

**PREVALENCE OF PHYSICAL HAZARDS AND KNOWLEDGE OF
FIRST AID CARE AMONG PUBLIC PRIMARY SCHOOL TEACHERS IN
IBADAN NORTH LOCAL GOVERNMENT AREA, NIGERIA**

BY

ATAEKIRU, RUME OGHENENIOBORUE

MATRIC NO.: 154514

B. Sc. (Hons.) MICROBIOLOGY (AAU)

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DEDICATION

This work is dedicated to God Almighty for His infinite mercies and His futuristic promises. And to my beloved husband Mr Joshua Barry, parents and siblings, Mr and Mrs P O Ataekiru and family, who through their encouragement and financial assistance made me, scale through this course.

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ABSTRACT

Physical Hazards (PHs) in the school environment compromise health of primary school children worldwide. Many of the harmful effects of PHs can be managed through First Aid (FA) by teachers. In Nigeria, there is dearth of information on prevalence of PHs in schools and teachers' knowledge of FA care in Public Primary Schools (PPS). This study was therefore designed to assess the prevalence of PH and knowledge of FA care among PPS teachers' in Ibadan North Local Government Area.

The study was a cross-sectional survey. A four-stage random sampling technique was used to select 456 teachers from 30 out of 74 PPS. Data were collected through the conduct of 8 Key Informant Interviews (KII) among consenting teachers. Thereafter, KII responses were used to develop an observational checklist and a semi-structured questionnaire. The observational checklist included a 26-point scale for measuring prevalence of PHs (associated with structures, facilities and school environment) with scores of ≤ 13 being moderately hazardous and > 13 being highly hazardous; and a 14-point scale for measuring availability of FA box rated 1 – 7 as poor and > 7 – 14 as good. The questionnaire included a 20-point knowledge scale on FA, pattern of occurrence of PHs and a 24-point scale for measuring FA care provided by teachers. Knowledge score of 0 – 10 and > 10 – 20 were rated poor and good respectively while FA care scores were rated ≤ 12 as inappropriate and > 12 as appropriate. Data were analysed using thematic approach, descriptive statistics and Chi square test at $p = 0.05$.

Respondents' mean age was 47.3 ± 6.7 years and 87.9% were females. Some (16.7%) of the schools were moderately hazardous and 83.3% were highly hazardous. The forms of PHs in schools included sharp objects (93.3%), leaking roof (90.0%), fields with potholes/stones (90.0%), broken windows (86.7%) and broken chairs/desk (80.0%). Injuries experienced by pupils' included falls (50.9%) and cut/laceration (46.9%), of which 70.8% of all injuries occurred during break period. Majority (80.7%) disclosed that more male than female pupils were affected by PHs. Informants disclosed that lack of training on FA care and inadequate FA facilities influenced the availability of FA care provided. FA boxes were present in all the schools however, 86.7% were poor. The mean knowledge score of respondents on FA was 15.6 ± 2.2 and 84.9% had good knowledge of FA. Inappropriate FA care for emergency was reported by 41.2% of teachers and this

included cleaning of fresh wounds with hydrogen peroxide (57.7%), removing foreign objects from the eyes by air blowing (42.5%) and pouring cold water on pupils during convulsion (31.6%). Provision of FA was not significantly associated with knowledge of FA care.

Physical hazards were prevalent in public primary schools in Ibadan North Local Government Area. Most teachers were knowledgeable about first aid care, however their provision of first aid was inappropriate and facilities for first aid were poor. School health policy should be aimed at improving the physical environment, provision of standard first aid facilities and periodic training of teachers.

Keywords: School health policy, First aid practice, Public primary school teachers

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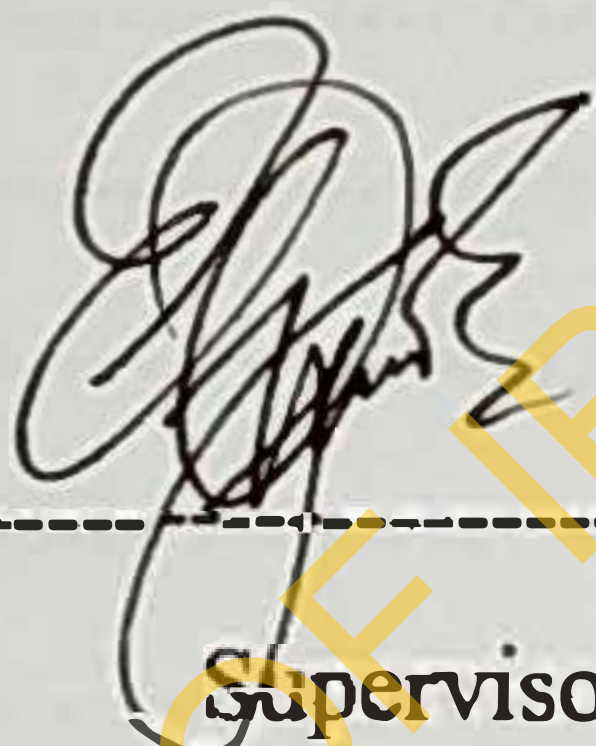
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Ogheneniborue Rume ATA EKIRU

CERTIFICATION

I certify that this work was carried out by Miss Ataekiru Rume Oghenenioborue, in the department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan, Nigeria



Supervisor

Dr Oyediran Emmanuel Oyewole

B.Sc, RD, M.Sc., MPH, Ph.D (Ibadan)

Department of Health Promotion and Education,

Faculty of Public Health, College of Medicine

University of Ibadan

Nigeria

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LIST OF ABBREVIATIONS

FA	First Aid
KII	Key Informant Interview
LGA	Local Government Area
H ₀	Null Hypothesis
PHs	Physical Hazards
PPS	Public Primary School
RTIs	Road Traffic Injuries
TDIs	Traumatic Dental Injuries

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DEFINITION OF TERMS

DEFINITIONS

A hazard (threat) is any indication, circumstance, or event with the potential to cause loss of, or damage to an asset (National Research Council, 1987).

Physical hazards can be referred to as any visible object in the environment that could cause or contribute to injury, illness or death of an individual. Examples include; building fixtures, electrical appliances, equipment and play ground, fire/explosion, floor/ground, stairs/steps, sharp object, classroom conditions, restroom conditions and others that are not yet known but intended to be investigated during the course of the research.

First aid care refers to the immediate and careful treatment given to the person who is injured or suddenly become ill; avoid further damage until services of qualified medical personnel are obtained.

The physical school environment encompasses the school building and all its contents including physical structures, infrastructure, furniture, and the use and presence of chemicals and biological agents; the site on which a school is located; and the surrounding environment including the air, water, and materials with which children may come in contact with, as well as nearby land uses, roadways and other hazards (WHO, 2002).

A health-promoting school is “one that constantly strengthens its capacity as a healthy setting for living, learning and working” (WHO, 2003). This definition is adopted for this study.

CHAPTER ONE

INTRODUCTION

Environmental challenges and opportunities vary considerably in different schools around the world, within communities and across countries. Similarly, the resources available to schools to manage health hazards vary as widely as the threats themselves, often creating formidable management challenges, particularly in the developing parts of the world. Evolving from recommendations of the Ottawa charter for health promotion: ‘the physical school environment’ is an essential component of a health-promoting school which discusses a range of environmental conditions that exist in a variety of schools. It presents strategies to improve the health, education, development of children, families and community members. It also aims to help communities recognize, manage and avoid physical threats that may exist within or around their schools (Ogaji and Okokon, 2012; WHO, 2002; Stockard and Maralee, 1992).

Examples of physical hazards include: naked wires, sharp or dangerous parts that a student can accidentally touch, constant loud noise, high exposure to sunlight/ultraviolet rays, heat or cold, playing from heights, including ladders, scaffold, or any raised playing area, playing with sharp object such as fork, spoons, pen, cane, crayons. Others are spills on floors, tripping hazards such as cords running across the floor, dilapidated building structures or classroom furniture and construction defects. These hazards may lead to accidents in schools which can result in life-altering or fatal incidents, most of which are preventable (UNICEF, 2002; WHO, 1990). Recently there are a large number of substandard school buildings including faulty water closets facilities across schools, these physical conditions of the school environment affects the wellbeing of a child.

In almost every community, the school is a setting where many people learn and work, care for and respect each other. It is a setting where students and staff spend a great deal of their time. It is a setting where education and health programmes can have their greatest impact because they influence students at such important stages in their lives – childhood and adolescence. Thus the patterns of physical hazards varies in types, age and

gender because children at different stages of development have unique physical risk factors for certain types of exposure because of changing location, levels of mobility, oxygen consumption, eating and behavioural patterns (Cynthia, 1995).

The effect of physical hazards can be managed by teachers through First Aid (FA). First aid is the temporary and immediate care given to the person who is injured or suddenly became ill until the services of qualified medical personnel is obtained. One of the Maryland institutes of emergency medical services in Baltimore US describes, the time immediately after an accident as the “Golden hour” when life that hangs in the balance can be saved through administration of proper FA and emergency care (Christopher and Kathleen, 2004). Research shows that FA training must be repeated periodically in order to maintain adequate levels of skill and expertise (Al-Khamees and Nedaa, 2006). Proper FA care in school can save a victim’s life and also prevent additional medical emergencies that can arise from an injury or illness (Ajay, 1998).

By creating schools that are health promoting, school leaders all over the world can foster health as actively as they promote learning, (WHO, 2003). Therefore to create a safe physical school environment, many factors must be considered. These hazards and associated risks must be managed to ensure the safety of staff, students and others. A comprehensive understanding of the patterns of physical hazards and proper FA care for emergencies in schools is essential for the identification of appropriate points of intervention. This is to promote the physical school environment and their associated health benefit (United Nations, 1989).

Few studies exist on the prevalence of physical hazards in the school environment in Nigeria. However, there are related studies on biological and chemical hazard in schools as well as bullying and injury related studies in Africa. It is not possible to exhaustively cover the issue of physical hazards since hazards in the school environment consist of many elements. This study focuses on, ‘Prevalence of Physical Hazards and Knowledge of First aid Care among Public Primary School Teachers in Ibadan North Local Government Area, Nigeria. Prevalence of physical hazards and knowledge of FA care will be discussed in detail while other aspects or related issues will be discussed briefly.

Statement of Problem

Many childhood illness and death are greatly influenced by the environment. In Nigeria, children under 15 years of age accounts for about 45 per cent of the country's population, the burden on education and other sectors has become overwhelming (Nakpodia, 2012; UNICEF, 2005). In a study in Calabar, a qualitative assessment of schools physical environment which includes site, structure, classroom and amenities showed a mean score of 35.5 ± 11.4 out of a maximum of 73 for government schools (Ogaji and Okokon, 2012). A study conducted in Zaria where 200 children within the age range of 5-15 years were interviewed; showed that most of the children encountered the following health hazards, physical assault (beaten by their seniors) (61%), cuts from instruments (52.3%), falls (23.4%) and poor school performance (33.8%) (Aliyu, 2006). Often the first action taken for management of injuries and common illnesses determines the future course of disease and complication rates.

First aid care which is important in emergencies is not well understood by the public. A study conducted to assess teachers' knowledge and FA care of Febrile Convulsion (FC) in nursery and primary schools in Ibadan North Local Government Area, Nigeria revealed that only 30.6% of respondents had good knowledge of FC. Forty-one percent of respondents had witnessed a child convulse in school. Of these, most (69.1%) of the respondents gave inappropriate care such as putting a spoon into the child's mouth (28.1%) (Chiwendu, Adebola and Olukemi, 2012). Survey studies on 500 members of the public in Bangalore, in which they were asked how they would deal with a bleeding nose, revealed that only 50 out of the 500 were judged as being correct. This shows a high level of ignorance on the correct FA treatment for bleeding nose. The survey also suggests that there is lack of knowledge about FA treatment among the public (Maloti, 2006).

In most of the developing countries such as Nigeria, children spend roughly one third of their day for nine months of the year within school environments. Potential risks at school include recreational and other facilities such as unsafe building structures. The fact that primary school pupils are in the age of high mental drive (restless) causes many to engage in rough play and other risky activities that may result to injury, illness or death (Ogaji and Okokon, 2012; WHO, 2003).

Observation shows that teachers spend insufficient time with their pupils during break hours. Some teachers (game teacher) would even leave to distant places, leaving the pupils at the mercy of their fellow peer group. During such times, students engage in adventurous events such as climbing of trees, jumping from height, throwing of stones, sliding, playing with sharp objects, bullying and fighting among themselves (WHO, 2002). All these may lead to a form of disability which will increase the disability adjusted life years of the country.

Physical hazards have several implications, which include affecting the physical form of children and the psychosocial aspect of their lives which in turn may affect the Economy of the country. This study, therefore, assessed the prevalence of physical hazards and knowledge of first aid care among public primary school teachers in Ibadan North Local Government Area, Nigeria.

Justification

The impact of physical hazards on children's health and development in schools is of major public health concern. When children are sent to school, they are expected to be protected from the most basic dangers. Curriculum activities and the school's physical environment may involve a range of risks that needs to be carefully managed to ensure the safety of all students, staff and other participants involve in the activities. Therefore, there is need to direct the attention of the government and policy makers to the significance of providing safe health promoting environment and FA training for teachers in order to avoid or minimize the outcome of physical injuries, illness and death in schools.

A prospective study of school injuries, incidence type related factors and initial management, found that an annual incidence rate of 5.4 injury events (28.7%) resulted in serious injuries. Injuries were significantly more frequent in the elementary as opposed to the secondary schools, and boys were injured significantly more often than the girls. Most of the children with either serious or minor injuries were sent to the school office or returned to the classroom, which indicates that, the present level of FA training and care provided by school personnel is inadequate (Maloti, 2006).

This study shed more light on the prevalence of physical hazards, knowledge and provision of FA care, and control measures in place such as relevance of teachers

monitoring/supervision on the present and future well being of the pupils, this will make them to manage their curriculum activities with more caution. Majority of school children have closer contact with teachers in the school than health team members. Therefore the primary school teachers are the best channels to activate and empower children for dynamic health education and action for health. The fact that school children may be at risk of injury or death, makes it even more important to carry out this study in order to prevent pointless death and disabling injuries. Preventing children's exposure to physical hazards can also help them reduce the risk of developing diseases.

The findings of this study will be published and kept in libraries so that governmental agencies like Ministries of Health and Education; Non-Governmental Agencies as well as sundry stake-holders would be able to access and use it in packaging effective and result oriented interventions in primary schools. Lastly, publication of this study will contribute positively to the expansion of knowledge in the prevalence of physical hazards and FA care in schools and also serve as an important reference tool for future researchers in the field.

Research Questions

1. What is the prevalence of physical hazards in public primary school environment?
2. What is the pattern of occurrence of physical hazards in public primary schools?
3. What is the quality of first aid boxes in schools?
4. What is the level of knowledge of teachers on first aid in schools?
5. What is the first aid care provided by teachers for pupils who experienced physical hazards in public primary schools?

Broad Objective

The broad objective of this study is to investigate the prevalence of physical hazards and knowledge of first aid care among public primary school teachers in Ibadan North Local Government Area, Nigeria.

Specific Objectives

The specific objectives of the study were to:

1. Assess the prevalence of physical hazards in the school environment
2. Determine the pattern of occurrence of physical hazards in public primary schools

3. Measure the quality of first aid boxes in schools
4. Assess the level of knowledge of teachers on first aid in public primary schools.
5. Assess the first aid care provided by teachers for pupils who experienced physical hazards in public primary schools

Null Hypotheses

- $H_0 1$ = There is no significant relationship between level of knowledge of first aid and age of primary school teachers.
- $H_0 2$ = There is no significant relationship between level of knowledge of first aid and years of working experience of primary school teachers.
- $H_0 3$ = There is no significant relationship between knowledge of first aid and prevalence of physical hazard among primary school teachers
- $H_0 4$ = There is no significant relationship between knowledge of first aid among teachers and the location of primary school
- $H_0 5$ = There is no significant relationship between knowledge and first aid care among primary school teachers.

CHAPTER TWO

LITERATURE REVIEW

Epidemiology of Environmental Hazards

WHO estimates that between 25% and 33% of the global burden of disease can be attributed to environmental risk factors. About 40% of the total burden of disease was due to environmental risks falls on children. In addition, trauma resulting from accidents is the fourth most common cause of death (WHO, 2002). Accidents are the most common cause of death among children between the ages of 7 and 14 years (20-60%). This information indicates that administering appropriate FA to children immediately after the accident occurs is important and can be lifesaving (Suzen and Inan, 2003).

The Beijing Injury Survey found that 50,380 children were injured in Beijing in 2003. Each day 139 children were injured seriously enough to seek medical care, be hospitalised, or be killed. For every injury related death, there were four permanently disabled children (Huan, Jianhua, Xinxin and Shujuan, 2011). A study conducted in China, noted that more than half (56%) of the injuries occurred when caretakers were present. These were fall (47.4%), being hit by blunt objects (14.1%), and animal injury (11.6%). Causes and proportion of injuries were the same as when injuries occur to children who were alone or with their peers at school (Huan *et al* 2011). The presence of physical hazards in the school environment can result to injury, disability and possibly death.

Most children throughout the world attend primary school. It is important to the health of these children that they have clean water to drink, enough water to use for hygiene, adequate sanitation facilities, clean air to breathe, safe and nutritious food, and a safe place to learn and play. WHO Global School Health Initiative is a concerted effort by international organizations to help schools improve the health of students, staff, parents and community members. The extent to which each nation's schools become Health-Promoting Schools will play a significant role in determining whether the next generation is educated, healthy and better equipped to promote a culture of peace and non-violence. Thus, one of the six components of the health promoting school is a safe, healthy

environment which includes the following: sufficient sanitation and water, freedom from abuse and violence, a climate of care, trust and respect, social support and mental health promotion, safe school grounds and opportunities for physical education and recreation (WHO, 2003).

All Department of Education and Training staff in schools shares a special duty of care to provide a secure, safe environment and assist persons who requires immediate attention. Staffs are to use common sense which dictates that in an emergency, one must not act beyond his or her capability and qualifications as they are expected to do what they can to prevent the condition from worsening while awaiting medical services (WHO, 1990; Carter, Bannon and Jones, 2004).

Physical Hazards in the School Environment

A hazard is a situation that poses a level of threat to life, health, property, or the environment. Most hazards are dormant or potential, with only a theoretical risk of harm. However, once a hazard becomes "active", it can create an emergency situation. A hazardous situation that has come to pass is called an incident. A hazardous situation combined with vulnerability creates risk (David, 2006). Physical hazards are environmental hazards which are not chemicals or elements or organisms, but those that can be seen, felt or heard, i.e. those that can be detected by senses such as temperature, built environment, noise, vibration, and foreign objects such as metal and glass etc. Environmental temperature can cause serious health effects by increasing or decreasing the body temperature. Children are constantly exposed to noise of varying degree in their day to day lives. Exposure to noise could lead to serious health effects such as hearing loss. Vibration is the back-and-forth, side-to-side, and up-and-down motion of the body that starts from and returns to the same reference position. Exposure to vibration motion could occur at an occupational setting, school setting or during a pleasure trip (Christian, Michael, Carol, Rond and Kathleen, 2002).

Prevalence of Physical Hazards in Schools

Schools are involved in many activities that present a range of hazards. These hazards and associated risks must be managed to ensure the safety of staff, students and others. Physical hazards in schools can be natural or man-made and may include the following; glass/small stones, sand, buttons, band aids, writing pen cap and needles (Daniel and

Patricia, 2005). Although everyone appreciates and supports the child friendly schools initiative, yet, the provision of such an environment particularly in public schools in Nigeria has often constituted a great challenge. Many school children in Nigeria learn under the shade of trees while many sit on the floor to learn in their classrooms. Study shows that many schools had no games and recreational facilities (Akinbonte, 2010).

1. Land and building of schools

Nigerian public school climate is facing challenges of low operational quality and absence of required facilities to cater for teachers and students (Abinboye, 2011). Lands near or directly beneath schools in many parts of the world may pose health threats to children. Schools located near transportation corridors, bus depots, industrial sites, abandoned lots, landfills, military bases, utility plants, and construction sites may present health problems to the students and staff occupying the school. New schools are difficult and expensive to site and are often constructed on undesirable lands. Two schools constructed on a former industrial landfill were closed after testing showed excessive levels of contamination. In developed countries, enormous sums of money are spent remediating schools that have been built on hazardous land (WHO, 2002; Faith and David, 2003).

The result of a study indicated that although direct benefits are difficult to measure accurately, the schools perceive a benefit of investment which can be illustrated in pupil attainment, motivation and pupil behaviour, with an additional benefit to staff who find that better environments improve teacher morale and motivation (Daniel and Patricia, 2005). A study in American explored the school infrastructure and children altitude. It was shown that the children were keenly aware of their school building and responded positively to bright and comfortable surroundings. The following factors have been found to be associated with building structure of a school, which can cause physical hazards related injuries; building age, broken windows, poor flooring, leaking roof, open roof and locker conditions in class rooms (Faith and David, 2003).

The school building is an important instrument in bringing about effectiveness in the teaching and learning process as emphasized in the National policy in education (Federal Ministry of Education, 2004). The Nigeria Daily News of Sunday, July 6th 2008 reported “School building collapses, kills 7 pupils”. Tragedy struck in Afikpo, Ebonyi state when a

section of the St. Theresa Montessori Nursery, Primary and Secondary school collapsed. Killing seven people and injuring many others. This incidence took place around noon when the school was on break (Tell magazine, 2008). Strategies for maintenance and management of school buildings in Delta state, Nigeria, showed that the nine management strategies expected to be used in the schools were poorly used, especially in the public schools. Only 38% of the public schools used some of the strategies outlined (Nakpodia, 2012).

2. Learning/classroom conditions

The impact of learning on pupils' behaviour depends on several activities associated with their learning/classroom conditions: mobility, flexibility, ventilation, use of technology, furniture's and interactions. The schools in Nigeria are observed to be short of instructional materials, poor school structure and overcrowded classroom (Oluwadare and Julius, 2011; Inuwa and Yusof, 2012). A well organized learning environment indicates positive impact on pupils' behaviour (Túlio and Edward, 2005). A study suggests that furniture design is one aspect of a multi dimensional problem. Many of the primary schools teachers are not sufficiently equipped in both the behavioural and content knowledge on what they are to teach in the schools (Akinbonte, 2010). The Situation and Policy Analysis (SAPA) report has provided a statistical analysis of the deficiencies in the Nigeria schools as follows; 12% of pupils sit on the floor, 87% have overcrowded classrooms, 3% of the schools have no chalkboards and 38% of classrooms have no ceiling (Okebukola, 2000).

Physical hazards encountered in school activities encompass among others; falls from ladders, elevated platforms, wet or slippery floors, falling objects and sharp objects. These results not only from the work equipment used but also from the environment where the learning is performed (EU-OSHA, 2008). Students often work and play in awkward postures, bent forward and with twisted backs, because of the poor ergonomic characteristics of the playing equipment or of the learning environment (e.g. confined places). At the same time, they sometimes have to lift heavy pieces of furniture or learning equipment, which may fall on them. They daily perform a high number of repetitive movements which sometimes require the application of high forces, for example when playing "could be running and attempting to lift an heavy object for a show of strength among peers" (Hannu and Rauno, 2010).

In Nigeria, classroom activities are sometimes interrupted by rains or strong winds and it is not unusual for walls to collapse due to the absence of windows or presence of broken windows. Teachers have no adequate office or chairs; some pupils squat on the floors and write in their exercise books balancing them between their knees. Most of the desks are wobbly (Okebukola, 2000). The hazards linked to the poor ergonomics of school equipment, such as chairs, desk and playing facilities are strongly related to the particular tool used and also if it is adapted to the characteristics and specific needs of the students taking into account their anthropometry and physical strength. This combination of factors puts them at high risk of developing musculoskeletal disorders (MSDs) (Godson, Derek, Brown and Sridhar, 2009).

In less developed countries like Nigeria, many children do not have access to ideal or serene learning environments. Noise control in the school environment is a real public health challenge (Berglund, Lindvall, and Schwela, 2000). In a study in Ibadan, Classrooms were observed at the time of the study to be usually rowdy, noisy (due to occupants talking) and not conducive to teach (Godson *et al*, 2009). The unfriendliness of school environment is induced among other things by inadequacies in classroom space, furniture, equipment, teaching/learning materials and poorly motivated teachers (Okebukola, 2000).

3. Playing ground conditions in schools

Hazardous conditions abound in the playgrounds that can be foreseen and eliminated by the teacher. It is common to see playgrounds abused by trespassers and other unauthorised activities. Potholes, stones, broken bottles and unpadded poles are some of the hazards commonly found on the playground of the average school in Nigeria. This is particularly the case where no form of security fencing is provided or the school is in the centre of the town. Injuries resulting from such feasible hazards would lead to liability on the part of the physical education teacher (Mbor and Anyanjanor, 2005). Play is essential for child development; however playground can also pose safety risk. Where contributing factors are known, falls from playground equipment are the leading cause of all child fall related hospitalization. In Australia, upper limb fracture is the most common playground injury, accounting for 43% of emergency department presentations and 74% of hospital admissions. Playground injury is moderately severe, with 22% of children taken to

emergency departments and 32% of those with arm fracture requiring hospitalization (Sherjer, Ozanne, Rechnitzer and Grzbieta, 2005). A total of 367 injury incidents were reported in Beijing, among which male children accounted for 60.5%. The overall leading causes of injury were falls, being hit by blunt object and animal injury. Falls and injuries within the school grounds occur as a result of poorly maintained schools or poor construction management (Shi, Jiao, Xie, Wang and Yin, 2004).

In a report on the epidemiology of injuries in the Tucson Unified School District, it was reported that 14% of all injuries sustain over 2 years period were related to the use of playground or sports equipment. Two-third of all injuries occurred in the playing ground and 18% of injuries were severe as playground and equipment-related injuries were significantly more likely to be severe (Thomas, Lewis, Sprunger, Sue and Catherine, 1984). When quantifying the association between physical activities and injury in primary school aged children in Brisbane primary school in Australia, result shows that complete diary and injury data were available for 744 children. There were 504 injuries recorded over the study period, 396 (88.6%) of which were directly related to physical activity. Thirty-four percent of physical activity related injuries required professional medical treatment. Analysis of injuries occurring outside of school revealed an overall injury rate of 5.7 injuries per 10 000 hours of exposure to physical activity and a medically treated injury rate of 1.7 per 10 000 hours (Anneliese, Roderick, Chris and Alison, 2006). Therefore, sports injuries occur in school playing ground during sporting events or during break time. Sports injuries can be caused by faulty play ground equipment and fields with potholes/big stones (McKenzie, Sallis, Kolody and Faucette, 1997). First aid should be given by trained individuals who are closest to the scene of the accident.

4. Toilet condition

In a comparative study in Lagos, all private registered schools, apart from one had toilet facilities for children compared with 79% of private unregistered schools and 87% of government schools (James, Pauline and Olanrewaju, 2005). Study shows that the toilet facilities in government owned schools were in poor condition. The government-owned schools are equipped with pit latrines constructed through contracts. In each government-owned school, there were four pit latrines, the pit latrines for the school children was so dirty that the pupils preferred to defecate in vegetation surrounding the school compounds. (Ekpo, Odoemene, Mafiana and Sam-Wobo, 2008). A survey of hygiene

conditions in three schools indicated that in the two government schools tap water was unavailable, sanitation of latrines was poor, some had broken /cracked toilet and garbage was present around school compounds. In the private school, in contrast, all hygiene indices were satisfactory (Ekpo *et al*, 2008).

According to a study by Olaleye, schools that are characterized by broken toilet facilities, lack of hygienic sanitation and health facility are not likely to provide quality education for the children (Olaleye, 2012). Student responses underscored a need to improve the school environment; both the physical environment and the emotional environment for Nigerian youth. They specifically cited a need for improving the sanitary condition of schools, including safe water supplies and sanitary toilet facilities (Nwangwa and Maria, 1993). At the minimum, a school is acceptable if it can provide a place for students to work without the danger of a roof collapsing; if neither wind nor rain sends students into a corner for protection; if there is a place for each to sit down, a place to write, material to write with, good playing ground, and a well structured toilet facilities (WHO, 2002).

Pattern of Occurrence of Physical Hazards

This may involve many factors such as the sources of physical hazards which include design of facilities and equipment, faulty production procedures. Place/time of occurrence of physical hazards, improper practices by the students or the factors affecting the vulnerability of school children to physical hazards can be discussed under the pattern of occurrence of physical hazards (Goldstein, 2002).

Falls from heights, especially from fruit trees, have been reported to be 'causes' of common injury in African (Adesunkanmi, Oginni, Oyelami and Badru, 1998; Nwomeh and Ameh, 2003). A systematic review of the literature on non-fatal injuries among children 5–18 years globally, found that suitable cohort studies were not available from Africa. In addition, the study also shows that with regard to falling from heights, 86 reported to have ever fallen from tree, 44 of these (51.2%) were injured from the fall and 14 (16.3%) were hospitalized as a result of injury sustained from the fall. Girls were more likely to fall from trees and getting injured as compared to boys (Adamson and Humphreys, 2009). The available studies from low and middle-income nations only came from China, Taiwan and Thailand. Most of the published data on childhood injury from Africa collected data from hospital records with only a few community-based studies. In a

study in Northern Malawi, all children presenting with injuries at Mzuzu Central Hospital had a record of distributed mechanisms of injuries which were falls (29.6%), road traffic injuries (22.0%), burns (21.4%) and poisoning (15.1%) (Yu, Bong, Huang, Chen, Ko, Chang, Chen and Chiang 2000). Furthermore, falls were also a common mechanism of injury (HSE, 2005). According to Linnan, Geirzink and Cux, (2002), the overall leading causes of non-fatal injury were falls, being hit by blunt object, and animal injury. For young children, causes of injury by rank were fall (36.3%), animal injury (19.4%), burn and scolding (16.9%). Major causes of injury were different between urban and rural children.

Age changes/ gender, Children under the age of 15 years are likely to indulge in more risky activities as a medium of play while children who are above 15 years of age are less active in risky activities (Donroe, Gilman, Brugge, Mwanburi and Moore, 2009). Rough-and-tumble play appears to increase through the preschool and primary years. Activities at break time show a main difference between primary and secondary stages (Aflalo and Gabay, 2012; Len, Stewin and Devida, 2001). In a follow-up study at 16 years of children studied at 11 years the main change was that games other than football had all but disappeared; football was now played by only 26% of pupils, and only one pupil mentioned a chasing game. Other ball games had declined by 16 years. By 16 years the most popular activity was talking to friends, hanging around, and socialising (72%). As at 11 years, there was a significant difference between boys and girls in reported break time activities. Boys were more likely to report playing football, other ball games, and cards and chess. Girls were more likely to talk to friends and socialise, do school work, and listen to music (Blatchford, 2003).

A bivariate analysis illustrates the increasing comparative importance of Road Traffic Injuries (RTIs) compared to other injuries with increasing age. The proportionate age distribution of each injury type depicts that; Boys were more likely to have sustained any serious injuries (injuries taken collectively, OR 1.45, 95% CI 1.29 to 1.64), particularly falls (OR 1.60, 95% CI 1.37 to 1.87), pedestrian RTIs (OR 1.65, 95% CI 1.22 to 2.34), and multiple injuries (OR 1.50, 95% CI 1.03 to 2.19). Furthermore, the multivariate analysis shows the adjusted ORs for each characteristic for specific injuries. The 5–9 years age group remained most likely to sustain a pedestrian RTI. Boys remained at

increased odds of injuries in schools taken collectively, falls, pedestrian RTIs, and multiple injuries (Donroe *et al*, 2009).

Rough play, fighting and bullying are some of the factors influencing the vulnerability of pupils to physical hazards. School children are assumed to be very young (in age and physical size), restless with low experience and judgement level and they are more prone to dangers in their environment. Harm at a young age causes more damage because the children immune system is not well developed as the adult. Rough play, fighting and bullying are different ways in which primary school pupils can afflict themselves with injury, illness or death (Aleudo, 2011; Blatchford, 2003). Although difficult to quantify, the dominant view of children's behaviour at break time appears to be negative, with a stress on unacceptable behaviour that can occur during play time. Several areas of concern have fuelled this negative view. There was a perception at both primary and secondary schools of less respect toward authority and the environment, an increase in aggression, and more individual pupils with difficult behaviour (Aflalo and Gabay, 2012). Sociable contact between children and rule games such as football, rounders and twgfiggy, as well as rough-and-tumble play, were common activities in schools (Al Fassi, 2004). In a study based on 11-year-old pupil reports of games and break time activities, there was a wide variety of games played but domination by active games with the most popular activities being ball games and chasing games. This may results in falls and pupils colliding with each other or with any forms of physical hazards in the playing environment (Len *et al*, 2004; Blatchford, 2003).

Bullying is an interaction in which a dominant individual repeatedly exhibit aggressive behaviour intended to cause distress to less dominant individual (Smith and Sharp, 1994). Bullying is a widespread problem in schools. The behaviour encompasses physical aggression, threats, teasing, and harassment, though it can lead to violence involving weapons, vandalism or physical harm. It is however, an unaccepted anti-social behaviour that is learned through influences in the environment, e.g. home, school, peer group, even the media (Shane, 2009). Bullying occurs when a student or group of students targets an individual repeatedly over time, using physical or psychological aggression to dominate the victim. Victims and bullying are more likely to display several problems-suicidal thoughts which can be as a result of physical hazards found in the school environment like the use of stones, sticks, broken bottles or even hitting the victim against unmovable

machineries. Depression, anxiety, poor general physical health, drug use, poor body image, eating disorders and poor academic performance are also problems associated with bullying (Namsel, Overpeak, Pilla and Ruam, 2001; Charach, Pepler and Ziegler, 1995).

History of First Aid

The first recorded history of FA dates to 1099, when a religious order of knights trained to administer medical treatment was formed. The Order of St John to which the modern day St John Ambulance organisation traces its roots- specialised in the treatment of battlefield injuries during the crusades and is the first recorded example of people trained to administer FA. In 1922 Red Cross Society of India was established with more than 400 branches all over the India (Lee, 2002). International Federation of Red Cross and Red Crescent societies consist of 97 million volunteer and members; the International Federation is the world's largest humanitarian network. Everywhere one of its 178 members, Red cross and Red crescent societies is engaged in FA programme either training first aider to save life in disaster of all kinds or training the general public in basic life saving techniques and providing FA services during sport and mass event (National Safety council, 1989).

First Aid in Schools

The focus of health and safety in the school as a workplace is on the prevention of illnesses and injuries. In this regard, teaching basic FA should be compulsory in all schools (Chiwendu *et al*, 2012; Eisenburger and Safer, 1999; Frederick, Bixby, Orzel, Brown and Willet, 2002). First aid can be given to a sick or injured person until services of a qualified doctor are obtained. A study determined that a high number of injuries sustained by the cohort (88%) were directly related to physical activities and approximately 20% of all physical activities-related injuries occurred during school hours (Spinks, McClure, Bain and Macpherson, 2006). Health care at school is a team service, and this team includes a doctor, nurse and teachers (Eisenburger *et al*, 2002). However, because nurses work at only a few schools in Nigeria, teachers must do the nurses' duties instead. In addition to that, a preceding study determined that only 62.5% of the teachers who had to do these duties were educated about FA (Kara, 2001). Therefore, both teachers and primary school children must be educated in FA (Lubrano, Romero, Scoppi, Cocchi, Baroncini and Elli, 2005).

A first aider can be any person who may have learnt the standard method of application of FA best suited to his skills. The person identifies the problem and provides emergency care and when necessary move the person to the hospital without causing further injury. First aid can save a victims life in emergency that can arise from an injury or illness. This is an age when technology has produced devastating results with loss of life and injuries to the body. Under these circumstances, FA has gained much importance (Ajay, 1998).

The aims of FA are to preserve life, promote recovery, prevent worsening of the victims general condition and quick transport of the casualty to the nearest medical aid if requires (Ajay, 1998). According to California code of regulation section(c) and administrative director rule, define FA as “any time treatment and any follow up visit for the purpose of observation of minor scratches, cuts, burns, splinter etc, which do not ordinarily require medical care”. Such onetime treatment and follow up visit for the purpose of observation is considered FA even though provided by a physician or registered professional. It is necessary that all school personnel’s should be able to perform FA because students or other school personnel’s will eventually be in situation requiring it (Angela, Wong and Lew, 2005).

In a study on the perceived health needs of secondary school students in Uyo Nigeria, it was reported that student most frequently cited a need for medications and FA equipment in their schools. Most schools did not have FA boxes, and three of 10 schools had empty FA boxes. Two schools had non-functioning dispensaries, and five schools had neither dispensaries nor FA boxes. Generally, the schools had no health facilities, and they lacked qualified personnel such as physicians, nurses and health counsellors (Nwangwa and Maria, 1993).

A study carried out in Egor local government area of Edo state, Nigeria shows that a total of 31.6% schools had sick bay for FA and treatment for minor ailment. There was a significant difference between the proportion of private schools (39.4%) with sick bay compared to 3.4% among public schools (Ofovwe and Ofili, 2007). The occupational health safety has set out obligation for workplaces to assist them in ensuring the health and safety of employees and work place visitors including students. This law stipulates that; where an injury or illness does occur, FA facilities that are adequate for the immediate treatment of injuries and illnesses that may arise in a school are provided (Melissa and Dawn, 2005).

First Aid Box

A well-stocked FA box is kept within easy reach, is a necessity in every school. Having supplies gathered ahead of time will help school management to handle an emergency at a moment's notice. School management should have at least one FA box in school and one FA box in distance sport fields or playgrounds as well as any other high risk areas and any offsite activities. All FA containers must be marked with a white cross on a green background (William, 2000) or Red Cross on a white background (Red cross, 1984). The siting of FA box is a crucial element in the school policy and should be given careful consideration. If possible, FA box should be kept near to hand washing facilities. Employers must provide the proper materials, equipment and facilities at all times and these equipment must be clearly labelled and easily accessible (Severien, Tan, Metz, Biert and Berden, 2005).

First aid box should have the following; FA manual, sterile gauze pads of different sizes, adhesive tape, adhesive bandages in several sizes, elastic bandage, a splint, antiseptic wipes, soap, antibiotic ointment, antiseptic solution (like hydrogen peroxide), hydrocortisone cream (1%), acetaminophen and ibuprofen, extra prescription medications (if the school is on excursion). Others are tweezers, sharp scissors, safety pins, disposable instant cold packs, calamine lotion, alcohol wipes or ethyl alcohol, thermometer, plastic non-latex gloves (at least 2 pairs), flashlight and extra batteries and your list of emergency phone numbers (Severien *et al*, 2005).

Knowledge on First Aid

Studies have revealed that school personnel lack knowledge of school safety and FA management of injury, choking, scalds, and burns. Thus, there is a need to conduct studies on knowledge, attitude and practices among primary school personnel's (Maloti, 2006). A study on emergencies in the school setting aimed to determine the extent of training and emergency care knowledge of 334 public school teachers. The study revealed that one third (112 teachers) had no specific training in the FA and 40% had never been trained in CPR. However, most (87%) of respondents strongly agreed that emergency care training should be required in teachers' preparation programme. Eighteen percent of the teachers responded to more than 20 injured or ill student during their career. The average score test for all respondents on the emergency care were 58% and those with prior FA training averaged 60.5. They concluded that most of public school teachers were

deficient in both training and knowledge of emergency care (Gagliardi, Neighors, Spears, Byrd and Snarr, 1994).

In a cross-sectional study carried out in six colleges of Karachi, a total of 446 students were interviewed. Seventy eight students (17.5%) had formal FA training. The mean number of correct answers of students with FA training was 10.3 ± 3.5 as opposed to 8.58 ± 4.0 in those without FA training ($p < 0.001$, 95% CI) with a mean difference of 7.84%. The mean number of correct answers by medical students with FA training was 11.2 ± 2.9 as opposed to 7.2 ± 3.43 by non-medical students ($p < 0.001$, 95% CI) with a mean difference of 18.14%. Students having received formal FA training scored better than those who had not ($p < 0.001$) (Afrasyab, Sumaira, Fawad, Ahsan, Saira, Quratulain and Ameer, 2010).

Elementary school staff can play a crucial role in managing traumatic dental injuries (TDIs) because they are often in proximity to children and are frequently called upon to assist with children's accidents. International studies reveal that elementary school personnel have little knowledge about emergency dental care and management. TDIs often occur at school or during after-school activities where supervising adults, such as school personnel, are often nearby or at the scene of the accident. Yet, international studies have revealed that school staffs have little TDI knowledge (Judy, Jessica, Martin and William, 2008).

A study on immediate care of school injury at UK revealed that school sport is a major cause of injury in the post primary age group. A random sample of 450 schools in Northern Ireland and republic of Ireland was studied using postal questionnaires. Replies were received from 333(74%) schools. Immediate care in terms of mechanisms and equipment to deal with injury was available in 35%-81% of school responding. Correct response ranges from 65% to 90% to four scenarios, commonly presenting potentially serious management problems. This study demonstrated that there is deficiency in sport injury care. It also highlighted that there is need for current training in FA and basic life support training is required for effective delivery of care by school personnel's (Abernethy, MacAuley, McNally and McCanne, 2003).

A pre-experiment design conducted on effectiveness of planned teaching programme on knowledge regarding FA in selected conditions among primary school teachers at Bangalore showed that; 17(56.7%) of primary school teacher had inadequate knowledge of general information about FA. Knowledge of selected conditions of FA showed that most 29(96.7%) primary school teachers had inadequate knowledge regarding FA on wound and injury, 9(30%) had moderately adequate knowledge regarding general information about FA and 4(13.3) had adequate knowledge regarding general information about FA. The overall pre-test level of knowledge showed 100% of primary school teachers had inadequate knowledge regarding FA (Maloti, 2006).

A total of 66 teachers of physical education within the Southampton telephone area in the United Kingdom, responded to a postal questionnaire related to their knowledge of the FA treatment of dental injuries. In the case of tooth fracture, 64% gave the correct answer, while, in the case of avulsion (loss) of a permanent tooth, 43% gave an appropriate answer (Louise and Peter, 2006). A study which focused on the assessment of knowledge about FA among teachers of chosen high school in the Western Pomerania region reported that; although majority of respondents took part in FA courses while acquiring different ranks and qualifications, the survey has confirmed that the level of knowledge about giving the FA is insufficient. Half of respondents know the rules of giving FA but only one third can put these rules into practice. A large part of respondents demonstrates rather passive attitude towards giving FA in case of emergency. There are no major differences in the level of knowledge about FA between teachers from a large city and a small town (Wisniewski and Majewski, 2007).

According to a survey study which included 642 students of 3rd class of randomly chosen high schools in Lublin, shows that five hundred and seventy one respondents (89%) claimed that citizens of Lublin are not prepared to administer FA in emergency cases. According to them only a small number of witnesses start FA procedures. Lack of knowledge as well as disbelief in one's skills stop those who would like to help from taking part in rescue procedures. The results of the study show that almost 80% of respondents know how important FA is. Only 21% provide FA care at the scene of an accident. 67% claimed that their skills are insufficient. Unfortunately the level of FA training is very poor (Goniewicz, Chepererek and Milula, 2002). In evaluating FA knowledge and attitudes of a sample of Turkish primary school teachers, it was determined that most of the teachers do not have correct knowledge and attitudes about

FA. For example, 65.1% of teachers gave incorrect answers regarding epistaxis, 63.5% for bee stings, and 88.5% for abrasion. It was found out that as the age of the teachers increases; appropriate FA practice becomes more and more unlikely (Muruvvet, Sibel, Sultan, Gonul and Meral, 2007).

Epidemiology of Physical Hazard Related Injuries and First Aid Care

Eye injury

An estimated 55 million eye injuries occur each year worldwide leaving 1.6 million patients blind from their injuries (Jyh-Haur and Gangadhara, 2006). The commonest mechanism of injury was blunt trauma, accounting for 65% of the total. Sixty percent of the patients were admitted with hyphaema. Injuries admission occurred most frequently at home (51%). Supporting activities were the commonest cause of injury in the 5-14 years age groups. There were no injuries caused by road traffic accidents or fireworks (Caroline, Paul and Parul, 1999). Eye injuries remain a major cause of unilateral visual impairment worldwide and a common cause of non-congenital unilateral blindness. Children are particularly at risk of ocular injury due to their decreased ability to detect and avoid potential hazards. Most childhood eye injuries are sustained during unsupervised play and domestic activities. This group represents an independent and adventurous age group, making them more vulnerable. Closed globe injury (non-penetrating trauma) was most common, consistent with several previous studies (Oluwatoyin and Adenike, 2009).

The challenge of managing childhood eye injuries in this environment is enormous. Considerations range from late presentation to eye care centres to a lack of facilities, the low socioeconomic status of the children involved, the special care required during examination, postoperative management and the risk of amblyopia. Prevention of ocular trauma in children remains apriority in order to reduce ocular morbidity. This will involve the adequate education of children, parents and teachers to ensure adequate supervision at play and avoidance of risky chores (Oluwatoyin *et al*, 2009).

Dental injury

Traumatic dental injuries (TDIs) affect approximately one of five school-aged children and most injuries occur either at home or at school. Parents, teachers, coaches and other

non-dental professionals can play an important role in managing TDIs and improving the prognosis. Yet, these adults generally have little knowledge about the proper management of these injuries. As a result, TDIs are frequently referred to physicians, dentists and hospital emergency departments without having had appropriate emergency management at the site of the accident (Al-Jundi, Alwacile and Kairakh, 2005). The resulting complications can be costly and time-consuming and many teeth are subsequently lost, often resulting from a delay in receiving care. One-third of dental injuries have been shown to cause permanent sequela to TDI victims. But, TDIs also have other ramifications that include children's hours lost from school and parents' hours lost from work, a consequence that disproportionately burden lower income, minority and non-insured children. The cost and time needed to repair TDIs is high. For example, crown fractures may require as many as 16 dental visits and replacing a tooth may cost several thousands of dollars. If a fractured or avulsed tooth is unsalvageable or the family cannot afford treatment, the tooth may be extracted, thereby affecting the child's dental development and future prosthetic options. Early loss can have a psychosocial impact on children, as the child must deal with the consequences of missing a (usually, front) tooth. In summary, the time, cost and life-long consequences of TDI can be substantial (Judy *et al*, 2008).

The prevalence of traumatic dental injuries was 12.8%. There was no statistical difference in the prevalence between boys and girls $P > 0.05$. The most common cause of injuries was falls (49.1%), followed by traffic accidents (13.2%), collision against objects or people (11.3%) and misuse of teeth 9.4%. The commonest type of injury was enamel fracture alone (9.9%), followed by enamel-dentine fracture (4.8%). Majority of the accidents occurred at home (60.4%), followed by school (26.4%). The prevalence of traumatic dental injuries was on the increase among suburban Nigerian children in Ile-Ife and it has a potential to be considered an emerging public health problem (Comfort, Olufemi, Wakeel, Adeleke and Vincent, 2009).

First aid for dental injury includes the following; applying pressure using ice pack, rinse mouth with cold water or warm water with a pinch of salt in case of a bleeding gum. Broken or chipped permanent tooth can be cared for by collecting all the pieces of the tooth, rinse the damage area of the mouth with warm water and give the child a cold compress to hold on the injured part. If a permanent tooth is knocked out, tooth should be

held by the crown above the gum line (not the root), rinse the tooth immediately with saline solution or milk (Severien *et al*, 2005).

Falls

During the year 2002, there were 121,000 estimated deaths due to falls in the South East Asia Region countries. In India, about 8,800 deaths were reported due to falls during 2003 of which occurred mostly at work, schools and home. Factors specific to South East Asia Region countries are worker falling from trees while picking fruits or coconuts and tapping toddy, and children falling from roof tops while flying kites. There is a high incidence of falls reported among construction and forestry workers. Falls are responsible for the largest number of hospital visits for non- fatal injuries, especially for children and young adults. Falls from roof tops, balconies, windows, and stair cases are common (Park, 2007). Four hundred and sixteen injured children were admitted to hospital, and the charts for 352 (85%) were available for review. Spinal injuries were relatively rare (4%) compared to head injuries (96%). Falls were the most common cause of injuries (61%). A Glasgow Outcome Score of 5 was obtained for 96%, 76%, and 22% of patients with mild, moderate or severe head injuries respectively (Karim and Suchil, 2006).

A total of 1868 injuries were reported in San Juan de Miraflores: 1046 falls, 135 poisonings, 286 burns, and 401 RTIs. Of these, 769 (74%), 100 (74%), 210 (73%), and 287 (72%), respectively, fulfilled the case definition for serious injury (total n=1366, 73% of injuries). A total of 111 individuals (1.1%) and 202 households (4.0%) reported multiple serious injuries. The probability of hospitalisation after serious injury was highest for pedestrian RTIs (31%, n=58), poisonings (23%, n=23), and burns (16%, n=34), though the greatest burden of hospitalisations was due to falls (n=110, 46% of all hospitalisations). Burns resulted in the longest median hospital stay (14 days), and the major cause of serious burns was scalds (75%, n=156). Non-traffic related serious injuries occurred most commonly in the home, including 458 falls (60%), 97 poisonings (97%), and 199 burns (95%) (Donroe *et al*, 2009). Falls were the commonest cause of injury in Nigeria (Ajayi, Abiodun-Solanke, sulaiman and Ekhalufor, 2012)

Almost all external bleeding can be stopped simply by applying direct pressure and elevating the injured area. If bleeding is uncontrollable using these conventional methods,

consider applying a tourniquet. If back injury is suspected, prevent further injury to the neck, or back by providing in-line stabilization. When caring for victim with an head and neck or back injury in a delayed- help situation, it is generally best to stay right where you are and wait for help, but if you need to free yourself, place two heavy objects wrapped in clothing next to each side of the head to hold it in line (Red cross, 1984; Grupta, 2004).

Burns injuries

Burns typically occur in the school environment and should be amenable to prompt appropriate FA. In India more than 10,000 burn associated deaths and over 1 million non fatal moderate to severe burns occur each year (Park, 2007). Several studies have shown that though burns are promptly attended to, corrects FA is only administered in a minority of cases (Olabanji, Oginni, Bankole, and Olasinde, 2003; Skinner and Peat, 2002). A study of burn safety knowledge among Nigerian children also revealed a paucity of burn safety knowledge and practices among the subpopulation (Oginni, Olabanji, Oladele and Takure, 2004). A test for knowledge of burn safety in Nigeria, revealed that only about a quarter (25.4%) knew how to get out of a room filled with smoke, while 29.8% supplied correct answers regarding appropriate first-aid measures for burn injury. Close to half (47.1%) knew the correct thing to do if their clothes caught fire (Olabanji, Oladele, Oginni, and Oseni, 2007).

A study done in Sydney found only 23% of burn patients had used cold water on their burn as a FA (Rebecca, McCormack, Erik and Hugh, 2003). A study done in China found 57% of patients applied cold water to their burn but the volume of water and timing of wound rinsing was inadequate (Xie, Tan and Tang, 2004). A study done in Jamshedpur in India found 23% of patients had used cold water on their burn. Reasons for not using water to cool the burn was the belief that doing so was wastage of time, that other products worked better, and that they wanted to get to hospital without delay (Rawlins, Khan, Shenton and Sharpe, 2006).

Snake bite

Swaroop and Grab in 1954 reported that about 200,000 people were bitten by snakes every year and above 15,000 of them proved fatal. Though epidemiological data is lacking, it is estimated that about 30,000 – 40,000 deaths a year occur from snake bite both in schools and in the outside community. Snake bites largely occur in rural areas with victims hailing from the lower or middle socioeconomic group (Pretesh, 2007). In

case of snake bite, the focus should be on the delivery of the victim to definitive medical care as soon as possible. The patient must be reassured and kept calm. The patient and in particular the part with the bite should be immobilized. A bitten extremity should be splinted if possible and kept at heart level. Incisions into the bite site should never be made, and no form of cooling or electric shock is advantageous. There should be no attempt made to extract the venom injected by mouth suction. A proximal lymphatic occlusive constriction band may limit the spread of the venom if applied within 30 minutes. However this should pernit arterial flow to prevent the occurrence of tissue necrosis (Joseph, Mathew and Tarun, 2006).

Choking

Children are at greater risk of dying from foreign body aspiration. These deaths are usually attributable to aspiration of foods, toys or other small objects. As trauma is a growing public health problem globally, there is need to allocate adequate resources towards research, prevention and management, including rehabilitation (Adeyemi, 2003). A study concluded that "trauma research currently command an unimportant position" in the West African region. A similar statement could be said about other parts of Africa, especially Southern Africa (Solagberu, 2003; Mytton, Towner, Brussoni and Gray, 2008).

A study conducted in Manipal revealed that the commonest foreign bodies aspirated by school children were peanuts (76%), tamarind seeds (16%) and metal coins (30.4%) (Lakhkar, Kini, Shindy and Bhaskaranand, 2000). Choking is characterised by symptoms such as blue discoloration of face, tongue, and lips, gasping, inability to speak and sometimes unconsciousness. First aid comprises of the Heimlich maneuver -grasping the victim from behind with hands linked in front and compressing the abdomen just below the ribs. Encourage the victim to cough up foreign objects in throat. As a last resort, rap victim between shoulder blades to dislodge object. For asphyxia caused by gas or fumes, remove victim to a clear atmosphere and use artificial respiration (Mark, 2000).

Statutory Requirement for First Aid

It has been reported that most schools does not keep records on injury and type of FA treatment received by victims (Akinbonte, 2010). This record is an important aspect in practicing appropriate FA in schools. Under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR), some accidents must be reported

to the Health and Safety Executive (HSE). The employer must keep a record of any reportable injury, disease or dangerous occurrence.

This must include: the date and method of reporting; the date, time and place of the event; personal details of those involved and a brief description of the nature of the event or disease. This record can be combined with other accident records.

The following accidents must be reported to HSE if they injure either the school's employees during an activity connected with work, or self-employed people while working on the premises: accidents resulting in death or major injury (including as a result of physical violence) and accidents which prevent the injured person from doing their normal work for more than three days (including acts of physical violence).

Schools should keep a record of any FA treatment given by first aiders and appointed persons (HSE, 2005; Kirby and Marther, 2005). This information's will help the school identify accident trends and possible areas for improvement in the control of health and safety risks, can be used for reference in future FA needs assessments and will be helpful for insurance and investigative purposes (Marther, 2005).

In an emergency, the teacher in charge should have procedures for contacting the child's parent/guardian/named contact as soon as possible. It is also good practice to report all serious or significant incidents to the parents e.g. by sending a letter home with the child, or telephoning the parents (HSE, 2005).

Summary of Literature Review

The present of physical hazards in the school environment can result to injury, disability and lack of concentration. Most children throughout the world attend primary school. Physical Hazards in the School Environment includes building conditions, playing ground conditions, classrooms condition etc. Falls and injuries within the school grounds occur as a result of poorly maintained schools or poor construction management. Exposure to physical activities leads to injuries and occurs in school playing ground during sporting events or during break time. For young children, falls were the most common cause of injury. Boys remained at increased odds of injuries in schools.

Many of the harmful effect of physical hazards can be managed through proper FA care using proper FA facilities. Most schools did not have FA boxes, and some had empty FA

boxes. Some schools had non-functioning dispensaries, and others schools had neither dispensaries nor FA boxes.

Studies have revealed that school personnel lack knowledge of school safety and FA management of injury, choking, scalds, and burns. A study on immediate care of school injury at UK revealed that school sport is a major cause of injury in the post primary age group. Knowledge of selected conditions of FA showed that primary school teachers had inadequate knowledge regarding FA on some common illness. Schools lack records (hazard registry and FA care registry) which are important aspect in practicing appropriate FA in schools.

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CONCEPTUAL FRAME WORK

The PRECEDE Model:

This is a conceptual model for planning health education and health promotion programs and policies. The PRECEDE model provides a well tested means of articulating a program plan and rationale; and a means of documenting a systematic, step-by-step approach to planning, implementing, and evaluating physical hazards and FA related programs and policies (Lawrence Green and Marshall Kreuter, 1999).

The application of PRECEDE model to this study

The model consists of three major steps which are described below.

Step one which is the epidemiological factor assessment; involved identifying the epidemiological details of the problem and characteristics of the groups at risk. The information reviewed included morbidity data and risk factors identified in a previous analytical epidemiological study that assessed factors contributing to physical hazards and FA care in Nigeria.

Step two: behavioural and environmental assessment; in this phase of the planning process, factors associated with physical hazard and FA care were identified. Behavioural and environmental factors were considered as risk factors, and behavioural and environmental objectives were developed for each risk factor. It is standard practice to state the amount of change expected for the risk factors. Environmental factors and pupils' vulnerability to physical threat were identified.

Step three: Contributing factor assessment; multiple factors contribute to each of the behavioural and environmental risk factors identified in the preceding step. These contributing factors are classified into predisposing, enabling and reinforcing factors. The predisposing factors are antecedents to behaviour that provide motivation for actions. They include knowledge, perceived needs and abilities. Enabling factors are regarded as conditions of the environment that facilitate the performance of action by individuals or organisations. They make it possible for motivation to be realised; that is they enable people to act on their predispositions. Included is availability, accessibility of resources, supportive policies, as well as new skills that are needed for behavioural or environmental changes. The reinforcing factors provide rewards or incentives for the continuation of behaviours. Social support and influences from other significant people such as,

government, health professionals, parents and teachers, are all reinforcing factors. They also include social benefits, physical benefits (see fig. 2.1 for details). The various predisposing, enabling, and reinforcing factors may be either barriers or facilitators to action.

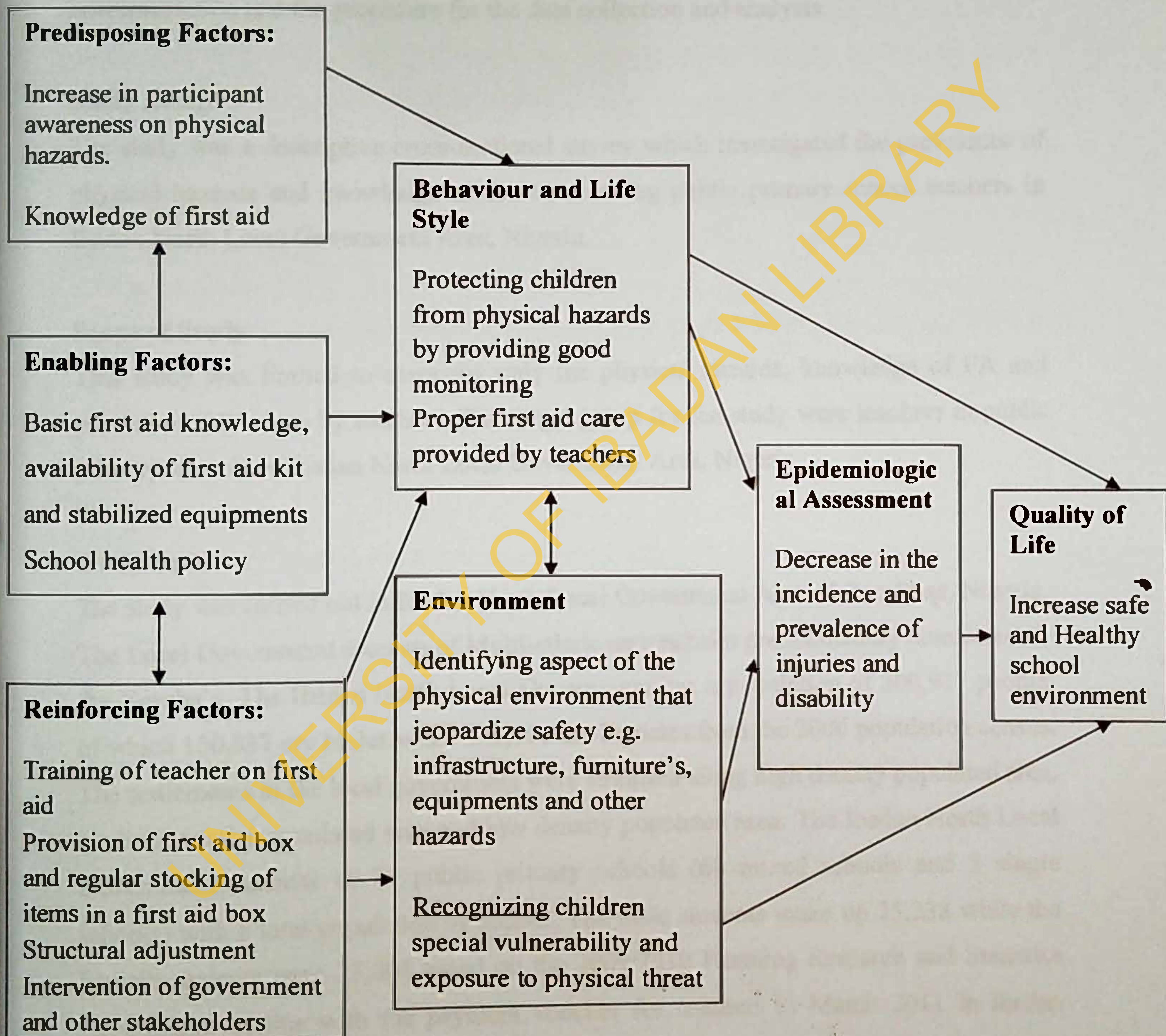


Fig. 2.1: Application of the PRECEDE Model

CHAPTER THREE

METHODOLOGY

This area deals with the research design, population, sample size, sampling technique, the instrumentation and the procedure for the data collection and analysis.

Study Design

The study was a descriptive cross-sectional survey which investigated the prevalence of physical hazards and knowledge of FA care among public primary school teachers in Ibadan North Local Government Area, Nigeria.

Scope of Study

This study was limited to assessing only the physical hazards, knowledge of FA and provision of FA care by teachers. The target group for the study were teachers in public primary schools of Ibadan North Local Government Area, Nigeria.

Study Area

The study was carried out in Ibadan North Local Government Area of Oyo State, Nigeria. The Local Government consists of Multi-ethnic nationalities predominantly dominated by the Yoruba's. The Ibadan North Local Government has a population of 300,937 people, of which 150,837 are Males while 149,100 are Females from the 2006 population census. The settlements in the local government were stratified along high density populated area, medium density populated area and low density populated area. The Ibadan North Local Government consists of 74 public primary schools (68 mixed schools and 5 single schools) with a total population of 50,842. The male students make up 25,238 while the Female students were 25,604 based on the 2009/2010 Planning Research and Statistics Department. In line with the payment voucher for teachers in March 2011 in Ibadan North Local Government, the teachers were 1, 512 in numbers (Educational primary board Ibadan North LGA).

Study Population

The study population consist of teachers in public primary schools in Ibadan North Local Government Area, Nigeria.

A multi-stage random sampling was employed in getting the appropriate number of participant for this study in reference to the calculated sample size.

Inclusion Criteria

The respondents were male and female teachers in public primary schools in Ibadan North Local Government Area, available during the time of study and willing to participate in the study. Respondents for the key informant interview were head teachers of the public primary schools in Ibadan North Local Government Area, Nigeria.

Exclusion Criteria

This study excluded teachers who were in private primary schools. Those who refuse to grant their consent after being informed were also excluded from participating in this study.

Sample Size

The sample size for this study was calculated using EPI INFO statistical package. The population of teachers in public primary schools in Ibadan North Local Government Area was 1,512 as stated in the payment voucher for March 2011. The following parameters were entered in the STATCALC:

The size of the population: 1,512 (population of teachers in public primary schools in Ibadan North Local Government as stated in the payment voucher for March 2011 (Education primary board, Ibadan North LGA), expected frequency 56.7% (Maloti, 2006) and worst acceptable value at 5%. After inputting the parameters the sample size obtained was 456 at 99% confidence interval.

Sampling Procedure

The overall number of teachers in public primary schools in Ibadan North Local Government were 1, 512 in accordance with the payment voucher for March 2011.

Multi-stage sampling method was adopted for this study. This was to give every member of the target population an equal opportunity of being selected. It has four major steps and the procedures were as follows;

1. Step one: **Stratification**; the 42 communities in Ibadan North Local Government Area were stratified into 3 groups based on the projected census population value for 2010. These groups were; high density populated area, medium density populated area and low density populated area (*see table 3.1 for details*). The 74 public schools in Ibadan North Local Government were stratified thus based on the population density areas (*see table 3.2 and appendix f for details*).

Table 3.1: Communities in Ibadan North LGA according to their population density zones

Stratification according to population	Communities in Ibadan North LGA
High= population density >30,000	Agbowo, Sango, Bodija, Orita Bashorun, Bere 1, Bere, Oje
Medium= population density from 30,000-10,000	Orogu, Ashi, Oke Itunu, Sabo, Mokola, Ikolaba, Yemetu, Oke Aremu, Oke Aare, Adeoyo, Igosun, Inalende, Itu taba
Low= population density<10,000	Polytechnic Ibadan, University College Hospital, Total garden, Ali Iwo, Oniyarin, Samonda, Oremeji, Coca cola, Aladorin, Ire Akari, Ode Olo, Oke Sapati, Agbadagbudu, Agodi, Omitowoju, Opo Yeosa, University of Ibadan, Ojoo, Eleyele, Opo Yeosa(2), Idi Ape

Table 3.2: Density zones, number of schools and teachers in Ibadan North LGA

Stratification according to population	Number of schools in Ibadan North LGA	Number of teachers
High	12	321
Medium	35	600
Low	27	591
Total	74	1, 512

Source: Educational Primary Board Ibadan North Local Government Area, Nigeria

2. Step two: **Proportional sampling procedure** was used to allocate the number of respondents (teachers) used in each density zones. The calculation (*see table 3.3*) was as follows;

Sample size for each density zones = $\frac{\text{Number of teachers in density zone}}{\text{Total number of teachers in Ibadan North LGA}} \times \text{Sample size}$

Table 3.3: Proportional method of respondent’s allocated to density zones

Stratification according to population	Proportional sampling
High density zone Community	$\frac{321}{1512} \times 456 = 96.8$
Medium density zone Community	$\frac{600}{1512} \times 456 = 180.9$
Low density zone Community	$\frac{591}{1512} \times 456 = 178.2$
Total	455.9

3. Step three: **Simple random sampling**; thirty schools were selected using table of random numbers taking into consideration the density of the zones. In that vein, 6, 13 and 11 schools were selected from the high, medium and low density zones respectively.
4. Step four: **Simple random sampling** was used to select consented study participants in the selected public primary schools till the sample size was met in each density zone.

Method and Instrument for Data Collection

Qualitative and quantitative methods of data collection were used. The instruments that were used were key informant interview guide, observational checklist and questionnaires. The instruments were designed from research questions, conceptual framework and by reviewing existing literatures extensively. Informed consent was obtained from school administration and study participants before the study commenced.

Key informant interviews (Appendix A) were conducted among eight consenting head teachers of the public primary schools in Ibadan North Local Government Area. The interviews were focused on the Pattern of physical hazards in the school environment, knowledge of FA, FA care provided by teachers to pupils and control measures put in place to avoid further occurrence of physical hazards. Thereafter, data were used for the proper development and improvement of the observational checklist and questionnaire. The mode of data collection included notes taking and tape recording of conversation in face to face settings.

Observational checklist (Appendix B) was grouped into two sections (A and B) which were used to observe the 30 selected public primary schools. Section A was used to elicit information on the prevalence of physical hazards in the school environment. Overall, 26 items were observed and these items were distinctly grouped into 4 sub-sections. Section B focused on the availability of FA boxes in the 30 public primary schools in which 14 items were observed.

Validity and Reliability of Instrument

Validity:

Review of literature of previous works, review by experts, medical statisticians, health education specialists and researchers for face and content validity.

Also, a pre-testing of the questionnaire was done among a sample of population (Egbeda LGA) similar to the target population so as to make necessary corrections and modifications on the instrument used for this study.

Reliability of the instrument:

The reliability of the instruments was established using the Cronbach-Alpha correlation coefficient of the SPSS 17.0 (statistical package for social sciences software). The questionnaire was administered to 10% of the population who are different from the sample population but had similar characteristics with the study population. The response of the participant were collated and analysed. A coefficient of 0.7 was gotten from the questionnaire that was administered to 46 teachers selected from four public primary schools in Egbeda Local Government Area. This positive reliability coefficient was an indication or evidence of the reliability of the constructed questionnaire. The closer the correlation coefficient to one, the more reliable was the instrument.

Training of Field Assistants

Eight field research assistant were recruited and trained. The training focused on the objectives, importance of the study, the sampling processes which includes how to administer the study instrument, how to secure respondents' informed consent and other general interviewing skills. The study instruments were discussed in details during the training and the field assistants became familiar with it by conducting role plays with each other. Four of the field assistants were involved in the pre-test of the study instruments and this created opportunity for them to learn how to collect the required data.

Ethical Consideration

Ethical approval was sought from the Oyo State Research Review ethical committee (*see appendix E*). The study followed the ethical principles guiding the use of human participants in research which are; respect for persons, beneficence, non-maleficence and justice. The following activities were performed on the ethical grounds; adequate

information on the study was given to the respondents, informed consent was sought from the school authority and individual participating in the research (*see appendix D*), assurance was given to all respondents on the confidentiality of the data that were collected and participant were handled with special care and were given due respect. The questionnaire was interviewer administered. This was to get the actual knowledge and practices of participant in respect to the objectives of this study and also to avoid cohesion in their response.

Data Collection Process

Key informants' interviews: A total of 8 key informant interviews were conducted between 4th and 7th of July, 2011 by the principal investigator assisted by two of the field research assistants. The entire key informants were head/health teachers of public primary schools in Ibadan North Local Government Area, the interviews lasted between 30-40 minutes. Each interviewee received the same set of questions but provision was made to capture interviewee ideas that went beyond the questions (*see appendix A*). All responses by questions were noted carefully and identified for salient themes. Statements in this section are quoted verbatim and were carefully selected as reflective of significant points made by multiple respondents.

Observation check-list: Observational checklist was used by the principal investigator to assess the presence or absence of physical hazards in the environment and availability of FA box of 30 selected public primary schools. Photograph of physical hazards in the school environment were taken based on consent from the school authority to compliment the checklist (*see appendix G for flip charts of the observed public primary schools*).

Questionnaire: The semi-structured questionnaire (*see appendix C*) were used by eight field assistants and the principal investigator to collect data from 456 public primary school teachers which was the calculated sample size for this study. The questionnaire was interviewer administered and was administered in 30 public primary schools selected from the high, medium and low density zones between the hour of 9-1pm for 2 weeks as scheduled by the school authority and convenience of individual respondents. This ensured that accurate knowledge of respondents was documented as reported in order to reduce the presence of any confounder.

Method of Data Management and Analysis

Key informant interview was transcribed verbatim and verified thoroughly using the thematic approach. The quality of data collected was checked thoroughly in the field. This entails review of the patterns of responses of each participant as recorded in the questionnaire. Necessary adjustment was made on the field and a serial number was assigned to each of the questionnaires for easy identification and recall of any instrument with problem. The questionnaire and observational check-list were edited by assigning a code after developing a coding guide where it was entered into the computer for analysis.

Observational check-list (Section A)

1. Building conditions: this section reflected 11 items with maximum of 11-point. Items that were present or absent were labelled and scored 1 (+) and 0 (-) respectively.
2. Classroom conditions: this section reflected 5 item with maximum of 5-point. Items that were present or absent were labelled and scored 1 (+) and 0 (-) respectively.
3. Playing ~~ground~~ conditions: this section reflected 7 items with maximum of 7-point. Items that were present or absent were labelled and scored 1 (+) and 0 (-) respectively.
4. Rest room condition: this section reflected 2 items. Items that were present or absent were labelled and scored 1 (+) and 0 (-) respectively.

A 26 item with maximum of 26-point prevalence of physical hazards was given as the sum of building structure, classroom condition, playing ground condition and toilet condition (building structure (11) + classroom (5) + playing ground (7) + rest room (2) =

Prevalence of physical hazard (26).

Physical hazard score of ≤ 13 and > 13 were rated as moderately hazardous and highly hazardous respectively.

Section B

Availability of FA box for emergency: this section reflected 14 items with maximum of 14-point availability of FA facilities. First aid facilities score of 1-7 and > 7 -14 were rated as poor and good FA box respectively.

The questionnaire Appendix C consists of both open and closed ended questions with five sections. The sections include;

1. **Section A:** it deals with the socio-demographic characteristics which included age, sex, educational status, years of experience, previous exposure to FA etc.
2. **Section B:** knowledge of FA was assessed using 10 questions with maximum of 20 point (2 point was allocated to every correct answer, 1 point to fairly correct answers and 0 point to wrong answers). To interpret the level of knowledge, score within 0-10 (Code= 1) and >10-20 (Code =2) were rated poor and good knowledge respectively.
3. **Section C:** questions addressing pattern of occurrence of physical hazards. A total number of 16 questions were asked in this section. The occurrence of some physical hazards related injuries were assessed as; **always** =typically experienced at least once every week by an individual; **seldom** = typically experienced once every month by an individual; **occasionally** = typically experienced ones during the school academic session of an individual (or less).
4. **Section D:** first aid care provided by teachers had a total number of 12 questions. Two points was allocated to every correct answer, 1 point to fairly correct answers and 0 point to wrong answers, thus making a total of 24 point maximum. First aid care score of ≤ 12 and >12 were rated as inappropriate and appropriate care respectively (*see references for scoring guide: Maloti, 2006; Lee, 2002; Xie et al, 2004; Joseph et al, 2006*).
In all, the questionnaires contain 50 variables that were assessed and it was interviewer administered.

Data were analyzed using the following;

Descriptive statistics: Frequency and percentage distribution was used to analyze the demographic data and level of knowledge of primary school teachers, pattern of occurrence of physical hazards. This was also used to analyze items in the observational checklist.

Mean, median and standard deviation were used to assess the level of knowledge and FA care provided by primary school teachers. The prevalence of physical hazards and quality of FA box itemised in the observational checklist were also analysed using mean, median and standard deviation.

Inferential statistics: Chi- square test was used to study the association of knowledge of teachers of FA and selected demographic variables, FA care and selected demographic variables of primary school teachers. Logistic regression was used to assess the relationship of teachers who had poor knowledge on FA and selected significant demographic variables.

Observational checklist and Questionnaire was well secured by the proper entering of the cleaned data into a computer, after which analysis was done using SPSS 17.0. Findings from the study was summarized and presented in tables and charts in chapter four.

Limitations

The school authority nursed the feeling that any information gathered may be used against them. They were time conscious since it might be interfering with other school programmes especially their learning process.

Plans used to overcome these limitations were as follows;

1. Building a good interpersonal relationship with the school authority,
2. The school authority was properly educated on the purpose of the study,
3. Consent form was signed by school authority/ respondents and was well documented
4. Questionnaire administration was scheduled based on an agreement with and convenience of the school authority and respondents especially during break hour.

Private schools and public secondary schools were excluded from the study and so this may have affected the generalization of the results. However, taken into consideration scientific steps taken to carry out the study, it could be concluded that the results is valid/reliable and reflects the phenomenon on prevalence of physical hazards and knowledge of FA care among public primary school teachers in Ibadan North Local Government Area.

CHAPTER FOUR

RESULTS

4.1: Respondents' Socio-demographic Characteristics

Table 4.1 shows detail basic socio-demographic characteristics of primary school teachers. All the 456 respondents were male and female teachers of Ibadan North Local Government Area. The age of respondents ranged from 28-62 years with a mean age of 47.3 ± 6.7 years. Most (87.9%) of the respondents were females and only (12.1%) were males. Majority (69.3%) of them had NCE/OND and few (28.5%) had Degree/HND.

On considering the years of working experience, majority of the respondents (40.4%) had worked for 25 years and above, (30.7%) 15-24 years and few (27.9%) had working experience of <15 years. Of the 456 respondents only few (23.2%) had ever attended training on FA and 76.8% claimed to have attended training on FA but all training attended by the teachers were organized by other organizations such as the church, social clubs, private body, health organization etc. Participant did not receive previous training from the primary educational board.

Table 4.1: Socio-demographic characteristics of primary school teachers

Demographic variable	Frequency	Percentage (%)
Age (in years)		
<40	96	21.1
40-49	144	31.6
50+	216	47.4
Total	456	100.0
Gender		
Male	55	12.1
Female	401	87.9
Total	456	100.0
Educational Qualification		
O'level	4	0.9
NCE/OND	316	69.3
Degrees/HND	130	28.5
Post Graduate	6	1.3
Total	456	100.0
Age group of pupils taught by teachers		
6-10 years	224	49.1
>10 years	232	50.9
Total	456	100.0
Years of working experience		
<15	127	22.9
15-24	140	30.7
25+	189	41.4
Total	456	100.0

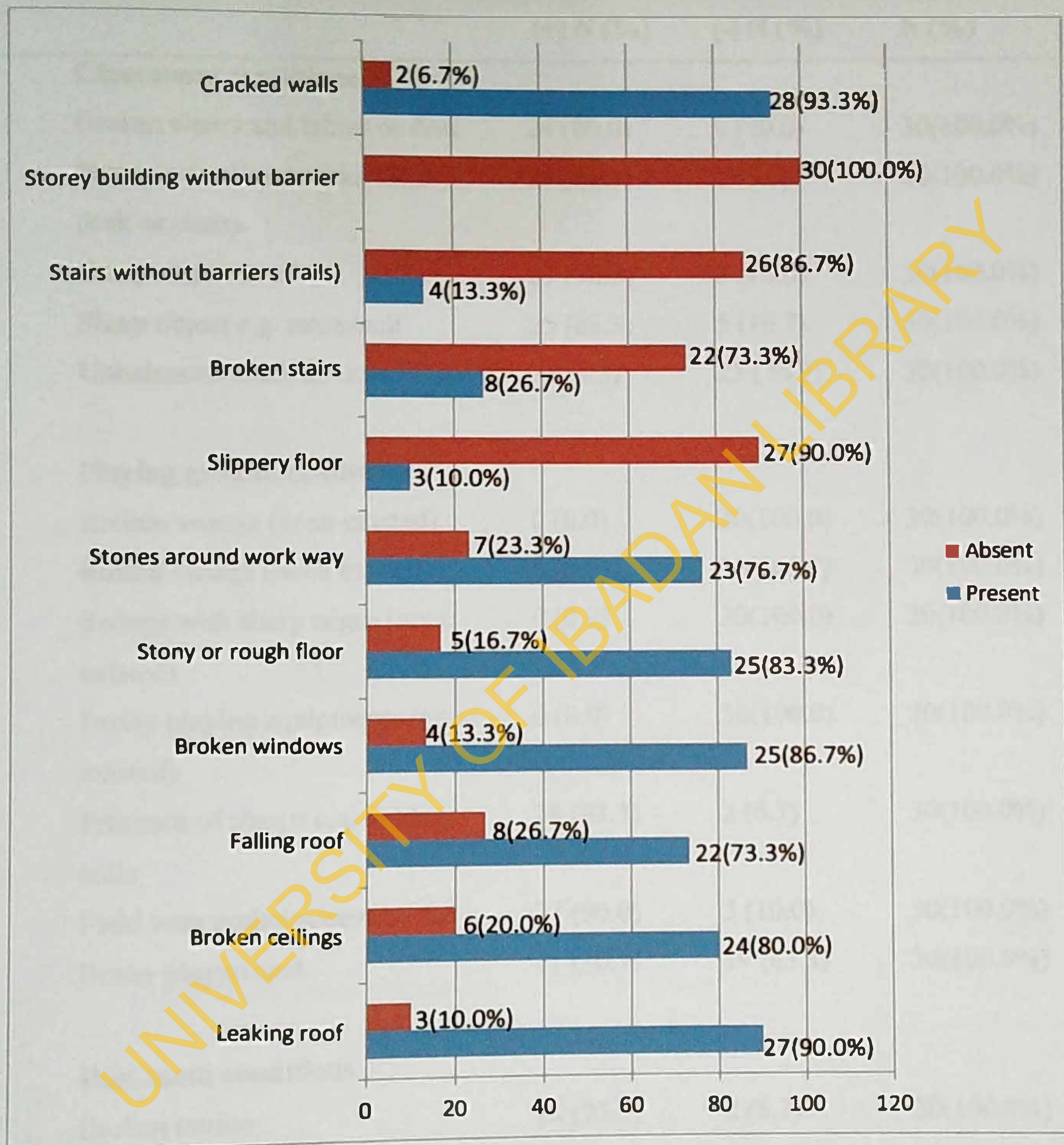
*Mean age of respondent's = 47.3 ± 6.7

4.2: Prevalence of Physical Hazards in the School Environment

Informants across schools identified dilapidated structures, unfenced school compound, bushy environment, stones around walk way, broken chairs and desk as the physical hazards found in their school environment. A typical response of informant's included;

- *"There are three toilets in this school, but there is no source of water in the toilet, so we provide water by ourselves. There are dilapidated building around, broken chairs and desk in the classrooms, no fence, in fact I will say the school is partially hazardous (head teacher in public primary school located in medium density zone).*
- *"The school environment is not conducive enough, the environment is bushy these can attract snakes and other reptiles, sometimes when the rain fall heavily, the tree or a branch of the tree falls down and sometimes blow the roof out which cause hazard to the pupils and staffs of this school, also the field is stony and rough; this can cause injury to the pupils during school activities" (head teacher in public primary school located in low density zone).*

Physical hazards were prevalent in all the observed schools. Although, 16.7% were moderately hazardous while 83.3% were highly hazardous such as protruded nails or stick from desk and chairs (96.7), leaking roof (90.0%), cracked walls (93.3), broken ceiling (80.0%), stones or rough floor (83.3%) (See fig. 4.2). Forms of physical hazards included; leaking roof, broken windows, bushy playing ground, broken chairs and tables or desk, protruded nails or sticks from desk or chairs, sharp object and unbalanced chalk board etc (see fig. 4.1 and table 4.2 for details). A result also shows that all (100%) schools observed lack hazard registry. Photograph of some physical hazards in the school environment where taken to compliment the checklist (see appendix G for flip charts of the observed PPS).



N=30

Fig. 4.1: Building conditions in public primary schools environment

Table 4.2: Classroom, playing ground and rest room conditions in public primary schools

Observed variables	Present (+) N (%)	Absent (-) N (%)	Total N (%)
Class room conditions			
Broken chairs and tables or desk	24 (80.0)	6 (20.0)	30(100.0%)
Protruded nails or sticks from desk or chairs	29 (96.7)	1 (3.3)	30(100.0%)
Dusty chalk board	27 (90.0)	3 (10.0)	30(100.0%)
Sharp object e.g. razor/nail	25 (83.3)	5 (16.7)	30(100.0%)
Unbalanced chalk board	7 (23.3)	23 (76.7)	30(100.0%)
Playing ground conditions			
Broken swings (none existed)	0 (0.0)	30(100.0)	30(100.0%)
Rusted swings (none existed)	0 (0.0)	30(100.0)	30(100.0%)
Swings with sharp edges (none existed)	0 (0.0)	30(100.0)	30(100.0%)
Faulty playing equipments (none existed)	0 (0.0)	30(100.0)	30(100.0%)
Presence of sharps e.g. bottles, nails	28 (93.3)	2 (6.7)	30(100.0%)
Field with potholes/cave/rocks	27 (90.0)	3 (10.0)	30(100.0%)
Bushy playground	11 (36.7)	19 (63.3)	30(100.0%)
Rest room conditions			
Broken latrine	28 (93.3)	2 (6.7)	30(100.0%)
Slippery/patchy ground	29 (96.7)	1 (3.3)	30(100.0%)

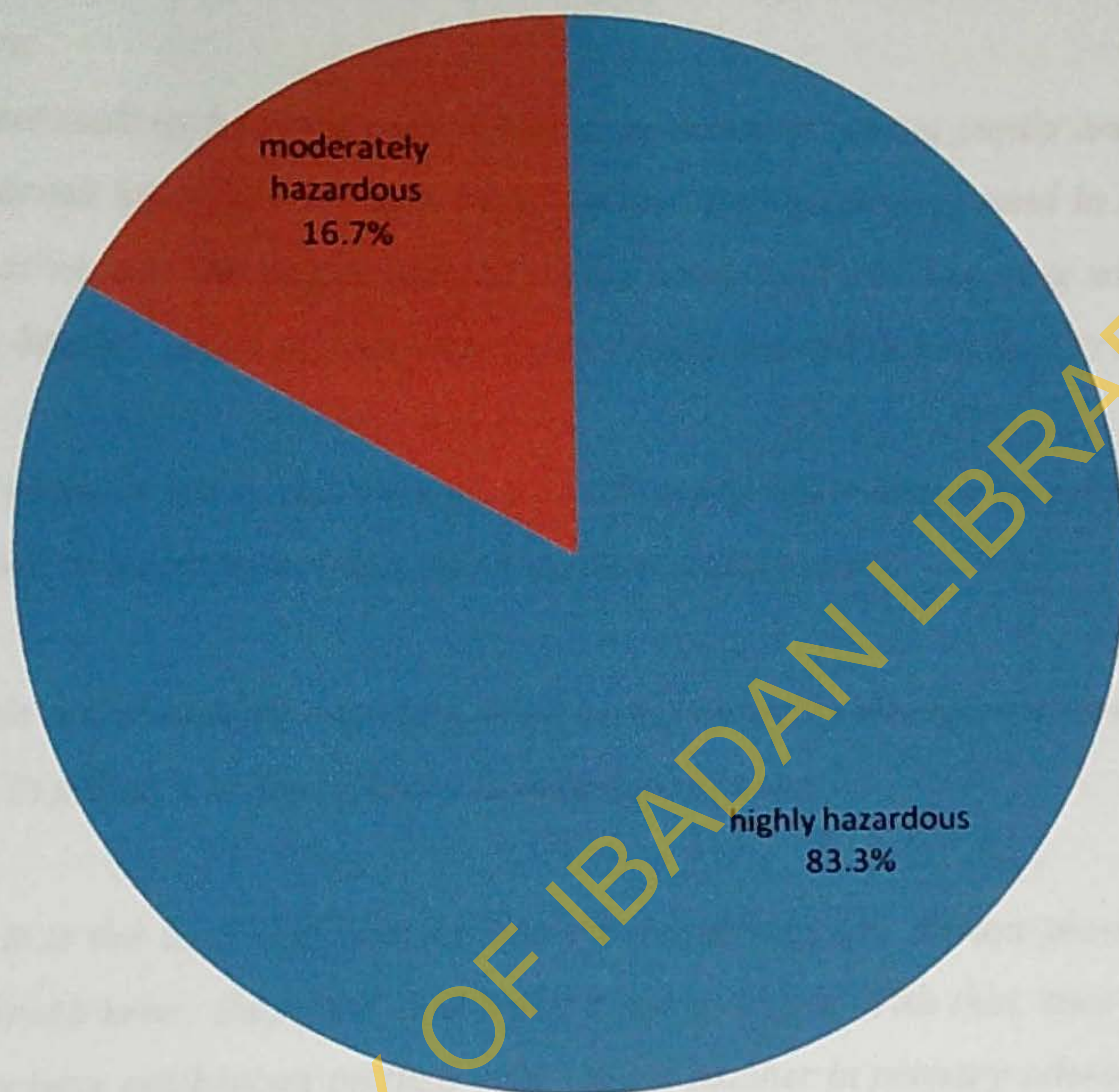


Fig. 4.2: Prevalence of physical hazards in PPS environment

4.3: Pattern of Occurrence of Physical Hazards

Informant's highlighted falls, cuts/scrape and bruises as the common physical hazards related injuries found among pupils in public primary schools. Informant's stated that these forms of injuries occurs rarely and others said it occur often in their school especially during break hour and among male pupils. Typical responses of informant's were as follows;

- *"Minor accident such as falls, cuts are found to be common among pupils and this often occur during break hour and it's as a result of the stony playing ground in the school, because there is no way the pupils will fall on the stony field while playing without them sustaining any bruise"* (head teacher in primary school located in low density zone).
- *"Fall occurs virtually every day therefore I will say it often occurs in schools"* (head teacher in public primary school located in medium density zone).
- *"These hazards occur at least once in a week or in two weeks therefore it rarely occurs"* (head teacher in primary school located in high density zone).
- *"Most times, it is the boys that sustain injury because they are always playing football during their break hour; they fight and enjoy playing rough. With that, they always fall and sometimes have cut/bruises on their skin"* (head teacher in primary school in medium density zone).

Informant's across schools explained that pupils can make use of physical hazards in the environment as a form of defence when fighting, bullying themselves and during rough play. Typical responses of informant's were as follows;

- *"This has to do with the pupils injuring themselves and not getting injured through anything in school, the pupil are usually very playful, there was an occasion when one of the pupils hit the other with a stone and blood started gushing out"* (health teacher in public primary school located in low density zone).
- *"When pupils are playing and they get annoyed by any of their friends, the next thing they do is to look for small sticks, pen or stones and use it to hit their accompanist "* (health teacher in public primary school located in medium density zone).

Informants explained that these physical hazards related injuries experience by pupils were not severe except for few occasion were victim was rushed to the nearest clinic because the treatment was beyond their capability.

- *"It's not so severe, because it most times results in minor bruises that can be easily managed with the use of cotton wool and iodine" (health teacher in primary school located in low density zone).*
- *"The severity is not much except on few occasions when they have severe cut, where we have to take the victim to the hospital ourselves or invite the parents to come and take their child for treatment, Though it happens on rare bases" (head teacher in primary school located in medium density zone).*

Informant's further explained that injuries could be reduced by providing regular guidance to pupils, health rules and instructions are been given to pupils in which defaulters are punished so as to ensure strict adherence. Most importantly, the school environment should be safe so that pupils can socialize freely with their environment without any restrictions. Typical responses of informant's were as follows;

- *"We caution the pupils, mobilize them and sometimes we even deprive them from playing certain play that might lead to injury. We sometimes threaten them with cane saying if they broke their legs or arm as they are going out for break, we will still flog them, so that scares them a little from playing rough play" (health teacher in public primary school located in low density zone).*
- *"You know we teachers we are so caring, we use to educate our pupils not to play rough, we retain them in class unless during break, and when they are going for break we warn them not to play and get themselves injured, so if we keep doing that it will reduce their exposure to physical hazards" (head teacher in public primary school located in high density zone).*

- *“The government, old student association, community members and the parent need to see to the school environment generally, like any school that is bushy, the parent can assist in getting gardener to clear the grasses, and if the government can assist in renovating the building, changing the roofs and provide sound educational facilities so that people can move and play freely in the school, because all these are part of learning process for children” (head teacher in public primary school located in low density zone).*

Table 4.3 shows the patterns of occurrence of physical hazards among pupils as reported of their teachers in primary schools. The common physical hazard related injuries found among school children were falls (50.9%), cuts/scrape injuries (46.9%), fainting (6.6%) and shock (11.8%) respectively (*see fig. 4.3 for details*). Majority of respondents noted that injury is sustained more often among boys (80.7%) than girls (0.9%), with 88.4% of respondents accepting that boys indulge in rough play compared to girls (5.7%). All the respondents consented that bullying, fighting and rough play among pupils leads to the use of physical hazards in the environment. The highest proportion (27.5%) of respondents said children in primary 5-6 are more prone to physical hazards followed by primary 1-2 (22.6%) and primary 3-4 (16.9%) respectively. Most (70.8%) of the respondents said that injury is sustained more during break hours.

Frequency of occurrence of physical hazards related injuries reported by teachers in primary schools are shown in table 4.4. Falls (58.6%) were mostly reported as the most highly occurring physical hazards related injury, followed by being hit by blunt object (stones) (23.0%) and cuts (23.0%). Physical hazards such as piercing by sharp objects, foreign object in eyes, ear or nose, dental injury and broken limbs were the least occurring physical hazard related injury among pupils in primary schools. A finding from survey shows that there has not being any record of death experienced as a result of physical hazards in primary schools.

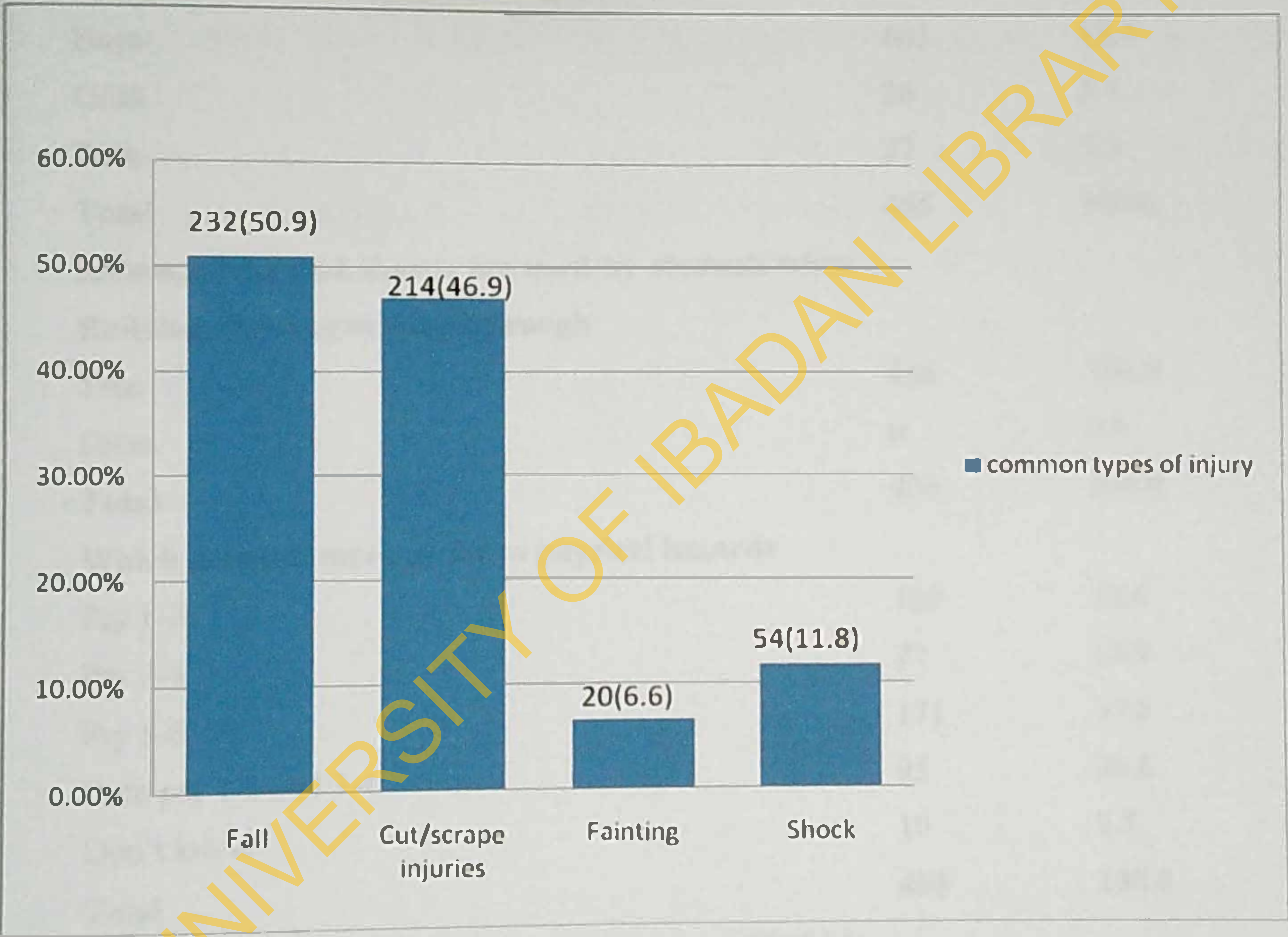


Fig. 4.3: Common physical hazard related injuries found among school children as reported by their teachers

Table 4.3: Patterns of physical hazards among pupils in primary schools

Variables	Frequency	Percentage (%)
Injury is sustained more among		
Boys	368	80.7
Girls	4	0.9
Both	84	18.4
Total	456	100.0
Rough play is often found among:		
Boys	403	88.4
Girls	26	5.7
Both	27	5.9
Total	456	100.0
Stones, sticks and sharps are used by students when		
Bullying, fighting or playing rough		
True	456	100.0
False	0	0.0
Total	456	100.0
Which group is more prone to physical hazards		
Pry 1-2	103	22.6
Pry 3-4	77	16.9
Pry 5-6	171	37.5
Both pry 1-2 and 3-4	95	20.8
Don't know	10	2.2
Total	456	100.0
* Time of the school period pupils are most likely to		
sustain injury		
Break hour	323	70.8
Learning hour	25	5.5
Physical health days /sports hours	40	8.8
Break hour and Physical health days /sports hours	87	19.1
Anytime	22	4.8

*Multiple responses were included

Table 4.4: Frequency of occurrence of physical hazards related injury in primary schools

Variable	Always N (%)	Seldom N (%)	Occasionally N (%)	Total N (%)
Being hit by object (stone)	105 (23.0)	266 (58.3)	85 (18.6)	456 (100.0)
Falls	267 (58.6)	156 (34.2)	33 (7.2)	456 (100.0)
Cut	105 (23.0)	266 (58.3)	85 (18.6)	456 (100.0)
Foreign object in eye, ear or nose	23 (5.0)	142 (31.1)	291(63.8)	456 (100.0)
Dental injury (gum or broken tooth)	13 (2.9)	58 (12.7)	385(84.4)	456 (100.0)
Broken Limbs	9 (2.0)	97 (21.3)	350(76.8)	456 (100.0)
Piercing by sharp objects	40 (8.8)	305 (66.9)	111(24.3)	456 (100.0)
Choking	8 (1.8)	58 (12.7)	390(85.5)	456 (100.0)

4.4: Availability of first aid boxes in public primary schools

Informants provided information on the availability of FA box present in their schools, FA box are present in schools but the facilities in the box are poor, the box are empty, and abandoned. Typical responses of informant's were as follows;

- *"There is a FA box in the school, but the box contains iodine, cotton wool and plasters only, the box is not used because those things have been there for years and are no longer healthy or rather I would say they are expired and covered with cob webs"* (head teacher in public primary school located in high density zone).
- *The FA box in this school contains bandage, hydrogen peroxide, scissors, paracetamol and disposable hand gloves. These things were provided by the local government health officials who visited our school few months ago"* (head teacher in public primary school located in low density zone).

First aid box were present in all schools, however, 86.7% and 13.3% of these boxes were good and poor respectively (see fig. 4.4 and table 4.5 for details).

A result shows that non out of the 30 public primary schools observed in Ibadan North Local Government Area had any form of record for injuries or FA provided for such injuries.

Table 4.5: Availability of first aid box in public primary schools

Variables	Present N (%)	Absent N (%)	Total N (%)
Availability of first aid facilities for emergency			
First aid box	30(100.0)	0 (0.0)	30(100.0%)
First aid manual	0 (0.0)	30(100.0)	30(100.0%)
Plaster	23(76.7.)	7(23.3)	30(100.0%)
Iodine	22 (73.3)	8 (26.7)	30(100.0%)
Soap	8 (26.7)	22 (73.3)	30(100.0%)
Sterile gauze pads of different sizes	11(36.7)	19 (63.3)	30(100.0%)
Hydrogen peroxide	16 (53.3)	14 (46.7)	30(100.0%)
Bandage	23 (76.7)	7 (23.2)	30(100.0%)
Scissors	13(43.3)	17 (56.7)	30(100.0%)
Cotton wool	25 (83.3)	5(16.7)	30(100.0%)
Antibiotic ointment	7 (23.3)	23 (76.7)	30(100.0%)
Safety pins	4 (13.3)	26 (86.7)	30(100.0%)
plastic non-latex gloves	4 (13.3)	26 (86.7)	30(100.0%)
Thermometer	0 (0.0)	30 (100.0)	30(100.0%)

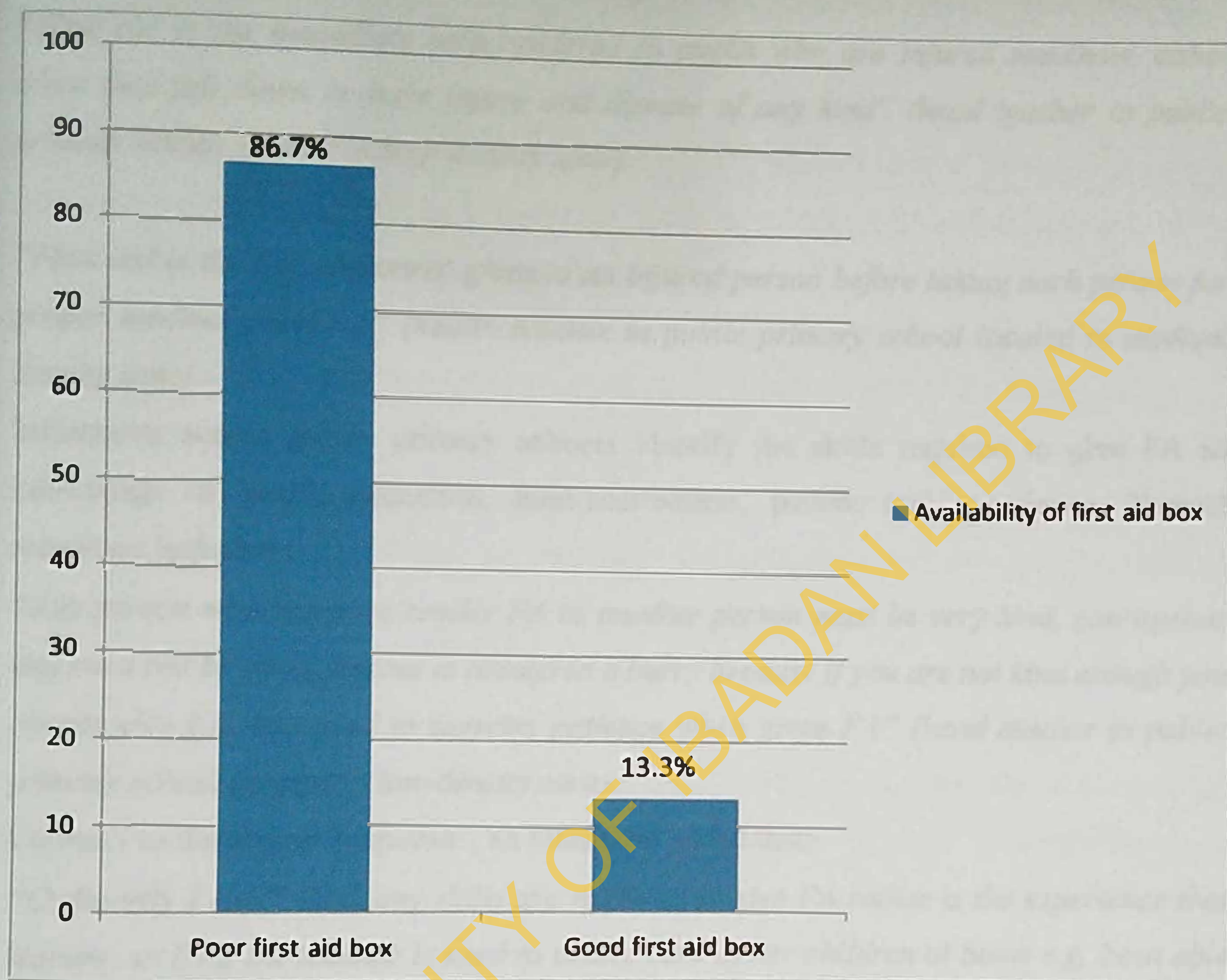


Fig. 4.4: Availability of first aid box for emergencies in public primary schools

4.5: Knowledge of first aid among primary school teachers

Informants across public primary schools correctly stated that FA is the immediate/first treatment given to an injured person before proper medical attention is provided. Typical responses of informants include the following:

- *“First aid is the immediate help rendered to pupils who are injured somehow, either when they fall down or have injury and disease of any kind” (head teacher in public primary school located in high density zone).*
- *“First aid is the first treatment given to an injured person before taking such person for proper medical check-up” (health teacher in public primary school located in medium density zone).*

Informants across public primary schools identify the skills required to give FA as knowledge of health education, kind-heartedness, patient and experience. Typical responses included:

- *“Any person who wants to render FA to another person must be very kind, courageous and must not be someone that is always in a hurry because if you are not kind enough you cannot give FA, one need to exercise patience when given FA” (head teacher in public primary school located in low density zone).*

Contrary to the above “response”, an informant stated that;

- *“Ordinarily I don’t think any skills are required to give FA rather is the experience that matters, so long the teacher is used to taking care of her children at home e.g. been able to give Paracetamol when the child complain of headache, or apply any cleaning substance to an injured part then such a teacher should be able to give FA” (health teacher in public primary school located in medium density zone).*

Informants highlighted correctly that a good first aider should possess the following quality; be able to moderate the treatment given to pupils, should be calm, tolerant, strong and active, patient and ready to render his or her help at any point in time and must not be easily irritated by anything (e.g. blood). Typical responses of informants include the following:

- *“A first aider should have knowledge of health aspect, should be able to moderate the treatment given to the children very well so that he or she does not go beyond the*

capacity he can cope with, should be somebody who is ready to render his or her help at any time" (head teacher in public primary school located in high density zone).

- "A good first aider must be very kind, strong and active, soft minded person and the person must not be easily irritated by anything that happens (head teacher in public primary school located in low density zone)"

Informant's exposure to school health policy guide on FA was low, as majority of the informants said they have never seen or read any. Only two informants had prior knowledge of what the school health policy guide said on FA. The two informants gave a brief summary of what the policy guide says concerning FA. Informants explained that the policy says all schools must have FA facilities, a health teacher and a health prefect.

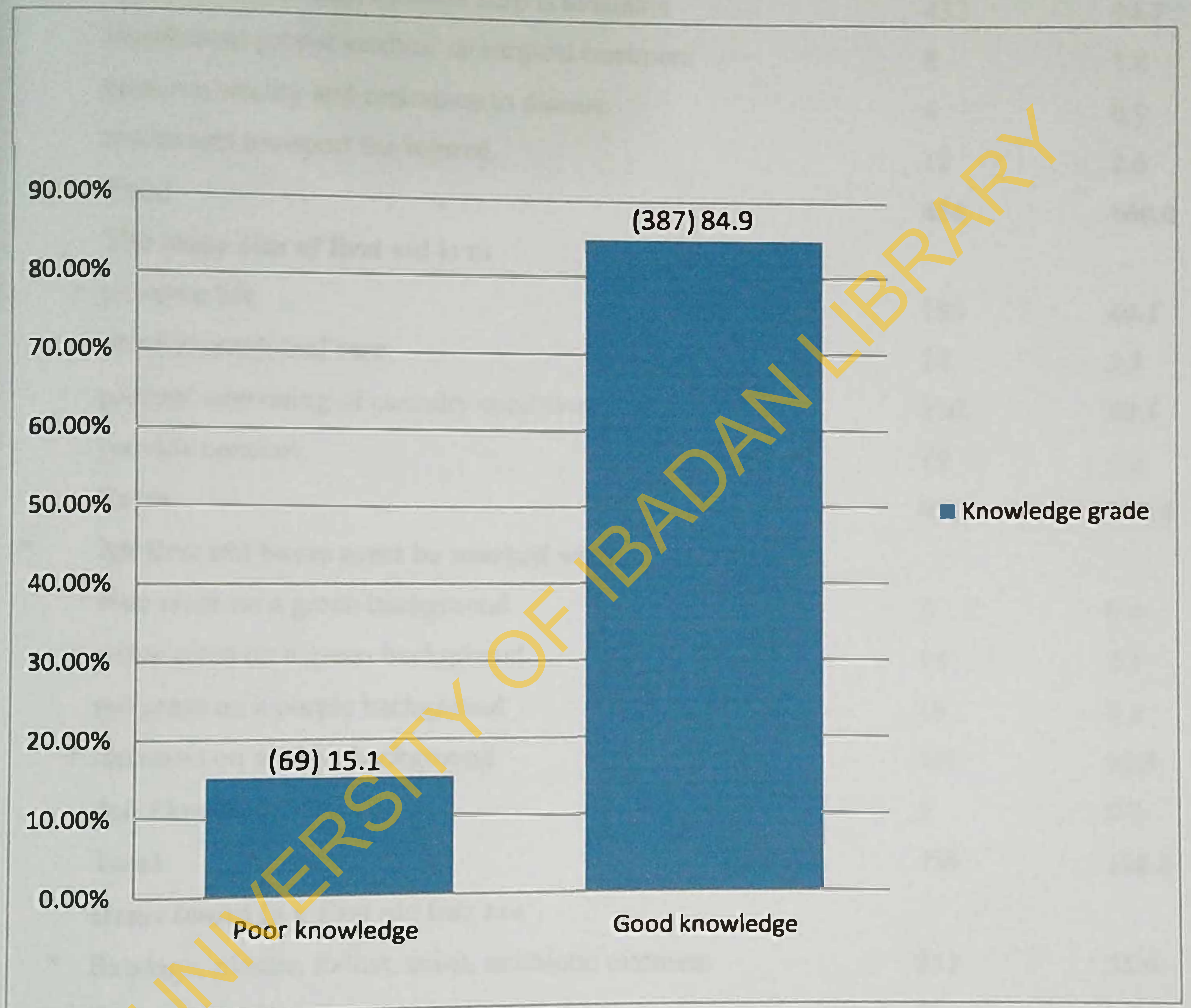
- "The school policy made us to understand that each school must have FA box, schools must have health boy and health girl including the member of staff that will take care of all health issues in school" (head teacher in public primary school located in medium density zone).
- "It tells us that schools should have FA personnel's, FA equipments, and it also talked about how to take care of the school environment in order to avoid hazards that could cause harm to school personnel's" (head teacher in public primary school located in high density zone).

All informants had a basic knowledge on FA and its principles in schools.

The level of knowledge on FA among respondent's showed that majority of primary school teachers (84.9%) had good knowledge of FA while few (15.1%) had poor knowledge of FA with a mean knowledge score of 15.6 ± 2.2 (see. fig 4.5). As shown on table 4.6, respondents were knowledgeable on the general information of FA. Most (94.7%) of respondents said FA is the immediate action taken to treat the injured until medical help is available, 40.1% reported that the main aim of FA is to preserve life, 92.5% recognize that FA box should be marked with red cross on a white background while 3.1% reported that FA box should be marked with white cross on a green background, 41.7% settled for items such as bandage, plaster, iodine, spirit, antibiotic

ointment, tweezers, safety pins, sharp scissors and soap as the items that should be available in a FA box.

Table 4.7 shows respondents' knowledge on the principle of FA regarding the care of injury and common illness. Respondents stated correctly in the following areas: Most (88.8%) of the respondents' reported that the purpose of wound dressing is to keep the wound neat and dry (prevent infection), 74.6% approved that the chief duty of a first aider in caring for open wound is to stop bleeding and to prevent contamination from entering the wound but only few (7.7%) agreed that the best way of controlling severe bleeding is the use of tourniquet. Findings also shows that; 74.6% of primary school teachers said victim's cloth can be removed when administering FA if the victim is convulsing, 77.4% said that priority should be given to severe bleeding cut when administering FA and 73.0% accepted that the signs and symptoms of foreign body in the eye is pain, irritation of the eye and redness of the eye (*see table 4.8*).



Mean knowledge score of 15.6 ± 2.2

Fig. 4.5: Knowledge of primary school teachers on first aid

Table 4.6: Knowledge of primary school teachers as regards general information on

First aid

Knowledge variable	Frequency	(%)
First aid is the immediate action taken to:		
✓ treat the injured until medical help is <u>available</u>	432	94.7
supplement proper medical or surgical treatment	8	1.8
preserve vitality and resistance to disease	4	0.9
rescue and transport the injured.	12	2.6
Total	456	100.0
The main aim of first aid is to		
✓ preserve life	183	40.1
provide emotional care.	24	5.3
prevent worsening of casualty condition	230	50.4
provide comfort.	19	4.2
Total	456	100.0
* All first aid boxes must be marked with		
blue cross on a green background	2	0.4
✓ white cross on a green background	14	3.1
red cross on a purple background	15	3.3
✓ red cross on a white background	422	92.5
don't know	3	0.7
Total	456	100.0
Items found in a first aid box are		
° Bandage, plaster, iodine, spirit, antibiotic ointment	251	55.0
° Tweezers, safety pins, sharp scissors, soap	3	0.7
✓ All of the above	190	41.7
Don't' know	12	2.6
Total	456	100.0

* Multiple responses

✓ Correct answers

° Fairly correct

**Table 4.7: Knowledge of primary school teachers as regards the principle of first aid
in care of wound**

Knowledge variable	Frequency	(%)
The purpose of wound dressing is to		
reduce temperature	3	0.7
prevent fracture	12	2.6
relieve pain	36	7.9
✓ keep the wound neat and dry (prevent infection)	405	88.8
Total	456	100.0
The chief duties of a first aider in caring for open wounds are		
to aid in proper healing of the wound and treat for shock	19	4.2
to clean the wound and apply bandage correctly	53	11.6
to calm and reassure the victim and to immobilize the injured part	40	8.8
✓ to stop bleeding and to prevent contamination from entering the wound	340	74.6
don't' know	4	0.9
Total	456	100.0
The best method for controlling severe bleeding is		
elevation	77	16.9
pressure point	95	20.8
° direct pressure	62	13.6
✓ tourniquet	35	7.7
don't' know	187	41.0
Total	456	100.0

✓ Correct answer

° Fairly correct

Table 4.8: Knowledge of primary school teachers as regard first aid for common illness

Knowledge variable	Frequency	(%)
Health cases where victim's clothes should be removed		
nail wound	22	4.8
✓ convulsion	340	74.6
piercing by sharp objects	33	7.2
dental injury (gum or broken tooth)	18	3.9
don't' know	43	9.4
Total	456	100.0
Who do you give priority to when administering first aid		
✓ severe bleeding cut	353	77.4
nail wound	22	4.8
piercing by sharp objects	33	7.2
dental injury (gum or broken tooth)	48	10.5
Total	456	100.0
The signs and symptoms of foreign body in the eye is		
swelling of eye	31	6.8
bleeding from the eye	20	4.4
redness of eye	72	15.8
✓ pain and irritation of the eye, redness of the eye	333	73.0
Total	456	100.0

✓ Correct answers

Table 4.9 shows respondent's knowledge on FA by age. The distribution of good knowledge score among those aged <40, 40-49 and 55+ (years) were 69.8%, 86.8% and 90.3% respectively. Taken as a whole, age was statistically significant ($p < 0.05$) indicating that the null hypothesis ($H_0 1$) stating that there is no significant relationship between level of knowledge on FA and age of primary school teachers was rejected. Generally, knowledge were better among respondents with more years of working experience and they are; <15 years (73.2%), 15-29 (86.4%) and 30+ (91.5%). The test for knowledge by years of working experience was statistically significant ($p < 0.05$). Therefore, the null hypothesis ($H_0 2$) stating that there is no significant relationship between level of knowledge on FA and years of working experience among primary school teachers was rejected (see table 4.10 for details).

Table 4.11 shows the logistic regression of knowledge grade for primary school teachers by age and their working experience. On considering the reason for poor knowledge of FA among primary school teachers, the logistic findings shows that primary school teachers <40 years of age are twice likely to have poor knowledge compared to primary school teachers aged 50 years and above. Primary school teachers between the ages of 40-49 were about two times less likely to have poor knowledge compared to primary school teachers aged 50 years and above. When compared with years of working experience, it was noted that primary school teachers who had <15 years of working experience were 3 times more likely to have poor knowledge compared to those with working experience of 25 years and above. Primary school teachers who had working experience of about 15-24 years were twice likely to have poor knowledge grade compared to those with working experience of 25 years and above.

Table 4.12 shows the test for knowledge of FA and physical hazards as; $\chi^2 = 1.86$, $p = 0.23$. Hence the null hypothesis ($H_0 3$) stating that there is no significant difference between knowledge of FA and the level of physical hazards in primary schools was accepted. That is, both teachers with good and poor knowledge of FA were equally found in schools with highly and moderately hazardous environment. Table 4.13 shows that; there is a significant relationship between knowledge of FA among teachers and the location of primary schools (* $H_0 4$ = rejected)

Table 4.9: Knowledge of respondents on first aid by age (H₀ 1)

Variables	Knowledge grade			χ^2 value	df	P value
	Poor N (%)	Good N (%)	Total N (%)			
Age (in years)						
<40	29 (30.2)	67 (69.8)	96 (100.0)	22.3	2	0.000
40-49	19 (13.2)	125 (86.8)	144 (100.0)			
50+	21 (9.7)	195 (90.3)	216 (100.0)			
Total	69 (15.1)	387 (84.9)	456 (100.0)			

There is a significant relationship between level of knowledge of FA and age of primary school teachers. (*H₀ 1 = rejected).

Table 4.10: Knowledge of respondents on first aid by years of working experience
(H₀ 2)

Variables	Knowledge grade			χ^2 value	df	P value
	Poor N (%)	Good N (%)	Total N (%)			
Years of working experience						
<15	34 (26.8)	93 (73.2)	127 (100.0)	20.2	2	0.000
15-24	19 (13.6)	121 (86.4)	140 (100.0)			
30+	16 (8.5)	173 (91.5)	189 (100.0)			
Total	69 (15.1)	387 (84.9)	456 (100.0)			

There is a significant relationship between level of knowledge of FA and years of working experience of primary school teachers (*H₀ 2 = rejected).

Table 4.11: Logistic regression on knowledge of first aid by age and years of working experience

Variables	Odd ratio	P value	95% CI
Age (in years)			
<40	2.014	0.148	0.779 - 5.203
40-49	0.930	0.859	0.418 - 2.071
50+ (reference)			
Years of working experience			
<15	2.564	2.564	0.975 – 6.740
15-24	1.637	1.637	0.745 – 3.597
25+ (reference)			

Table 4.12: Significant relationship between knowledge of first aid and level of physical hazards among primary school teachers (H₀ 3)

Variables	Level of physical hazards			χ^2 value	df	P value
	Moderately hazardous N (%)	Highly hazardous N (%)	Total N (%)			
Knowledge grade						
Poor	8 (11.6)	61 (88.4)	69 (100.0)	1.86	1	0.23
Good	71 (18.3)	316 (81.7)	387 (100.0)			
Total	79 (17.3)	377 (82.7)	456 (100.0)			

There is no significant relationship between knowledge of FA and level of physical hazard among primary school teachers (*H₀ 3 = accepted).

Table 4.13: Significant relationship between knowledge of first aid among teachers and the location of schools (H₀ 4)

Variables	Knowledge of first aid			χ^2 value	df	P value
	Good N (%)	Poor N (%)	Total N (%)			
Location of schools						
High density zone	91 (23.5)	6 (8.7)	97 (21.3)	14.3	2	0.00
Medium density zone	158 (40.8)	23 (33.3)	181 (39.7)			
Low density zone	138 (35.7)	40 (58.3)	178 (39.0)			
Total	387 (100)	69 (100.0)	456 (100.0)			

There is a significant relationship between knowledge of FA among teachers and the location of primary schools (*H₀ 4 = rejected)

4.6: Expected first aid care provided by teachers for pupils who experienced physical hazards in schools

Informants across schools mentioned washing of affected area with water, cleaning of affected area with cotton wool soaked in iodine and cotton wool soaked in spirit, according to informants these items are used to clean any cut or bruises gotten as a result of physical hazards. Typical response of informant's included;

- *"There is no FA we can give apart from washing the cut with water and then apply iodine but if the cut is so deep we take the pupil to Adeoyo clinic" (health teacher in public primary school located in medium density zone).*
- *"I will call the health teacher to take the spirit or the iodine to clean the wound" (head teacher in public primary school located in high density zone).*

Informants explained that no one has ever been bitten by a snake before but if any causality of such happens, the following will be done before taken the victims to the hospital; apply a constrictive bandage or a piece of cloth on the heart side of the bite tight enough to obstruct and stop the flow of venom to all parts of the body. Typical response of informant's included;

- *"We have never experience that in the school but if it happens the first thing that will come into my head is to tie the spot so that the venom does not flow to all parts of the body, and then I will quickly rush the victims to the clinic" (health teacher in public primary school located in high density zone).*
- *"That has never happen before but if it happen we will tie above the bitten area so that the venom does not flow beyond its bitten point or go to the body system and then we take the victim to JAJA clinic " (head teacher in public primary school located in medium density zone).*

Contrary to the above statement an informant stated that there is no FA that can be given to someone that has been bitten by a snake.

- *“Ah NO, it has never happen” Informant exclaimed” (head teacher in public primary school located in low density zone).*

Probing question: if it happens, what FA will you give?

- *“Nothing because we don’t have any FA for that” (head teacher in public primary school located in low density zone).*

Informants also stated that student who needs immediate medical care were taken to the hospital or were taken home to their parents for further attention. Typical response of informant’s included;

- *“We send for the parent and then take the child to the nearest hospital” (head teacher in public primary school located in medium density zone).*
- *“You know these days it can be very dangerous to give a person’s child any drug because there are many things happening in the world system today, so what I do is that I will call one of my assistant to go to the parent place to inform and call the parent to come down to the school to take the child” (head teacher in public primary school located in low density zone).*

Informants stated that officially there is no referral clinic linked with the school, but when there is call for emergency the victim is taken to the nearest clinic, preferably government owned hospital because their services to students are either free or not so expensive for the parent to pay the bills. Typical response of informant’s included;

- *“No referral clinic is linked with the school, but when the case is severe we take the pupils to Adeoyo hospital because that is the closest hospital to our school” (head teacher in public primary school located in medium density zone).*
- *“No, we just take the pupils to the closest hospital, especially state hospital so that the bills can be affordable by the parent” (head teacher in public primary school located in low density zone).*

Fig.4.6 present results on FA care for emergencies provided by respondents. More than half (58.8%) of the respondents had appropriate FA care while 41.2% had inappropriate care.

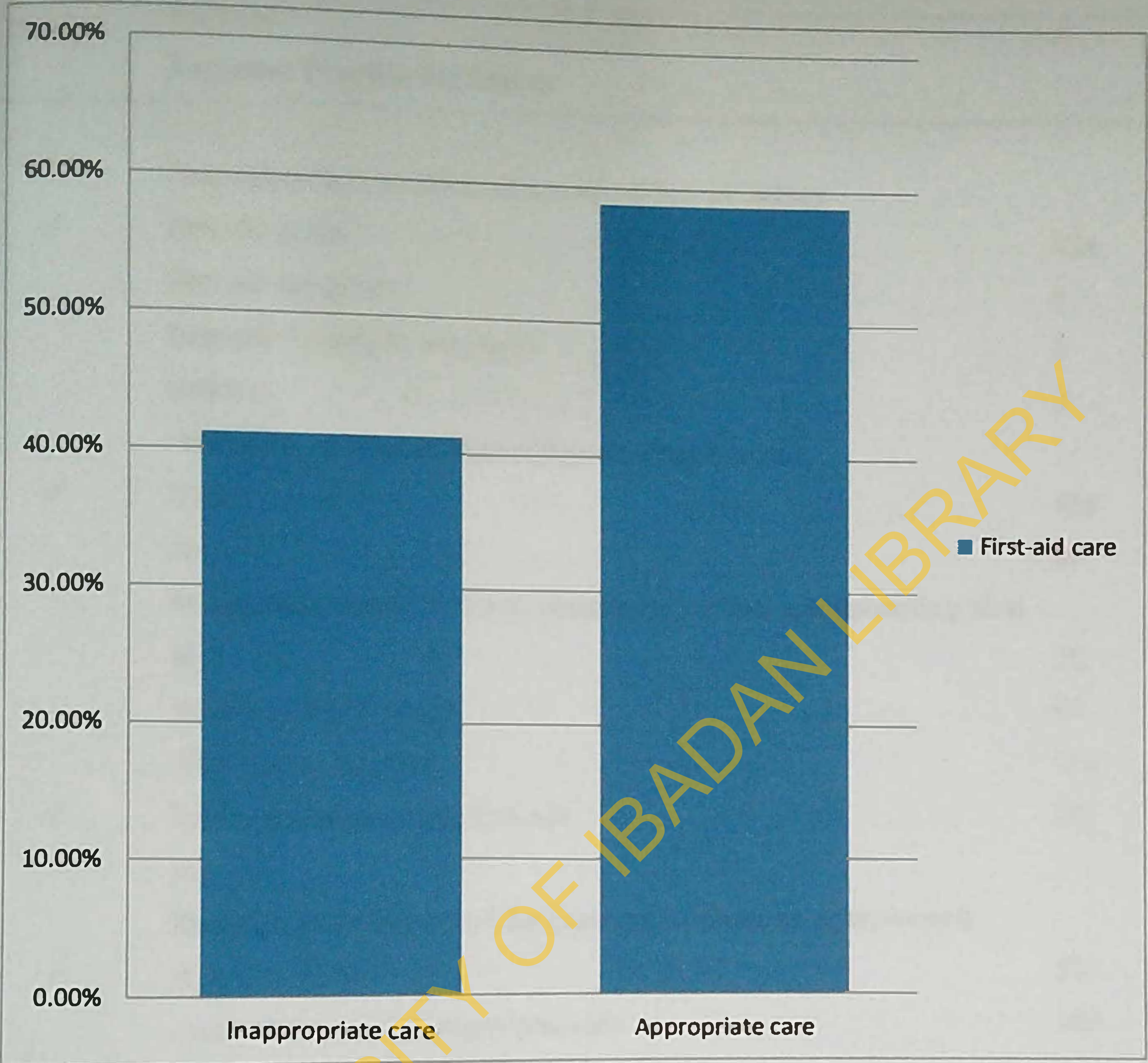
Primary school teachers were asked to express their approach to FA care of some common injuries. Four hundred and fifty four (99.6%) of the respondents said FA will be given immediately if a student sustain an injury, two (0.4%) respondents said help will be sought for. Most (95.6%) of the respondents said that they wash their hands when administering FA. Of the entire respondent who washes their hand, 70.2% wash their hands before and after administering FA. Concerning FA for cleaning a wound, 57.7% of respondents use cotton wool and hydrogen peroxide and only 6.6% made use of soap and water which is regarded as the best standard FA method for cleaning an open wound. First aid given to a child who has a bleeding gum, respondents care were as follows; 51.1% said they will rinse mouth with warm water and a pinch of salt, 21.1% said they will rinse with cold water and 12.3% said apply pressure using ice-pack (see table 4.14).

Table 4.15 depicts FA care for foreign body in the eye, ear and nose. On considering FA for foreign objects in the eyes, most of the respondents wrongly (42.5%) said they will raise the eyelid and blow the eye. In relation to FA for foreign object in the nose, 69.9% correctly said the person will be made to sneeze or blow the nose with one nostril closed. On considering FA for foreign body in the ear, 10.3% wrongly said they will try to take it out using the cover of a biro and 63.6% of the respondents said they will do nothing. Regarding foreign body in the throat, 26.3% rightly said encourage victim's to cough up foreign body and 15.4% who said; give up to 5 back blows between the shoulder blades with the heel of your hand, check the mouth quickly after each one and remove any obvious obstruction.

Table 4.16 shows expected FA care among teachers for conditions such as convulsion, snake bites and sting from honeybee. For a convulsing child, most (56.1%) rightly stated that victims collar should be open to allow easier breathing, lift up the chin, remove objects that may cause injuries and 13.2% said folded handkerchief should be gently place between the pupil teeth. More (31.6% and 24.6%) of the respondents' wrongly said; pour water on the pupils and hold tight or place a metal object between pupils teeth respectively. Concerning FA care for snake bite, majority (85.5%) of respondents accurately explained that they will apply a constrictive bandage on the heart side of the

bite tight enough to obstruct and stop the flow of venom to all parts of body. For FA regarding sting from honey bee, 26.5% said the area should be squeezed and 22.6% rightly said remove the stinger with tweezer.

Respondents expected FA care were measured against age in order to assess their statistical significant. Table 4.17 shows the association between knowledge and care of FA among primary school teachers. The variables were not statistically significant ($p > 0.05$). Hence the null hypothesis (H_0) stating that there is no significant association between knowledge and practice of FA among primary school teachers was accepted.



*Mean FA care score of respondent's was 13.0 ± 2.9

Fig. 4.6: Expected first aid care among primary school teachers

Table 4.14: Expected first aid care for injury among primary school teachers

Variables		N	%
Expected Practice for Injury			
Immediate action taken if a student has an injury			
✓	first aid given	454	99.6
	first aid not given	0	0
	help will be sought for pupils	2	0.4
	nothing	0	0
Washing of hands when administering first aid			
✓	Yes	436	95.6
	No	20	4.4
When does teachers wash their hands when administering first aid			
		28	6.1
	before giving first aid	88	19.3
	after giving first aid	320	70.2
✓	before and after giving first aid	20	4.4
	nil		
First aid substance used by teachers to clean an open wound			
✓	soap and water	30	6.6
	cotton wool and hydrogen peroxide	263	57.7
	cotton wool and alcohol	4	0.9
	water alone	9	2.0
	cotton wool and Iodine	175	38.4
Action taken by teachers when a child have a bleeding gum			
*		97	21.3
✓	rinse the mouth with cold water	56	12.3
✓	apply ice block	57	12.5
	apply methylated spirit or hydrogen peroxide on the gum	85	18.6
	do nothing go to a doctor immediately	233	51.1
✓	rinse with salt and warm water		

* Multiple response were included

✓ Correct findings

Table 4.15: Expected first aid care among primary school teachers for foreign body in the eyes, ear and nose

Variables		N	%
Action taken by primary school teachers if			
something falls in a child's eyes,			
✓	raise the eyelid and blow the eye	194	42.5
	blink the eyelid in a cup of clean water	155	34.0
	make a pointer with the corner of a clean handkerchief, moisten it and try to remove the foreign body °	70	15.4
	do nothing go to the doctor	37	8.1
something like a peanut enters the nose of a child,			
	try to take it out by any means	14	3.1
	ask the person to breath by mouth instead of nose	29	6.4
✓	make the person sneeze or blow the nose with one nostril closed	317	69.5
	do nothing go to a doctor	96	21.1
something like a peanut or other small object enters the ear,			
✓	flood with oil in the ear or clean water	104	22.8
	try to take it out by any means	15	3.3
	try to take it out with a biro cover	47	10.3
	do nothing go to a doctor immediately	290	63.6
* a child is getting choked by a foreign body at school,			
	provide the child with clean water to drink,	146	32.0
	give the child solid food like Eba or bread to swallow	67	14.7
✓	encourage victim's to cough up foreign body	120	26.3
✓	give up to 5 back blows between the shoulder blades with the heel of your hand, check the mouth quickly after each one and remove any obvious obstruction.	70	15.4
	do nothing go to a doctor immediately	122	26.8

✓ Multiple response were included*

Table 4.16: Expected first aid care among primary school teachers for convulsion, snake bites and stings from honeybee

	Variables	N	%
	Action taken by primary school teachers if		
*	a child has fits or convulsion,		
✓	open a tight collar at the neck to allow easier breathing, lift up the chin, remove objects that may cause injuries.	256	56.1
	place a metal object between pupils teeth	112	24.6
	pour water on the pupils, and hold tight	144	31.6
✓	gently place a folded handkerchief between the pupil teeth	60	13.2
	do nothing go to a doctor	38	8.3
	rub pupils body with hot balm	3	0.7
	a child is bitten by a snake,		
	apply any menthol product to the bitten area	9	2.0
	suck the venom out with your mouth	9	2.0
✓	apply a constrictive bandage on the heart side of the bite tight enough to obstruct & stop the flow of venom to all parts of body	390	85.5
	do nothing go to a doctor	48	10.5
	a sting has been inflicted by honeybee and the stinger is still on the victims skin,		
	squeeze the area	121	26.5
	apply warm pack over the sting area	40	8.8
	remove the stinger with tweezers	103	22.6
✓	do nothing go to a doctor immediately	116	25.4
	apply any menthol product to the bitten area	76	16.7

* Multiple responses were included

✓ Correct answers

Table 4.17: Significant relationship between knowledge of first aid and expected care of first aid among primary school teachers (H₀ 4)

Variables	First aid care			χ^2 value	df	P value
	Inappropriate N (%)	Appropriate N (%)	Total N (%)			
Knowledge grade						
Poor	155 (40.1)	232 (59.9)	387 (100.0)	1.46	1	0.23
Good	33 (47.8)	36 (52.2)	69 (100.0)			
Total	188 (41.2)	268 (58.8)	456 (100.0)			

There is no significant relationship between knowledge of FA and FA care provided for student among primary school teachers (*H₀ 5 = accepted).

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

Discussion

This chapter deals with the discussion, recommendations and conclusion in accordance with the objectives of this study and hypothesis, the statement of the problem was prevalence of physical hazards and knowledge of FA care among public primary school teachers in Ibadan north local government area, Nigeria.

It is rather unfortunate that the Nigerian child is made to learn in what is described as an environment of crises. That is to say, the Nigerian child is often expected to learn in a confused, disorganized and grossly inadequate environment (Akinbote, 2010). Public school teachers represent a potentially effective first response component during disasters and isolated emergencies in the school environment (Ali, Abu-Elseoud, Heybah and Mohamed, 2010). In addition, nursery school teachers play a major role in management of emergencies that can occur to children in schools, therefore they should be prepared for that task (Al-Jundi *et al*, 2005). Quality medical assistance should also be readily available in schools.

Demographic characteristics of primary school teachers

This study has shown that most of the subjects were in the age group of 50 years and above. In relation to sex, majority of subjects were females. It was worth noting that female teachers were found more in public primary schools than male teachers, this shows that females' application for teaching job is high and they are recruited more than their male counterparts. Majority of the respondent had worked for more than 15 years. Most of the teachers were NCE/OND certified, which suggests that the first point tertiary education of a person who intends to be a teacher is the teacher's training school or college of education which offers NCE/OND certificate and so FA curriculum/identification of hazards curriculum should be a compulsory course at this stage. It also indicates that only few public primary school teachers further their education by getting either a Degree or Masters Certificate. Apart from the general health education training received as part of teacher-training curriculum during their study years, only few

had undergone further training on first aid. The study shows that most of the respondents had no previous training on FA. Those who had previous training received it from churches, health organizations and other social organizations. None of this training was said to have been organized by the government or educational board.

In line with this study, reports on knowledge, attitude and practice of school health program among head teachers of primary schools in Egor local government area of Edo state, Nigeria; shows that the mean age for head teachers was 44 years with a range of 27 to 58 years. Ninety-five (71%) were females while 38 (29%) were males. Majority of the head teachers 82 (61.7%) were holders of certificates from College of Education, 40/133 (30.0%) were graduates from university and 11/133 (8.3%) were holders of teachers training school certificate (Ofovwe and Ofili, 2007). A study showed the effectiveness of planned teaching programme on knowledge regarding FA in selected conditions among primary school teachers in Bangalore. Most of the subjects 63.3% were in the age group of 36 years and above, and 10% were in the age group of 21-25 years. In relation to sex, majority of the respondents 22(73.3%) were females and only 8(26.7%) were males. All the respondents had not undergone training on FA (Maloti, 2006). This was in line with this study where only few teachers were males. Support from study conducted to assess the Knowledge and attitude of 190 Jordanian school health teachers with regards to emergency management of dental trauma showed that 63.1% of the respondents were females, 44.2% and 43.1% were in their twenties and forties respectively. Of all the respondents, only 46% had general training on FA in emergencies (Al-Jundi *et al*, 2005).

Study among public school teachers in the United States, reported that one third had no training in FA and 87% of them agreed that emergency care training should be included in teachers' preparatory programmes (Gagliardi *et al*, 1994). A study conducted in Germany showed that vast majority of bystanders had little or no FA training and that there was a direct relationship between the level of FA training and quality of FA measures taken by the bystanders (Mauritz, Pelinka, Kaff and Segall, 2003). Although 57% of all schools claimed they had trained teachers, there was no additional program to train new teachers or upgrade the knowledge of the already trained teachers (Hedge and Shetty, 2008).

Prevalence of physical hazards in the environment

It was observed that physical hazards were prevalent in all the selected public primary schools. Of all the schools, majority were highly hazardous. This indicates that the primary school environment is unsafe for pupils and other school personnel because the presence of one physical hazard in the environment can be very dangerous, causing injury, illness or death. The forms of physical hazards present in schools were distinctly grouped into; **Building structure:** leaking roof, broken ceilings, falling roof, broken windows, stony or rough floor, stones around work way, slippery floor, broken stairs, stairs without barriers, cracked walls. **Classroom facilities:** broken chairs and desk, protruding nails or sticks from desk/chairs, dusty chalk board, sharp object, unbalanced chalk board. **Playing ground conditions:** presence of sharp objects, fields with potholes/caves/rocks, bushy playing ground. **Rest room conditions:** faulty latrines and slippery/patchy grounds. At least all schools had more than 10 out of the 26 indicators that were used to assess physical hazards in the school environment. This means that none of the public primary schools were free from physical hazards. Most of the structures and facilities in the schools were old and needed one form of renovation/ replacement or the other.

Although, building structure conditions such as broken stairs, stairs without barrier and storey building without barrier were present in only few schools. This was due to the fact that only one or two public primary schools in Ibadan North Local Government Area were storey buildings. The schools with broken/unguarded stairs were not storey buildings but they had stairs as a result of terrible landscaping in that area. Playing ground conditions such as broken swings, rusted swings and swing with sharp edges were absent in all the public schools observed, because none of them had recreational equipments/facilities.

In concordance with the findings, a study noted that; the average school building is about 42 years old and more than 75% of American's school building were built before 1970 (Lyons, 2002). Unfortunately, about one third of schools affecting about 14 million students, reported need for extensive repairs or replacement of one or more buildings. About one half of schools report at least 1 unsatisfactory environmental condition, such as poor physical security. These unsatisfactory environmental conditions are most often reported in urban schools and schools with high minority student enrolment (Sherry,

Nancy and Tim, 2003). Also in agreement, Ofoegbu disclosed in one of his studies that the school environment is dotted with dilapidated buildings, equipped with outdated laboratory facilities and equipment. Teachers at times have to work under the most unsafe and unhealthy conditions. It is not unusual to find teachers and students interacting academically under collapsed school buildings. Likewise students are sometimes left with no option but to receive lessons under shades and open roofs while teachers make do with the little available outdated materials at their disposal to teach (Ofoegbu, 2004).

A study shows that the practice of SHP (School health program) among primary school teachers in the study location is abysmally poor. Only 38.3% have SHP in place albeit inadequate. With regards to healthy school environment, all the schools studied clean up their environment regularly. However the practice of certain important aspect of healthy school environment is grossly inadequate. For instance only 17.3% of the schools (all private schools) had adequate pipe born water supply. The abysmally low percentage of schools with adequate water supply coupled with the fact that no public school had pipe born water testifies to failure of social services at least in the study location. It is therefore not surprising that majority of the schools lacked adequate toilet facilities. This situation indicates a poor appraisal of healthy school environment generally but particularly in public schools (Ofovwe and Ofili, 2007; Inuwa and Yusof, 2012). A study by UNICEF revealed that majority of primary schools, especially in rural areas, lack water, electricity and toilet facilities. For example, on average, there is only one toilet for 600 pupils in the primary school system (UNICEF, 2005).

Pattern of occurrence of physical hazards

Physical hazards related injuries experienced by pupils' included falls and cut/scrape injuries, majority of which occurs during break period. This may have resulted from the fact that teachers fail to guide or monitor pupils' against close contact with physical hazards in the school environment. It was disclosed that more male than female pupils were affected by Physical Hazards, which indicates that male pupils engage in more physically challenging activities than female pupils. In addition, proper modification of the school environment especially the playing ground and learning facilities has not been put in place by the government and other stakeholders.

Studies in Nigeria support that the most common cause of injuries among school children was falls (49.1%); followed by traffic accidents (13.2%), collision against objects or

people (11.3%) and misuse of teeth 9.4%. Majority of the accidents occurred at home (60.4%), followed by school (26.4%) (Comfort *et al*, 2009). It was also reported in a study that the causes of injury by rank were fall (36.3%), animal injury (19.4%), and burn and scolding (16.9%), whereas fall (52.3%), being hit by blunt objects (15.1%), and traffic injury (10.6%) were the leading causes of injury for children. In continuation, the study further revealed that more than half of the injuries occurred when children were playing and the rest happened while they were walking (Haun *et al*, 2011). Boys are more likely to experience most kind of injuries and are more likely to be involved in behaviours that will likely lead to injuries.

Two hundred and two primary schools with nearly 50,000 students aged 7–15 years were studied during a 6-year period in Poland. A total of 3274 school accidents per 293,000 student-years were reported. Accidents during breaks (36.6%) and physical education (33.2%) were most common. Most frequently, accidents took place at schoolyards (29.7%), gymnasiums (20.2%), and 25.2% occurred in the corridors and stairs (Stefania and Tomasz, 2003).

It was worth noting that primary school pupils in the lower class like primary 1-2 and higher class, primary 5-6 were more prone to physical hazard related injuries. In line with findings from a study, a total of 4287 Ottawa-area children were injured at school in 2002, representing 18% of all injuries. Children aged 5-9 years and 10-14 years were more likely to have school injuries than older children aged 15-19 years (OR = 3.07, 95% CI = 2.77-3.40 and OR = 3.10, 95% CI = 2.83-3.37, respectively) (Jonathan, Morag, Martin and Alison, 2009).

The vulnerability of pupils to physical hazard include playing, bullying and fighting, such as playing with sharp object, fighting among pupils which can result in pupils identifying and using hazardous objects (stones, sticks) in their environment. This form of movable physical hazards might be used by pupils as defence or additional means in defeating their opponent when fighting, bullying or playing. Others are learning in classrooms with dilapidated facilities, playing of football, climbing of height, and running on fields with potholes and caves. A Massachusetts boy suffered a concussion and seizures after falling while swinging from a school door; a high school student in Velmonth died after a fall from a desk (Marc, 2000). In agreement, a study based on 11-year-old pupil reports of

games and break time activities, found a wide variety of games played but dominated by active games, with the most popular activities being ball games and chasing games. The most popular game of all was football, played by 60% of children. Other ball games such as netball, basketball, and cricket were played by 32% of children. Seeking games (17%), catching games (16%), racing games (12%), and skipping games (9% with a rope, 6% with elastic) were also noted (Blatchford, 2003). A population based-study on school injury among Ottawa-area children supported that the most frequent mechanisms of school injuries were “playing” (n = 1004) and “informal sports” (n = 1503) (Jonathan *et al*, 2009).

Availability of first aid boxes

The availability of FA box is a critical step towards the promotion of health of school children. All the schools observed in this study had FA box, but most of these boxes were poor. Comment from observational check list and KII reports shows that some of these FA boxes have been covered with dust and cobwebs, while others had expired FA equipment such as spirit, iodine, rusted scissors and safety pins. Ministry of health, NGO and other governmental bodies claimed to have donated FA boxes to schools in the past and recent years, result from this study has shown that there is evidence of these FA boxes in schools but there is failure in re-stocking and monitoring of these boxes for proper usage and discard of expired items. The deficiency in FA facilities resulted from the negligence and irregular supply of FA facilities by school personnel's, community members and the government. Schools had no medical record for injuries or FA care provided; this is a major problem in all sectors in Nigeria (poor detailing of incidents).

It was confirmed that 57% of schools had facilities for FA in a child-friendly school initiative program by Kakala Taluk, Talakata but the study did not show if this facilities were standard or substandard (Hedge and Shetti, 2008). An intervention study to strengthen FA care in 100 public schools in Chandigarh, India reveals that only 6% of schools had health care/FA kit in pre-intervention phase which increased to 87% in post intervention. Teachers (65%) in-charge of health and medicine were not sure of taken appropriate action or decision initially before intervention. Availability of facilities and common drugs like paracetamol increased from 16% in pre-intervention to 71.7% later on while thermometer from 16% to 60.9%, blood pressure apparatus from 5% to 23.9% and

touch from nil to 47.8%. More medical records were being maintained from 34% to 60.8% (Vikas, Sonia, Chetna and Amrit, 2010).

Knowledge of first aid among teachers in public primary schools

The overall knowledge of FA among teachers in public primary school reveals that most of the teachers had good knowledge of FA with a mean score of 15.6 ± 2.2 .

A conflicting finding report that, 56.7% of primary school teachers at B.K. Nagar Bangalore had inadequate knowledge concerning the general information of FA (Maloti, 2006).

It was particularly observed in this study that only few (7.7%) teachers had the correct knowledge of the best method for controlling severe bleeding. Agreeing with this study, a study done in UK supported that only 11.3% of the respondents knew the correct FA management of epistaxis (Strachan and England, 1998). In another study, result showed that even though many students had encountered epistaxis (47.8%), only 7.4% selected the correct option (Afrasyab *et al*, 2010). Also, in a study which involve training of subjects on FA, the score for pre-test revealed that 83.3% had inadequate knowledge concerning epistaxis while post-test shows that 63.7 had inadequate knowledge on epistaxis. This suggested that there was 20% knowledge gain on FA for epistaxis after training of the subjects (Maloti, 2006).

The content of a standard FA box was known by more than half of the teachers. There is a slight difference from findings in another study, the contents of FA bag was unknown by 63.3% of nursery teachers in a study carried out in Zagazig city. The percentage of correct answers was improved to reach 90% (Ali *et al*, 2010).

It was interesting to note that knowledge of FA increases as age and working experience of teacher increases in this study. Hence, age and working experience was found to significantly affect teacher's knowledge of FA. This explains that older teachers who probably had worked for 15 years and above had been often involved in rendering FA services to victims'. Therefore, such teacher had a clearer understanding of knowledge concerning the general information of FA in schools.

Expected first aid care provided by teachers

In spite of the knowledge of FA by majority of primary school teachers, it is surprising that almost half of the teachers who had good knowledge of FA provided inappropriate

FA care. This inappropriate care is indicative of the fact that majority of the subjects had no formal training on FA care and the high presence of substandard FA facilities in schools. A study conducted in Edinburgh reveals that only 13% of people could correctly handle paediatric emergencies (Conrad and Beattie, 1996). The ability of drivers to give FA was assessed in a study which revealed that very few drivers could give FA at the accident site (Afrasyab *et al*, 2010). In a study conducted in Greece the mean value of correct answers regarding FA knowledge was higher in industry workers trained in FA than those who never had a formal training (Hatzaki, Kritsotakis, Angelaki, Tzanoudaki and Androulaki, 2005). In another study carried out in Kenya, it was revealed that only 45.5% of the soccer team coaches could administer FA to the soccer players (Afrasyab *et al*, 2010). The same was proved by Singer who found that paediatric FA knowledge was deficient among people (Singer, Gulla, Thode and Cronin, 2004).

Majority of teachers claimed to have given FA to an injured victim. But only few teachers were able to state the correct FA care for an injured victims'. This study revealed that only a few of the respondents had correct and up to date knowledge for care of wound.

In agreement with this study, a researcher reported that almost all (96.7%) primary school teachers had inadequate knowledge regarding FA on wound and injury (Maloti, 2006). In a study conducted in Chandigarh, the knowledge of teachers in providing FA care before intervention with regards to injury, insect bites and falls was; injury 46%, insect bite 20% and falls 29%. After intervention which involved a training programme, teachers' knowledge increased as regards the aforementioned care (Vikas *et al*, 2010). This clearly shows that training is an integral aspect in increasing the knowledge of primary school teachers on FA care. With regards to emergency management for a bleeding gum, only few teachers correctly agreed that victim's mouth should be rinse with cold water.

The finding of this study revealed that only few of primary school teachers stated the correct FA that should be provided as regards foreign body in the eyes, nose and ear. According to Maloti, 70.0% of primary school teachers had inadequate FA knowledge of FA on foreign body in the eye, ear and nose (Maloti, 2006). This was in agreement with findings from this study.

First aid care for a convulsing victim's shows that; only few teachers had the correct knowledge of care that should be provided for victims. Majority of these teachers still

inappropriately care for a convulsive child by placing a metal object between teeth, pouring water on the pupils and rub pupils body with hot balm.

A closely related report to this finding as regards response to convulsion; states that one third lowered the child's body temperature, and 15% positioned the children on their side. For subsequent seizures, 80% anticipated rushing the child to a hospital, and 44% would put objects into the child's mouth. In comparison, although the recurrent-FC (Febrile convulsion) parents had higher scores in knowledge and attitudes than the first-FC parents, low knowledge scores (40% correct) were seen in both groups (Carter *et al*, 2004).

The inappropriate FA care provided by teacher may be due to lack of training on FA, the methods for emergency care of some common illness that was known 30 years ago, may have been fin tuned as time changes. This means that knowledge of FA care must be updated periodically through in-service training.

The effect of age-old misconception about handling of different medical emergencies was evident as 56.1% of students confirmed their parents as their source of information. Many students (94%) realized that FA training should be part of the curriculum with 84% suggesting that it should be part of pre-university curriculum (Afrayab *et al*, 2010).

Conclusion

Although, school health programme in Nigeria have been in existence, this programme has not been fully implemented in public primary schools in different places in the country. Findings from this study shows that public primary schools still lack basic structural development facilities required for effective and health promoting learning. Therefore all public primary schools in Ibadan North Local Government area need some upgrading of facilities by way of repairs, renovation and replacement. This study exposes the deficiency in the schools' physical environment and first aid care provided by teachers.

Limited emphasis on first aid care exists in the educational curriculum of workshops, training or seminars organized by the government/educational board for teachers. Training on first aid care can go a long way in ensuring proper management of illness and injuries. Such training if organized periodically (at least once in three terms i.e. a session or school year) will be a good investment in itself.

Recommendation

1. In order to promote a safe school physical environment, government and other NGO's must make it a point of duty to demolish (elimination is the most effective control measure) and replace all dilapidated building and facilities found in public primary schools.
2. There should be well planned and implemented protocols for hazards identification/mitigation in the school environment by school personnel's. This can only be done through proper training of teachers, students and other school personnel's on proper identification of physical hazards and majors taken to prevent these hazards from causing harm (e.g. warning or restriction signs which is a form of administrative control) until the hazards has been fully eradicated from the environment.
3. Hazard registry should be provided for all schools so that any identified hazard can be reported and taken to the ministry of education for quick consideration at least every month or in a term.
4. In order to increase the knowledge of teachers on FA care, it is necessary to infuse FA care (both practical and theoretical training) into all training/workshops organized for teachers by government or other organization. This training process must be done periodically to update teachers' ability in providing immediate medical care.
5. There should be a frequent supply of FA facilities by the primary educational board, ministry of health and other NGO's to all public primary schools. In addition, a supervisory board should be set up to inspect FA facilities in schools ensuring that such facilities are not used after its expiring date.

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APPENDIX A

KEY INFORMANTS INTERVIEW GUIDE

Knowledge of first aid in school

1. What do you understand by first aid? (probing questions)
 - what are the skills required to give first aid?
 - what is the quality of a good first aider?
 - have you seen or read any school health policy guide before? If yes;
 - what does the school health policy says about first aid in schools?

Pattern of Occurrence of Physical Hazards

2. What can you say about this school environment? (probing questions)
 - what are the most common physical hazards associated with this school environment?
 - which physical hazards do you feel vulnerable to and why
 - which physical hazard are common among pupils in your school
 - how often do such hazards occur?
 - what is the severity of harm caused by the physical hazard to pupils?
 - how could the hazards be avoided?

Provision of First Aid Care and Control Measures in Place

3. What types of first aid practices are in place to assist in reducing risk and preventing possible disability and loss of life from physical hazards? (probing questions)
 - what first aid do you normally give if a student has a cut as a result of sharp object?
 - what first aid do you normally give if a student or staffs is bitten by a snake?
 - how do you assist students who need immediate medical care?
 - any referral clinic/chemist link with the school?
 - in what ways are parent being involved in the use of first aid in schools?
4. How many public outreach program highlighting hazards and first aid as a subject for discussion have you participated in (please give details)?
5. Who is the health teacher in this school?(Probing question)
 - what is the role of the school health teacher in your school?

FUTURE RECOMMENDATION

6. What method do you think will reduce physical hazards in the school environment?
7. List other sectors that can help in creating a safe school environment
8. What can you do as an individual to reduce exposure to physical hazards in your school environment?
9. What do you think can be done to improve teachers knowledge on first aid
10. How can teachers be equipped to provide good first aid care to pupils?

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APPENDIX B

OBSERVATIONAL CHECK-LIST

Prevalence of Physical Hazards and Knowledge of First Aid Care among Public Primary School Teachers in Ibadan North Local Government Area, Nigeria

Assessor or Observer's Name: _____

Name of School: _____

Location of School: _____

Date of Assessment: _____ Time: _____

Instructions:

For each safety indicators record "PRESENT" if all areas you observed have the following Physical features and "ABSENT" if all the safety indicators are absent, "Comment" if there is any important feature relating to each indicators. Use the space at the bottom to record other physical hazards.

Scoring: check:

- (+)-----Physical hazard indicator is present
- (-) -----Physical hazards indicator is absent

SECTION A

Prevalence of physical hazards in the school environment

Tasks to be Observed	Present	Absent	Comment
BUILDING CONDITIONS			
Leaking roof			
Broken ceilings			
Falling roof			
Broken windows			
Stony or rough floor (uncemented floor)			
Stones around work way and corridors			
Slippery floor			

Broken stairs			
Stairs without barriers such as rails			
Storey buildings without barrier such as rails			
Cracked walls			
CLASS ROOM CONDITIONS			
Broken chairs and tables or desk			
Protruded nails or sticks from desk or chairs			
Dusty chalk board			
Congested class rooms			
Sharp object e.g. razor/nail			
Unbalanced chalk board			
PLAYING GROUND CONDITIONS			
Broken swings			
Rusted swings			
Swings with sharp edges			
Faulty playing equipments			
Presents of sharps e.g. bottles, nails			
Field with potholes/cave/rocks			
Bushy playground			
REST ROOM CONDITIONS			
Broken/faulty water closet			
Slippery/patchy ground			
Record			
Hazard registry			
TOTAL			
SAFETY (%)			

--	--	--	--

SECTION B

Availability of first aid boxes in schools

AVAILABILITY OF FACILITY FOR FIRST AID IN EMERGENCY	Present (+)	Absent (-)	Comment (the state of the facility; if expired, cover with cob webs or suitably for its intended purpose)
First aid box			
First aid manual			
Plaster			
Iodine			
Soap			
Sterile gauze pad of different sizes			
Hydrogen peroxide			
Bandage			
Scissors			
Cotton wool			
Antibiotic ointment			
Safety pins			
plastic non-latex gloves			
Thermometer			
First aid care register			
TOTAL			
SAFETY (%)			

APPENDIX C
QUESTIONNAIRE

Important Instruction(s): Please your names are not required on the questionnaire

Name of school: _____

Location: _____

When was this school founded? _____

Was the school owned by the missionary before it was taken by the government?

i = Yes

ii = No

Section A: Socio Demographic characteristics

Instruction: Please respond to the following questions (circle correct answer)

1. Age _____ (in years)
 2. Gender i. Male ii. Female
 3. Educational Qualification i. O'level ii. NCE/OND
 iii. Degrees/HND iv. Post Graduate v. Others _____
 4. Which of the following age groups do you work with primarily?
 i. 6-10 years ii. >10 years
 5. Years of working experience _____
 6. Have you attended training on first aid before? i. Yes ii. No
- If yes; answer question 6 (b)
- (b). who were the organizers of the first aid training you attended-

Section B: Knowledge of first aid

(Circle correct answer)

S/N	Knowledge Questions	Options	Score
7.	First aid is the immediate action taken to;	i. treat the injured until medical help is available ii. supplement proper medical or surgical treatment iii. preserve vitality and resistance to disease iv. rescue and transport the injured.	
8.	The main aim of first aid is to;	i. preserve life	

		ii. provide emotional care. iii. prevent worsening of casualty condition provide comfort.	
9.	In what health cases should victim's clothes be removed when administering first aid?	i. nail wound ii. convulsion iii. piercing by sharp objects iv. dental injury (gum or broken tooth) v. don't know	
10.	who among the following; do you give priority to when administering first aid;	i. severe bleeding cut ii. nail wound iii. piercing by sharp objects iv. dental injury (gum or broken tooth)	
11.	All first aid boxes must be marked with;	i. blue cross on a green background ii. white cross on a green background iii. red cross on a purple background iv. red cross on a white background v. don't know	
12.	What are the items found in a first aid box?	i. bandage, plaster, iodine, spirit, antibiotic ointment ii. tweezers, safety pins, sharp scissors, soap iii. i and ii iv. don't know	
13.	The purpose of wound dressing is to;	i. reduce temperature ii. prevent fracture iii. relieve pain iv. keep the wound neat and dry (prevent infection)	
14.	What are the chief duties of a first aider in caring for open wounds?	i. to aid in proper healing of the wound and treat for shock ii. to clean the wound and apply bandage correctly iii. to calm and reassure the victim and to immobilize the injured part iv. to stop bleeding and to prevent contamination	

		from entering the wound v. don't know	
15.	Which of the following is the best method for controlling severe bleeding	i. elevation ii. pressure point iii. direct pressure iv. tourniquet v. don't know	
16.	The sign and symptom of foreign body in the eye is	i. swelling of eye ii. bleeding from the eye iii. redness of eye iv. pain and irritation of the eye, redness of the eye	
	POINT SCORED _____ CATEGORY CODE _____		

Section C: Patterns and frequency of occurrence of physical hazards

17. Injury is sustained more often among ____ i. Boys ii. Girls iii. Both

18. Who indulge more in rough play in this school? i. Boys ii. Girls iii. Both

19. The common injuries found among school children are i. shock ii. Falls

iii. Cut and blunted Injuries iv. fainting

20. Which group is more prone to physical hazards i. Pry 1-2 ii. Pry 3-4 iii. Pry 5-6

iv. 1-4 v. Don't know

21. At what time of the school period do pupils sustain injury; i. break hour

ii. Learning hour, iii. Physical health days /sports hours iv. i and iii v. Anytime

Frequency of occurrence of physical hazards

Instructions: for question 22 to 29 tick (✓) whether is **always** = typically experienced at least once every week by an individual; **seldom** = typically experienced once every month by an individual; **occasionally** = typically experienced once during the school academic session of an individual (or less).

Below are the physical hazards in your school? Tick options according to their frequency of occurrence.

S/N	Statement	always	seldom	Occasionally	Remarks
-----	-----------	--------	--------	--------------	---------

22	Being hit by blunt object (stone)				
23	Falls				
24	Cut				
25	Foreign object in eye, ear or nose				
26	Dental injury (gum or broken tooth)				
27	Broken Limbs				
28	Piercing by sharp objects				
29	Choking				

30. Has there been any record of death in your school as a result of physical hazards?

i. Yes ii. No

31. If yes, name the physical hazard that caused the death? _____

Section D: Factors influencing the vulnerability of pupils to physical hazards

Which of the following statements predisposes pupils to physical hazards?

Instruction: The table below contains a set of statements; for each tick (✓) whether

Yes or No.

	Statements	Yes	No	Remark
32	Playing with sharp equipments sometimes lead to injury in school			
33	Fighting among pupils may lead to injury, fracture and illness in schools e.t.c.			
34	Bullying in school occasionally leads to injury, illness and fracture			
35	Learning in classrooms with broken chairs/desk sometimes lead to injury			
36	Pupils are prone to sustain injuries when playing football			
37	Pupils are likely to fall when climbing heights			
38	Racing on fields with potholes often lead to injury (unlevelled ground)			

Section E: Expected first aid care

S/N	Practice Questions	Option	Score
39.	What will you do immediately if a student has an injury?	i. first aid given ii. first aid not given iii. help will be sought for pupils iv. nothing	
40.	Do you wash your hands when administering first aid? If yes, answer question 41 If no move to question 42	i. yes ii. no	
41.	At what time do you wash your hands when administering First-Aid?	i. before giving first aid ii. after giving first aid iii. before and after giving first aid	
42.	If a person starts having fits (convulsion) what will you do at school? [Multiple responses possible, circle each response.]	i. open a tight collar at the neck to allow easier breathing, lift up the chin, remove objects that may cause injuries. ii. place a metal object between pupils teeth iii. pour water on the pupils, and hold tight iv. gently place a folded handkerchief between the pupil teeth v. do nothing go to a doctor vi. others (specify) _____ _____	
43.	If a child has a cut what will you use to clean the wound?	i. soap and water ii. cotton wool and hydrogen peroxide iii. cotton wool and alcohol iv. water alone vi. cotton wool and Iodine	

44.	If something falls in a child's eyes what will you do at school?	i. raise the eyelid and blow the eye ii. blink the eyelid in a cup of clean water iii. make a pointer with the corner of handkerchief/any cloth, moisten it and try to remove the foreign body iv. do nothing go to the doctor v. others [specify] 	
45.	If something like a peanut enters the nose what will you do at school?	i. try to take it out by any means ii. ask the person to breath by mouth instead of nose iii. make the person sneeze or blow the nose with one nostril closed iv. do nothing go to a doctor v. others [specify] 	
46.	If something like a peanut or other small object enters the ear what will you do at school?	i. flood with oil in the ear or clean water ii. try to take it out by any means iii. try to take it out with a biro cover iv. do nothing go to a doctor immediately vi. others (specify) 	
47.	What will you do if a child is getting choked by a foreign body at school? [Multiple responses possible, circle each response.]	i. provide the child with clean water to drink, ii. give the child solid food like eba or bread to swallow iii. encourage victim's to cough up 	

		foreign body iv. give up to 5 back blows between the shoulder blades with the heel of your hand, check the mouth quickly after each one and remove any obvious obstruction. v. do nothing go to a doctor immediately vi. others (specify) _____	
48.	If a child is bitten by a snake what will you do?	i. apply any menthol product to the bitten area ii. suck the venom out with your mouth iii. apply a constrictive bandage on the heart side of the bite tight enough to obstruct & stop the flow of venom to all parts of body iv. do nothing go to a doctor v. others (specify) _____ _____ _____	
49.	If a child has bleeding gum, what will you do? [Multiple responses possible, circle each response.]	i. rinse the mouth with cold water ii. apply ice block iii. apply spirit or hydrogen peroxide in the mouth iv. do nothing go to a doctor immediately v. rinse with salt and warm water vi. others (specify) _____ _____ _____	

50.	If a sting has been inflicted by honeybee and the stinger is still in the victims skin, what first aid will you give	i. squeeze the area ii. apply warm pack over the sting area iii. remove the stinger with tweezers iv. do nothing go to a doctor immediately v. apply any menthol product to the bitten area vi. others [specify _____ _____	
POINT SCORED _____ CATEGORY OF CODE _____			

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APPENDIX D

CONSENT FORM

Key Informant Interview Guide for Head Teachers on Prevalence of Physical Hazards and Knowledge of First Aid Care among Public Primary School Teachers in Ibadan North Local Government Area, Nigeria

Name of Interviewer _____

Date _____

Name of School _____

Staff Position _____

Good day. I am Ataekiru Rume Ogheneniborue, a postgraduate student of the Department of Health Promotion and Education in the Faculty of Public Health, College of Medicine, University of Ibadan.

This interview is being conducted to get your input about physical hazards and how it has been controlled by the school, knowledge of first aid and practices among teachers in your school. I am especially interested in any problems you have faced or are aware of, how this problem was managed by the school and recommendations you have. If it is okay with you, I will tape record our conversation. The purpose of this is so to get all the details but at the same time be able to carry on an attentive conversation with you. I assure you that all your comments will remain confidential. I will be compiling a report which will contain all staff comments without any reference to individuals. If you agree to this interview and the tape recording, please sign this consent form.

I know enough about the purpose, method, and benefit of this research study and I have decided to be a part of it. I hereby sign my consent to participate in this study.

Date: _____ Signature: _____

QUESTIONNAIRE

Prevalence of Physical Hazards and Knowledge of First Aid Care Among Public Primary Schools Teachers in Ibadan North Local Government Area, Nigeria

Dear Respondents,

I am Ataekiru Rume Oggheneniborue, a postgraduate student of the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan. The purpose of this study is to investigate the **Prevalence of Physical Hazards and Knowledge of First Aid Care among Public Primary Schools Teachers in Ibadan North Local Government Area, Nigeria.**

The findings of this study will help in the design of programmes and formulation of policies aimed at addressing the occurrence of physical hazards in primary schools. I wish to inform you that there is no right or wrong answers to the questions asked and that participation is voluntary. Your identity, responses and opinions will be kept confidential and no name is required in filling the questionnaire. Please try and give honest responses to the questions asked as much as possible as your maximum cooperation will assist in making this study a success.

I know enough about the purpose, method, and benefit of this research study and I have decided to be a part of it. I hereby sign my consent to participate in this study.

Date: _____ Signature: _____

Office use only

Interviewer name: _____

LGA: _____

Date: _____

Serial number: _____

APPENDIX E

Ethical Approval from the Oyo State Ministry of Health, Ibadan

TELEGRAMS.....

TELEPHONE.....



MINISTRY OF HEALTH

DEPARTMENT OF PLANNING, RESEARCH & STATISTICS DIVISION
PRIVATE MAIL BAG NO. 5027, OYO STATE OF NIGERIA

Your Ref. No.

All communications should be addressed to

the Honourable Commissioner

Our Ref. No: AD 13/479/142

Date: 29th August, 2011

The Principal Investigator,
Department of Health Promotion and Education,
Faculty of Public Health,
College of Medicine,
University of Ibadan,
Ibadan.

Attention: Atackiru Rume Oghenenigborue.

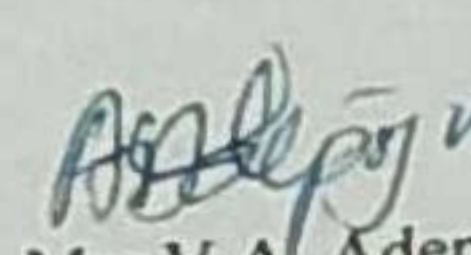
Ethical Approval for the Implementation of Your Research Proposal in Oyo State.

This acknowledges the receipt of the corrected version of your Research Proposal titled *Patterns of Physical Hazards in Public Primary Schools and Knowledge of First Aid among Teachers in Ibadan North Local Government Area, Nigeria*.

The Committee has noted your compliance with all the ethical concerns raised in the initial review of the proposal. In the light of this, I am pleased to convey, to you, the approval of the committee for the implementation of the Research Proposal in Oyo State, Nigeria.

Please, note that the committee will monitor, closely, and follow up the implementation of the research study. However, the Ministry of Health would like to have a copy of the results and conclusions of the findings as this will help in policy making in the health sector.

Wishing you all the best


Mrs V.A. Adepoju
Director, Planning, Research & Statistics
Secretary, Oyo State Research Ethical Review Committee.



APPENDIX F

Schools in High, Medium and Low Density Zones and their Number of Teachers

Schools in high density zone and the number of teachers

Stratification according to population	Public primary schools in Ibadan North LGA	Number of teachers in schools
High= population density >30,000	Methodist School I Bodija	36
	Methodist School II Bodija	17
	C&S School II Bodija	25
	Olive School I Bodija	28
	Olive School II Bodija	28
	C&S Primary School Bodija	26
	(sango)	
	C.A.C School I Special School	27
	Sango	
	C.A.C School II Sango	29
	C.A.C School III Sango	32
	C.A.C School IV Sango	25
Total	St Thomas School II Agbowo	24
	St Thomas School III Agbowo	24
	12	321

Source: Educational Primary Board Ibadan North Local Government Area, Nigeria.

Schools in medium density zone and the number of teachers

Stratification according to population	Public primary schools in Ibadan North LGA	Number of teachers in schools
Medium= population density from 30,000-10,000	St Brigid's Boy School Mokola	24
	United Brother's School Nalende	11
	U.N.A School Nalende	15
	St. Paul Schools I Yemetu	24
	St. Paul School II Yemetu	17
	St. Paul School III Yemetu	16
	St. John's School Monlade	14
	I.M.G School II Oniyanrin	21
	I.M.G School N4 Yemetu	11
	Salvation Army School Nalende	8
	St. Micheal School II Yemutu	19
	T.A.C School Nalende	7
	St. Stephen School I Nalende	23
	St. Brigid's Convent School Mokola	18
	St. Micheal School I Yemetu	22
	Salvation Army School II Yemutu	23
	Ebenezer A/C School Nalende	11
	C and S School Mokola	26
	I.M.G School III Mokola	16
	I.M.G School II Mokola	12
	I.M.G School I Mokola	17
	St. Mary's School II Oke Are	10
	Salvation Army School II kube	18
	I.M.G School II Oje Igosun	22
	I.M.G School I Oje Igosun	26
	C and S School II Mokola	12
	St. Paul School III Yemetu	15
	St. Paul School VI Yemetu	17
	St. Stephen School II Nalenda	17
	Salvation Army School III Yemetu	15
	St Peter School I Oke Are	14
	St Mary School I Oke Are	21
	St Peter School II Oke Are	14
	Salvation Army School I Yemetu	25
	Alafia Institute Mokola Ibadan	19
		600
Total	35	

Schools in low density zone and the number of teachers

Stratification according to population	Public primary schools in Ibadan North LGA	Number of teachers in schools
Low= population density<10,000	St John's Agodi N5	37
	C.A.C School II Oniyanrin	15
	Abadina School III U.I	20
	Oluyole Chesire School Ijokodo	17
	Polytechnics Staff School Ijokodo I	22
	Community School Ijokodo	30
	Community School Ijokodo II	17
	Home School for Handicapped	17
	Emmanuel College Pry School U.I	24
	Abadina School I U.I	21
	C.A.C Oniyanrin I	18
	Salvation Army School I Kube	21
	Methodist School Agodi N5	25
	I.M.G School I Oje Igosun	27
	C.A.C School Oje Igosun	34
	C.A.C School I Oniyanrin	23
	Abadina Primary School II U.I	32
	Islamic School III Odoeye	19
	Islamic School IV Odoeye	20
	Emmanuel College Primary School	18
	Ibadan School for Deaf	19
	Polytechnic Staff School II	28
	Community Pri School III Ijokodo	17
	Polytechnic Staff School III Ijokodo	16
	Islamic School II Odoeye	20
	Islamic School I Odoeye	16
	C.A.C Special for Handicapped	15
		591
Total	27	

Source: Educational Primary Board Ibadan North Local Government Area, Nigeria.

APPENDIX G

Flip Charts of the Observed Public Primary Schools in Ibadan North LGA

(1)



Poor playing ground conditions and rough play exposes school children to injuries

(2)



Poor and unsafe building conditions

(3)



Poor class room condition showing falling roofs, broken windows etc.

(4)



Class room condition showing broken floors/unlevelled ground

(5)



Toilet condition showing bushy/dirt filled walk parts

(6)



Playing in an unlevelled/rock filled ground

(7)



Unmovable block and a dump site at the middle of the school playing ground

(8)



Poor landscape

(9)



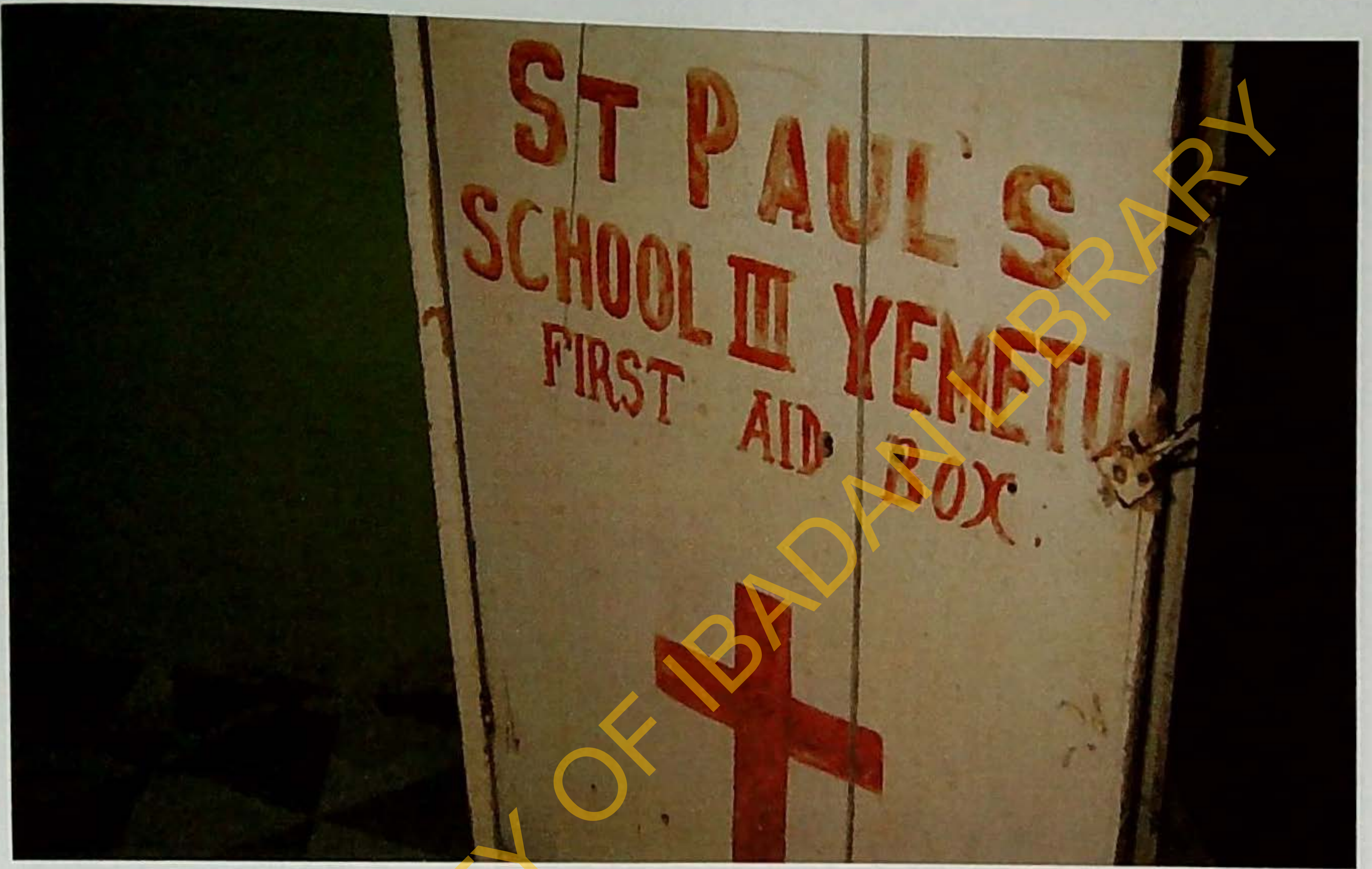
Physical hazards in the environment

(10)

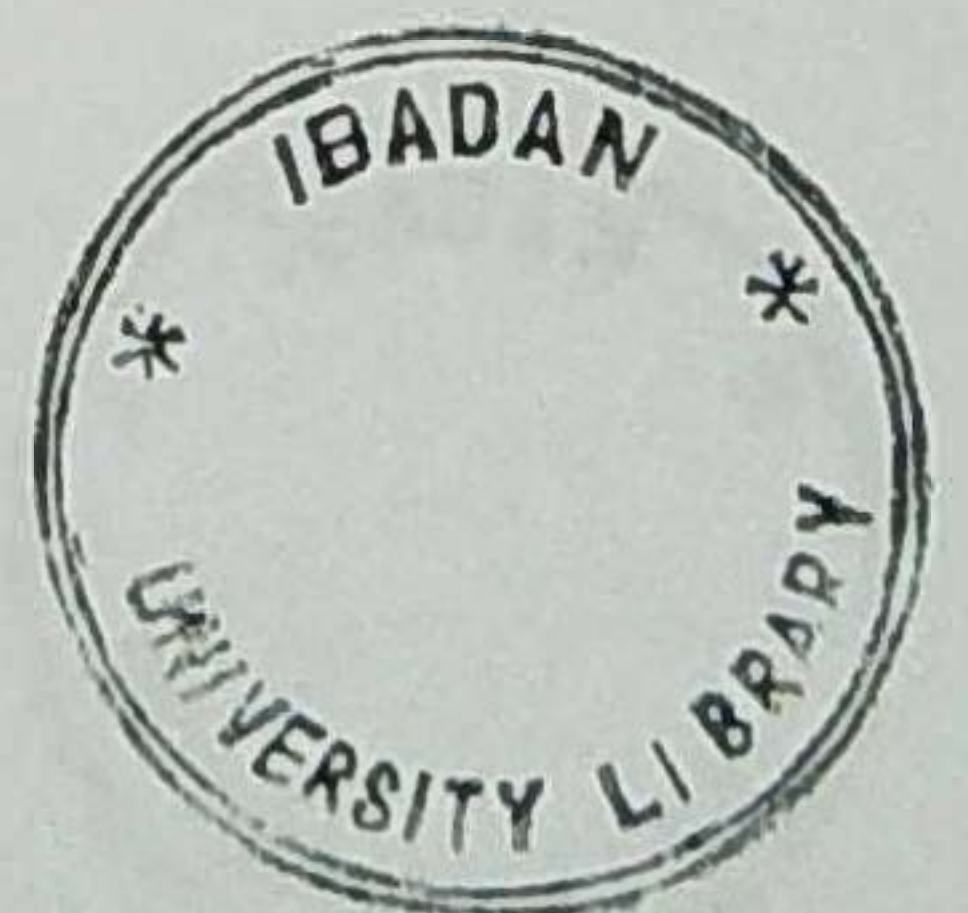


Dilapidated school building

(11)



First Aid Box



(12)



Poor First Aid box

