected there will continue to be problems with the integration of the two systems. This observation has a clear implication for knowledge sharing. There is the need for mutual trust and sharing of information as well as sharing of knowledge on treatment practices for paediatric injuries, since both regimens have some components, from the perspective of western and indigenous health practice and with each having important lessons to offer for the promotion of health and wellbeing, in Ghana.

Another knowledge implication derived from the conclusions from this study is that, apart from the use of clean cold water which is often recommended by burns experts as a first aid, there is in addition the use of edible oils with soothing properties such as shea butter and palm kennel oil. These additional first aid drugs offer a new opportunity for research into their suitability and efficacy for paediatric burns. The findings of such research regarding the success or otherwise of these practices could widen the knowledge base on first aid measures for paediatric burns and further contribute to improved management practices of paediatric burns.

7.2.4 Advocacy Implications

Socialization and informal education of children and young mothers on home safety as important measures in preventing childhood burns and fall-related injuries has been indicated by this study. This suggests an implication for advocacy that is to promote such useful health promotion and child protection strategies at home. NGOs and Civil Society Organizations interested in child rights and protection can advocate for policy and regulations through which the capacities and knowledge base of key household personalities such as mothers' in-law, elderly women on compounds and household heads can be strengthened in the areas of child safety and protection. Such individuals thus empowered can play key roles in the protection and safety of children especially in the nuclear family set-up. This could go a long way to help increase child survival initiatives at the household level.

7.3 RECOMMENDATIONS

Based on the conclusions reached as a result of our research findings and the implications presented in the previous section, the following recommendations are made for the consideration of stakeholders:

7.3.1 The New Juaben Municipal Assembly:

The New Juaben Municipality Assembly should collaborate with schools, families, faith-based groups, NGOs, and health institutions to educate parents and school age children

on the significant risk factors to childhood burns and falls. In doing this, it is recommended that specific educational programmes targeting specific vulnerable groups, such as children in the different age cohorts and parents with different socio-economic status, should be promoted.

7.3.2 Ministry of Health:

Given the fact that many health personnel do not understand the socio-economic and cultural factors influencing the behaviour of parents/caretakers in health-seeking for injured children, there is the need to incorporate culturally relevant courses on health-seeking behaviour into the curricula of health professionals in order to enhance their understanding of culture-specific behaviours and to improve on their interpersonal relationship with patients. This recommendation could be incorporated into the already existing social and behavioural science courses for medical and public health personnel either as part of their basic training or as periodic in-service training.

7.3.3 Ghana Health Service:

There must be public education on the use of specific drugs known to impair treatment of childhood injuries. The Ghana Food and Drugs Board should collaborate with the Ghana Health Service and Ghana Education Service to educate the public, especially parents and children, on the dangers of using prohibited drugs.

7.3.4 Ministry of Education:

The School Health Education Programme (SHEP) should be strengthened through a more purposeful collaboration between the Ministry of Education and its health counterpart, to provide the needed inputs for health education in schools. In improving the curriculum for school health programme, child safety and injury prevention practices should be incorporated.

7.3.5 National Commission for Civic Education:

The study found the tendency of parents/caregivers to use restrictive measures at home to prevent paediatric burns and fall-related injuries. This suggests the need for improved education on household and environmental safety. It is recommended that NCCE be better resourced to enable carry out educational campaigns on home safety practices, especially on

fire prevention practices. To do this, NCCE will have to collaborate with relevant agencies such as the Ghana National Fire Service, which also has the mandate and expertise to educate the populace on fire prevention practices. Such educational campaigns on fire safety can be useful and important at times when there are increased reporting of burn cases in the study area.

7.4 AREAS FOR FURTHER RESEARCH

This study set out to explore the risk factors, home-based treatments and preventive practices for childhood burns and falls. In the context of behaviours of households and parents/ caretakers, in the management of childhood injuries, future studies may consider community and national initiatives at preventing childhood burns and falls and the problems associated with such initiatives. In addition, management of childhood burns and falls should be considered from a rural perspective to compliment this study so as to provide a holistic view on management practices for childhood injuries in Ghana

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Appendix 1: Questionnaire

MANAGEMENT OF CHILDHOOD BURNS AND FALL- RELATED INJURIES IN THE NEW JUABEN MUNICIPALITY OF GHANA

Questionnaire No:	
Name of Community:	
Time Interview started:	
Time Interview Ended:	

Date of Interview:	Day	Month	Year

Interviewer's Name:	

How to complete the questionnaire:

Most of the questions seek responses by circling the appropriate numerical value adjacent to your responses. Other questions request that you provide your own responses.

SECTION ONE: SOCIO-DEMOGRAPHIC CHARACTERISTICS OF REPONDENTS

QUES NO.	QUESTIONS	RESPONSES		CODES
1.1	What is your sex?	Male Female	01 02	SDC1
1.2	What is your marital status?	Single Married Separated Divorced Widowed	01 02 03 04 05	SDC2
1.3	How old were you at your last birthday?	Age (in completed years) If Don't know, code 77		SDC3
1.4	Which ethnic group do you belong to?	Akan Ewe Guan Ga-Adangme Gruma Mole Dagbani Grusi Others, specify……	01 02 03 04 05 06 07 97	SDC4
1.5	How many children do you have?	1 2 3 4 5 6 7 8 9 10+		SDC5
1.6	What is your highest level of education attained?	No education Primary JHS/Middle School SHS/Secondary Voc/Comm./Tech Tertiary Others, specify……	01 02 03 04 05 06 97	SDC6
1.7	What is your relationship to the youngest child under your care currently?	Biological child Adopted Child Foster Child Siblings Others, specify……	01 02 03 04 97	SDC7
1.8	What is your main occupation?	Unemployed Trading /Business Skilled labour/artisan Unskilled labour Teaching Student/Apprentice Farming Office worker Others, specify……..	01 02 03 04 05 06 07 08 97	SDC8
1.9	Which range do your monthly income falls?	<100.00 100.00 – 200.00	01 02	SDC9

		200.01– 300.00 03 300.01 – 400.00 04 400.01 – 500.00 05 >500.00 06	
1.10	What is your religious affiliation?	Catholic 01 Protestant 02 Pentecostal/charismatic 03 Deeper Life/SDA/Jehovah Witness 04 Spiritual church 05 Moslem 06 Traditional religion 07 No Religion 08 Others, specify……...…… 97	SDC10

SECTION TWO:RISK FACTORS TO CHILDHOOD BURNS AND FALLS

2.1	What types of childhood injuries do people normally associate its causes to supernatural forces? (Multiple responses allowed)	All childhood injuries Road Transport Accidents Drowning Falls Burns Poisoning Suffocation Choking Don't Know Others, specify……		01 02 03 04 05 06 07 08 77 97	BP1
2.2	Explain the reasons why certain childhood injuries are associated with supernatural forces? (Multiple responses allowed)	Circumstances of injury cannot be explained Causes cannot be explained Mother is disrespectful History of burn cases in the family Repeated burns of a child Recurring calamity in the family 06 Don't know 07 Others, specify……		01 02 03 04 05 97	BP2
2.3	Do you associate each of these risk factors to childhood burns? If Yes tick '1', If no, tick '0'	Age of the child Sex of the child Age of parents Sex of parents Relationship with the parents Education of parents Marital Status Parity Poverty Overcrowding Poor adult supervision Use of unsafe heating & cooking equipment Poor cooking behaviours No education on safety precaution Absence of laws/code on building Others, specify……	1 1 1 1 1 1 1 1 1 1 1 1 1 1 	0 0 0 0 0 0 0 0 0 0 0 0 0 0 97	BP3
2.5	Do you associate each of these risk factors to childhood falls? If Yes tick '1', If no, tick '0'	Age of the child Sex of the child Age of parents Sex of parents Relationship with the parents Education of parents Marital Status Parity Poverty Overcrowding	1 1 1 1 1 1 1 1 1 1	0 0 0 0 0 0 0 0 0 0	BP5

		No education on safety precaution	1	0	
		Absence of laws/code on building	1	0	
		Poor adult supervision	1	0	
		Use of unsafe playing equipment	1	0	
		Poor playground safety	1	0	
		No education on safety precaution	1	0	
		Absence of laws on building code	1	0	
		Don't know	1	0	
		Others, specify…….		97	

SECTION FOUR: CUES TO ACTION ON HEALTH-SEEKING BEHAVIOUR FOR CHILDHOOD BURNS AND FALLS

QUS. NO	QUESTIONS	RESPONSES		CODE
4.1	Which of these reminders /prompts are important in helping you seek health care for childhood burns?	Mass media campaign Advice from health officers Advice from friends Advice from spouse Advice from in-laws Advice from religious leader Advice from co-workers Pressure from family members Pressure from community members Pressure from religious leaders Emulating people's health – seeking behaviour Others, specify…… **(Use the responses above to answer questions 4.1 - 4.4)**	01 02 03 04 05 06 07 08 09 10 11 97	CA1
4.2	Which of the cues to action would you consider very important in either treating or preventing childhood burns?	From the codes above, indicate your response(s) in the space below. ……		CA2
4.3	Which of these reminders /prompts are important in helping you seek health care for childhood fall-related injuries?	From the codes above, indicate your response(s) in the space below. ……		CA3
4.4	Which of the cues to action would you consider very important in either treating or preventing childhood fall -related injuries?	From the codes above, indicate your response(s) in the space below. ……		CA4
4.5	Explain why you would consider these cues to action very important	It puts pressure on me to act promptly It gives the assurance that others care People are watching me People are interested in my affaires I am accountable to others	01 02 03 04 05	CA5

		Don't know 77 Others, specify…… 97	
4.6	Are you under obligation to seek consent from significant others in your family before seeking for health care for an injured child?	Yes 01 No 02	CA6
4.7	If your response in question 4.5 is yes, to whom are you obliged? (Multiple responses allowed)	Spouse 01 Mother- In-law 02 Father-In-law 03 Parents 04 Head of household 05 Elderly woman in the house 06 Others, specify…… 97	CA7
4.8	Explain why you are obliged to seek for someone's consent before seeking for health care for childhood fall-related injuries? (Multiple responses allowed)	Show respect 01 Seek for direction/advice 02 Seek for funds 03 Seek for blessings 04 Respect tradition 05 Don't know 77 Others, specify…… 97	CA8
4.9	If your response to question 4.6 is no, explain why you are not under obligation to seek for health care for injured child	Have total control of my child welfare 01 Culture do not demand that 02 It is my responsibility 03 No one cares about my children's wellbeing 04 Don't know 77 Others, specify…… 97	CA9

SECTION FIVE: HOME – BASED TREATMENT FOR CHILDHOOD BURNS AND FALLS.

QUES NO	QUESTIONS	RESPONSES	CODE
5.1	What first aid measure do people normally take at home when their children suffer from burn?(Multiple responses allowed)	Apply cold water to affected area 01 Apply shea butter to affected area 02 Apply palm oil 03 Apply palm kennel oil 04 Apply raw egg to affected area 05 Apply cola nut juice to affected area 06 Apply mud to affected area 07 Apply toothpaste 08 Do nothing 09 Don't know 77 Others, specify…… 97	TSB1
5.2	Explain why these drugs /substances are used normally as first aid in burns	Soothe the burnt area 01 Reduce further burns 02 Prevent large blisters forming 03	TSB2

	management at most homes. (Multiple responses allowed)	Prevent large wounds Prevent infections Don't know Other, specify……	04 05 77 97	
5.3	What would you use to treat childhood burns at home? (Multiple responses allowed)	Apply gentian violet Apply spirit Apply TCP ointment Apply ampicillin and palm kennel oil Apply APC and palm kennel oil Apply kola nut juice Apply herbal ointments Burnt snail shell with palm kennel oil Others, specify……	01 02 03 04 05 06 07 08 97	TSB3
5.4	Where do parents normally get these drugs/substances to treat childhood burns at home? (Multiple responses allowed)	Older women from the family Older women from the community Herbalist/Traditional healer Left- over drug at home Drug store Friends Clinics Traditional birth attendants Bush Don't know Others, specify……	01 02 03 04 05 06 07 08 09 77 97	TSB4
5.5	How do parents determine whether the child's burn condition is improving? (Multiple responses allowed)	When affected child can sleep soundly When affected child stops yelling When affected area is reddish When affected area is dry When affected area is odorless When affected area is itching Don't know Others, specify……	01 02 03 04 05 06 77 97	TSB5
5.6	How do parents determine whether the child's burn condition is deteriorating? (Multiple responses allowed)	When there is persistent yelling When there is sleeplessness When affected area becomes yellowish When affected area is not dry after 7 days Don't know Others, specify……	01 02 03 04 77 97	TSB6
5.7	How long do people normally wait before they send a child suffering from burns to a health facility for treatment?	Immediately Less than a day 1 – 2 days 3 – 5 days 1 week 2 weeks Don't know Others, specify……	01 02 03 04 05 06 77 97	TSB7
5.8	Who (in your family) determines when and where to seek for treatment for	Head of Household Father Mother	01 02 03	TSB8

	childhood burns? (Multiple responses allowed)	Mother-in-law 04 Father-in-law 05 Older Siblings 06 Spouse 07 No specific person 08 Oldest woman on compound 09 Don't know 77 Others, specify…… 97	
	Explain the rationale behind someone having to determine where to seek for health. (Multiple responses allowed)	Determine where treatment is effective 01 Show respect 02 Seek for blessings 03 Seek for approval 04 Seek for funding 05 Respect tradition 06 When mother is young 07 When mother is inexperience 08 Don't know 77 Others, specify…… 97	TSB9
5.10	Which health facilities are available for treating childhood burns? (Multiple responses allowed)	Hospital/Clinics 01 Pharmacy shops/Drug stores 02 Herbalist Home 03 Prayer Camp 04 Fetish Priest 05 TBA Home 06 Others, Specify …… 97 **(use these responses to answer questions 5.10 – 5.11)**	TSB10
5.11	Indicate your preferred health facility for the treatment of childhood burns	List the codes according to your preference ……	TSB11
5.12	Why would you use your preferred health facility as identified in question 4.10 above? (Multiple responses allowed)	Efficacy of drugs 01 Attitude of personnel 02 Time spent at facility 03 Accessibility of service 04 Affordability of service 05 Reliability of health personnel 06 Others, specify…… 97	TSB12
5.13	When parents are seeking treatment for childhood burns in a given facility, do they normally seek for assistance from other sources of care at the same time?	Yes 01 No 02	TSB13
5.14	Explain why /not parents seek for concurrent treatment (Multiple responses allowed)	Rapid recovery 01 Move from emergency situation 02 Tackle both spiritual and natural causes 03 Sign of seriousness in health-seeking 04 Drug abuse 05 Side effect/incompatibility of drugs 06	TSB14

		Fear of complications Fear of drug resistance Don't know	07 08 77	
5.15	From which health facilities do parents normally seek concurrent treatment for childhood burns? (Multiple responses allowed)	Hospital/Clinics Pharmacy shops/Drug stores Herbalist Home Prayer Camp Fetish Priest TBA Home Others, Specify ……	01 02 03 04 05 06 97	TSB15
5.16	What first aid measure do people normally take at home when their children suffer from fall- related injuries?(Multiple responses allowed)	Massage the affected area Apply shea butter to affected area Apply hot water to affected area Apply robb/ointments to affected area Apply red clay to affected area Apply white clay to affected area Do nothing Don't know Others, specify……	01 02 03 04 05 06 07 77 97	TSB16
5.17	Explain why these drugs/ substances are used as first aid in fall-related management at most homes. (Multiple responses allowed)	Soothe the pain Locate area of injury Prevent swelling Determine severity of injury Straighten fractures/dislocations Prevent bleeding Don't know Others, specify……	01 02 03 04 05 06 77 97	TSB17
5.18	What would you use to treat childhood fall-related injuries at home? (Multiple responses allowed)	Massage with hot water Massage with robb/omega oil/ointments Hot fomentation Nasal installation with herbs Herbal drugs Others, specify……	01 02 03 04 05 97	TSB18
5.19	Where do parents normally get these drugs/substances to treat childhood fall-related injuries at home? (Multiple responses allowed)	Older women from the family Older women from the community Herbalists/ traditional healer Left- over drug at home Drug store Friends Clinics Traditional birth attendants Bush Don't know Others, specify……	01 02 03 04 05 06 07 08 09 77 97	TSB19
5.20	How do parents determine whether the child's fall-related injury condition is improving? (Multiple responses allowed)	When the child stop yelling When the child can sleep soundly When affected area is bright When skin of affected area peels off When swellings of affected area reduces	01 02 03 04 05	TSB20

		When affected area is itching 06 Don't know 77 Others, specify…… 97	
5.21	How do parents determine whether the child's fall-related injury condition is deteriorating? (Multiple responses allowed)	When there is persistent crying 01 When affected child cannot sleep soundly 02 When affected area becomes very dark 03 When affected area continues to swell 04 When bleeding continues 05 Don't know 77 Others, specify……. 97	TSB21
5.22	How long do people normally wait before sending a child suffering from fall-related injury to a health facility for treatment?	Immediately 01 Less than a day 02 1 – 2 days 03 3 – 5 days 04 1 week 05 2 weeks 06 Don't know 77	TS22
5.23	Who (in your family) determines when and where to seek for treatment for childhood fall-related injuries? (Multiple responses allowed)	Head of Household 01 Father 02 Mother 03 Mother-in-law 04 Father-in-law 05 Older Siblings 06 Spouse 07 No specific person 08 Don't know 77 Others, specify…… 97	TSB23
5.24	Explain the rationale behind someone having to determine where to seek for health. (Multiple responses allowed)	Determine where treatment is effective 01 Show respect 02 Seek for blessings 03 Seek for approval 04 Seek for funding 05 Respect tradition 06 When mother is young 07 When mother is inexperience 08 Don't know 77 Others, specify…… 97	TSB24
5.25	Which health facilities are available for treating childhood fall-related injury? (Multiple responses allowed) **(Use the responses in question 5.25 to answer questions 5.25 -5.26)**	Orthopedic Hospital/Clinics 01 Pharmacy shops/Drug stores 02 Herbalist Home 03 Prayer Camp 04 Fetish Priest 05 TBA Home 06 Traditional bone setter home 07 Others, Specify …… 97	TSB25
5.26	Indicate your preferred health facility for the treatment of childhood fall-related injuries	List the codes according to your preference ……	TSB26
5.27	Why would you use your	Efficacy of drugs 01	TSB27

	preferred health facility identified in question 5.26 above? (Multiple responses allowed)	Attitude of personnel Time spent at facility Accessibility of service Affordability of service Reliability of health personnel Others, specify……	02 03 04 05 06 97	
5.28	When parents are seeking treatment for childhood fall-related injuries in a given facility, do they normally seek for assistance from other sources of care at the same time?	Yes No	01 02	TSB28
5.29	Explain why /not parents seek for concurrent treatment (Multiple responses allowed)	Rapid recovery Move from emergency situation Tackle both spiritual and natural causes Seek traditional and orthodox treatment Sign of seriousness in health-seeking Drug abuse Side effect/incompatibility of drugs Fear of complications Fear of drug resistance Others, specify……..	01 02 03 04 05 06 07 08 09 97	TSB29
5.30	From which health facilities do parents normally seek concurrent treatment for childhood fall-related injuries? (Multiple responses allowed)	Orthopedic hospital/Clinics Pharmacy shops/Drug stores Herbalist Home Prayer Camp Fetish Priest TBA Home Others, Specify ……..	01 02 03 04 05 06 97	TSB30

SECTION SIX: PROBLEMS ASSOCIATED WITH THE USE OF THE VARIOUS TREATMENT REGIMEN CHILDHOOD BURNS AND FALLS

QUES NO	QUESTIONS	RESPONSES		CODE
6.1	What is the common mode of treatment for childhood burns?	Orthodox treatment Traditional treatment A blend	01 02 03	P1
6.2	Explain why it is a preferred choice	Affordability Accessibility Reliability Efficacy of drugs Ethical behaviour of staff Less complications Others, specify ……..	01 02 03 04 05 06 97	P2
	What is the common mode of treatment for childhood falls?	Orthodox treatment Traditional treatment A blend	01 02 03	P3

6.4	What problems do people normally have in accessing health care from your preferred regimen (Multiple responses allowed) **(use the responses in question 6.1 to answer questions 6.1 – 6.9)**	High cost of treatment 01 Poor attitude of personnel 02 Long queue 03 Inability to retrieve folder on time 04 Long period on admission 05 Frequent shortage of drugs 06 Frequent absence of practitioners 07 Frequent closure of facility 08 Long distance to facility 09 Too many drugs 10 Drugs not effective 11 Poor infrastructure 12 Language barrier 13 Treatment too painful 14 Too much noise at the facility 15 Too much prayers 16 Others, specify…… 17	P4
6.2	What problems do people normally have in buying drugs from a pharmacy /drugstore for childhood burns	From the codes above, list your response(s) below…… 97	P2
6.10	What should be done to solve the problems identified with treating burns at the hospital/clinic? **(Use responses in question 6.10 to answer question 6.10 – 6.18)**	Affordable services 01 Increase access 02 Improve human relations 03 Improve quality of drugs 04 Improve infrastructure 05 Improve supervision 06 Enforce laws on drug administration/use 07 Others, specify…… 97	P10
6.11	What should be done to solve the problems identified with treating childhood falls at the hospital/clinic?	Affordable services 01 Increase access 02 Improve human relations 03 Improve quality of drugs 04 Improve infrastructure 05 Improve supervision 06 Enforce laws on drug administration/use 07 Others, specify…… 97	P11

SECTION SEVEN: PREVENTIVE STRATEGIES FOR CHILDHOOD BURNS AND FALLS

QUES NO.	QUESTIONS	RESPONSES		CODE
7.3	Do you associate preventive practices of childhood burns to each of the listed practices? If 'yes' tick '1', If 'no', tick '0'	Not leaving children alone at home Not leaving children closer to heat source Lock up kitchen when not in use Prevent children from playing with fire Safe storage of flammable substances Keep a child at the back when cook Prevent children from playing at kitchen Train children not to play with fire Train children not to play with fire igniting equipment Keeping matches/lighters from children Others, specify……	1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 97	LPS3
7.4	Do you associate preventive practices of childhood burns to each of the listed practices? If 'yes' tick '1', If 'no', tick '0'	Provision of window lock/screen Provision of safety gates Provision of handrails on stairs Restricted use of bunk/high rise beds Restricted use of high rise chairs Supervised play Restricted from climbing tree/walls Education on the dangers of climbing high rise objects Education on playground safety practices Education on home practices Regular cleaning of slippery substances	1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 97	LPS4
7.9	What needs to be done to improve on the knowledge of parents or caregivers on how to prevent burns and falls?	Improvement in environmental safety Enforcement of legislation and policy Education on injury prevention Redesigning of unsafe product Others, specify……..	01 02 03 04 97	LPS9

SECTION EIGHT: COMMUNITY ATTITUDES AND PRACTICES TO CHILDHOOD BURNS AND FALL PREVENTION

QUES NO	QUESTIONS	RESPONSES		CODE
8.1	Do all adults in your community see themselves as responsible for protecting children from injury?	Yes No	01 02	CMA1
8.2	Explain your response	See themselves as one people	01	CMA2

	to question 8.1. (Multiple responses allowed)	Single individual cannot prevent injury 02 A social responsibility by all 03 All children belong to the community 04 Responsibility of the immediate family 05 All parents do not have the required skill 06 Competition among parents do not allow it 07 Fear of accusing others of intentional injury 08 Don't know 77 Others, specify……. 97	
8.3	What are some of the general community attitudes to a child suffering from burns? (Multiple responses allowed)	Empathize with affected family 01 Offer financial support for affected family 02 Assist in home-based care 03 Offer advice or referral to treatment facility 04 Help determine the severity of injury 05 Don't show concern to affected family 06 Don't know 77 Others, specify…… 97	CMA3
8.4	What are some of the community practices to childhood burns prevention? (Multiple responses allowed)	Set up community nurseries /pre-school 01 Educate parents on safety precautions 02 All adults in community serve as caretaker 03 Intensify adult supervision 04 Seek spiritual intervention 05 Do nothing 06 Educate new mothers on child safety 07 Don't know 77 Others, specify…… 97	CMA4
8.5	What are some of the general community attitudes to a child suffers from fall-related injuries? (Multiple responses allowed)	Empathize with affected family 01 Offer financial support for affected family 02 Assist in home-based care 03 Offer advice or referral to a treatment facility 04 Help determine the severity of injury 05 Don't show concern to affected family 06 Don't know 77 Others, specify…… 97	CMA5
8.6	What are some of the community practices to childhood fall-related injury prevention (Multiple responses allowed)	Set up community nurseries /pre-school 01 Educate parents on safety precautions 02 Improve environmental safety 03 All adults area seen as caretaker 04 Intensify adult supervision 05 Seek spiritual intervention 06 Do nothing 07 Don't know 77 Others, specify…… 97	CMA6

SECTION NINE: BARRIERS TO LOCAL PREVENTIVE STRATEGIES OF CHILDHOOD BURNS AND FALL-RELATED INJURIES

QUES NO	QUESTIONS	RESPONSES	CODE
9.1	What do you perceive to be the barriers to childhood burns prevention in your locality? (Multiple responses allowed	Lack of education on preventive strategies 01 High level of illiteracy of parents 02 Indifferent attitude of parent 03 Poverty/ poor financial status of parents 04 Overcrowding at home 05 Inadequate time for child supervision 06 Non- enforcement of building codes 07 Indifferent attitude of parents 08 Others, specify…… 97 **(use the responses from question 9.1 to answer questions 9.1 – 9.2)**	B1
9.2	What do you perceive to be the barriers to childhood fall-related prevention in your locality? (Multiple responses allowed	From the codes above, list your response(s) ……	B2
9.3	What can be done to promote community participation in injury prevention for children in your community? (Multiple responses allowed)	Increased education awareness 01 Building community members' capacity 02 Involve community leaders in edu campaign 03 Promote good neighborliness 04 Promote we-feeling 05 Adopt appropriate community entry 06 Respect community sub-culture 07 Don't know 77 Others, specify…….. 97	B3

Appendix 2: Interview guide for key health practioners

1.1 What is your name?
1.2 What do you do in this facility?
1.3 How long have you been working in this facility?
1.4 What is your highest level of education?
1.5 What professional association do you belong to?

2. RISK FACTORS TO CHILDHOOD BURNS AND FALLS
   2.1 What are some of the beliefs and perceptions people normally hold on the causes of childhood burns / falls
   2.2 Do these beliefs and perceptions affect the health –seeking behaviour for childhood burns/ falls? Explain.
   2.3 What are some of the causes of childhood burns/ falls?

3. TREATMENT-SEEKING BEHAVIOUR
   3.1 Apart from this facility, where do people normally seek for treatment for childhood burns/fall-related injuries
   3.2 What is the average number of children you treat per week?
   3.3 What problems do you normally have with the treatment of childhood burns/ falls
   3.4 How can the problems associated with treatment in your facility be rectified?
   3.5 What are some of the problems people normally have with the treatment of burns/ falls in your facility
   3.6 How can the problems people have with treating childhood burns/falls in your facility be rectified?
   3.7 What drugs/substances do you normally use in treating burns/ falls? Explain
   3.8 Which drugs do patients normally prefer in the treatment of burns/ falls? Explain
   3.9 What do you think are some of the reasons why children are normally delayed for treatment in this facility.
   3.10 Do people normally seek concurrent treatment for childhood burns/ falls? Explain.

4. PREVENTIVE PRACTICES
   4.1 What should be done to prevent childhood burns/ falls at home
   4.2 What contributions can health practitioners offer in the prevention of childhood burns/ falls
   4.3 What do you need to help in the prevention of childhood burns/ falls

Appendix 3: Interview guide for parents/caretakers/children

1.1 What is the age of the affected child?
1.2 What is the sex of the affected child?
1.3 What is the main occupation of the parents/ caretaker of the affected child?
1.4 What is the educational level of the parents/ caretaker of the affected child?
1.5 How much does each parent/ caretaker of affected child earn in a month?
1.6 When did the injury occur?

2. RISK FACTORS TO CHILDHOOD BURNS/FALLS
   2.1 What do you think led to the injury of your child?
   2.2 Could someone have prevented this injury? Explain.
   2.3 Can witches cause childhood burns/falls? Explain
   2.4 What lessons have you learnt from the occurrence of this injury?

3. TREATMENT-SEEKING BEHAVIOUR
   3.1 What was given to the child as first aid? Explain why it was given.
   3.2 Which treatment facility have you visited for treatment?
   3.3 Why the choice of that treatment facility
   3.4 Where you satisfied with the services received? Explain your response
   3.5 What problems did you have with accessing health care in that facility?
   3.6 What do you think needs to be done to improve on services quality in that facility?
   3.7 Who were very important in influencing you on where to seek of care for the affected child? Explain why they were important

4. PREVENTIVE PRACTICES FOR CHILDHOOD BURNS AND FALLS
   4.1 What needs to be done at home to prevent childhood burns/falls
   4.2 What are the practices community members can engage in to prevent childhood burns/falls?
   4.3 What makes you think you are capable of preventing childhood burns at home?

Appendix 4 LUND AND BROWDER burn chart illustrating the method for calculating the percentage of body surface area affected by burns in children

SURFACE AREA BURNED	1 YEAR	1-4 YEARS	5-9 YEARS	10-14 YEARS	15 YEARS	ADULT
Head	19	17	13	11	9	7
Neck	2	2	2	2	2	3
Anterior trunk	13	13	13	13	13	13
Posterior trunk	13	13	13	13	13	13
Left buttock	2.5	2.5	2.5	2.5	2.5	2.5
Right buttock	2.5	2.5	2.5	2.5	2.5	2.5
Genitals	1	1	1	1	1	1
Right upper arm	4	4	4	4	4	4
Left upper arm	4	4	4	4	4	4
Right lower arm	3	3	3	3	3	3
Left lower arm	3	3	3	3	3	3
Right hand	2.5	2.5	2.5	2.5	2.5	2.5
Left hand	2.5	2.5	2.5	2.5	2.5	2.5
Right thigh	5.5	6.5	8	8.5	9	9.5
Left thigh	5.5	6.5	8	8.5	9	9.5
Right lower leg	5	5	5.5	6	6.5	7
Left lower leg	5	5	5.5	6	6.5	7
Right foot	3.5	3.5	3.5	3.5	3.5	3.5
Left foot	3.5	3.5	3.5	3.5	3.5	3.5

SOURCE: GOODIS,2008.

Appendix 5: Reported cases of childhood injuries in the New Juaben Municipality

CAUSES OF INJURY	2007				2008			
	0-4yrs	5-9yrs	10-14yrs	Total	0-4yrs	5-9yrs	10-14yrs	Total
Fire and burns	42	11	2	**55**	47	9	-	**56**
Falls	8	16	29	**53**	11	21	25	**57**
Airway obstruction	31	4	-	**35**	28	5	-	**33**
Poisoning	6	-	2	**8**	8	4	-	**12**
RTA	-	3	5	**8**	1	1	2	**4**
Drowning	-	1	-	**1**	-	-	-	**0**
TOTALS	**87**	**35**	**38**	**160**	**95**	**40**	**27**	**162**

Source: Records Dept Koforidua Regional Hospital

Appendix 9: Rule of nine

SURFACE AREA BURNED	PERCENTAGE
Head and neck region	9%
Each arm including the hand	9%
Each leg including the foot	18%
Each side of the trunk	18%

SOURCE: WHO,2008.

Appendix 7: Letter of introduction

School of Public Health

University of Ghana
P. O. Box LG 13
Legon

16th Sept, 2010

Dear Sir/Madam

LETTER OF INTRODUCTION

I am a PhD student in the School of Public Health of the University of Ghana and I am conducting a research into the prevention of Childhood burns and falls in the New Juaben Municipality. You happened to be one of the sampled respondents for this survey.

I would be grateful if you could use about 45 minutes of your time and at your convenience to answer the questions in the survey. This study aims at exploring the behavioural and social determinants of childhood injury and to determine the necessary interventions within the framework of causes, treatment and prevention.

This survey is part of an important academic research project and your acceptance to participate will be helping to reduce infant mortalities, morbidities, burden of injuries, and disabilities which are usually associated with such injuries. Your assistance will also help promote the well-being of children.

However, participation in this survey is voluntary and you may choose to withdraw at any time. Your response to this questionnaire will be kept confidential. No identifying information will be used and al l individual data will be put together for analysis.

I will be most grateful if this questionnaire could be filled within one week of receipts so that I can come for it afterwards.

Thank you for your assistance.

Yours sincerely

Nicholas Apreh Siaw
(Researcher)

Appendix 8a: Informed consent for children

INFORMED CONSENT FOR CHILDREN
(THROUGH PARENTS / CAREGIVERS)

I am Nicholas Apreh Siaw a PhD student in the School of Public Health in the University of Ghana. I am conducting a study on management of childhood burns and falls in the New Juaben Municipality.

Your child has been randomly selected to be part of this survey and that is why I would like to seek for your consent to enable your child to be part of this study. The information your child provides will be totally confidential and will not be disclosed to anyone. It will only be used for research purposes. No response you give will be specifically connected to your child but rather combined with the views of the entire respondents.

Your child's participation in this survey is voluntary and he/she can withdraw after having agreed to participate without being penalized in any way. He/she is free to refuse to answer any question that is asked in the questionnaire. If you or your child have any questions about this survey you may ask me or contact my supervisor Dr Matilda Pappoe of the school of public health on026 462 5468 or the Head of Department on 0244806015.

Your child will be asked some questions about your perception on the cause, threats, barriers to childhood burns and falls. Questions on your child's health-seeking behaviour as well as his/her preventive practices on childhood burns and falls will also be asked. This study will pose no risk to your child only some of his/her time will be taken up by the interview.

By participating in this study, your child could learn about how to prevent childhood burns and falls.

Signing this consent indicates that you understand what will be expected of your child and are willing allow your child to participate in this survey

Read by participant(tick appropriate responses)	
Read to participant	
Agreed	
Did not agree	

I hereby provide informed consent to allow my child to be part of this study.

Name of parent:……Signature or left thumb print:……

Name of child:…….. Signature or left thumb print:……

Witness:……. Signature or left thumb print:……

Data:……

Appendix 8b: Informed consent for adult respondents

INFORMED CONSENT FOR ADULT RESPONDENTS

I am Nicholas Apreh Siaw a PhD student in the School of Public Health in the University of Ghana. I am conducting a study on management of childhood burns and falls in the New Juaben Municipality.

You have been randomly selected to be part of this survey and that is why I would like to seek your consent to be part of this study. The information you provide will be totally confidential and will not be disclosed to anyone. It will only be bused for research purposes. No response you give will be specifically connected to you but rather combined with the views of the entire respondents.

Your participation in this survey is voluntary and you can withdraw after having agreed to participate without being penalized in any way. You are free to refuse to answer any question that is asked in the questionnaire. If you have any questions about this survey you may ask me or contact my supervisor Dr Matilda Pappoe of the school of public health on 026 462 5468 or the Head of Department on 0244806015.

You will be asked some questions about your perception on the cause, threats, barriers to childhood burns and falls. Questions on your health-seeking behaviour as well as your preventive practices on childhood burns and falls will also be asked. This study will pose no risk to you only some of your time will be taken up by the interview.

By participating in this study, you could learn about how to prevent childhood burns and falls.

Signing this consent indicates that you understand what will be expected of you and are willing to participate in this survey

Read by participant(tick appropriate responses)	
Read to participant	
Agreed	
Did not agree	

I hereby provide informed consent to be part of this study.

Name:……Signature or left thumb print:……

Witness:……. Signature or left thumb print:……

Data:……

Appendix 9: Ethical Clearance

GHANA HEALTH SERVICE ETHICAL REVIEW COMMITTEE

In case of reply the number and date of this Letter should be quoted.

Research and Development Divison
Ghana Health Service
P. O. Box MB 190
Accra

My Ref. :GHS-ERC: 3
Your Ref No.

Tel: +233- 0302- 681109
Fax 233-0302 685424
Email: Hannah.Frimpong@ghsmail.org

August 11, 2010

NICHOLAS APREH SIAW - Principal Investigator

ETHICAL CLEARANCE -

The Ghana Health Service Ethical Review Committee has reviewed and given approval for the implementation of your Study Protocol titled:

"Social and Behavioural Aspects of Childhood Injury in the New Juabeng Municipality of Ghana"

This approval requires that you submit periodic review cf the protocol to the Committee ana a final full review to the Ethical Review Committee (ERC) on completion of the study. The ERC may observe or cause to be observed procedures and records of the study during and after implementation.

Please note that any modification of the project must be submitted to the ERC for review and approval before its implementation.

You are also required to report all serious adverse events related to this study to the ERC within seven days verbally and fourteen days in writing.

You are requested to submit a final report on the study to assure the ERC that the project was implemented as per approved protocol. You are also to inform the ERC and your mother organization before any publication of the research findings.

Cc: The Director, Research and Development Division,-GHS, Accra

Please always quote the protocol identification number in all future correspondence in relation to this protocol

SIGNED. .....

MR. ANNOR NIMAKO
(GKS-ERC VICE CHAIRMAN)

Appendix 10: Study Variables for childhood burns and falls

Study variables	**Indicators**	**Operational definition/ scale of measurement**	**Objective served**
Sex of a child	Male/Female	Nominal scale	1,2, 3
Age of a child	0-4 yrs 5-9yrs 10-14yrs 15<18yrs	Ratio scale Age in completed years 0-4 yrs =younger children 5<18yrs= older children	1,2
Relationship with the child	Parent/non-parent	Nominal scale	1,2
Marital status of parents	Single, married, widowed and divorced	Nominal scale	1,2.3
Education	No education Primary, Secondary and Tertiary	Ordinal scale Formal education achieved	1,2
Overcrowding	More than 2 people in a room	Ratio scale Congestion at home	1,2,3
Poverty	Poor socio-economic conditions at home	Living below the daily minimum wage of GH¢5.25	1,2,3
Poor cooking behaviour	Improper positioning of utensils, poor handling of hot objects	Poor safety precautions while cooking	1
Inadequate education on safety precaution	Poor handling of inflammable substance, slippery substance, sharp/cutting objects	Poor skills in maintaining safety	1
Poor playground safety	Use of non-standardized play equipment, poor supervision	Poor play safety standards	1
Home-based preventive practices	Restrictive practices, Educational and safe keeping of hazardous substances	Household practices to eliminate/reduce childhood burns and falls	2
Orthodox treatment practice	Hospitals, Clinics, Health post	The use of western bio-medical care/clinical management	3
Traditional treatment practice	Herbalist, Traditional bone setters	The use of traditional health practitioner	3

Appendix 11.5.2a Educational background of parents and the mode of treatment for childhood burns

Mode of Treatment	No Education	Primary n(%)	JHS n(%)	SHS n(%)	Vocation n(%)	Tertiary n(%)	Total n(%)	χ^2 test
Orthodox	61(30.7)	30(9.0)	21(28.0)	19(28.6)	13(48.5)	55(22.2)	199(25.3)	p<0.001
Traditional	90(28.3)	74(70.9)	10(66.7)	26(55.6)	52(40.9)	65(61.1)	317(59.5)	
A Blend	26(31.0)	20(20.1)	1(5.3)	9(15.9)	10(10.6)	18(16.7)	84(15.2)	
Total	177(100)	124(100)	32(100)	54(100)	75(100)	138(100	600(100)	

Appendix 11.5.2b income level of parents and the mode of treatment for childhood burns

Mode of Treatment	Less than 100.00 n(%)	100.00-200.00 n(%)	200.01-300.00 n(%)	300.01-400.00 n(%)	400.01-500.00 n(%)	500.01+ n(%)	Total n(%)	χ^2 test
Orthodox	72(2.4)	30(6.0)	43(17.7)	39(32.4)	10(44.9)	5(72.7)	199(25.3)	p= 0.01
Traditional	9(90.2)	105(90.5)	60(54.6)	92(39.2)	23(37.7)	28(17.0)	317(59.5)	
A Blend	7(7.4)	35(3.5)	11(27.7)	19(28.4)	4(17.4)	8(10.2)	84(15.2)	
Total	88(100)	170(100)	114(100)	150(100)	37(100)	41(100)	600(100)	

Source: Field Data

Appendix 11.5.2c: Age of parents and mode of treatment for childhood burns

Mode of Treatment	Less than 20 n(%)	20-29 n(%)	30-39 n(%)	40-49 n(%)	Total n(%)	χ^2 test
Orthodox	38(47.9)	52(25.0)	67(20.8)	42(13.4)	199(25.3)	
Traditional	84(29.9)	101(57.7)	100(64.0)	32(79.2)	317(59.5)	p<0.001
A Blend	25(22.2)	25(17.3)	25(15.2)	9(7.4)	84(15.2)	
Total	147(100)	178(100)	192(100)	83(100)	600(100)	

Appendix 11.5.2d: Marital status of parents and mode of treatment for childhood burns

Mode of Treatment	Single n(%)	Married n(%)	Divorced n(%)	Widowed n(%)	Total n(%)	χ^2 test
Orthodox	36(21.0)	137(26.9)	16(19.6)	10(27.6)	199(25.3)	
Traditional	50(64.0)	221(57.1)	30(68.6)	16(62.1)	317(59.5)	p=0.923
A Blend	14(15.0)	62(16.0)	5(11.8)	3(10.3)	84(15.2)	
Total	100(100)	420(100)	51(100)	29(100)	600(100)	

Appendix 11.5.2e: Parity and mode of treatment for childhood burns

Mode of treatment	1 Child n(%)	2 Children n(%)	3 Children n(%)	4 Children n(%)	Total n(%)	χ^2 test
Orthodox	57(52.5)	69(35.3)	60(22.4)	13(1.3)	199(25.3)	
Traditional	30(32.6)	100(46.0)	129(57.2)	58(93.5)	317(59.5)	p<0.001
A Blend	14(14.9)	24(18.7)	38(20.4)	8(5.2)	84(15.2)	
Total	101(100)	193(100)	227(100)	79(100)	600(100)	

Source: Field Data

Appendix 11.5.3a: Educational background of parents and mode of treatment for childhood fall-related injuries

Mode of Treatment	No Education	Primary n(%)	JHS n(%)	SHS n(%)	Vocational n(%)	Tertiary n(%)	Total n(%)	χ^2 test
Orthodox	55(9.9)	27(24.0)	20(56.9)	18(59.7)	13(77.1)	51(85.4)	184(53.5)	p=0.001
Traditional	96(62.8)	77(51.0)	11(32.8)	27(30.2)	52(23.3)	69(19.9)	332(32.8)	
A Blend	26(27.3)	20(25.0)	1(10.3)	9(23.2)	10(25.7)	18(30.2)	84(13.7)	
Total	177(100)	124(100)	32(100)	54(100)	75(100)	138(100)	600(100)	

Appendix 11.5.3b: Income level of parents and mode of treatment for childhood fall-related injuries

Mode of Treatment	Less than 100.00 n(%)	100.00-200.00 n(%)	200.01-300.00 n(%)	300.01-400.00 n(%)	400.01-500.00 n(%)	500.01+ n(%)	Total n(%)	χ^2 test
Orthodox	69(47.7)	27(51.8)	37(56.1)	37(60.0)	9(62.2)	5(34.1)	184(53.5)	
Traditional	12(36.4)	108(38.2)	66(28.1)	94(25.3)	24(29.7)	28(46.3)	332(32.8)	p=0.004
A Blend	7(15.9)	35(10.0)	11(15.8)	19(14.7)	4(8.1)	8(19.5)	84(13.7)	
Total	88(100)	170(100)	114(100)	150(100)	37(100)	41(100)	600(100)	

Source: Field Data

Appendix 11.5.3c: Age of parents and mode of treatment for childhood fall-related injuries

Mode of Treatment	Less than 20 n(%)	20-29 n(%)	30-39 n(%)	40-49 n(%)	Total n(%)	χ^2 test
Orthodox	31(73.4)	48(56.7)	66(49.1)	39(32.1)	184(53.5)	
Traditional	91(18.2)	105(28.0)	101(32.1)	35(56.5)	332(32.8)	P<0.001
A Blend	25(8.4)	25(15.3)	25(18.8)	9(11.5)	84(13.7)	
Total	147(100)	178(100)	192(100)	83(100)	600(100)	

Appendix 11.5.3d: Marital status of parents and mode of treatment for childhood fall-related injuries

Mode of Treatment	Single n(%)	Married n(%)	Divorced n(%)	Widowed n(%)	Total n(%)	χ^2 test
Orthodox	11(54.0)	57(54.8)	65(41.2)	58(55.2)	184(53.5)	
Traditional	30(30.0)	133(31.7)	23(45.1)	11(37.9)	332(32.8)	p=0.002
A Blend	16(16.0)	57(13.6)	7(13.7)	2(6.9)	84(13.7)	
Total	100(100)	420(100)	51(100)	29(100)	600(100)	

Appendix 11.5.3e: Parity and mode of treatment for childhood fall-related injuries

Mode of Treatment	1 Child n(%)	2 Children n(%)	3 Children n(%)	4 Children n(%)	Total n(%)	χ^2 test
Orthodox	55(74.3)	62(70.3)	57(40.9)	10(24.3)	184(53.5)	
Traditional	32(15.4)	107(21.7)	132(45.3)	61(52.7)	332(32.8)	P<0.001
A Blend	14(10.3)	24(8.0)	38(13.8)	8(23.0)	84(13.7)	
Total	101(100)	193(100)	227(100)	79(100)	600(100)	

Source: Field Data

Appendix 11.5.4: Educational background of parents and preventive practices for childhood burns

Preventive practices	Educational Background of Parents						Total	χ^2 test
	No Education n(%)	Primary n(%)	JHS n(%)	SHS n(%)	Vocational n(%)	Tertiary n(%)	n(%)	
Restrictive	123(88.5)	72(76.6)	35(56.5)	28(48.3)	25(23.4)	19(13.6)	302(50.3)	P= 0.020
Educational	9(6.5)	10(10.6)	14(22.6)	16(27.6)	35(32.7)	50(35.7)	134(22.3)	
Safe-keeping of Hazardous substances	7(5.0)	12(12.8)	13(21.0)	14(24.1)	47(43.9)	71(50.7)	164(27.3)	
Total	139(100)	94(100)	62(100)	58(100)	107(100)	140(100)	600(100)	