

**DETERMINANTS OF PARTICIPATION IN SPORTS AMONG STUDENTS
WITH HEARING IMPAIRMENT IN SECONDARY SCHOOLS FOR THE
DEAF IN KENYA**

BY

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DECLARATION

This thesis is my original work and has not been submitted for any award of a degree in any other institution of higher learning or for any other award.

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ABBREVIATIONS AND ACRONYMS

AMC	Actual Motor Competence
FMS	Fundamental Motor Skill
IPSD	International Platform on Sport and Development
KSL	Kenya Sign Language
NACOSTI	National Commission for Science Technology and Innovation
NFLD	National Football League for the Deaf
NZSSSC	New Zealand Secondary School Sport Council's
PALs	Physical Activity Levels
PMC	Perceived Motor Competence
SDT	Self-Determination Theory
SIGMA	Scale of Intra-Gross motor Abilities
SNE	Special Needs Education
SSPS	Statistical package for social sciences
TGMD	Test of Gross Motor Development
USA	United States of America

ABSTRACT

Effective engagement of sports among students with hearing impairment has physiological, psychological, intellectual and societal benefits (Riungu, 2002; Smith, 2004). Although there has been great emphasis on sports and health related activities among students, there is a general concern that students with disabilities do not frequently participate in such activities. This study proceeded from the assumption that students with hearing impairment have no visible disability and therefore should participate in sports like their hearing counterparts. The study, therefore, sought to evaluate determinants of participation in sports among students with hearing impairment in Kenyan secondary schools for the deaf. The specific objectives of this study were to: establish the effect of gender on sport participation among students with hearing impairment; identify the type of sports in which most of the students with hearing impairment participate; establish the most commonly available sports facilities in secondary schools for the deaf, and establish the extent of participation in sports among students with hearing impairment in term one and two. Anchored on a descriptive research design, the study targeted 574 students with hearing impairment and 88 teachers in 7 public secondary schools for the deaf. Purposive sampling was used to select all Form 2 and 3 students as well as 3 teachers from the 7 schools translating to a total of 21 teachers and 327 student respondents. Two questionnaires; one for students and another for teachers were used in data collection. Data collected from the field was processed and analyzed using the Statistical Package for Social Sciences (SPSS) version 20. Qualitative data generated from open-ended questions using grouped into themes and analyzed according to the research objectives. Frequency tables and bar graphs were used in data presentation. Cross-tabulations and Chi-square (χ^2) tests were used to test the association, if any, of variables such as gender, sports preference and sports participation. The study established that gender was a significant variable to sports preference and participation among students with hearing impairment. The findings revealed that more male students participate in sports than female students. Majority of these students were motivated to participate in sports for fun. Football was the most preferred sport type by male students while female respondents had a strong preference to volleyball and netball. Most commonly available sports facilities were football and volleyball pitches. Majority of the students with hearing impairment actively engaged in sports in term one compared to term two due to the scheduling of national competitions for SNE in term one. The study concludes that gender, sports preference, availability of sports facilities, competitions and, internal and external drives were significant determinants in sports participation among students with hearing impairment. The study recommends that simple and easy-to-use sports facilities should be provided as an enabler for more students with hearing impairment to participate in sports, and a safe and supportive environment be established to facilitate active sports engagement among female students. Special schools should provide adequate facilities for a variety of sports in line with different kinds of sports. Insights from these findings will be helpful to stakeholders in making informed decisions, and in availing sports facilities for students with hearing impairment not only in secondary schools but also in other institutions of learning such as primary schools and tertiary institutions.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Hearing impairment among children has been dealt with in various studies based on two perspectives: profound and mild hearing loss. Profound hearing loss in children is estimated to be at 1 to 6 out of every 1000 children (Winnick, 2005). In most cases, these children, like any other child, need to access and take part in regular physical activities and sports. The main reason for participation is to enjoy the benefits associated with sport participation. Studies have shown that sport participation elevates self-esteem and minimizes the negative feelings associated with deafness (Martin & Bat-Chava, 2003). According to Murphy (2008), sport plays a major role in the lives and communities with special needs in a similar way it does for people without disabilities. However, marginalized groups, including the deaf, face challenges of getting involved in sport.

The benefits of engagement in sports to human beings cannot be overemphasized. Various studies over the past three decades such as Ilić-Stošović & Nikolić (2012), Lieberman & Pecorella (2006), Riungu (2002), and Winnick (2005) have revealed that participation in sports leads to enhanced functional status and life quality among people with selected disabilities. Katiwa (2008) studied the efficacy of using structured physical exercise as an intervention for managing stereotype behaviors in autism. The study sampled 34 autistic children at the Nairobi special unit, in Nairobi Kenya. The results showed that structured physical exercise programme had a positive impact on the characteristic stereotype behavior on autism at the Nairobi Autism Unit. The study therefore recommended structured physical exercise as a means to manage the challenging behavior and enhance better health and wellness amongst individuals with autism.

A number of physiological, social, psychological and mental advantages are associated with regular participation in sporting activities (Weiss, 2000). Riungu (2002) conducted a study at Kaaga School for the Deaf aimed at establishing the impacts of physical education and sports on deaf children's fitness. Riungu's study found out that participation in sports assisted the deaf children to improve fitness, flexibility, strength, low body fat, social interaction, and self-concept. Murphy (2008) notes that the most frequently used indicator of emotional wellbeing is self-esteem, with sports and physical activities being important boosters. Ilić-Stošović and Nikolić (2012) point out more benefits of participating in sports such as improved humor, enhanced self-esteem, increased body appearance and energetic feelings, improved self-confidence in both mental and physical abilities and reduced stress. Ajwang' (2008) carried out a case study at Joyland special school in Kisumu to determine whether physical education offered at the school was effective in improving health related levels. After an eight-week participation in physical education, results indicated that physical activity did improve health related fitness of the pupils.

In the United States of America (USA), learners with disabilities, especially with hearing impairment, are limited to various sporting activities (Kyle, 2009). Despite this significant milestone, persons with disabilities including those with hearing impairments still encounter many issues related to sports participation since disability still educe bad attitudes in most schools (Branson & Miller, 2002). In Pakistan, Muhammad, Muhammad, Hassan and Zahid (2011) found that a number of methodologies in sports activities were utilized by regular schools to engage learners with hearing impairment in sports. These include; provision of adequate play materials and equipment to learners and employment of games coaches with sign language capability in order to correspond with learners during practice (Muhammad, Muhammad, Hassan & Zahid, 2011).

Several reasons have been given for the motives of participation in sports among students in various schools in South Africa. According to Salman and Naz (2012), engagement in inter-school competitions among the students with hearing impairment varies according to such factors as desire to learn more skills, a way of relieving boredom, opportunities for competition, a sense of belongingness, gaining celebrity status, financial benefit and improvement of health. This is a clear indication that sports participation satisfies both physical and psychological needs. Choosing a sport that will always remain interesting is very important among students with hearing impairment. The best sport for students with hearing impairment is one that the student finds fun and interesting to participate in (Hill & Hannon, 2008). In order to encourage a healthy and active lifestyle, it is necessary to expose students to a variety of sports and let their desires and abilities act as a guide to further commitment (Hill & Hannon, 2008). Students with hearing impairment are likely to enjoy sport more if allowed to learn in a relaxed atmosphere while having fun and receiving support and encouragement from adults (Huddleston, Mertesdorf & Araki, 2002).

Gender has also been noted to be a significant variable to participation in sports among students with hearing impairment in most secondary schools (Martin, Shapiro & Prokesova, 2013). According to Larkin, Razack and Moole (2007), it is common in all countries that girls and women have less probability to participate in sport than males (Larkin, Razack & Moole, 2007). It is a fallacy to anticipate that girls and women do not wish to engage in sports. Factors such as lack of accessibility, safety, poverty, burden of domestic chores, inadequate sport and recreation facilities deter female students from participation in sports (Larkin, Razack & Moole, 2007).

Participation in sports by students with hearing impairment is possible in every sport existing including sub-aqua diving, mountain climbing and skiing which are also uncertain (Whyte,

Harries & Williams, 2005). Some sports are conventional in which very little preparation is needed while others require certain modification or may be specifically established for a given disability. The preference of these sports activities is significant and may be determined by certain variables including personal preference, characteristics of the sport, medical condition, availability of the facilities (equipment, appropriate coaching), cognitive ability and social skills of the person (Whyte, Harries & Williams, 2005). Humbert, Spink, Muhajarine, Anderson, Bruner, Girolami, Odnokon and Gryba (2006) stated that many options are available when it comes to good sport and the most important factor in preference will be determining which sport to enjoy the most. Therefore, there is no one best sport for everybody, considering individual's own personality in choosing a sport, and the cost and accessibility of necessary equipment.

In Kenya, Deaf education was established in 1958 when Aga Khan Units for the Deaf were created in Nairobi and Mombasa. Many deaf schools followed the oral approach for many years, focusing on speech reading and hearing aids to try to make deaf people function like normal hearing people. Many of the original deaf schools still exist. When Kenya joined the worldwide initiative aimed at shifting towards cohesive and all inclusive education in 1971, many students with hearing impairment were enclosed into hearing schools with the efforts of catering for their needs. Nevertheless, facilities including those for sports were inadequate due to the fact that schools were not adequately prepared.

The Ministry of Education (2009) developed the Special Needs Education (SNE) policy which advocates for, among other things, adapted sports. The programmed sporting events in schools for the deaf are in place. In recognition of the special advantages of sporting activities to deaf children, countries worldwide continue to take measures that promote active involvement of these children in sports (Sherrill, 2004). Additionally, the SNE policy has impacted into a rise in the number of students admitted into the government schools across the country. Facilities in secondary schools for the deaf do not match the increased intake of students. Both deaf schools

and units have lacked the necessary facilities, training and equipment to accommodate the new number of students with hearing impairment (Ministry of Education, 2009). Can these be some of the variables of participation in sports with hearing impairment in Kenya? The current study sought to establish the factors which influenced participation in sports among students with hearing impairment in secondary schools for the deaf in Kenya.

1.2 Statement of the Problem

Advocacy for participation in sports by people with hearing impairment is anchored globally in the United Nations Convention on Rights of Persons with Disability (2006) Article 30.5, and domesticated locally in the Kenya Persons with Disability Act No. 14 of 2003 part III (28), and the Kenyan Constitution (2010). The goal is to enhance participation in sports among persons with disabilities including students. Participation in sports and physical education improves health-related fitness of children with disability (Riungu, 2002; Ajwang, 2008). Despite the existence of great emphasis on sports and health, there is a concern that students with disabilities do not frequently participate in sports. Mwangi (2009) cited inadequate physical education equipment and materials as the main problem that limited teachers from executing instructional skills and strategies to learners who are mentally challenged. The assumptions that people with hearing impairment do not have visible disability, and therefore should participate in sports in a similar manner to their hearing counterpart's forms the basis for the current study. Thus, this study aims at evaluating determinants of sport participation among students with hearing impairment when at school. It further seeks to determine the kinds of sports that students with hearing impairment participate in, their motivation to participate in such sports activities and available sports facilities as enablers for participation in sports among students with hearing impairment.

1.3 Purpose of the Study

The study aimed at evaluating determinants of sport participation among students with hearing impairment in secondary schools for the deaf in Kenya.

1.4 Objectives of the Study

The objectives of the study were to:

- i. Establish effects of gender on sports participation among students with hearing impairment.
- ii. Identify types of sports that students with hearing impairment participate in.
- iii. Establish most commonly available sports facilities in secondary schools for the deaf
- iv. Establish the extent of participation in sports among students with hearing impairment in term one and term two.

1.5 Research Questions

- i. How does gender influence sport participation among students with hearing impairment in secondary schools for the deaf in Kenya?
- ii. Which types of sports do students with hearing impairment in secondary schools for the deaf participate in?
- iii. Which are the most commonly available sports facilities in secondary schools for the deaf?
- iv. To what extent do students with hearing impairment engage in sports during term one and term two?

1.6 Research Hypothesis

The study was guided by the following hypotheses.

H_{01} : Gender has no significant influence on sport participation among students with hearing impairment in secondary schools for the deaf in Kenya.

H0₂: Significantly, there are no types of sports that students with hearing impairment in secondary schools for the deaf participate in.

H0₃: There are no significantly common available sports facilities in secondary schools for the deaf.

H0₄: There is no significant difference in the engagement of students with hearing impairment in sports during term one and term two.

1.7 Significance of the Study

The findings of the current study provides insights to stakeholders in making informed decisions based on availing sport participation opportunities to students with hearing impairment in secondary schools. Effective sport participation among students with hearing impairment will lead to physiological, psychological, intellectual and societal advantages associated with regular participation in sporting activities.

Findings from this study highpoint various types of sport in which students with hearing impairment engage in, expound the knowledge of sports levels, facilitators and issues related to sports preference among students in secondary schools for the deaf. Additionally the findings provide relevant information on sports promotion and the needs for health education for students with hearing impairment. This creates a better general comprehension of sports and expands the scale of sport opportunities for the deaf.

Wanderi, Mwisukha and Bukhala (2009) recommend sports for the deaf as a crucial area for future research as it had scanty empirical data, especially in the local scene. This study therefore, aimed at addressing this need as well as encouraging similar studies which might eventually contribute immensely to empirical literature in the area of sports for the deaf.

1.8 Delimitations of the Study

The study confined itself to 7 public residential secondary schools for the Deaf in Kenya. Only Forms Two and Three students and 3 teachers from each school participated in the study. Collection of data was based on questionnaires only for students and teachers. The study focused on evaluating sport participation among students with hearing impairment in secondary schools for the Deaf in Kenya.

1.9 Limitations of the Study

The questionnaire was in English and each question and instruction was interpreted by the researcher to KSL. In Kenya there are sign variations, however, care was taken to ensure that the participant understood one item before moving to the next. The researcher is a competent KSL interpreter.

1.10 Theoretical Framework

The current study is guided by the Self-Determination Theory (SDT) developed by Ryan and Deci (2000). Self-Determination theory proposes three distinct motivational forces which determine behavior: intrinsic motivation, extrinsic motivation and a motivation. The forces range on a continuum from high to low self-determination (Teixeira, Carraga, Markland, Silva & Ryan, 2012; Ryan & Deci, 2012). Self-Determination theory suggests that human motivation differs in the level to which it is autonomous or controlled. Three basic psychological needs constitute SDT: competence, relatedness and autonomy. Competence deals with the desire of self to master and control the environment and outcome of things; relatedness involves the desire of self to interact, connect and experience the feeling of belonging while autonomy is concerned with the desire of self to be the causal agent – the will to do something or act out of own interests and

values (Ryan & Deci, 2012). This study incorporated all the three tenets of SDT in relating gender, availability of sport facilities, and sport type to sports participation.

On the one hand, actions that are autonomous are initiated freely and come from within an individual. Intrinsic motivation constitutes most of the autonomous form of motivation, which is referred to as the inherent tendency possessed by all humans to pursue innovations and challenges. It entails participation in an activity for the feelings of fun, pleasure, excitement and satisfaction, leading to sustain passion, creativity and effort (Fox, 2000). Appley and Foster (2013) observed that sports participation encompasses a complex interaction between biological, psychological, social and environmental influences. This can be associated with the fact that children achieve self-perceptions depending on self-judgment from mastery of Fundamental Motor Skills (FMS), social acceptance, and success in the past engagements as they interact with their environment (Fox, 2000). Self-Determination theory emphasizes that in order to achieve such psychological growth, one has to enhance mastery of tasks and learn different skills. The quality learning experiences and competence lead to motivation for continued participation. Self-Determination theory was applicable to the current study in that, based on high or low self-perception, early competence in Fundamental Motor Skills as children develop creates in them a health habit of getting involved in physical activities (Garcia, Garcia, Floyd & Lawson, 2002). Teixeira *et al* (2012) suggest that children who play are likely to develop high self-esteem and autonomy, having control of own behaviors and goals. For instance, when children are being socialized into sports, boys are exposed to competitive and muscles building activities while girls are exposed to simple turn taking games. This socialization in sports greatly impact on sports participation trends.

On the other hand, the controlled trait is regulated by an exterior force. External drive entails engagement in sports for gaining such rewards as trophies, money and status-quo maintenance. The external parameters involve practicing to either soothe an external demand (Ryan & Deci,

200). Additionally, SDT includes the idea of having no feeling of reason and lacking any aim to take part in a specific behaviour (Deci & Ryan, 2000). Conditions which support one to experience competence, autonomy and relatedness can lead to high quality of forms of motivation. However, when these three psychosomatic needs are not supported in the social context, the person is likely not to be motivated and is likely to withdraw from participating in any sports activity. Based on the context of the current study, students with hearing impairment may end up being sedentary, moderate or active participants in sports. The involvement or non-involvement in sports is a result of intrinsic or extrinsic motivation, and a motivation.

Self-Determination theory was specifically applied to this study to establish a comprehensive understanding of what could influence students with hearing impairment to participate in sports. This was based on variables such as gender, type of sports, availability of sport facilities, factors related to participation and the frequency at which students with hearing impairment participate in sports. A conceptual framework was therefore developed to further demonstrate the Self-Determination theory as shown in Figure 1.1.

1.11 Conceptual Framework

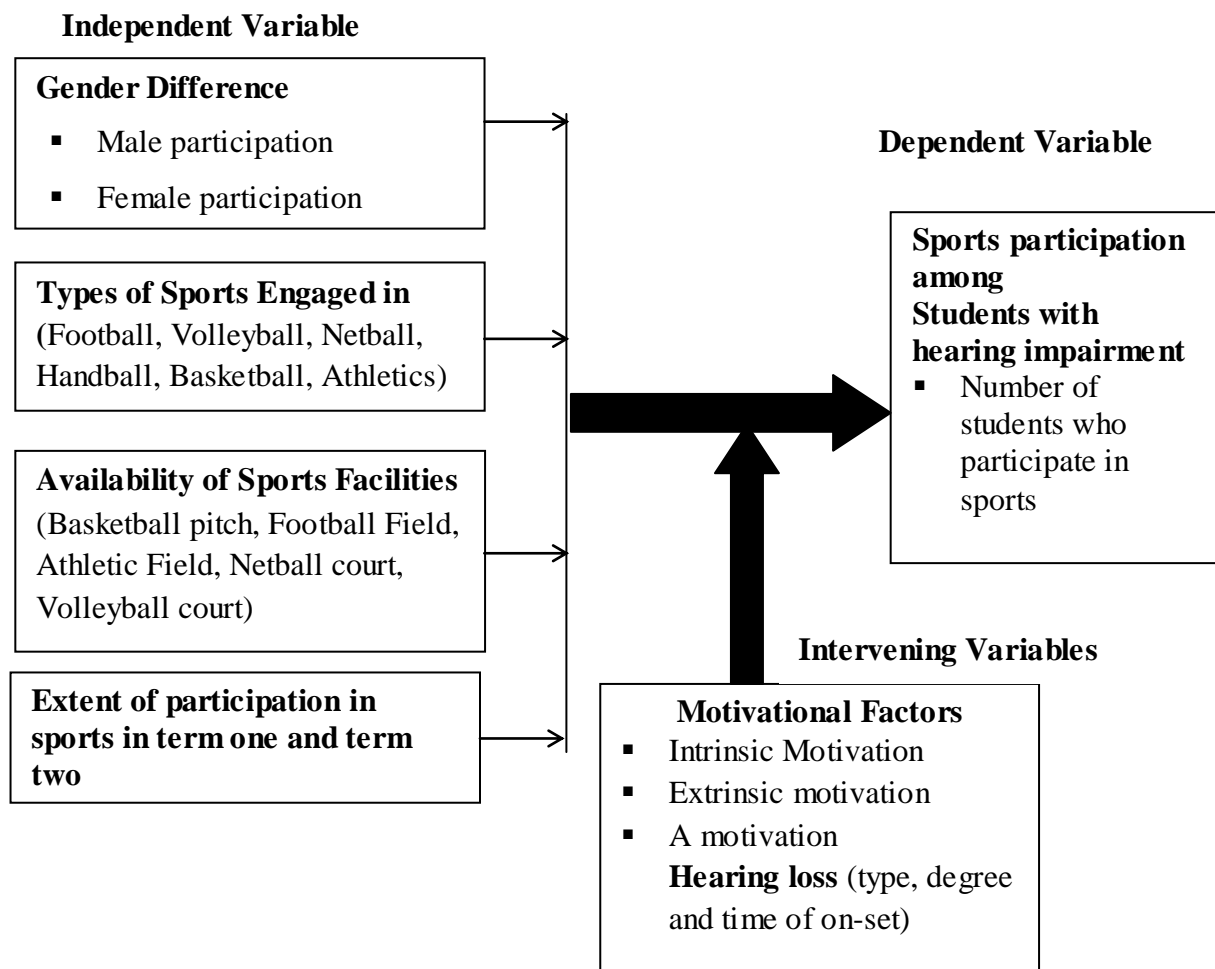


Figure 1.1 Conceptual Framework showing Determinants of Participation in Sports

Source: Researcher's own Model (2016)

Figure 1.1 shows a model which illustrates the main determinants of participation in sports such as gender, sports preference, availability of sports facilities, reasons for participation and participation frequency. Gender determines sports participation on the basis of physical and social perspectives. For instance, male students are more active in sports than their female counterparts since boys are more physically active than girls. Like other motives, availability of sporting activities and preference of sports among students play a key role in students' participation in sports. In this case, a student would prefer to participate in sports whose facilities

are available and functional. Preference of sports among students may improve the intensity and frequency of sports participation by students.

Intervening variables such as type, degree and time of onset of the hearing loss, internal motives (intrinsic factors) and external motives (extrinsic factors) complement the independent variables with respect to participation in sports by students. The interplay between intervening factors determines participation in sports by students with hearing impairment which is the study's dependent variable.

Motivation in this model is viewed from a broad perspective that includes intrinsic and extrinsic motivation factors. Thus, students' perspective on these factors can either be positive or negative. Subsequently, if the student is negatively influenced, the extent of participation in sports will be lowered and vice versa.

1.12 Operational Definition of Terms

Commitment: An inner state epitomizing the desire or resolve to continue engaging in any undertaking such as sports.

Students with hearing impairment: Learners with significant hearing loss which include hard of hearing and profound deafness.

Extent of participation: The frequency of students' involvement in sports.

Motivational factors: Reasons as to why students choose to or not to participate in sports.

Participation: Involvement in sports activities by students with hearing impairment

Sport enjoyment: A personal positive affective response to competitive experience, which reflects feelings and perceptions like liking, experienced fun, and pleasure.

Sports type preferred: The type of sport liked by most students with hearing impairment

Sports: All programmed physical activities students engage in while in school.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter presents a review of related literature to the topic under relevant sub-headings, namely, effects of hearing loss on sport participation, association between gender and participation, most preferred sport type by students with hearing impairment, association between sports facilities and participation and motivational factors to sports participation. Most importantly, the chapter attempts to identify the gaps that this study hopes to fill once it is concluded.

2.2 Effects of Hearing Loss on Participation in Sports

According to Musengi and Chireshe (2012) hearing loss affects between 4% and 5% of the world population. Sherrill (2004) describe hearing loss as hard of hearing or deaf with respect to the extent of loss. Types of hearing loss were examined based on three perspectives: sensor neural, mixed hearing loss and conductive (Sherrill, 2004). Children with hearing loss are likely to have higher risk of deficits in balance compared with children who are typically developing (Rajendran & Roy, 2011). The effect is more pronounced in those who have sensor neural hearing loss since the inner ear is affected by this type of hearing loss (Barnett & Weber, 2008; Riungu, 2002). Rajendran and Roy (2011) note that both anatomically and functionally, cochlea and vestibular end-organ are connected. Thus one or both systems may be impaired during, before or after severe injuries or trauma. Therefore, it is through visual and kinesthetic systems that many deaf children compensate for vestibular deficits in order to maintain static balance with eyes either opened or closed (Shinjo, Jin & Kaga, 2007; Rajendran & Roy, 2011). The balance problem does decrease to some people with increasing chronological age (Ammons & Ann, 2009). In a study by Riungu (2002), sports and physical education did improve strength, flexibility, and cardiorespiratory endurance of the students with hearing

impairment who participated. Riungu (2002) revealed that there was no improvement in balance after subjecting students with hearing impairment to sporting activities for eight weeks. Despite these findings, Gill *et al.* (2004) reveal that frequent exercise improved balancing among the deaf.

Hearing loss can also be classified depending on time of onset. The categories include the pre-lingual and post-lingual deaf. Chimedza and Petersen (2003) note that the earlier the hearing loss manifests itself in a child, the more hard he or is likely to developing the spoken language. The delay in language is associated with deaf and adversely impact negatively on the child's social development (Riungu, 2002). One adverse effect of language delay is low self-concept. Deaf children find it difficult, during play, to understand the game rules and make themselves understood by peers. They often feel confused, unworthy, frustrated, and may opt to withdraw from participating in sport activities. Missing childhood play is missing an opportunity to develop social skills. The child is disenfranchised from establishing and maintaining peer relationship through playing (Riungu, 2002). As a result, the child develops low self-esteem (Gallahue & Donnelly, 2003).

The decision for one to participate or not in sports depends on past experiences and how these experiences are interpreted and the perceived as an achievement determine future directions in relation to sports participation (Laker, 2002). The social and cultural differences between the hearing and the deaf children restrict social development to those with hearing loss (Riungu, 2002; Martin & Bat-Chava, 2003). The social gap experienced by the deaf children makes them feel socially isolated and unaccepted (Martin & Bat-Chava, 2003; Riungu, 2002; Scheetz, 2004). The child is disadvantaged in establishing and maintaining peer relationship through playing. Programmed sporting events in schools for the deaf can eliminate the effects of the social disadvantages deaf children experience at home (Stewart & Ellis, 2005; Stewart & Kluwin, 2001) as well as improving health related fitness (Riungu, 2002). The current study examined

participation in sports by deaf students in their various schools comparing term one and term two.

Sports activity requires motor skills developed right from childhood. Motor skill determines a child's quality of life because motor skill plays a key function in emotional and social functioning of an individual (Shapiro, Yun & Ulrich, 2002, as cited in Scheetz, 2004). It has been established that hearing loss does not affect deaf children's motor development since both the hearing and deaf children go through the same sequential and continuous age related progress in motor development. According to Haywood and Getchel (2001), children move from simple movements to complex motor skills depending on age. Studies have shown that the psychomotor characteristic of children with hearing loss has similar profiles to their hearing counterparts (Zwierzchowska, Gawlik & Grabara, 2008). Geddes (1978, as cited in Polat, 2011) assessed motor development among 11 children of age 4 to 6 years, where 9 were having hearing impairment while 2 were hearing. When such skills as running, walking, jumping, hopping, throwing, catching and kicking were tested, the results indicated that performance were dependent on age level. Contrary to these finding, Jones (2002) recorded a slightly higher mean score on gross motor development test among the 4 years old deaf children than that of the hearing children of the same age. The mean scores for the deaf children aged 5-10 years was, however, a little less compared to the hearing. These studies display a clear contradiction in relation to the association between age and motor development.

2.3 Effects of Gender on Participation in Sports

Societal expectations and beliefs perpetrated to children are based on the choices that they do make in the process of development. According to culture, sport activities were considered appropriate and even important activities for boys but not for girls. Teenage girls, for example,

were subject to discouragement or punishment if they involved themselves in vigorous and outgoing playful activities like running or climbing trees (Ramos, 2008).

Ramos (2008) argues that children are oriented to play games related to their gender roles. Traditionally, boys are encouraged and expected to play complex games which involve strategy and strength. They are also taught how to work towards specific goals and promote negotiations to settle disputes encountered during play. Girls on the other hand are discouraged from competitive activities. They engage in waiting for turns to perform simple repetitive activities such as jumping ropes or playing hop scotch (Wanderi, 2001). Studies have shown statistical differences to a great measure among genders with respect to sports preference (Kilpatrick *et al.*, 2005). Male students show tendency for team sports and competing generally, while female students prefer aerobic and dance. In order to make physical education more interesting and successful, opinions and attitudes of students are more than appreciated and it is they who can influence the introduction of all sorts of new programs such as aerobics, yoga, dances, badminton, rowing and so on. A variety of sports and recreational activities makes possible for everyone to find adequate physical activity given their anthropological characteristics, motor skills and motivation for participating. The current study has looked at gender, sport type, availability of sports facilities, motivation, and participation frequency as factor which can influence participation.

An annual report of the New Zealand Secondary School Sport Council's (NZSSSC) shows that there is a negative trend in engaging in sports among students in Te Puke High School and Katikati College (Carnachan, 2010). Further analysis in the two schools revealed that participation was highly associated with male students rather than female students. Thus, age, gender, ethnicity and socio-economic status are major correlating factors of physical activity

behavior among adolescents (Boot, Okely, Chey, Bauman & Macaskill, 2002; Gordon, Hullena, Harker, McKenzie & Meyer, 2008).

Deaf children are born and they grow in a hearing society and therefore go through the same cultural orientation in terms of gender. In schools for both boys and girls, boys dominate playgrounds. Consequently, boys are more likely to be involved in sports activities compared to girls (Haywood & Getchel, 2001; Skelton & Valentine, 2001). This position is supported Flodin (2004) who found that boys at the school-going age are more active in sports than girls. Averagely, girls spent only 36 minutes playing games as compared to boys who spent 68 minutes, equating to 19% of boys' total energy spent and only 12% for girls. The preference of sports of girls and boys was also different since boys covered more space and were more sensitive to space limits than girls. Australian football (7 to 1), cricket (3 to 1) and soccer (5 to 2) were the sports dominated by boys while girls preferred netball (11 to 1) and dance (4 to 1).

Stuart, Lieberman and Hand (2006) in their study on assessment of sport and physical activity preference involving a sample of 118 girls and 127 boys of ages 10-14 years, revealed that boys were interested in swimming, ball games and skating while girls preferred dancing and swimming. This implies that boys consistently liked fitness and sports performance activities while girls liked aesthetic and recreational culture. The study by Stuart *et al.* (2006) concludes that many girls have negative attitude towards sports, hence, they are less likely to enjoy competitive sports. In addition, girls are more intrinsically motivated than they are extrinsically (Rowe & Bibby, 2006). The current study, thus, sought to establish the effect of gender on sport participation among students with hearing impairment in the Kenyan context.

The above studies clearly show that majority of male children are likely to engage in sports that are more physical unlike females children who prefer tolerant sport activities. Nevertheless, the evidence is general and does not anticipate that children (of different gender) with hearing impairment may have different preferences for sport types. Additionally, these studies did not

focus on key variables determining either a girl or a boy with hearing impairment prefer one sport activity to another. The current study aimed at specifically identifying sport activities in which students with hearing impairment participate in and key factors that inform their preferences. It also analyzed the participation level in sports among the deaf based on gender.

2.4 Type of Sports Preferred by Students with Hearing Impairment

The preference of a sport type may be determined by such variables as personal preference, characteristics of the sport, medical condition, availability of the facilities (equipment, appropriate coaching), cognitive ability and social skills of the person (Whyte *et al.*, 2005). Humbert *et al* (2006) stated that many options are available when it comes to good sport and the most important factor in preference will be determining which sport to enjoy the most. Therefore, there is no one best sport for everybody considering individual's own personality in choosing a sport, and the cost and accessibility of necessary equipment. The more enjoyable sport the more likely consistent in practice (Shaw, Klieber & Caldwell, 1995 as cited in Whyte *et al.*, 2005).

Studies have shown reasons for sport participation among students with hearing impairment which include enjoyment or having fun, spending time with friends, improving fitness, developing competence and gaining new opportunities (Andreff, 2001). Participation in Sports leads to improved health related fitness levels. According to Riungu (2002), issues related to physical health are at the apex as obesity rates are becoming high globally, a condition affecting people regardless of age. It was reported in 2008 that over 40 million children of below five years and 1.4 billion adults were obese (WHO, 2013). The report recommended that young people should engage in sports in order to minimize their chances of become over-weight. Additionally, adults can enhance their health and substantially prevent the occurrence of chronic diseases such as diabetes, high blood pressure, osteoporosis, cancer and cardiovascular diseases

through regular exercise (Riungu, 2002; Stewart & Ellis, 2013). Keeping physical fitness was considered by the current study as one of the motivating factors for participation in sports.

Vute and Urnaut (2009) sampled 85 institutionalized physically disabled youth aged 13–21 from Slovenia and found out that the most popular sports in which they actively participated were table tennis, basketball and wheelchair hockey. Wishes for sports participation were directed towards swimming, horseback riding and motor sport. Cohesive elements such as accessibility, attractiveness and tradition were noticed. According to Sit, Lindner and Sherrill (2002), basketball, soccer, badminton, and swimming were the preferred sport type according to gender, school level, and different disability groups while rhythmic activities (e.g. aerobic dance, dancing, and gymnastics) and combative sports such as boxing, wrestling, karate, taekwondo, and judo were the least favored sports among Hong Kong Chinese with hearing impairment. Thus, a successful sports programme in which youth are involved should, whenever possible, respect their wishes regarding the choice of sports (Hill & Hannon, 2008). Ruddell and Shinenew (2006) further found that elite wheelchair basketball players were typically influenced by multiple agents including coaches and players with disabilities, therapists, and wheelchair sport camp. In addition, societal and environmental influences, gender, age, and skill level also influence the selection of sport (Eyler, Nanney, Brownson, Lohman, & Haine-Joshu, 2006; Hill & Cleven, 2005; Fromel, Formankova, & Sallis, 2002; Sallis, Prochaska, & Taylor, 2000).

Habits acquired during childhood and adolescence influence behavior to a great extent and the quality of life in adulthood (Telama *at al.*, 2005). It is of great significance to establish positive habit toward regular and lifelong physical exercise from the earliest age also. An important factor for a regular physical activity lies in proper offer of different sport-recreational programs since motivation is a key factor for a long term regular engagement to specific sport activities. Individuals who prefer sport competitions have shown an intrinsic motivation such as pleasure and challenge; in contrast to those who exercise without participating in competitions who have

shown extrinsic motivation towards physical appearance, weight and stress control (Kilpatrick *et al.*, 2005).

2.5 Sports Facilities

The importance of sport participation cannot be overemphasized among the deaf hence the sports facilities are fundamental and must be provided in every learning institution for the deaf. The outcomes of a study done by Quick, Simon and Thornton (2010) revealed that schools in England provided resources required for 46 unique games to both young ladies and young men with a mean of 25.6 games in regular secondary schools and 17.6 in special schools. The most widely recognized sport facility offered was for football in 98% of the examined schools with goal ball trailing at less than 1%. Woods, Quinlan, Moyna, Tannehill and Walsh (2010) found that poor or unavailability essential sports facilities in schools influenced the motivation to participate in sports among students.

A study in Egypt which sampled 48 football players from a registered sports club established as scale through which motivation to exercise football game among the deaf was measured, and motivation factors were scored (Demir, 2003). The study established that motivation was controlled by rewards, fame, societal relations, physical fitness and health challenges. This study highlights several factors that determine children's participation in sports depending on the environment of the learning institution and facilities provided. Similarly, the current study sought to find out motivational factors to sport participation in the selected secondary schools of the deaf in Kenya which have different environment with regard to provision of sport facilities.

In Kenya, the Ministry of Education (2009) created SNE arrangement that highlights the significance of comprehensive instruction of learners with exceptional needs. The Government's initiative was to give and finance discussions to learners with uncommon needs to take an

interest in co-curricular exercises to upgrade social incorporation. The assets were to be utilized to adjust the materials and hardware for co-curricular exercises. The current study takes into consideration the relationship between availability of sport facilities and other variables like participation and preference.

Mwangi (2009) conducted a study based on the use of selected instructional methods in physical education and its impacts on sports participation among children with hearing impairment in special units in public primary schools in Nairobi County, Kenya. The study revealed that the use of appropriate instructional strategies and facilities improved children's participation in sports. Mwangi (2009) concluded that as far as physical education is concerned, individual safety guideline for the exercise of students is the most significant to be established during practice. Mwangi (2009) recommended that teachers should have in mind that children with disabilities may not prefer to engage in physical activity due to the notion that it is hard for them to maintain with their non-disabled peers when conducting the programme. It was therefore necessary to establish how sporting resources influence sports participation of students with hearing impairment in Kenya. The assumption of the current study was that availability of sporting facility influence participation

2.6 Extent of Participation in Sports

A number of intrinsic and extrinsic motivators are at play in facilitating or impeding sports participation. Three elements can be identified: self-esteem or concept, attraction towards the activity and support from significant others (Weiss, 2004). Deaf children tend to manifest low self-concept (Marshark, Lang & Albertini, 2002). They may not develop a desirable self-perception from self-judgment of their physical ability. The Perceived Motor Competence (PMC) influences participation in sports. The judgment follows the mastery of FMS, social acceptance and success in the past engagements (Fox, 2000). Therefore, high or low self-

perception results from interacting and connecting with the significant others (Gallahue, & Donnelly, 2003). According to Weiss (2004), significant others include parents, teachers (for sports) and peers. Intrinsic motivation in children for active sports participation comes from a high self-perception (Weiss, 2004). The mastery of the basic skills and support from significant others are essential for intrinsic motivation. Smith (2004) emphasizes the place of positive peer relations in active sports participation. Having time for hobbies and interests (81%) are the things disabled people chose as being most important. Deaf children are however disadvantaged due to restricted social environment resulting from communication barrier.

Farid (2003) studied extreme games activities constraints among University Putra Malaysia students and found main impediments to be 'lack of interest' (intrapersonal) 'not enough time' (structural) and 'feeling unsafe' (intrapersonal). Nortey (2009) observes that the main reasons youths did not participate in sports included not knowing where to learn (intrapersonal), 'overcrowded facilities'(structural), 'physically unable to take part' (intrapersonal) and 'cost of transportation' (structural). Lieberman and Pecorella (2006) found that the main determinants of sports participation among children with hearing impairment were disability and health. Ibrahim (2004) also notes that lack of time and commitment in jobs are the major reasons for non-participation in sports. Other issues such as emphasis on tight rules, training drills, competition and winning also emerged in focus groups in Ibrahim's (2004) study.

Salman and Naz (2012) investigated the factors that motivate participation of students with hearing impairment in sports in eight special schools in Karachi in Pakistan, Asia. The study was based on the premise that participation in sports enhances physical and social rehabilitation for disabled people since it has a holistic development and increases awareness of self-worth, ability, courage and capacity. The study reported that the most popular sporting activities were cricket, hockey and football and that more boys than girls were involved in these sports. The

findings show that motivational factors have significant influence on the decision of students with hearing impairment to participate in sports. These factors range from physical, psychological to economic factors. Factors that satisfy personal enjoyment and competition were rated higher than financial and physical gain (Salman & Naz, 2012). The relevance of Salman and Naz (2012) study to the current study lies in both the study purpose and target population. Both studies examine factors that influence sports participation and are both concerned with secondary school students in special institutions for the deaf. While the above cited study was located in Karachi in Pakistan in Asia, the current study is based in Kenya, Africa). However, both are developing countries. Kenya and Pakistan could be having different experiences and challenges for their students with hearing impairment.

In Kenya, Riungu (2002) did a study on the effects of Physical Education (PE) and Sports program on deaf pupils' health related fitness and assessed the impact of PE and sports to primary school pupils. The pupils, as the subjects, were put in a training program for 8 weeks. The study revealed that participation in sports and physical education improved health related fitness. The study recommended regular involvement in physical education and sports activities. Katiwa (2008) also studied the efficacy of using structured physical exercise as an intervention for managing stereotype behaviors in autism. Study sample was 34 autistic children at the Nairobi special unit. This study recommended structured physical exercise as a means to manage the challenging behavior and enhance better health and wellness amongst individuals with autism. The current study goes beyond the effectiveness of sport participation to an individual and sought to establish factors determining sports participation.

In a study by Longmuir and Bar-Or (2004) involving 72 deaf children (male=33; female=39), the majority (77.8%) of the respondents had participated in physical activity during their leisure time while 22.2% had not been involved in any leisure activities. Smith (2004), in his study on

involvement of children in different kinds of sports, found that approximately 55% of 11-13 year olds would play certain games on any given day. However, engagement in sports is lower in girls, older children and during holidays. The study also found that a child spent 32-69 minutes of his or her daily time in sports, while the overall level of participation decline with age, with a sharp fall during puberty, which is higher in girls than in boys. These two studies raised the issue of time taken in sports participation by deaf children. The current study considered time as a factor in sports participation and went further to compare levels of participation within two-thirds of the annual academic calendar.

Greenberg (2000) conducted a study in London that found that 55% of the sample aged 16-25 participated in sports for 30 minutes once a week, 31% of adults aged 26 years and above participated once a week for 30 minutes while 40% male and 30% female aged 16 years and above participated in moderately intensify level sport at least once a week. In other studies (Smith, 2004; Longmuir & Bar-Or, 2004), it was found that participation is higher for boys but declined with age.

Nortey (2009) examined the barriers affecting participation of the deaf in the Ghanaian society. The purpose for the study was to identify both the barriers and their effect on the deaf and hard of hearing's societal participation. The study was based on the assumption that lack of participation may lead to lack of self-esteem and control over an individual's life and health. The study reported barriers in family relations, with friends, in accessing education, in work places, in accessing healthcare, in accessing government support. Though specific to Ghana, Nortey's study was general in its concerns and hence did not address motivators to sports participation by the deaf in specific activities in the societal and institutional life. Nevertheless, it positively identified impediments to participation of the deaf in different facets of the society in an African country namely Ghana.

Andreff (2001) investigated the database of the International Committee of Sports for the Deaf for data on Deaflympics participants. The study reported comparatively low participation and a gradual increase in participation in Deaflympics by the developing countries. The low participation is mostly attributed to a relatively small size of the governing body (some with only two full-time staff at the national office) and over-reliance on volunteers to run Deaflympics affairs in these countries. It was found that 23% of the developing countries have never taken part in the sports with Africa taking the largest share of 13 out of 35 non-participating countries.

2.7 Summary of the Literature and Research Gaps

Reviewed studies in the literature entirely focused on provision of resources in sport activities for learners with HI (Muhammad *et al.*, 2011; Quick, Simon & Thornton, 2010; Stewart & Ellis, 2013). However, these studies did not specify the activities upon allocation of funds and resources meant to purchase the fundamental facilities. Thus, this study sought to establish the most commonly facilities available for sports in particular in order to bring out a comprehensive understanding based on the sports among the selected secondary schools for the deaf.

Other studies related to this study highlight several factors that determine children's participation in sports depending on the environment of the learning institution and facilities provided (Farid, 2003; Fox, 2000; Ibrahim, 2004; Stewart & Ellis, 2013; Weiss, 2004). Similarly, this study also sought to find out motivational factors to sport participation in secondary schools for the deaf in Kenya. Most of the available studies on disability sports done in Kenya focus mainly on the area of the mentally challenged and the physically handicapped (Ajwang', 2006; Katiwa, 2008; Mwangi, 2009). The current study focused on the students with hearing impairment in secondary schools for the deaf in Kenya.

Another reason for conducting the current study was that very few studies focusing on students with disabilities especially those with hearing impairments have been carried in the Kenyan context. Commenting on such a situation, Peterson and Hittie (2010) note that in disability related challenges there seems to be a lack of consistent data (Polat, 2011; Wanderi, Mwisukha & Bukhala, 2009). Apart from the fact that there are few studies in the field, many of them are confined to teachers and teaching method at the exclusion of students who are the vulnerable ones in sports in terms of their levels of participation. Thus any study that fails to involve local stakeholders at the grassroots is considered inadequate (Polat, 2011). This research aimed at bridging the existing gap by investigating the involvement of students with hearing impairments so as to make a valuable contribution to the existing body of research knowledge which might be used as a future reference for similar studies.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter highlights the methods and procedures used in the study. It gives the research design, study variables, location of the study, target population, sampling techniques and sample size, research instruments, pilot study, data collection procedures and data analysis. The chapter also describes ways in which issues of reliability, validity and ethical considerations were addressed.

3.2 Research Design

The study adopted descriptive research design. As pointed out by Mugenda and Mugenda (2003), a descriptive design can be used to collect information about people's attitudes, opinions or habits. She further notes that descriptive designs are used to allow researchers gather, present and interpret information for the purposes of clarification. The design was chosen because the researcher sought to analyze factors influencing participation in sports among students with hearing impairment in Kenyan secondary schools for the deaf. As pointed out by Orodho (2009), descriptive studies are not only restricted to fact finding, but may often result in the formulation of important principles of knowledge and solution to significant problems. The design was therefore deemed most efficient in analyzing the factors influencing participation in sports among students with hearing impairment in Kenyan secondary schools for the deaf.

3.3 Research Variables

The dependent variable was participation in sports by students with hearing impairment in secondary schools for the deaf in Kenya. Participation was measured in terms of the number of students who participated and those who did not participate in sports. Independent variables included gender, sport type, available facilities, and the extent of participation in term one and

term two. Intervening variables were measured based on external and internal motives for participation and level of hearing loss.

3.4 Area of Study

This study was conducted in 7 secondary schools for the deaf in 7 counties (as shown in Appendix II). The schools included Kuja Secondary School for the Deaf in Migori County, Kedowa Secondary school for the deaf in Kericho County, Ngala secondary school for the deaf in Nakuru County, Pwani secondary school for the deaf in Kilifi County, St. Brigit secondary school for the deaf in Busia County, Murang'a secondary school for the deaf in Muranga County and Rev. Muhoro secondary school for the deaf in Nyeri County.

3.5 Target Population

The target population was 574 students with hearing impairment and 69 teachers in 7 secondary schools for the deaf who were distributed as shown in Table 3.1

Table 3. 1 Distribution of students and teachers in Special Schools for the Deaf

County	School	Student enrolment	Teachers
Migori	Kuja Sec. Sch. for the Deaf	120	11
Nyeri	Rev. Muhoro Sec. Sch. for the Deaf	130	12
Murang a	Muranga Sec. Sch. for the Deaf	53	9
Busia	St. Brigit Sec. Sch. for the Deaf	86	9
Kilifi	Pwani Sec. Sch. for the Deaf	71	11
Nakuru	Ngala Sec. Sch. for the Deaf	64	9
Kericho	Kedowa Sec. Sch. for the Deaf	50	8
Total		574	70

3.6 Exclusion and Inclusion Criteria

3.6.1 Exclusion Criteria

Form One and Form Four students were excluded from the study. Form One students were not included in the study since majority were not in the school team. Students with other disabilities alongside hearing were also excluded from the study sample.

3.6.2 Inclusion Criterion

All students with hearing impairment in Form Two and Three were included in the study. Additionally, three teachers responsible for games and sports from each school were included.

3.7 Sampling Procedures and Sample Size

3.7.1 Sampling Procedure

The researcher used purposive sampling technique to select all Form 2 and 3 students from 7 secondary schools for the deaf, 1 games master and 2 coaches from each of the 7 schools translating to a total sample of 21 teachers. Purposive sampling was utilized by the researcher in both cases because it allowed the use of population sample which was informative (Mugenda & Mugenda, 2012).

3.7.2 Sample Size

For the purpose of the study the researcher sampled 306 students and 21 teachers which represented 53.3% and 30.4% respectively of the target population. This translated to a total of 327 respondents. Cohen, Manion and Marrison (2007) emphasize that a minimum of 30% of the population is recommended to be taken as a sample for a small population. Nonetheless, the number of respondents who participated in the study reduced to 283 students and 19 teachers. This was due to inevitable study challenges such as absenteeism and failure to return questionnaires or return of unfilled questionnaires. The sample taken was considered adequate to make generalization on the actual population size. The sample size is summarized in Table 3.2.

Table 3. 2 Sample Size

School	Form 2	Form 3	Total
St Brigit	15	16	31
Muranga	24	16	40
Pwani	20	22	44
Kedowa	15	10	25
Ngala	19	14	33
Rev.Muhoro	25	36	61
Kuja	35	37	72
Sub total			306
Teacher			21
Total	153	151	327

3.8 Research Instruments

The research tools included two questionnaires: one for students (Appendix IV) and another for teachers (Appendix V).

3.8.1 Questionnaire for Students

The questionnaire (as shown in Appendix IV) was made of 8 closed-ended items which were used to elicit relevant and specific data to enable the study to be more focused and realistic in its findings. The questionnaire was made of five sections: A-E. Section A sought personal details such as gender and age. Section B comprised questions related to preferred sport type by the students with hearing impairments. Sections C and D gathered information related to sports facilities and motivational factors for sports participation among students. Finally, Section E collected data related to the rate at which students with hearing impairment participated in sports. The questionnaire was convenient because the study covered a diverse region. It was designed and developed in close consultation with supervisors to address each objective.

3.8.2 Questionnaire for Teachers

The questionnaire for teachers (as shown in Appendix V) was made of 4 items: 3 close-ended items and 1 open-ended item which allowed the respondents to give their views and opinions on participation in sports by students with hearing impairment. The questionnaire for teachers was used to seek data related to sport type in which most students preferred to participate, the most commonly available sports facilities in the schools under study and the motivational factors to sport participation by the students. Teachers were required to respond by indicating using a tick and giving brief explanations.

3.9 Pilot Study

A pilot study was carried out in Machakos Secondary School for the Deaf among 3 teachers and 28 students (in Forms Two and Three), with hearing impairments who were not included in the main study. The school was selected because it had similar characteristics as the study sample. The pilot study enabled the researcher to check for clarity of questions, appropriateness, relevance and comprehensiveness of all the questions in both students' questionnaire and teacher's questionnaire. This enhanced validity and reliability of the research tools. The pilot study was also an opportunity for the researcher to familiarize herself with data collecting procedure.

3.9.1 Reliability

The method of Test-Retest was used to establish reliability of the research tools. The tools were administered twice at an interval of one week to Form 2 and Form 3 students with hearing impairment. Three teachers were also involved. The results were analyzed and the reliability coefficient calculated using Pearson correlation coefficient. The results indicated that there was a strong positive correlation between the two tests scores with a correlation coefficient of 0.87 for the students' questionnaire and a correlation coefficient of 0.81 for the teachers' questionnaire.

The reliability test of the data collected using the research tools was also analyzed using the Cronbach's Alpha test of reliability. The results of Cronbach's Alpha test are shown in the table below.

Reliability Statistics

Cronbach's Alpha	N of Items
.904	283

The results show that the Cronbach's alpha is very significant since it is almost 1.000. These results portray that the data used in the analysis is about 90.4% reliable. Therefore, the research tools were considered reliable for data collection as well as for the results, findings and inferences generated from the study (Mugenda & Mugenda, 2012).

3.9.2 Validity

To ascertain whether the research tools adequately reflected the objectives of the study, the instruments were validated for content by the supervisors at Kenyatta University. This assisted to identify weaknesses with respect to structure of questions based on the respondent's understanding level. The appropriateness of the questions with regards to coverage and full representation was ascertained through content validity. During the pilot study period, the research instrument was adjusted accordingly as need arose. Some signs in KSL were dropped and new ones adapted during the pilot period. The adapted signs were maintained throughout the data collection period. To ensure consistency and minimum sign variations, interpretation was done by the researcher-a competent KSL interpreter (See Appendices XIV and XV).

3.10 Data Collection Procedures

The researcher obtained an introduction letter from the graduate school, Kenyatta University (see Appendix VII). Thereafter, a permit was sought from the National Council for Science Technology and Innovation (NACOSTI) to conduct the study (as shown in Appendices VIII and

IX). Permits were sought from relevant education directors of the respective Counties (as shown in Appendices X-XII).

The researcher then booked an appointment with the principals of the sampled secondary schools. The study took duration of two weeks. Upon arriving at the schools, the researcher sought permission from the principals to collect data in the schools and permission letters from various relevant authorities were issued to the principals. The principals then assigned teachers who helped with the arrangement of rooms and the assembling of respondents.

The researcher explained to the respondents the purpose of the study, assured them of confidentiality, and requested them to sign consent forms. Each respondent was then given the adjusted questionnaire to fill. The researcher interpreted each item in the questionnaire to KSL before the student respondents were allowed to fill. The researcher with the help of the teachers collected the completed questionnaire immediately.

Teachers were given a questionnaire each and were left to respond at own convenience and return them upon completion by a given date. The completed questionnaires were later collected and safely kept for analysis. At the end of the exercise, the researcher appreciated all the participants.

3.11 Data Analysis and Presentation

Data collected from the field was processed and analyzed using the Statistical Package for Social Sciences (SPSS) version 20. Quantitative data related to demographic information of the respondents such as age and gender was analyzed using descriptive statistics such as frequency and percentages. Qualitative data generated from open-ended items was analyzed using themes and discussed according to research objectives. Frequency tables and bar graphs were used to

present data. Descriptive analysis utilized numerical methods to look for patterns in data related to preferred sport type among students and availability of sports facilities. Cross-tabulations and Chi-square (χ^2) tests were used to test whether variables were associated. The chi-square statistic was used to evaluate the crude association between participation in sports and gender based on kind of sports students engaged in school. Poisson regression with robust variance, represented by the Prevalence Ratio (95%) and Confidential Interval (95%) was applied to indicate the possible effects of gender as a confounder in sports participation among students with hearing impairment. Regression analysis was used to get the statistical significance of independent variance. A cross-tabulation with Chi-square statistics was used to measure the relationship between frequencies of sports participation and gender at 95% significance level. A summary report was made by use of percentages and frequency distribution tables.

3.12 Logistical and Ethical Considerations

The researcher obtained an introduction letter from the Graduate School, Kenyatta University. Subsequently, a research permit was obtained from the National Commission for Science Technology and Innovation (NACOSTI, see Appendices VIII AND IX). The permit was used to obtain permission letters from various County Directors of Education in the respective Counties of study (see Appendices X-XII). Informed consent for participation was sought and consent letters were filled and signed by the participants the research instrument was administered (as shown in Appendix VI). This gave the participants freedom to choose whether to participate or not. Respondents were also assured that the information they gave was confidential and for only academic purpose.

CHAPTER FOUR

PRESENTATION OF THE FINDINGS

4.1 Introduction

This chapter presents the findings of the study guided by the research objectives as outlined in chapter one. The chapter is divided into seven sub-sections. Sub-sections one and two present the response return rate of questionnaires and demographic characteristics of students with hearing impairment in Kenya. Sub-section three presents the data related to the effect of gender on sport participation among students with hearing impairment in Kenya. The remaining five sub-sections present findings of the study based on the research objectives.

4.2 Response Return Rate

A total of 306 questionnaires for students and 21 questionnaires for teachers were distributed. However, 283 questionnaires for students were duly filled and 19 questionnaires for teachers were returned. This gave a response rate of 93.5% for students' questionnaires and 90.5% for teachers' questionnaires. These percentages were considered good enough to make generalization of the findings. According to Creswell (2003) a response rate of at least 75% is good enough for generalization of the findings when questionnaires are used.

4.3 Demographic Characteristics of the Respondents

This sub-section presents findings on age, gender and levels of hearing loss among the student respondents.

4.3.1 Age of Respondents

Table 4. 1 Frequency Distribution of Students by Age

Age Bracket	Freq.	%
15-20	244	86.2
21-25	39	13.8
26-30	0	0
Above 30	0	0
Total	283	100.0

As shown in Table 4.1, majority (86.2%) of the students were between ages 15-20 and 13.8% being between 21-25 years. However, none of the students had more than 26 years of age. Age was considered an important variable since it has an impact on the participation of any particular sport chosen by the students.

4.3.2 Gender of Respondents

Table 4. 2 Frequency Distribution of Students by Gender

Gender	Freq.	%
Males	186	65.7
Females	97	34.3
Total	283	100.0

Out of a total of 283 students, 65.7% were males and 34.3% were females as shown in Table 4.2. Gender was considered another important variable as it provides insights into the types of sports that the students participated and reasons for such choices.

4.3.3 Level of Hearing Loss of Student Respondents

The study sought to find out the level of the hearing loss of the respondents. The results are presented in Table 4.3.

Table 4. 3 Distribution of Students by Level of Hearing Loss

Level of Hearing Loss	Freq.	%
Hard of hearing	116	41.0
Profound deaf	167	59.0
Total	283	100.0

Table 4.3 indicates that majority (59%) of the respondents were profoundly deaf while 41% represented hard of hearing.

4.3.4 Hearing Loss and Gender

A cross tabulation between hearing loss and gender was computed to establish the distribution of students' hearing loss alongside gender. The findings are presented in Table 4.4.

Table 4. 4 Hearing Loss and Gender

Gender/Hearing loss	Male		Female	
	Freq.	%	Freq.	%
Hard of hearing	74	63.8	42	36.2
Profoundly deaf	112	67.1	55	32.9

N=283

Table 4.4 shows that hearing loss affects more males than their female counterparts. Majority of male students were hard of hearing at 63.8% while the females were represented by only 42%.

The findings also reveal majority (67.1%) of male students as profoundly deaf while only 32.9% of the female students were in this level of hearing loss.

4.4 Effects of Gender on Sport Participation of Students with Hearing Impairment

The first objective of this study sought to establish effects of gender on participation in sports by students with hearing impairment in Kenya. In order to achieve this, the study sought to establish whether the student respondents participated in any games for the school team in the previous 12 months prior to this study. The findings were as follows:

4.4.1 Participation in Sports in the Previous 12 Months Prior to the Study

Table 4. 5 Participation in Sports Related to Gender of Students

Response category	Male		Female		Chi-square test		
	Freq	%	Freq	%	Value	df	Sig.
Participated	146	78.5	74	76.3	37.210	1	0.000
Did not participate	40	21.5	23	23.7			
Total	186	100	97	100			

Findings in Table 4.5 indicate that 78.5% of male students and 76.3% of female students participated in sports in the previous twelve months prior to the study. The findings also show that 21.5% of male students and 23.7% of female students did not participate in sports during the same period. The results in table 4.5 were also used to test the research hypothesis 1 stated as follows: Gender has no significant influence on sport participation among students with hearing impairment in secondary schools for the deaf in Kenya.

The results in Table 4.5 show that the Chi-square value for the cross tabulation of gender against sport participation among students with hearing impairment in secondary schools for the deaf in Kenya is 37.210 at 1 degree of freedom and significant is 0.000. Therefore, according to the results, we reject the null hypothesis (H_0) since p-value is less than 0.05 and significantly concluded that gender has significant influence on sport participation among students with hearing impairment in secondary schools for the deaf in Kenya.

4.4.2 Reasons for Participating in Sports

Students who participated in sports as shown in table 4.5 above (78.5% male students and 76.3% female students) were asked to give reasons for their participation in sports. The frequencies and percentages were used for this analysis. The results were summarized in Table 4.6.

Table 4. 6 Reasons for Participating as Reported by Students

Gender/ Reasons for non-participation	Male (N=146)		Female (N=74)	
	Freq	%	Freq	%
Fun	77	52.7	38	51.3
Rewards	31	21.2	5	6.8
Going places	19	13.0	19	25.7
Socialize	11	7.5	11	14.9
Future career	8	5.5	1	1.4

The findings in Table 4.6 show that slightly over half of both male and female students participated in sports for fun at 52.7% and 51.3% respectively. Other reasons given by male students as to why they participated in sports include rewards (31%), going places (13%), socialization (7.5%) and prospects of a future career (5.5%) while female students indicated that they participated in sports as an opportunity to visit places (25.7%), socialize (14.9%) and for

rewards (6.8%). Interestingly, only one female student indicated that she was motivated to participate in sports as a future career.

4.4.3 Reasons for not Participating in Sports alongside Gender

The study further sought to inquire why 21.5% of the male students and 23.7% of the female students did not participate in sports as shown in table 4.5 above. Table 4.7 shows the summary of the multiple-choice reasons why the 22.3% of the respondents did not participate in sports with respect to gender.

Table 4. 7 Reasons for not Participating as Reported by Students

Gender/ Reasons for non-participation	Male (N=40)		Female (N=23)	
	Freq	%	Freq	%
Lack of skills	14	35	2	8.7
Not being selected to the team	10	25	3	13
Lack of interest	6	20	9	39.1
Lack of time	4	10	4	17.4
Weak physique	3	7.5	2	8.7
Sickness	2	5	1	4.3
Low self-perception	1	2.5	0	0

The findings in Table 4.6 indicate that, more male students did not participate in sports because of lack of skills at 35% compared to 8.7% of female students. Conversely, the findings further indicate that 39.1% of female students had no interest in sports at all compared to 20% of male students. Male students also lamented that they were not being selected to the school team at 25% as compared to 8.7% of the females. Reasons such as lack of time, weak physique, sickness and low self-perception were also revealed among student respondents.

4.5 Type of Sport Preferred by Students with Hearing Impairment

The second objective for this study was to identify types of sports that students with hearing impairment participate in. In order to establish this, student respondents were asked to indicate the type of sports that they were actively engaged in. Descriptive statistics such as frequency distributions and percentages were used to summarize the findings. The results are presented in Table 4.8.

4.5.1 Types of Sports Preferred by Students as Reported by Students

Table 4. 8 Types of Sports Preferred by Students

Sports Type	Preference Freq.	(%)
Football	118	41.7
Volleyball	45	15.9
Netball	31	11.0
Handball	13	4.6
Basketball	14	4.9
Athletics	62	21.9
Total	283	100.0

Table 4.8 indicates that the top active participation of the students was in football at 41.7%, followed by athletics at 21.9%, volleyball at 15.9%, netball at 11%, basketball at 4.9% and handball comes last at 4.6%. Other sports reported include table tennis, badminton and wheelchair hockey even though they were the least favoured sports.

4.5.2 Sport Type Preferred as Reported by Teachers

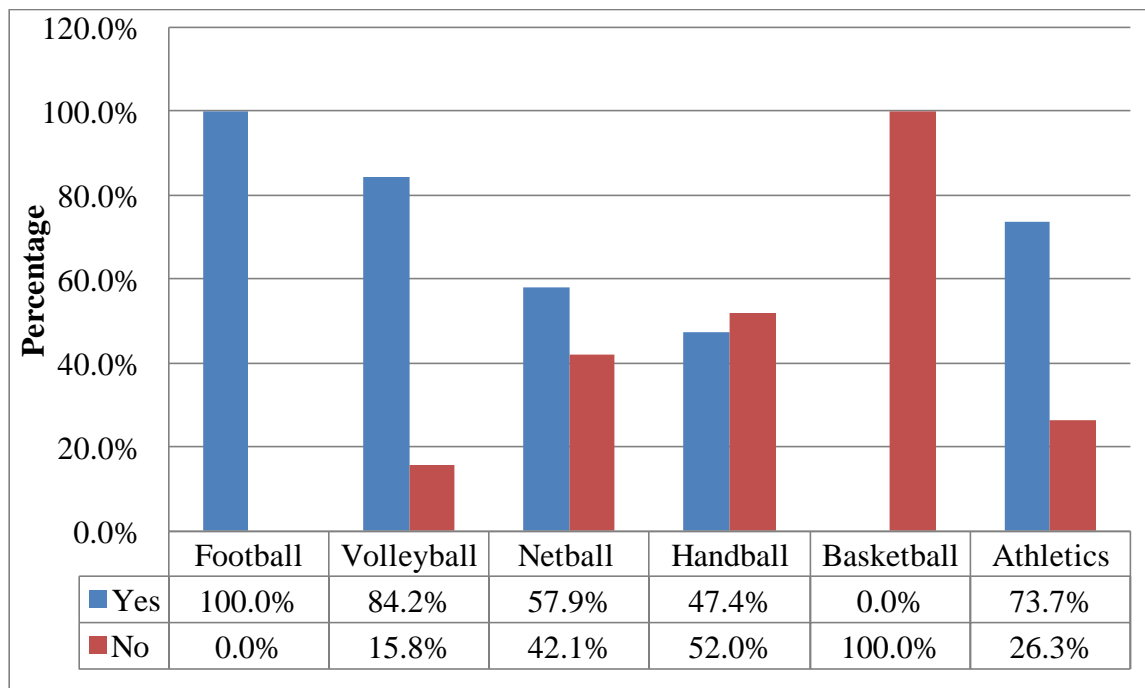


Figure 4.1 Sport Type Preferred as Reported by Teachers

Figure 4.1 shows that the most preferred sport type as reported by the teachers was football with 100% “Yes” responses; followed by volleyball at 84.2%; athletics at 73.7%; netball at 57.9%; handball at 47.4%; and basketball at 0%. These findings confirm the results from students with hearing impairment in Table 4.8.

4.5.3 Gender and Sport Type

The study sought to establish the relationship between gender of students with hearing impairment in Kenya and engagement in different types of sports. A Chi-square test, Poisson regression with robust variance, represented by the Prevalence Ratio (PR) and 95% Confidential Interval (95% CI) was applied to indicate the possible effects of gender, as an independent variable, in sports participation among students with hearing impairment. Table 4.9 shows the relationship between gender and participation in different types of sports.

Table 4. 9 Relationship between Gender and Engagement in Sport Type (Univariate Model)

Sport Type	Preference	Gender (%)	
		Male	Female
Football	L-Frequency	6.4	11.2
	M-Frequency	49.9	59.9
	H-Frequency	43.6	28.9
		P=0.001 (Sig. at 5%)	
Volleyball	L-Frequency	5.6	13.7
	M-Frequency	49.6	62.9
	H-Frequency	44.8	23.5
		P=0.001(Sig. at 5%)	
Netball	L-Frequency	49.4	46.5
	M-Frequency	41.6	44
	H-Frequency	9	9.5
		P=0.0282(Sig. at 5%)	
Handball	L-Frequency	32.4	57.6
	M-Frequency	41.2	33.8
	H-Frequency	26.4	8.6
		P=0.001(Sig. at 5%)	
Basketball	L-Frequency	39	57.6
	M-Frequency	39.9	32.8
	H-Frequency	21.1	9.6
		P=0.001(Sig. at 5%)	
Athletics	L-Frequency	47.8	48
	M-Frequency	42.2	44.7
	H-Frequency	10	7.3
		P=0.411(Sig. at 5%)	
		n=283	

L-Frequency=Low frequency

M-Frequency=Middle frequency

H-Frequency=High frequency.

The findings indicate that a higher frequency of football was significantly associated with male gender at 43.6%. This implies that more male students engaged in football than their female counterparts. Similarly, higher frequency of volleyball was significantly associated with male gender at 44.8%. The frequency of netball was significantly associated with female gender. The frequency difference in athletics was very minimal implying that almost equal number of male students and female students engaged in athletics.

4.5.4 Type of Sports Preferred and Hearing Loss

It was also deemed necessary to cross-tabulate sport type preferred and hearing loss, so as to establish whether a particular type of hearing loss made the respondents liked a particular type of sports. The findings were summarized in Table 4.10.

Table 4. 10 Cross-Tabulation between Sports Type Preferred and Hearing Loss

Hearing Loss/ Sports liked most	Hard of hearing		Profoundly deaf	
	Feq	%	Feq	%
Football	40	33.9	78	66.1
Volleyball	28	62.2	17	37.8
Netball	14	45.2	17	54.8
Handball	8	61.5	5	38.5
Basketball	3	21.4	11	78.6
Athletics	23	37.1	39	62.9

N=283

Table 4.10 shows that those of hard of hearing love playing volleyball (62.2%) and handball (61.5%) compared to profoundly deaf who love playing football (66.1%), basketball (78.6%) and athletics (62.9%).

4.5.5 Relationship between Sport Type Preference and Participation

The study sought to establish the relationship between preferred sports among students and their participation in them. To establish this, Chi-square test, based on research hypothesis 2 and Poisson regressions at 95% Confidential Interval (95% CI), was conducted. The research hypothesis 2 to tested in this section was; there are no types of sports that students with hearing impairment in secondary schools for the deaf participate in. The prevalence ratio of sports preference and participation in sports was computed using multivariate model together with the

Chi-square results. Table 4.11 shows association between regular participation in sports and the frequency of the sport activities.

Relationship between Sport Type and Participation

Table 4. 11 Relationship between Sport Type and Participation (Multivariate Model)

Sport		Participation in sports		
		Sports (Yes) N (%)	Crude PR(95% CI)	Adjusted* PR(95% CI)
Football	L-Frequency	33 (11.7)	1.00	1.00
	M-Frequency	148 (52.3)	1.00 [0.64–1.58]	1.13 [0.72–1.76]
	H-Frequency	102 (36)	0.98 [0.62–1.56]	1.28 [0.81–2.02]
			P=0.189	P=0.001
Volleyball	L-Frequency	97 (34.3)	1.00	1.00
	M-Frequency	123 (43.5)	1.33 [1.00–1.76]	1.32 [1.00–1.74]
	H-Frequency	63 (22.3)	2.79 [2.05–3.79]	2.69 [1.98–3.64]
			P=0.000	P=0.000
Netball	L-Frequency	85 (30)	1.00	1.00
	M-Frequency	104 (36.7)	1.71 [1.24–2.34]	1.56 [1.13–2.16]
	H-Frequency	94 (33.2)	3.03 [2.22–4.13]	2.55 [1.80–3.60]
			P=0.282	P=0.413
Handball	L-Frequency	92 (32.5)	1.00	1.00
	M-Frequency	121 (42.8)	1.53 [1.00–1.76]	1.52 [1.00–1.74]
	H-Frequency	71 (25.1)	2.89 [2.05–3.79]	2.79 [1.98–3.64]
			P=0.001	P=0.001
Basketball	L-Frequency	99 (35)	1.00	1.00
	M-Frequency	122 (43.1)	1.43 [1.00–1.76]	1.42 [1.00–1.74]
	H-Frequency	61 (21.6)	2.79 [2.05–3.79]	2.69 [1.98–3.64]
			P=0.001	P=0.001
Athletics	L-Frequency	33 (11.7)	1.00	1.00
	M-Frequency	148 (52.3)	1.00 [0.64–1.58]	1.13 [0.72–1.76]
	H-Frequency	102 (36)	0.98 [0.62–1.56]	1.28 [0.81–2.02]
			P=0.989	P=0.577

*Adjusted for gender

L-Frequency=Low frequency

M-Frequency=Middle frequency

H-Frequency=High frequency.

PR=Prevalence ratio

95% CI=Confidence interval of 95%

As shown in Table 4.11, the relationship between sport preference and participation remained statistically significant. The three sports preferred positively associated with participation were volleyball (p-value= 0.000), handball (p-value= 0.001) and basketball (p-value=0.001). There was no significant association between sport preference and participation in athletics and net ball as reflected in the p-value (athletics' p-value=0.577 and Netball's p-value=0.413). On the other hand, in football, there was no significant crude association between preferred sports and participation (p-value=0.189) but after adjusting for gender, the adjusted association became significant (P-value=0.001).

Therefore, depending on these results and research hypothesis 2, it was significantly concluded that students with hearing impairment in secondary schools for the deaf prefer participating in football, volleyball, handball and basketball.

4.6 Availability of Sports Facilities

The third objective of the study was to establish the commonly available sport facilities in the selected schools for the deaf. The results in figure 4.2 and figure 4.3 were handy in answering the research question 3 and research hypothesis 3.

H₀(3): There are no significantly common available sports facilities in secondary schools for the deaf. Against;

H₁(3): There are significantly common available sports facilities in secondary schools for the deaf.

The results are presented in Figure 4.2 and figure 4.3.

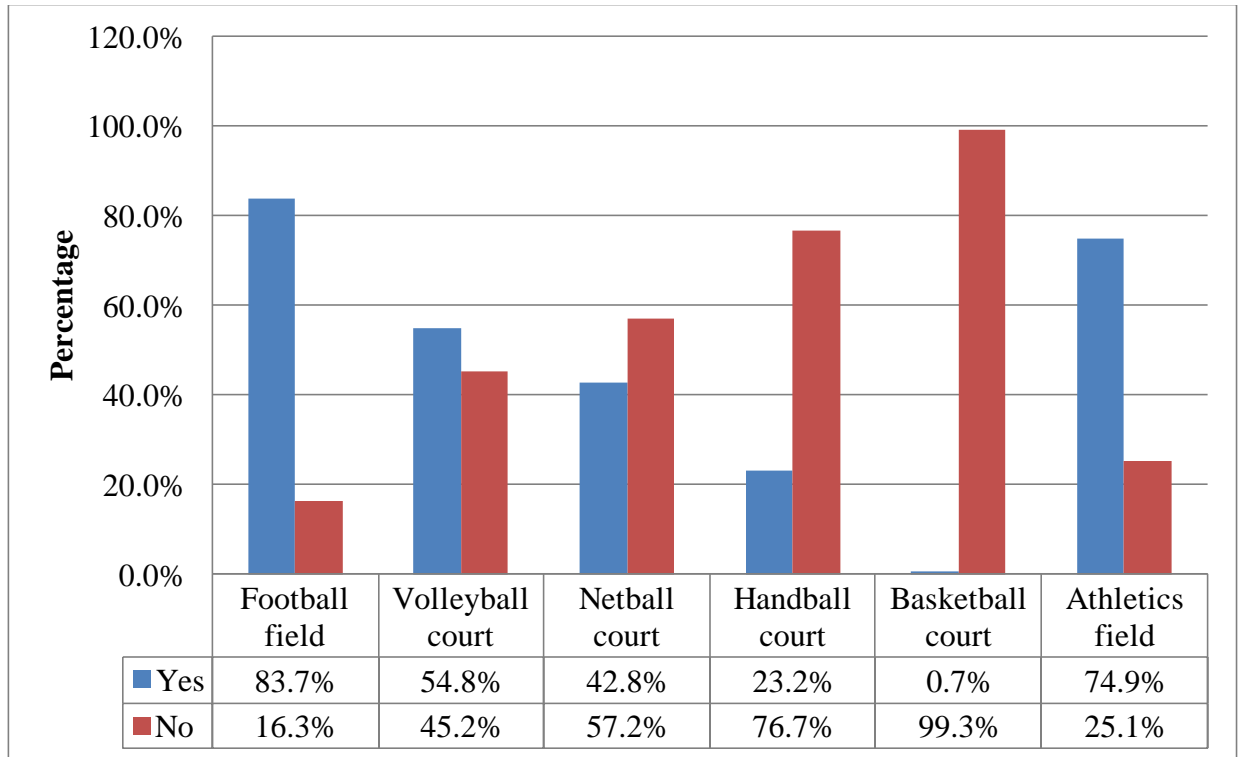


Figure 4.2 Availability of Sports Facilities as reported by Students

Figure 4.2 indicates that the most commonly available sports facility was a football pitch with 83.7% of respondents reporting that they had it in their schools. Other reported sports facilities were athletic fields at 74.9%, volleyball courts at 54.8%, netball courts at 42.8%, handball courts at 23.3% and finally basketball courts at 0.7%. The fact that football pitch was the most commonly available sports facility explains why football was the most preferred sport among the students with hearing impairment. These results implied that significantly there are common available sports facilities in secondary schools for the deaf in Kenya.

The study also assessed 19 teachers concerning the sports facilities available in support for students' participation. This information is summarized in Figure 4.3.

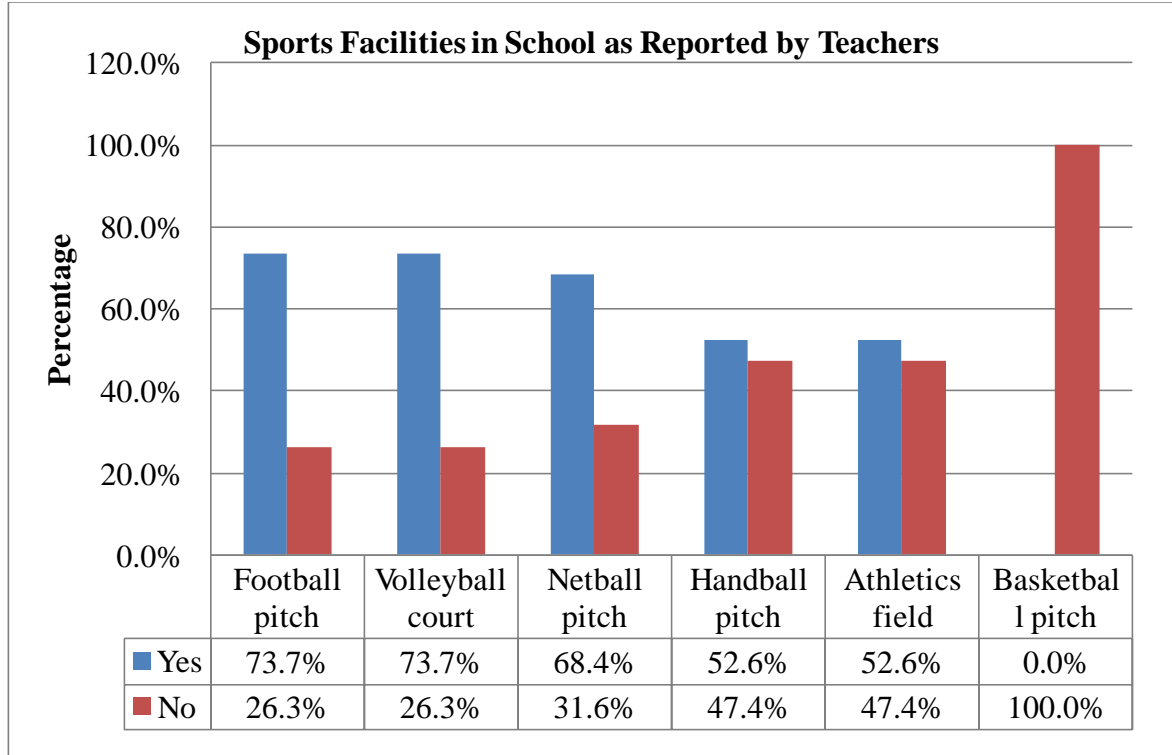


Figure 4.3 Sports Facilities in School as Reported by Teachers

The results in Figure 4.3 show that, the most available sport facilities were football fields and volleyball courts, both rated at 73.7%, followed by netball courts at 68.4%, athletics fields (52.6%) and handball pitches (52.6%). However, none of the schools visited had a basketball court. These findings confirm that significantly there are common available sports facilities in secondary schools for the deaf in Kenya with majority (83.7%) of students reporting that they had football pitches.

4.7 Level of Participation in Sports in Term One and Term Two in Relation to Gender

The study's fourth objective was to find out the difference in sports activities in the secondary schools in term one and term two. Relative frequencies of the values of the variable were tested using Chi-square on the basis of similarity to the hypothesized distribution of relative frequencies for the two terms. The outputs are presented in Table 4.12.

Table 4. 12 Relative Frequencies of participation for Term One and Term Two

Term1				Term2			
Category	Observed	Expected	Residual	Category	Observed	Expected	Residual
	N	N			N	N	
None	4	56.6	-52.6	None	120	56.6	63.4
One	16	56.6	-40.6	One	61	56.6	4.4
Two	42	56.6	-14.6	Two	62	56.6	5.4
Three	88	56.6	31.4	Three	32	56.6	-24.6
Four	133	56.6	76.4	Four	8	56.6	-48.6
Total	283				283		

Table 4.12 compares the observed occurrence of each participation value in Term One and Term Two. The findings indicate that the expected number of observations with

respect to the number of participation was 56.6, as expected under the assumption of all frequencies being equal.

However, the actual number of observations with respect to the frequency of 4 times a week was 133 in term one. Contrary, the expected number of observations for participation with respect to 4 times a week in the Term Two was lower than the observed occurrence. This implies that majority of students with hearing impairment were more actively engaged in sports during term one as compared to the Term Two. These observations were further investigated by testing research hypothesis 4 and Chi-square tests; There is no significant difference in the engagement of students with hearing impairment in sports during term one and term two.

Table 4. 13 Test Statistics

			Term1	Term2
Chi-Square			2.023E2	1.243E2
Asymp. Sig.			.000	.000
Monte Carlo	Sig.		.000	.000
Sig.	99% Confidence	Lower	.000	.000
		Bound		
	Interval	Upper	.000	.000
		Bound		

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 56.6.

The results in table 4.13 show that both term one and term two have significant Chi-square values at the 95% confidence level (p-values are less than 0.05). It was however noted that term one had a higher Chi-square value (2.023E2) as compared to term two (Chi-square value was 1.243E2). This implies that the values of participation in sports in term one and term two had different frequencies.

Therefore, with the results portrayed in table 4.13, it was concluded that there was significant engagement of students with hearing impairment engage in sports during term one and term two with more participation in term one than term two. Further, testing was also constrained over a limited range of 1-4 (frequency of participation in sports) in order to test if the values of participation in the given range had the same frequencies. The “Expected N” was scaled down to one appropriate for the small sample size of the constrained range of number of participation in a week as summarized in Table 4.14.

Table 4. 14 Relative Frequencies for Term One and Term Two within the Range of 1-4 Times

Number of times	Term1				Term2		
	Observed N	Expected N	Residual	Category	Observed N	Expected N	Residual
One	16	69.8	-53.8	One	61	40.8	20.2
Two	42	69.8	-27.8	Two	62	40.8	21.2
Three	88	69.8	18.2	Three	32	40.8	-8.8
Four	133	69.8	63.2	Four	8	40.8	-32.8
Total	279				163		

The output of the estimated Chi-square statistic was summarized in 4.15.

Table 4. 15 Test Statistics within the Range of 3-4 Times

Test Statistics		
	Term1	Term2
Chi-Square	1.146E2 ^a	49.344 ^b
Df	3	3
Asymp. Sig.	.000	.000
a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 69.8.		
b. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 40.8.		

As shown in Table 4.15, estimated chi-square statistic was significant at the 95% level at 3 degrees of freedom (because p-value is less than 0.05). This implies that values within the range of 1 to 4 times did not have the same frequencies. Thus the variable within the range did not have a uniform distribution in both the two times. The level of participation in sports was not the same in both the two terms.

Additionally, teachers were asked to give reasons behind their response on students' participation. The findings were presented in Tabl 4.16.

Table 4. 16 Teachers' Responses on Reasons for Sports Participation

Response category	Frequency	Percentage (%)
National games	9	47.4
School calendar	7	36.8
Season for sports	1	5.3
Special games	1	5.3
Sporting calendar	1	5.3
Total	19	100.0

Table 4.16 shows responses from teachers regarding reasons as to why students participate more in Term One. Teachers said it was because of national games (47.4%) and school calendar (36.8%) with the other reasons being seasons for sports and sporting calendar having marginal influence at 5.3% each. Students with hearing impairment in secondary schools for the deaf participate in sports competition in term one. The findings imply that majority of students with hearing impairment would play some kind of sport during on sports competition days.

In this chapter, results were presented with regard to the objectives for the study. The types of sports the students with hearing impairment engaged in and motivational factors of motivation were summarized. Chi-square was conducted to establish the association between gender and participation in sports among students with hearing impairment. Important challenges to sport type preferences were explored.

Table 4. 17 Relative Frequencies of Students' Participation for Term One and Term Two Pertaining to Gender

Number of times per week	Term One				Term Two			
	Male (N=186)		Female (97)		Male (N=186)		Female (97)	
	Freq	%	Freq	%	Freq	%	Freq	%
None	1	0.5	3	3.1	87	46.8	33	34
One	9	4.8	7	3.8	43	23.1	18	18.6
Two	4	2.2	38	39.2	49	26.3	13	13.4
Three	52	28	36	37.1	4	2.2	28	28.9
Four	120	64.5	13	13.4	3	1.6	5	5.2

Table 4.17 compares the the frequency of participation in sports between male and female students in Term One and Term Two. The findings indicate that the ratio of boys to girls who engaged in sports four times a week during the Term One was high at 64.5% compared to 13.4%. However, the ratio sharply reduced in the Term Two, only 3 male students engaged in sports four times a week compared to 5 female students. The results imply that majority of students were more actively engaged in sports during the Term One as compared to the Term Two. The findings of the study also mean that boys were more active in sports during competitions than girls did. Thus the frequencies from cross-tabulations did not have a uniform distribution in both the two terms. The level of participation in sports was not the same in both the two terms.

Further, teachers were asked to give the reasons behind their response on students' participation. From the findings it emerged that majority of teachers reported that selection of students for competition was the major reason why most students participated in sports during the Term One.

CHAPTER FIVE

DISCUSSION OF THE FINDINGS

5.1 Introduction

This study sought to establish factors that influence participation in sports among students with hearing impairment in Kenyan secondary schools for the deaf. This chapter presents a discussion on effects of gender on participation in sports among students with hearing impairment in Kenya, types of sports in which most of the students with hearing impairment participate in and available sports facilities in special secondary schools for the deaf. This chapter also discusses the extent of participation in sports among students in terms one and two.

5.2 Demographic Characteristics

The study considered demographic characteristics of the respondents such as age, gender and level of hearing loss. From the findings, it emerged that most respondents (86.2%) were within the age bracket of 15-25 years. This tallies with the understanding that secondary school students are aged between 14 - 20 at 86.2% and 21 and above at 13.8%. The study can be said to have been comprised of teenage population thus peer pressure is very significant at this age group, and it can greatly influence participation in sports. According to Rowe and Bibby (2006), boys at this age look at sports as a socially desirable activity that boosts status and peer approval. In this case, age is a significant variable to participation in sports among students with hearing impairment.

According to Lieberman and Pecorella (2006), disability and health issues related to age are main barriers to participation in sports. Younger people aged 14 to 35 years are more likely to be limited by lack of awareness while people aged 36 to 45 years are more likely to be impacted by injury or illness. Thus older people aged 45 and over are more restricted by their health and disability. Longmuir and Bar-or (2000) noted that younger children tend to be more active in physical activities than older children.

The findings also indicated that male students (186) outnumbered their female counterparts (97) implying that majority of the students with hearing impairment who participated in this study consisted of males. A cross tabulation between hearing loss and gender was computed and it emerged that most of male students were profoundly deaf as compared to female students. This implies that hearing loss affects more males than their female counterparts. This is in line with the report from a survey of hearing impaired children and youth indicating that hearing loss affects more males than females (Madden, McAlister & Ranjit, 2012). Assessing the gender composition of respondents was important because gender is a significant variable to sport participation. Rowe and Bibby (2006) note that many girls have negative attitude towards sports and that they are less likely to enjoy competitive sports like boys.

5.3 Relationship between Gender and Sport Participation among Students with Hearing Impairment

The findings reveal that the ratio of male to female students who participated was high implying that male students had higher motives to participate in sports than the female students. Concurrently, the findings in hypothesis testing also revealed that gender had significant influence on sport participation among students with hearing impairment in secondary schools for the deaf in Kenya. Both male and female students concurred that the major reason for participating in sports was fun. When asked why they did not participate in sports, majority of the male students reported that they lacked skills while female students reported that they had no interest in sports at all. These findings show clearly that the students with hearing impairment were intrinsically motivated. They were participating in sports for fun and the pleasure associated with it (intrinsic factors).

These findings are consistent with Lunenburg's (2011, as cited in Stewart & Ellis, 2013) observation that a person's decision to participate in an activity is motivated to the degree that he or she believes that an effort will lead to acceptable performance (expectancy), the performance will be rewarded (instrumentality), and the value of the rewards is highly positive (valence). These findings also concur with those of Ramos (2008) which revealed that children are used to play games related to their gender roles. Traditionally, boys are encouraged and expected to play complex games which involve strategy and strength (Wanderi, 2001). In support of this, Haywood and Getchel (2001) observed that girls are less likely compared to boys to be involved in sports activities. Flodin (2004) found that there is overwhelming evidence that boys are more active than

girls at any age. Stuart, Lieberman and Hand (2006) also revealed that girls clearly preferred activities with an aesthetic and recreational nature while boys consistently preferred fitness and sports performance activities (Wanderi, 2001).

Appley and Foster (2013) revealed that in many countries, football was not an acceptable activity for females to engage in. This explains why football was the boys' and not girls' preferred sport. The researchers also noted that girls and women have not always had the same opportunities and access to sports as boys and men in society. The results showing girls' preference to specific sports with boys' preference for other sports have been noted in other studies such as Koivula (2001) who reports the notion that there are "appropriate" and "inappropriate" sports for females and males. Koivula (2001) further noted that sports that emphasize beauty and grace such as gymnastics, dance and figure skating are often regarded as "feminine" while sports that include elements of violence, aggression, and physical contact such as football, boxing, and combat sports are considered "masculine".

5.4 Types of Sports Students with Hearing Impairment Engage in

The second objective of the study was to find out the types of sports that students with hearing impairment participated in. Findings from the study revealed that the most favourite sports activity was football as reported by 41.7% of the student respondents. Teachers also agreed with this as their order of preference started with football. Other sports in which students engaged included athletics at 21.9%, volleyball at 15.9%, netball at 11%, basketball at 4.9% and handball which came last at 4.6%. This implies

that football was a very popular game among the hearing impaired students in the country and it is easy to get a team from the surrounding. According to Appley and Foster (2013), male children start playing football at a very tender age. Skills for the game can also be learned informally through the media. It is also worth noting that athletics was also popular because there were many role models to emulate even from the hearing community. Other sports reported include Volleyball, Netball, Handball, and Basketball. These findings concur with those by Sit, Lindner and Sherrill (2002) which revealed that basketball and soccer were the preferred sports according to gender, school level, and different disability groups while rhythmic activities like table tennis, badminton and wheelchair hockey were the least favored sports among Hong Kong Chinese children with hearing impairment.

In order to establish the relationship between sports preference and gender, a cross-tabulation was conducted. The findings revealed that majority of male students preferred football while female students preferred volleyball and netball. The frequency difference in athletics was however very minimal in both genders implying that both male students and female students were not active in athletics. The Chi-square test of research hypothesis 2 on sports preference and participation in sports revealed that students with hearing impairment in secondary schools for the deaf preferred significantly to participate in football, volleyball, handball and basketball. However, it was noted that participation in volleyball, handball and basketball was determined by gender. The test showed that there was no association between athletics and participation in sports as reflected in the p-value ($p=0.577$). These concurred with the

results of a study conducted by Sallis, Prochaska and Taylor (2000) which revealed that gender influenced the selection of sports activities. Similar findings reported by Kilpatrick *et al* (2005) revealed that male students show a higher tendency for team sports and competing generally while female students prefer aerobic and dance. Social influences from family and friends are a huge indicators of whether a girl will be active in sports. Thus, if her family and friends do not participate in or value playing sports, neither will she do. If a girl can overcome these obstacles, she still faces hurdles regarding her chances of continuing to play sports. Besides, feelings of guilt and inadequacy when playing reduce the likelihood of female students in engaging in sports.

5.5 Availability of Sports Facilities in Special Schools for the Deaf

The third objective of the study was to establish the commonly available sport facilities in the selected schools for the deaf. The most commonly available sports facility was football pitch at 83.7% as reported by students. It is evident that the sport that had the most available facility was also the sport in which most students actively engaged in. Results from the teachers also had football field as the most available sports facility at 73.7%. The study also found that majority (77.7%) of teachers reported that students participated in sports in the previous one year because of availability of sports facilities. These findings point to the fact that either students preferred types of sports whose facilities were available or the school administration provided facilities for the sport which students actively engaged in. Woods *et al* (2010) also found that the availability of school physical education facilities is a significant variable to the level of participation in sports among students.

5.6 Level of Participation in Sports among Students with Hearing Impairment

The study's fourth objective was to find out the difference in sports activities in the secondary schools in term one and term two. The study found out that majority of students with hearing impairment were more actively engaged in sports during the term one in comparison to term two. The participation frequency of four times a week was 133 in term one as compared to 8 in term two. Responses from all teachers in the study suggested that scheduling national competitions for SNE in term one was the major determinant of participation. From the study findings, majority of the students met the recommended threshold (3 to 4 times a week) in Term 1 in line with the FITT Principle (Frequency, Intensity, Time, and Type).

Woods *et al* (2010) found that the current physical activity recommendations of more than 60 minutes of moderate to vigorous physical activities daily are not beyond the reach of Irish children. They found that 98% of primary and 93% of post-primary children achieved this amount of physical activities once a week. Similarly, 80% of primary and 65% of post-primary achieved three days per week; and 39% of primary and 25% of post-primary engaged in moderate to vigorous physical activity for 60 minutes on 5 days per week. With regular national competition schedules for SNE in Term 1 and 2, similar or even higher participation levels are possible locally.

A cross-tabulation results show that both term one and term two had significant Chi-square values at the 95% confidence level (p-values are less than 0.05). It was however noted that term one had a higher Chi-square value (2.023E2) as compared to term two (Chi-square value was 1.243E2). This implies that the values of participation in sports in term one and term two had different frequencies. This implies that the level of participation in sports was not the same in the two terms. In contrast to the findings of this study, Woods *et al* (2010) found that the frequency of sports was equally distributed throughout the year. The average time spent in sports per week was 46 minutes (range 10-140 minutes). Woods *et al* (2010) also noted in their study that the number of minutes of sports activities timetabled per week was not influenced by individual socio-economic status, by school gender (boys only, girls only or mixed gender), by school location (urban or rural) or by being designated as a disadvantaged school.

Participation in sports plays a big role in social development (Appley & Foster, 2013). Thus, for the deaf community, involvement in sports activities has a prominent place because participants experience benefits not only in the physical sense but also in other personal dimensions. For many deaf adults, participation in deaf sport events is a major means of socialization. Deaf sport provides a place for meaningful interactions with others who communicate using sign language-an opportunity that is hard to come by in communities where the vast majority of people are hearing and communicate by means of a spoken language. Another benefit is psychological, as deaf people have an opportunity not only to be athletes but also to be sports directors, event staff and

spectators. This type of participation strengthens their self-identity, enhances their self-esteem, and increases the confidence in maintaining a lifestyle that allows them to be positively contributing members of their community (Stewart, David & Ellis, 2013).

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This chapter presents a summary of the key findings. It also provides conclusions and generalizations based on the findings as well as recommendations for policy and further studies.

6.2 Summary of Findings

6.2.1 Effect of Gender on Sports Participation

The first objective sought to establish effects of gender on sport participation among students with hearing impairment in Kenya. The study found that participation in sports, namely, football, volleyball, netball, handball and basketball was associated with gender. Thus gender significantly related with participation in certain sports among the students with hearing impairment. However, athletics did not have any significant relationship with gender. It was also revealed in this study that more male students participated in sports than the female students. Majority of students were motivated to participate for fun. Among the students who did not participate in sports, majority of male students reported that they lacked skills while majority of female students had no interest in sports.

6.2.2 Type of Sports Preferred by Students with Hearing Impairment

The second objective of the study was to find out the types of sports students engaged in. The study found out that the most favourite type of sport was football at 41.7% preference, followed by athletics at 21.9%, then volleyball at 15.9%, netball at 11%,

basketball at 4.9% and lastly handball at 4.6%. The teachers also agreed with this and their order of preference started with football. It was revealed that that gender influenced sport type preference. Cross-tabulation showed that male respondents had a strong preference for football and athletics while female respondents had a strong preference for volleyball and netball.

6.2.3 Availability of Sports Facilities

Available sports facilities were football fields with 83.7% of respondents saying that they had football fields in their schools. These were followed by athletic fields at 74.9%, volleyball fields at 54.8%, netball courts at 42.8%, handball courts at 23.3% and finally basketball courts at 0.7%. Results from the teachers agreed with this with minor deviation due to differences in number of responses (the teachers' sample was smaller than the students' sample). Overall, the findings showed that the most available sports facility (football) was also the sport type with the most participants thus giving the evidence that either students preferred sport type whose facilities were available, or the school administration provided facilities for sports that students preferred to engage in.

6.2.4 Participation Frequency per School Term

Findings of the study showed that majority of students with hearing impairment were actively engaged in sports during term one as compared to term two. Majority of teachers explained that scheduling national competitions for SNE in term one was the major determinant. Findings from cross-tabulation with Chi-square statistics between frequencies of sports participation and gender at 95% significance level showed that

term 1 and term 2 did not have the same frequencies since the variables did not have a uniform distribution.

6.3 Conclusion

From the study, it can be concluded that male students were more active in sports than female students. However, whether gender plays a role or not, a student with hearing impairment participates in sports. In the context of this study, gender is significant variable to sports participation. Apart from emerging environmental determinants, gender has a big influence on sport type preference among students with male students preferring football and athletics while female students preferred to engage in volleyball and netball. The most preferred sport types were those whose facilities were available, in this case, football. This has serious gender discriminatory implications since female students were not well catered for in terms of providing netball and volleyball facilities as much as football facilities. It is therefore important to make sports facilities available to both male and female students without any prejudice. There is also the concern that the regular physical education program might not be sufficient to ensure that students with hearing impairment are physically fit and have the mastery of specific skills required for participation in specific sports.

6.4 Recommendations for Research

Based on the study results and conclusions on participation in sports by students in special schools for the deaf in Kenya, the study recommends the following:

6.4.1 Recommendations for Policy

1. Simple and easy-to-use resources should be established and adopted to make certain that programmes involving sports in schools provide a safe and supportive environment for girls. This would help to address the issue of incapacitated female students to participate and creating opportunities to active sports engagement among female students.
2. The Ministry of Sports, Arts and Culture and private sector should combine effort to establish a National Football League for the Deaf (NFLD) since most students prefer football but lack an avenue to pursue it as a career after school.
3. It was evident in this study that sports facilities were not uniformly distributed with respect to kinds of sports hence the special schools should provide adequate facilities for a variety of sports.
4. Continuous participation in sports is considered important in various dimensions including physiological, psychological, intellectual and societal benefits. Thus, deaf sports academies should be established to enable unceasing participation in sports and physical fitness. This would enable talents to be nurtured and sporting potentials witnessed in the special schools be sustained.

6.4.2 Recommendations for Further Research

Arising from the review of related literature as well as findings from the current study, the following are suggestions for further research.

1. A similar study should be done in the tertiary special institutions for the deaf in Kenya.

2. Future studies should consider whether students with hearing impairment want to be participating in competitive sports with the hearing students.
3. A study on the influence on participation in sports by other factors other than the ones considered in this study is highly recommended.

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APPENDICES

APPENDIX I: PERMISSION LETTER

Zipporah Moraa Moseti
H60/12716/09
Kenyatta University
P.O. Box 43844 – 00100,
Nairobi.
18/12/2013

Thro’
The Chairman,
Department of Physical and Health Education,
Kenyatta University.

The Dean,
Graduate School, Kenyatta University,
P.O. Box 43844 – 00100,
Nairobi.
Dear Sir,

Re: Permission to Conduct Research

I kindly request the Graduate School, Kenyatta University, to give me permission to conduct a research study on participation in sports by students with hearing impairment in secondary schools for the deaf in Kenya.

Your response is highly appreciated.

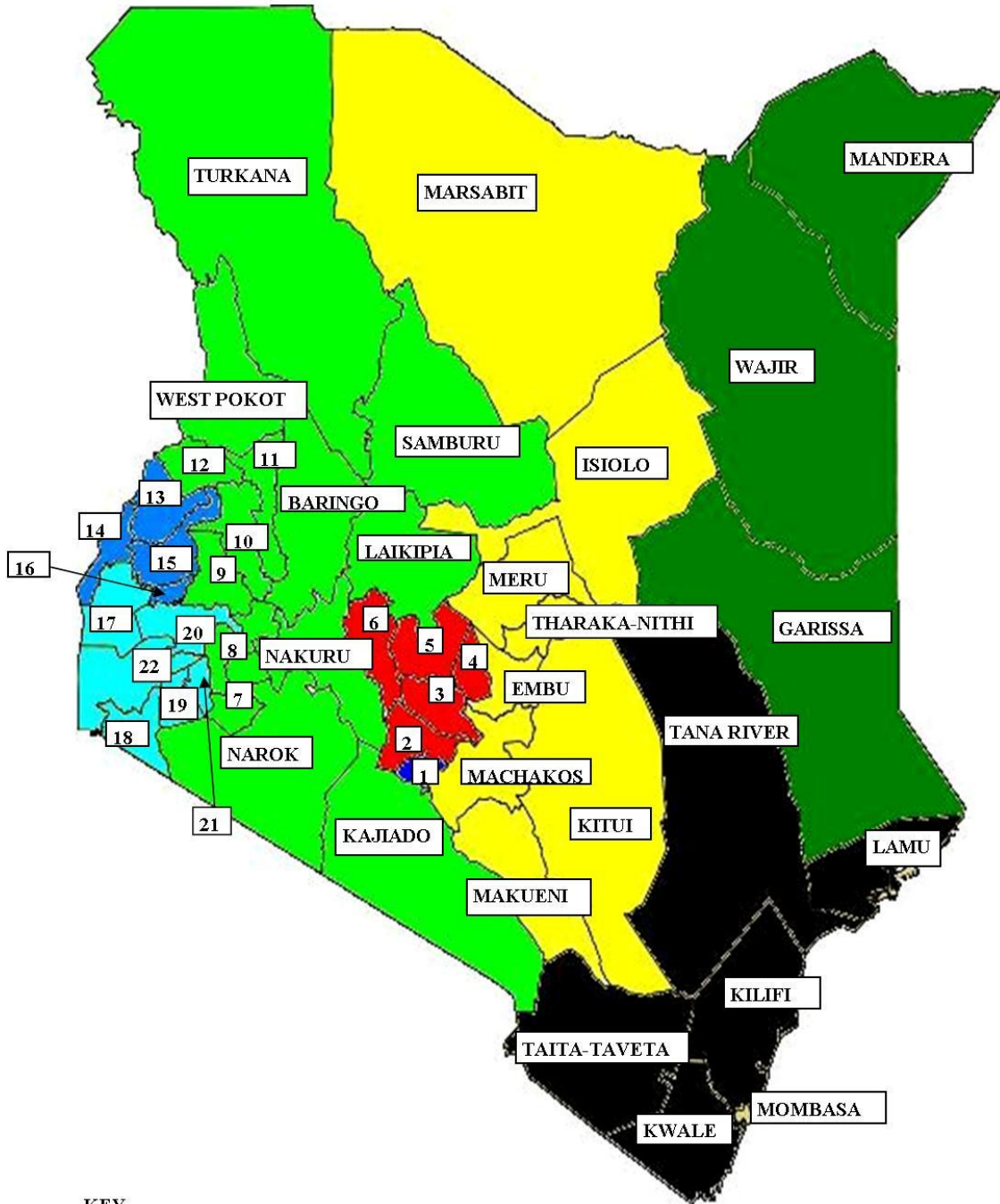
Yours faithfully,

Zipporah M. Moseti,

H60/12716/09

APPENDIX II: MAP SHOWING AREA OF STUDY

COUNTIES OF KENYA



KEY

- | | | | |
|--------------|---------------------|--------------|--------------|
| 1. NAIROBI | 8. KERICHO | 15. KAKAMEGA | 22. HOMA BAY |
| 2. KIAMBU | 9. TRANS NZOIA | 16. VIHIGA | |
| 3. MURANG'A | 10. UASIN GISHU | 17. SIAYA | |
| 4. KIRINYAGA | 11. ELGEYO-MARAKWET | 18. MIGORI | |
| 5. NYERI | 12. NANDI | 19. KISII | |
| 6. NYANDARUA | 13. BUNGOMA | 20. KISUMU | |
| 7. BOMET | 14. BUSIA | 21. NYAMIRA | |

APPENDIXIII: LETTER OF INTRODUCTION TO STUDENT RESPONDENTS

Zipporah Moraa Moseti
H60/12716/09
Kenyatta University
P.O. Box 43844 – 00100,
Nairobi.

13/09/2012

Deaf Respondent,

I am a Post-graduate student at Kenyatta University pursuing a Master of Science Degree in Physical and Health Education. This research is meant to investigate the participation in sports by Students with hearing impairment in secondary schools for the deaf in Kenya. Kindly respond to the questionnaire.

Your participation is highly appreciated.

Yours Sincerely,

Moseti M. Zipporah

Sickness	[]
Weak physique	[]
Lack of interest	[]
Lack of time	[]
Lack of skills	[]
Low self-perception	[]

6. Why do you participate in sports? (You can tick more than one).

Fun	[]
Rewards	[]
Socialize	[]
Future career	[]
Have talent	[]
Family encouragement	[]
Go places	[]

SECTION C: TYPE OF SPORTS

7. Given opportunity to participate in sports when at school, which sport will you prefer? (tick only one)

- i. Football
- ii. Volleyball
- iii. Netball
- iv. Handball
- v. Basketball
- vi. Athletics

SECTION D: AVAILABILITY OF SPORTS FACILITIES

8. Which of the following sports facilities are available in your school (tick as many)

- i. Basketball pitch
- ii. Football Field
- iii. Athletic Field
- iv. Netball court
- v. Volleyball court

SECTION E: PARTICIPATING FREQUENCY

9 How frequent do you participate in sports in a week in term one? (Tick appropriately)

None	Very few	Few	Many	Very many
0	Once	2 times	3 times	4 times

10. How frequent do you participate in sports in a week in term two? (Tick appropriately)

None	Very few	Few	Many	Very many
0	Once	2 times	3 times	4 times

Thank you for your cooperation

APPENDIX V: QUESTIONNAIRE FOR THE TEACHERS

This questionnaire is to collect data purely for academic purpose only.

All information will be treated with strict confidence.

INSTRUCTION

Please do not write your Name, give your response by making a tick at the appropriate blank space.

1. Which sporting facilities does the school have? (tick as many)

- i. Basketball pitch
- ii. Football Field
- iii. Athletic Field
- iv. Netball court
- v. Volleyball court

1. Which sport is popular in this school? (Tick only once).

- i. Football
- ii. Volleyball
- iii. Netball
- iv. Handball
- v. Basketball
- vi. Athletics

2. a) When are your students most involved in sports?

.....
.....

b) Briefly give a reason for your response in Q (3a)

.....
.....

3. In your own opinion why do you think students in this school participate in sports?

(The question is a multiple-choice).

- i. For fun []
- ii. For future career []
- iii. To socialize []
- iv. To go places []
- v. For rewards or prizes or certificates or trophies []

Thank you for your cooperation

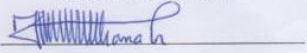
APPENDIX VI: INFORMED CONSENT FORM FOR RESEARCH

INFORMED CONSENT FORM FOR RESEARCH

TITLE OF THE PROJECT: participation in sports by deaf students in special secondary school for the deaf in Kenya

PRINCIPAL INVESTIGATOR: Moseti Moraa Zipporah: Masters Of Science in Physical and Health Education

1. PURPOSE OF THE STUDY; to describe participation in sports by Deaf students in special secondary schools for the Deaf
2. PROCEDURES TO BE FOLLOWED; Questionnaire and Focused Group Discussion (FGD)
3. DURATION; the questionnaire shall take 45 Minutes and the FGD 30 Minutes.
4. STATEMENT OF CONFIDENTIALTY: your participation in this research is confidential. Your name will not be written anywhere the data collected will be treated with utmost confidentiality and only the researcher will have access to it. In the event of publication or presentation of results from the research no personal identifiable information will be shared.
5. RIGHT TO ASK QUESTIONS: please contact the researcher on 0722468598 in case of any questions after the questionnaire or FGD is over
6. BENEFITS OF PARTICIPATION: All participants are expected to benefit from the recommendations made to the Government.
7. VOLUNTARY PARTICIPATION: your decision to participate in this research is voluntary; you can stop at any time you feel like. If you agree to take part in this research and the information outlined above, please sign your name and indicate the date below.

<p><u></u></p> <p>Participants signature or thumbprint</p>	<p><u>13/11/2013</u></p> <p>Date</p>
<p><u>Zipporah Moseti Moraa</u></p> <p>Name & signature of person obtaining consent</p>	<p><u>13/11/2013</u></p> <p>Date</p>

APPENDIX VII: AUTHORIZATION LETTER (KENYATTA UNIVERSITY)



**KENYATTA UNIVERSITY
GRADUATE SCHOOL**

E-mail: dean-graduate@ku.ac.ke

Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 8710901 Ext. 57530

Our Ref: H60/12716/09

DATE: 24th September, 2013

The Permanent Secretary,
Ministry of Higher Education, Science & Technology,
P.O. Box 30040,
NAIROBI

Dear Sir/Madam,

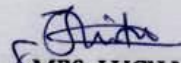
RE: RESEARCH AUTHORIZATION MOSETI MORAA ZIPPORAH – REG. NO. H60/12716/09

I write to introduce Ms. Moseti Moraa Zipporah who is a Postgraduate Student of this University. She is registered for M.Sc degree programme in the **Department of Physical and Health Education**.

Ms. Moseti intends to conduct research for a M.Sc proposal entitled, **“Participation in Sports by Deaf Students in Special Secondary Schools for the Deaf in Kenya.”**

Any assistance given will be highly appreciated.

Yours faithfully,


MRS. LUCY N. MBAABU
FOR: DEAN, GRADUATE SCHOOL



APPENDIX VIII: AUTHORIZATION LETTER (NACOSTI)



NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471,
2241349, 310571, 2219420
Fax: +254-20-318245, 318249
Email: secretary@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No.

Date:

11th November, 2013

NACOSTI/P/13/1458/315

Ziporah Moraa Moseti
Kenyatta University
P.O.Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on "*Participation in sports by deaf students in special secondary schools for the deaf in Kenya*," I am pleased to inform you that you have been authorized to undertake research in **selected Counties** for a period ending **31st December, 2013**.

You are advised to report to the **County Commissioners and the County Directors of Education, Selected Counties** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

DR. M. K. RUGUTT, PhD, HSC.
DEPUTY COMMISSION SECRETARY
NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION


Copy to:

The County Commissioners
The County Directors of Education
Selected Counties.

APPENDIX IX: RESEARCH PERMIT (NACOSTI)

THIS IS TO CERTIFY THAT:
MS. ZIPORAH MORAA MOSETI
of KENYATTA UNIVERSITY, 24785-502
nairobi, has been permitted to conduct
research in Busia , Kericho , Kilifi ,
Machakos , Migori , Muranga , Nakuru
Nyeri Counties
on the topic: PARTICIPATION IN SPORTS
BY DEAF STUDENTS IN SPECIAL
SECONDARY SCHOOLS FOR THE DEAF IN
KENYA.
for the period ending:
30th April,2014


Permit No : NACOSTI/P/13/1458/315
Date Of Issue : 11th November,2013
Fee Recieved : Kshs khs1000.00



[Signature]
Secretary
National Commission for Science, Technology & Innovation

CONDITIONS

- 1. You must report to the County Commissioner and the County Education Officer of the area before embarking on your research. Failure to do that may lead to the cancellation of your permit**
- 2. Government Officers will not be interviewed without prior appointment.**
- 3. No questionnaire will be used unless it has been approved.**
- 4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.**
- 5. You are required to submit at least two(2) hard copies and one(1) soft copy of your final report.**
- 6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice.**


REPUBLIC OF KENYA

NACOSTI
National Commission for Science, Technology and Innovation

RESEARCH CLEARANCE PERMIT

Serial No. A 604

CONDITIONS: see back page

APPENDIX X: RESEARCH AUTHORIZATION LETTER (BUSIA COUNTY)



**NATIONAL COMMISSION FOR SCIENCE,
TECHNOLOGY AND INNOVATION**

Telephone: +254-20-2213471,
2241349, 310571, 2219420
Fax: +254-20-318245, 318249
Email: secretary@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No. Date:

NACOSTI/P/13/1458/315 *Permission Granted* 11th November, 2013

Ziporah Moraa Moseki
Kenyatta University
P.O.Box 43844-00100
NAIROBI.

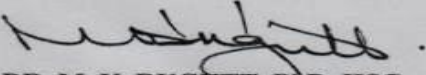
COUNTY DIRECTOR OF EDUCATION
BUSIA COUNTY
15 NOV 2013
Signature: _____
P.O. Box 15 - 50400 BUSIA(K)

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on *“Participation in sports by deaf students in special secondary schools for the deaf in Kenya,”* I am pleased to inform you that you have been authorized to undertake research in **selected Counties** for a period ending **31st December, 2013.**

You are advised to report to **the County Commissioners and the County Directors of Education, Selected Counties** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.



DR. M. K. RUGUTT, PhD, HSC.
DEPUTY COMMISSION SECRETARY
NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Copy to:

The County Commissioners
The County Directors of Education
Selected Counties.

National Commission for Science, Technology and Innovation is ISO 2008: 9001 Certified

**APPENDIX XI: AUTHORIZATION LETTER (DIRECTOR OF EDUCATION,
NAKURU COUNTY)**

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

Telegrams: "EDUCATION",
Telephone: 051-2216917
Fax: 051-2217308
Email: cdenakurucounty@yahoo.com
When replying please quote
Ref.
NO.CDE/NKU/GEN/4/1/21/178



COUNTY DIRECTOR OF EDUCATION
NAKURU COUNTY
P. O. BOX 259,
NAKURU.

14 November 2013

The Principal
NGALA SCHOOL FOR THE DEAF

RE: ZIPORAH M. MOSETI

The above named is a student from Kenyatta University who is authorized to conduct a research on "Participation in sports by deaf students in special secondary schools for the deaf in Kenya".

Kindly accord her the necessary assistance.

A handwritten signature in blue ink, appearing to read 'Saka W. Maurice'.

SAKA W. MAURICE
FOR: COUNTY DIRECTOR OF EDUCATION
NAKURU COUNTY

Copy to:

National Commission for Science, Technology and Innovation
P.O. Box 30623
NAIROBI.

**APPENDIX XII: AUTHORIZATION LETTER (DIRECTOR OF EDUCATION,
NYERI COUNTY)**

**MINISTRY OF EDUCATION SCIENCE &
TECHNOLOGY**

E-Mail –centralpde@gmail.com
Telephone: Nyeri (061) 2030619
When replying please quote



REPUBLIC OF KENYA

OFFICE OF THE COUNTY
DIRECTOR OF EDUCATION
P.O. Box 80 - 10100,
NYERI

CDE/NYI/GEN/23/VOL.1/15


18th November, 2013

The Principal
Rev. Muhoro

RE: RESEARCH AUTHORISATION FOR ZIPORAH MORAA MOSETI

This is to acknowledge that Ziporah Moraa Mosesti a student at Kenyatta University has been authorized by the National Council for Science and Technology vide a letter Ref. NACOSTI/P/13/1458/315 dated 11th November, 2013 to carry out research on "**participation in sports by deaf students in special secondary schools for the deaf in Kenya**".

Kindly accord her any necessary assistance.


**MARGARET MWANGI (CQASO)
FOR: COUNTY DIRECTOR OF EDUCATION
NYERI COUNTY**

APPENDIX XIII: PARTICIPANTS FROM NGARA SCHOOL FOR THE DEAF



APPENDIX XIV: INTRODUCTION OF THE STUDY



APPENDIX XV: INTERPRETING THE QUESTIONNAIRE



APPENDIX XVI: COLLECTION OF COMPLETED QUESTIONNAIRES

