PHYSICAL AND PSYCHO-SOCIAL BENEFITS OF PARENTAL INVOLVEMENT IN ORGANIZED PHYSICAL ACTIVITIES FOR CHILDREN WITH INTELLECTUAL DISABILITIES IN NAIROBI COUNTY, KENYA

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OCTOBER, 2016
DECLARATION

This thesis is my original work and has not been presented for a degree in any other University.

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DEDICATION

The completion of this work humbles me and I dedicate it to my husband, children entire Mwangi’s family who tirelessly walked with me in each step of the study. All research assistants for their commitment during data collection period. And to all parents and their children who turned up and participated throughout the entire period of the study.
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ABBREVIATIONS AND ACRONYMS

AAHD: American Association Health and Disability
ADL: Activities of Daily Living
ECDE: Early Childhood Development Education
FTP: Floor Time Play
ID: Intellectual Disability
PA: Physical Activity
PI: Parental Involvement
PR: Parents’ Ratings
SOK: Special Olympics Kenya
TGMD: Test of Gross Motor Development
OPERATIONAL DEFINITION OF TERMS

Demographic Characteristics: Refers to essential quantifiable information about parents and their children with intellectual disability who will be participating in the organized physical activity programme. These include gender, age, level of education, marital status and occupation.

Early Childhood Development Centre: A learning institution providing basic learning skills to young children between the ages 4-6 years.

Intellectual disability: A condition indicating an intelligent quotient lowers than average on standard scale.

Opportunity: refers to the access or possibilities those are appropriate and suitable to the people with disabilities to fully participate in physical activity and sports.

Parental Involvement: The extent of engaging parents in identifying suitable physical activities and sports for their children with intellectual disabilities, setting aside time to play with them as role models, coaching as volunteers and assisting in communicating to instructors on behalf of their children.

Physical Activity: Any bodily movement produced by the contraction of skeletal muscle leading to a substantial increase energy expenditure.

Physical benefits: Refers to improved ability to perform physical activities such as running/walking given distances within shorter durations, balancing and enhanced strengths in kicking and throwing balsas well as positively relating with peers and siblings.

Psychosocial Benefit of Sports: Refers to reduced social gap, enhanced management of emotions, self-esteem and concept as well as learning sports skills for practice with their children at their homes.

Regular teacher: A trained educator for typically developing learners.
Special teacher: An educator specially trained to teach learners with disabilities.

Sports: Organized activities that individuals participate in either for competition or enjoyment but have defined rules and methods of scoring system.

Trained coach: A volunteer trained to conduct programmes for young athletes under Special Olympics Kenya guidelines
ABSTRACT

Physical activity (PA) is critical in motor skills development among children with intellectual disability (ID) but inadequate knowledge on the gains of parental involvement (PI) underscores the process. The purpose of the study was to establish the physical and psycho-social benefits of involving parents in an organized PA programme for children with ID of age 4-6 years. Quasi experimental non-equivalent control group research design was adopted for the study. The study targeted children with ID in inclusive Early Childhood Development (ECD) centres and their parents. However, two inclusive ECD centres in Nairobi County that had the highest number of leaners with ID were purposively selected and then randomly assigned into either experimental or control groups. 37 children with ID and their parents met the inclusion and exclusion criteria making a sample size of 74(80.4%) out of the 92 total targeted population. A total of 64(86.4%) participants successfully completed the three-month PA programme. Test-retest was conducted to determine reliability of research instrument. Parents’ responses were collected using a self-administered questionnaire while an adapted Test of Gross Motor Development (TMGD2) was used to record the observed motor performance of the children and an attendance checklist used to record frequency of attendance. Data was coded and organized using the Statistical Package for Social Sciences (SPSS) version 20. Results showed that most of the parents involved were female (71.1%) in control group and (100%) female in the experimental group while most children participants were male (85.7%). Independent t-tests showed significant difference after intervention in parents rating of their children’s motor performance in control group t(13)= -3.37, p<0.001; experimental group t(17)= -7.402, p<0.001 and parents’ self-rating t(13)=3.37, p=0.005 and t(17)= -10.84, p<0.001. Parents gender had significant influence on children motor skills in the control group t (12) = -1.337, p=0.029. Pearson’s correlation(r) showed strong correlation between frequency of attendance to organized PA with mothers’ occupation r (32) = -0.713, p<0.001 and education level r (32) = -0.700, p<0.001 while fathers had moderate positive correlation in both occupation r (32) =0.384, p=0.030 and education r (32) =0.421, p=0.016. It was concluded that PI in organized PA greatly improved both children’s motor skill performance and parents’ psycho-social well-being. The change was more in the experimental group where children with ID and parents participated in the PA jointly. Initiating PA programmes for children with ID early enough, training parents and encouraging more parental involvement is recommended. The study recommends further research to examine levels of awareness of psycho-social gains of PI and variables that determine involvement of male guardians in children’s PA.
CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

Positive effect of sports and physical activity on physical and psychological well-being of participants is well documented within the general population (Ghosh and Datta, 2012). Physical Activity (PA) is an important aspect of an individual’s lifestyles. Learning life skills through fun games and play is highly recommended in children (Moshin, Khan, Doger and Awn (2011). Typically developing young children attain this goal through childhood play among peers both at school and out of school play activities. Play activities in children comprise of physical activities that last 10-15 minutes per set with intermittent breaks which promote motor development, socialization and readiness for complex PA required in competitive sports (Favazza, Zieisel, Leboauf, Schalock, Borthwick, Duffy, Doadley, Butinix, Coulter and Craig, 2010). Children with intellectual disability (ID) are exposed to the risk of being physically inactive due to the nature of their impairment which hampers successful participation in simple and even complex forms of PA (Milisa and Hana 2010). It is unclear if children with ID meet these guidelines hence need to involve adults mostly parents, guardians, siblings and caregivers in organized out of school PA.

confirmed the importance of parental involvement process that is initiated early in children with developmental delays as one of the most effective since parents work directly with their children at home and the community. Billingsly, (2005) emphasized the role of the parents of children with intellectual disability in developing individualized education programme in the school including physical education activities. This consultation creates an opportunity for the parent to learn the process of assessment and identification of activities to engage their children with intellectual disability and involvement in designing suitable programmes for early intervention within the home environment.

Parents’ involvement in the physical activities of their children with intellectual disabilities (ID) refers to the amount of time parents dedicate to participate in enabling their children acquire motor skills (Kersh, Master, Bambeger and Drahun, 2010). Such participation can be through initiatives that the parents take to train their children in particular physical activity and sports skills, either for fun and/or competition. Parents can also foster their children’s experience by ensuring that they know the activities that their children can be involved in and exposing them to the relevant practice. Studies have highlighted parental support and encouragement in their children’s sports activities as an indicator of increased participation and successful performance in competitions (Bomjin and Dummer, (2008); Mactavish, Mackay, Iwasaki and Bettenge, 2007). Children whose parents are involved in their activities consistently have higher test scores, better attendance and higher self-esteem (Newman, 2005). In the absence of parents, children without disabilities enjoy support of their peers during play, hence, promoting their
success in physical activity performances as compared to children with disabilities who are side-lined or sometimes locked in their houses. Menear, (2007) observes that parents of children with ID experience difficulties relating to the extra demands of raising and caring for their children and may struggle with guilt and feeling that they might have caused the disability of their children. Bianca, (2013) explained that delayed motor development in children with ID hinder full performance in fundamental basic skills, prompting involvement of adults to intervene. However, parents and other family members may lack explicit information and knowledge to initiate or plan physical activities at different age levels of children with disability.

Durand, (2011) suggests that parental involvement in activities for children with intellectual disability provide opportunities in understanding the differences that inform efforts required to make and implement suitable intervention programmes. Parental involvement creates an opportunity for parents to bridge communication between service providers and their special children in their native languages thus, making it easier in execution of the various fun activities during an organized PA. Organized physical activity and sports programme provides young children with disabilities opportunity to engage in physical activities which promote physical, cognitive, language development and improved motor abilities as well as health related fitness (Iverson, 2010). Martin, (2006) observed that children with ID who were consistently involved in the organized Special Olympics programmes had improved social skills, positive behaviour change, played with other children as a member of a group and improved personal care skills. Olsson and Hwang, (2008) indicate that parents who participate in physical activity have
the potential for personal growth in qualities including better stress management skills, deeper resilience, raised self-esteem and improved social-emotional support.

Lars, Goran and Bengt, (2003) revealed that parents are a crucial link in the chain that makes physical activity for children and adolescents with disability possible. Epstein, Beniah, O’Here, Goll and Tuck, (2008) argue that parents’ emotional levels and social support are predictors of their involvement in children activities. According to Shea, Dwyer, Heeney and Simpson (2010), participation in physical activity leads to a myriad of psychological and social gains to parents who get involved as well as their children. Kersh, Master, Bambeger and Drahum, (2010) describe children with intellectual disabilities as outgoing, friendly, kind, more independent and hard-working after their participation in Special Olympics programme. According to Bukhala (2012), special educators and parents reported positive behaviour change, increased independence and improved social interactions among children with ID who were regularly active in organized Special Olympics programmes. Desforges and Abouchaar, (2003) indicates that parents who get involved in their children’s school sports activities early enough had their children performing better both in academic achievement and physical activities. In addition, Richard, (2014) stated that inclusion of parents and their child with ID in community based fun activities helped the participants navigate social interactions, fight stigma and promote psychological stability. Herbert, (2014) encouraged more and serious parental involvement in decision-making in the planning and implementation of suitable early intervention programmes that benefits both children and parents.
Research supports parental involvement in early intervention programmes for children with disability (Ingber, Al-Yagon. and Dromi, (2010); Bianca, (2013); Jeffrey, (2014); Eun-Ok, Ok-Kyung, Chee and Wonshik, 2015) citing direct and indirect processes in which parents of children with ID can be involved. Parents’ participation in early intervention programmes in the form of an organized physical activity programme for their children with ID within their home environment is one of the approaches to promote development in this category of children. Leeni and Karin, (2014) argue that parents who participate in physical activity and sports together with their young children with ID create opportunities to develop basic fundamental skills useful for independence in activities of daily living and future athletic talents. Childress, (2011) indicated that variables that may influence parents’ abilities to actively participate in early intervention programmes for children with ID include parents’ emotional levels, mental wellbeing and social support.

Parental involvement addresses salient and intractable aspects in the growth and development in their children with ID. According to Wuang, Wang, Huang and Su (2008), parents can cooperate with volunteer coaches to organize localized fun physical activities for their children to supplement the skills learnt at school since motor development in children typically occurs through context of physical activities during play which may not be adequate during school hours. In early childhood, physical activities serve as the platform for the development of motor skills essential for performance of activities of daily living, interaction and education achievement (Desforges and Abouchaar, 2003). According to Galligen, Meskey, Spence and Howe
stated that involving parents to design and implement organized physical activities programmes for their children with ID help increase accessibility, safety, continuity and enjoyment. Parents participating jointly with their children with ID would give physical support, assist in decision making, provide parenting skills, participate as volunteers and ensure quick response to difficulties experienced during participation (Menear, 2005). Favassa and Siperstein (2006) and Olsson and Hwang (2008) indicate that parental demographic characteristics such as age, gender, marital status, educational level, occupation and cultural beliefs contribute to the late recognition and extent of involvement in identifying intervention programmes for children with ID.

Parental involvement has been recommended as a fundamental component of early intervention programmes for children with disabilities and the quality of involvement influences children developmental and educational outcomes (Ingber, Al-Yagon and Dromi 2010). Parental involvement is a unitary construct measured by process variables such as frequency of attendance and quality of participation in children’s activities (Cress, Moskal and Hoffmann 2008). Successful parental involvement lead to shared responsibility, collaboration, access to relevant information and training that allow them to develop and mediate intervention strategies to assist their children with ID attain developmental capabilities to meet emerging needs and perpetuate daily routines. Given the importance assigned to parental involvement, there is surprisingly small body of research on benefits that parents attain after they participate in their children’s activities and such information is limited in parents and their children with intellectual disability.
The current study sought to establish the physical and psychosocial benefits of parental involvement in organized physical activity for children with intellectual disability.

1.2 Statement of the Problem.
Parental support and influence are fundamental to children participation in physical activity and has widely been documented among children without disabilities but limited among children with disabilities. In particular, children with intellectual disability are unable to initiate peer play owing to challenges in processing simple information, communication, delayed motor skill development, poor muscle coordination and social interaction. Need for appropriate early intervention programmes using physical activities contextually adapted and modified to the ability level of children with ID helps mitigate functional dependency and optimize self-care skills. It has been argued that working with children with ID can be a complex task that requires planning physical activities that are more fun and compliment child play at the initial stages (Bianica, 2013). Involvement of parents in structured physical activity for children with intellectual disability provides opportunity to learn changes and accommodations needed by their children.

Motor skills development and learning in children increase rapidly between two to six year of age and parents play a critical role in identifying deficits caused by delayed motor development in these early years especially those with intellectual disability. Therefore, parents constitute an important link in the process of identifying and implementing suitable physical activities to address salient and intractable aspects in the development of
their children. Physical activity is associated with improved wellbeing among people who regularly participate in programmes and where the whole family is involved creates an opportunity to build good relationship. Success in physical activity programmes requires consistency in participation that creates a platform for parents to learn a variety of play activities that they can engage their children at home. However majority of the parents’ of children with intellectual disability (ID) encounter social stigma, negative cultural connotations, extra parenting demands that affect psycho-social wellbeing and this hamper extents of involvement in helping their children with physical activities.

Similarly, characteristics of children with ID and parents’ attributes hinder the awareness of gains associated with involvement in intervention programmes that use PA. This may be due to lack of PA programmes and adequate skills for optimal parental involvement leading to physical inactivity and functional dependency among children with ID. In addition paucity of information on the gains of parental involvement in organized physical activity for children with ID impair parental participation in early intervention activities which are critical for motor skills development among children with ID. This study therefore, examined the physical and psychosocial benefits of parental involvement in organized physical activity for children with intellectual disability in Nairobi, Kenya.

1.3 Purpose of the Study

The purpose of the current study was to assess the physical and psychosocial benefits of parental involvement in organized physical activity and sports for children with intellectual disability in Nairobi County.
1.4 Objectives of the Study

The specific objectives of this study were:

i. To establish whether parents’ frequency of attendance in organized physical activity programme for their children with ID is associated with their demographic factors (gender, level of education, occupation, age and marital status).

ii. To compare parents’ ratings of the motor abilities of their children with ID before and after participating in organized physical activity programme.

iii. Compare parents’ self-ratings on psychosocial benefits gained from their continual involvement in physical activity programme for children with ID.

iv. To compare scores of the Test of Gross Motor Development scores performance of the children with ID before and after participation in organized programme physical activity Nairobi County, Kenya.

v. To assess the association between motor skill performance and demographic factors of the children with ID before and after participation in organized programme physical activity Nairobi County, Kenya.

1.5 Research Questions

The study was guide by the following research questions:

i. What are the demographic characteristics of parents and their children with intellectual disability participating in the organized physical activity programme?
ii. Is parents’ frequency of attendance in organized physical activity programme for their children with ID associated to their demographic factors (gender, level of education, occupation, age and marital status)?

iii. What are the comparisons of parents’ ratings on the motor abilities of their children with ID before and after participating in organized programme of physical activities?

iv. What is the comparison in the parents’ self-ratings on psychosocial benefits gained from their continual involvement in their physical activity programme for children with ID?

v. How do the motor skill performance of the children with ID compare before and after participation in organized programme physical activity?

vi. Is there any association between motor skill performance and demographic factors of the children with ID before and after participation in organized programme physical activity?

1.6 Hypotheses

The study tested the following null hypotheses:

H₀₁: There is no significant correlation between frequency of attendance to the organized physical activity programme and the following parents’ demographic characteristics

   a) Gender
   b) Age
   c) Level of education
d) Marital status

e) Occupation

**H\text{02}:** Parents’ ratings of the motor abilities of their children with ID do not significantly differ before and after participating in organized physical activities programme.

**H\text{03}:** There is no significant difference between parents’ self-ratings on psychosocial benefits before and after continual involvement in their physical activity programme for their children with ID.

**H\text{04}:** Participation in organized PA do not lead to significant difference in the motor ability performance of the children with ID subsequent to participation in organized physical activity programme.

**H\text{05}:** There is no significant association between motor ability performance and demographic factors of the children with ID before and after participation in organized physical activity programme.

### 1.7 Significance of the Study

The study might provide information on benefits of involving parents of children with intellectual disabilities in enabling the children in the acquisition of motor and sport skills. It might also provide guidance to the early intervention programme planners on how well to enhance more parental involvement to support physical activity and sports programmes in motor skill development in young children with ID. In addition, the study might help identify the opportunities available for parental involvement in other organized sports programmes for children with intellectual disabilities at school and community levels. The study might further provide information on the physical and
psycho-social gains of parents and their children with intellectual disabilities who participate in physical activities and sports programmes. The results of this study might also provide more useful information to special education teachers on the benefits of involving parents in planning and implementing physical activities and sports programmes for learners with ID. Conversely, the study could provide a base from which subsequent research can be conducted to come up with modalities of motivating more parental involvement in physical activity and sports for children with intellectual disabilities.

1.8 Delimitations of the Study

The study was confined to parents and their children with intellectual disability aged between 4-6 years attending early childhood education (ECD). The study used assessment documents in the custody of the ECD administrators confirming children participants had intellectual disability and were able to follow simple instructions in physical activity. The age bracket is considered ideal for the rapid motor growth and development period for children (Dunst, 2009). The study was also confined only to two centers that had the highest number of learners within the age bracket in Nairobi County. To collect the data required Test of Gross Motor Development tool adapted from Ulrich, (2000) and attendance checklist adapted from Favazza et al, (2011) as well questionnaire on parental rating were used. The study was confined to pre and post test scores of a three month organized physical activity programme.
1.9 Limitations of the Study

Since the 4-6 year old children with ID were not able to give coherent responses, parents’ responses and performance scores tested using Test of Gross Motor Development tool regarding motor ability of children who participated was used to constitute the data for this study. The parents’ questionnaire was not a standardized tool limiting the researcher to have control over subjectivity emanating from parental ratings on children motor abilities and self-rating in abilities to deal with psychosocial issues. However, the researcher had impressed on the confidentiality and anonymity of the information that the parents gave in order to discourage biasness and errors in self-rating. The study was also limited to the quasi experimental non-equivalent control group research design and only ECD centers were randomly each assigned to either control or experimental group.

1.10 Assumptions of the Study

The research conclusively explained the requirements of the study to the parents whose children with ID met the inclusion criteria of the study. Therefore, it was assumed that all participants would continuously participate in organized physical activity programme for the three month period and attend all the sessions. It was also assumed that parents participants responded to the research questionnaire objectively and the scores of children motor performance using the TGMD were accurate. Further, it was assumed that there existed a relationship between the research variables.
1.11 Conceptual Framework

Dukes (2007) suggests that the most accurate predictor of a child’s achievement in any form of skill learning may be influenced by the ability of the family to create opportunity and conducive environment that encourages learning and achievement of set objectives. However, many parents of children with ID tend to live in shock and denial on realizing that the long awaited child cannot live a full independent life (Menear, 2007). Parents and other family members are fearful and anxious about what might befall their children in the process of growing up. The parents aspire to learn more about raising their children and yearn to be incorporated in improving their life by getting involved in positive and practical activities which may include academics, social life, health and motor abilities (Scott, Richardson, Weille and Jackson 2004).

In physical activity and sports in particular, Epstein’s (2002) theoretical model on parental involvement reveals that parents have enormous potential to positively influence their children and their role means much more than providing snacks and dropping them for practice. Epstein et.al, (2002) further explains that parents are positive role models in physical activities that encourage their children to participate hence, impacting on the physical growth, motor skill and intellectual development, as well as directing their emotional behaviour. However, parental involvement in activities of children with intellectual disability is influenced by children’s characteristics, parental motivational factors as well as outcomes of the programme (Billingsly, 2005; Mactavish et. al, 2007).

A conceptual framework based on Epstein Model on Parental Involvement (Epstein et.al,2002) that includes parenting skills, communicating, volunteering, learning at home,
decision-making and collaboration explains the relationship between parental involvement, children’s characteristic, role of parents and outcomes is shown in Figure 1

**Figure 1:** Forces Shaping Parental Involvement in Organized Physical Activity Programme for Children with Intellectual Disability.

**Source:** Adapted from Epstein et.al, (2002)
Figure 1 illustrates that parental involvement in physical activities programmes for children with ID depends on a number of factors. These factors may include children’s characteristics, parents’ demographic characteristics and awareness levels on early intervention process and nature of programme. Sports programmes for individuals with disability should be adapted and tailored to the inclusive setting for both individuals with and without disability. This provides parents an opportunity to interact with the other parents of children with similar conditions who may understand them, thus encouraged to participate. A programme that initiates activities that embrace parents’ support groups, provide information on how well to improve their children’s lives can determine levels of parental involvement. Children with intellectual disabilities may require the involvement of their parents as communication links to the instructors. This will enhance interaction with service providers who are involved in the important process of learning skills leading to the acceptance of the both parties. Parents can be given opportunity to participate and volunteer in instructing their children. By doing this, the parents are made to realize that they are important agents in the learning process of their children especially those with special needs. Many parents will share their knowledge, discuss their experiences and share special skills and intricate ideas. This study therefore, assessed the contribution of parental involvement an organized physical activities programme for children with intellectual disability in Nairobi County.
CHAPTER TWO: LITERATURE REVIEW

2.1 Early Intervention and Physical Activities

Early experiences in active play influence children growth and development. At the age of four years, children without delayed developmental milestones increasingly engage in cooperative play among peers both at school and at home (Bianca, 2013). Many children with disability need to play. This play is a vital part in the motor skill development that leads to inclusion in sports. However, children with disability may lack the developmentally appropriate skills for optimal participation in child play with peers. Motor skill development is a concern for every parent who has a child with disability and can be achieved through physical activities involving play and sports (Milisa and Hana, 2010). Child growth and development is highly dependent on early experiences especially play that children with disability lack abilities to initiate hence need parental involvement. Children with intellectual disability are likely to suffer the effects of physical inactivity and cause emotional challenges to their parents (Muhammad et.al, 2011. Therefore, there is need to develop programmes geared towards early intervention approaches. The nature of children with ID require engaging parents in organized physical activity together and are likely to gain strategies to deal with psychological challenges as well as develop social support (Hassan, Dowling and McConkey, 2014).

2.2 Characteristics of Individuals with Intellectual Disability

Intellectual disability is characterized by significantly sub average intellectual functioning (an intelligence Quotient of below 70 on a standardized scale) and concurrent
deficit or impairment in adaptive functioning in at least one of the following skill areas such as communication, self-care, home living, social inter-personal skills and use of community resources with onset before age 18 years (Bianca, 2013). American Association for Mental Deficiency (AAMD) defines individuals with intellectual disability as persons who display a significant below average general intellectual functioning accompanied by defects in adaptive behaviour mostly manifested in developmental period and function at a value of 2 or more standard deviation below average on a Standardized Intelligence Test (Sherill, 1993; Galligen et al, 2000; Graham et al. 2001; Katherine 2014). In their studies, Billingsley (2005), Menear (2005) and Schwartz (2005) have grouped these individuals into four categories: mild with IQ range of 52-69, moderate with IQ range of 40-51, severe with IQ range of 20-39 and profound with IQ range of less than 19.

Apart from lower IQ levels, most of the assessment of children with ID has indicated that they have deficits in their physical, intellectual, personal communication, social development and feeling of powerlessness thus becoming so dependent on other people in their daily lives (Bianca, 2013). Individuals within the mild and moderate IQs can benefit from learning sports skills. Further studies have indicated that children living with intellectual disability display relatively lower levels of involvement in play with peers. This is common both at school irrespective of increased emphasis on mainstreaming during physical activities and at home with playmates around their homes. Further, children with disabilities experience limited opportunities to participation in play activities and they are excluded from PA by peers and siblings who are salient features in
promoting play. Exclusion is more prevalent in children with intellectual disability. Intellectual disability is used to describe individuals who demonstrate lower cognitive functioning and behaviour limitations (Katherine, 2014). Children with intellectual disability are kept aside as observers or locked in houses by parents/caregivers during play activities amongst peers without disability and experience rejection when making attempts to join playgroups (Spencer and Watkinson, 2010). Poulsen and Ziviani, (2004) indicated that children with developmental delays are less physically active and have significantly different patterns of social and physical play than their peers. It is evident that children’s early development is highly malleable and appropriate developmental pattern depends on the type and quality of parental involvement (Holloway, Yamamoto, Suzuki and Mindichi, 2008).

A study by Hurd et.al (2008) on determinants of sports participation among children with intellectual disability indicated that the most frequently identified barriers to the active participation of children with intellectual disabilities in sports and physical activities include the child's functional limitations, high costs and lack of nearby physical activity and sports facilities or programs. Onset of a disability may influence motor skills development and affect performance of fundamental skills critical for participation in physical activity and sports (Jeffrey, 2015). In addition, time and method a child’s disability is discovered may determine time and procedures of the intervention process (Schalock, Duffy, Doadley, Butinix, Coulter, and Craig (2011)). Participation is further influenced directly by time, the home environment, the child's perceived self-competence and indirectly by social support from communities and parents’ preferences. Research
further reveals that families who engage in physical activities themselves tend to promote similar participation for their children with intellectual disabilities (Mactavish et.al, 2007).

Although many individuals with intellectual disabilities are still, to a large extent, socially segregated and experience negative societal attitudes as well low performance expectations, early involvement in physical activity and sports provides avenues for optimal participation and reduces societal barriers by involving parents and encouraging unified sports (Kersh, 2010). Research studies by Graham et.al (2001) and Martin (2006) have shown that participation in sports improves motor skill performance, social interaction and increased independence, as well as influencing the physical, psychological and sociological development of children including those with disability. Persons with disability can attain high levels of fitness and performance in competitive sports when they undergo careful and repetitive training especially if they are encouraged at early years of age (Fahey et.al, 2005).

According to Cook and Oliver (2011), children who spent more time integrated into regular classrooms at school led to a reduction in social acceptance for children with intellectual disabilities. Yet the school environment should provide opportunities for more play activities during break sessions and physical education lessons. Unfortunately, most of the children with ID were kept on the side as observers denying them the coveted opportunity to enjoy organized physical activity. These children may need additional support to better prepare for the social demands missed out during school hours.
Chelsea, (2014) observed that learners with intellectual disability benefited from physical activity offered at the learning centres although the amount of involvement was less compared to learners without disability. In addition, a lot of inconsistent participation patterns among children with ID slowed the full benefits of physical activities. Murdock and Hobbs, (2011) discovered that providing organized physical activity programmes at the community level allowed an effective, safe and optimal participation for children. Community programmes heavily rely on volunteer service which may be scarce hence involving parents and family members as instructors of their children with ID is critical. Although involving parents display a unique aspect, their efficiency might be influenced by children characteristics such as functional capacities, interests, emotional and cognitive abilities, accessibility and nature of intervention programmes (Jeffrey, 2015). Such programmes that focus on year round play and sports activities that promote health-living, fun and social inclusion as well as sports competitions for children with intellectual at community level are organized by Special Olympic movement. However, the success of the community based activities depends on the amount of good will of volunteer services and commitment of parents or caregivers with the responsibility of dropping children in the available programs. The levels of support required by the child with ID depend on volunteer coaches and parent’s attributes.

Special Olympics Kenya (SOK) has launched sports training programmes at community levels that provide opportunities for individuals with intellectual disability, their parents and members from the surrounding community to learn skills in different sports. The
Special Olympic movement provides family support network whose mandate is to reach out to parents and bring them together to cheer their children as they participate (Special Olympics Kenya, 2011). Parental involvement in organized SOK programmes provide direct and intentional instruction and multiple opportunities for both parents and their children to engage in physical activities as they learn sports for competition (Siperstein and Favazza, 2007). The entry age in the Special Olympics programmes is eight years which is the competitive age in sports, and parents discover these opportunities when their children are quite advanced in age (Special Olympics Kenya, 2011). Most of the children in the SOK programmes display low motor skills for competition since they may not be sufficiently involved in physical activities and sports during the early years due to delay in motor development (UNICEF, 1998). Bodde and Seo (2009) indicated that children with ID who are more exposed to physical activity improved their health and quality of life. Therefore, parents of children with ID are expected to identify appropriate intervention techniques to help their children with ID grow and develop as their peers without ID. Organized physical activities programmes at home and at the community may serve as avenues for the children with ID to achieve benefits associated with participation (Ehrman, Gordon, Visich and Ketyan, 2014). However, parents’ attributes and demands in raising a child with ID may hinder awareness of the physical and psychosocial benefits of parental involvement in organized physical activities for children with ID.
2.3 Opportunities for Parental Involvement in their Children’s Sports

Parents are their children’s first educators and can identify suitable sports and physical activity programmes for their young children with intellectual disability (Jeynes, 2007). Parents can be involved in volunteering, contractual duties, actual coaching and in fostering social experiences by ensuring that they follow up with their children’s sports training programmes (Stewart, 2008). Providing an opportunity for parents and their children to play together provides them with a chance to interact as the stranger coaches can hopefully be included in this important exchange so that the children embrace the coach as part of their environment in learning sports skills. Organized sports and physical activities at the community level can provide an opportunity to parents and their young children with intellectual disabilities to participate without travelling costs which can be a hindrance (Foster et.al, 2006). This can also make parents own the programme and ensure they participate. The more involved the parents, the better the child’s attendance leading to the child becoming more successful in learning a sport skill (Martin, 2006).

Parents of children with intellectual disability often feel confused and isolated (Menear, 2005) yet nature of their children require parents’ intervention to mitigate developmentally appropriate patterns. Haibach, Reid and Collic, (2011) explained that children with ID may attain motor skills at slower rate than their counterparts without developmental milestones hence, need to be supported by competent adults, mostly their parents, caregivers and other family members in sports and physical activity programmes (Mactavish et.al, (2007); Maline, Bouchard and Bar-or, 2004).
Terrienieka and Sanchez, (2011) explained that parental involvement both at home and school has consistently been found to positively relate to children achievements. Parental involvement is a two way dimension family participation in intervention programmes whereby participants receive quality of interactions under the guidance of programme personnel mostly volunteer coaches. A high quality parent-child teaching and learning opportunities during naturally occurring routines encourage development of fundamental skill. By getting involved in community sports and physical activity programmes, parents can form support networks that provide them with acceptance, hope, resources and a chance to become advocates of their children’s health and development. Parents who get involved in sports skill learning for their children become encouraged to provide conducive environment and ability to initiate some guidance to the sports activities since they are their children’s first educators in major aspects of life skills (Ferrald, 2005).

Bodde et.al (2009) posited that characteristic of children with ID which include lower IQ levels and poor personal communication and social skills as well as negative support from family member’s and society further hindered participation in physical activity with peers. Katherine, (2014) explains that late discovery of child’s disability and deficits in motor development are associated with delay in intervention process that limit the necessary exposure and inclusion of a child with ID in activities required for motor skills development. Parents are the most natural advocates for their children which make parental involvement a key component in the child’s daily activity (Bianca, 2013). Leigh, Qiong, Jaime, Ol-Man, and Michael (2012), describe parental involvement in children’s activities as the best practice and full of benefits. The importance of getting parents
involved is emphasized at all ages and more beneficial in early intervention programmes for children with intellectual disabilities (Herbert, 2014).

According to Bartlo and Klevin, (2011) and Martin (2006), raising a child with ID has significant consequences to parents that may include high stress levels, divorce, stigma, emotional stress and extra work with little support from service providers. Geisinger, (2006) indicates that cultural practices lead the parents to hide their children with intellectual disability, denying them the necessary exposure and adequate opportunities to engage in physical activities that would enhance motor growth and development. Parenting is a demanding task at all stages of a child but parents of children with intellectual and developmental disability, experience higher levels of stress compared to raising those without disability (Bianca, 2013). Maria, Swarts, Markham, Chandra, McCurdy and Basen-Engquist, (2014) advocated that parental involvement is critical in mitigating developmentally appropriate skills and health among their children with disability and there is need for parent-child connectedness which can be achieved through parents getting involved in play and physical activities for their children with ID. Shield and Hanneke, (2008) revealed that social and psychosocial factors influence success in parental involvement. Continued participation in organized physical activities and sports has been associated with improved physiological and psychological well-being of individual (Bodde and Seo, 2009) and an opportunity to develop sports skills and friendships among children.
According to Schwartz (2005), parents of children with intellectual disabilities may not be sure of suitable physical activity and sports programmes for them. Bomjin and Drummer, (2008) also observed that parents of children with intellectual disabilities fail to involve them in physical exercise and sports due to fear of worsening the existing disabling condition. Siperstein and Favazza, (2007) opines that special attention be given to young children with disabilities to counter the effects of delayed motor development with an effort to intervene hence, need for parents to be involved. Jeffrey, (2015) emphasised that parents and family members have potential influence in initiating fundamental skills which promote children’s ability to self-control and independence. Olsson and Hwang, (2008) posited that involving parents in the early intervention using play and physical activities is affected by cultural and environmental background, social-economic status, psychological factors and availability of accessible programmes as well as parents’ skill level. Ferrald, (2005) observed that whenever children with delayed developmental get opportunities for to participate in physical activities under expertise of trained coaches are likely to attain motor skills that initiate independence and readiness to endure future life responsibilities. Epstein, (2005) emphasizes the importance of parents being involved in play (physical activities) to enhance motor development in their young children especially those with delayed developmental milestones.

According to Mactavish et.al (2007), parental involvement in the daily undertakings of their children has shown a consistent positive relationship between parents' engagement in their children's activities and outcomes. Bomjin and Drummer, (2008) observe that parental involvement is associated with a child’s performance such as improved motor
performance, positive behaviour change and substantial independence. Parental involvement may be in terms of parenting, communication, volunteering, learning at home, decision-making and collaboration with the community. However, cultural beliefs and perceptions, parents’ educational backgrounds, economic and marital status could be strong predictors of parental involvement (Siperstein and Favazza, 2007). The two studies addressed motor performance changes among individuals with ID participating in Special Olympics programmes. The studies did not test influence of parents’ attributes and the extent of their involvement in the physical activities of their children with ID. Further, the studies dealt with a diverse age of special Olympians. The current study looked into the correlation between parents’ characteristics and their consistency in the organized physical activity programme.

A study by Muhammad, Tariq, Ashiq and Ahmed, (2011) outlined that involving parents in the educational assessment process for their children with ID made the process easier and faster. The assessment involved the child with ID to perform one of the activities of daily living (ADL) that involved: holding a mug, pour water into it, draw the mug to the mouth and drink the water. Parental involvement in this process was critical as the activity was to be done at least 2-3 times daily for six weeks and the parents were expected to demonstrate, break the task, give feedback and reinforce. Bitsko et.al, (2009) indicated that adopting parental involvement in community based programmes for their children with disabilities, was a principle that influenced children’s education, health and well-being. Laxman. et.al. (2015) revealed that parental involvement was critical in the initial play activities that nurtured and created a sense of belongingness for children. In
their study, Bitsko et.al, (2009) reported that majority of parents lacked appropriate skills in adapting play and physical activities that they can engage their children with ID.

2.4 Challenges to Parental Involvement in Activities of their Children

A study by Plant and Sanders, (2007) found out that parents of children with ID experience extra care-giving demands and therefore are exposed to increased levels of personal levels of psychological fatigue. According to Shea et.al, (2010) explained that most parents in Sub-Saharan Africa recognize that their children have developmental deficits late, especially those with ID which is mostly confused with learning difficulties. This by extension has negative implication in the identification of suitable intervention activities for the children. Bianca, (2013) ascertains that consequence of high stress levels among parents is associated with coercive negative interactions to the child and other family members despite children with ID relying on their parents to meet their functional needs. Jeffrey, (2014) posited that parents’ inabilities to deal with psychosocial issues associated with extra parenting demands for children for with ID can impair their optimal involvement in children’s daily activities. Stokes and Holsti, (2010) defined parents’ psychological challenges as difficulties emerging from extra demands of parenting children with disability that affected behaviour such as increased social isolation and emotional depression as well as relationship conflicts. However, findings of these studies concentrated on psychological challenges experienced in parenting a child with ID. The current study looked into the psychological gains when parents are involved in an organized physical activity programme for their children with ID.
In the educational setting, Stewart, (2008) indicate that children of parents who are well involved in learning procedures achieve higher test scores, miss school less frequently, are more likely to graduate from each school level in time and are less likely to use drugs and alcohol. Woung, Lai, Martinsm and Woung, (2006) indicated that involving parents in family educational programmes resulted to significant change in parents’ attitude towards the abilities of their children. The same principle can effectively be replicated in supporting sports activities for their children. Many times, parents are not certain of how to play a more active role in their children’s sports activities thereby leaving the task to the children’s teacher and/or coach. The most affected are parents of children with intellectual disability who may lack awareness of existing programmes that can benefit their children (Bukhala, 2012). Njelesani, Leckie, Drumand and Cameron, (2014) argues that parents hold a strong influence on their child’s engagement in physical activity especially for children with intellectual developmental disability (IDD) as those children are less likely to initiate physical activity. Obstacles that constrain parents' ability to become actively involved in their children’s physical activities and sports may include parents’ and society’s attitudes and inadequate resources (Kersh et.al, 2010).

A study by Hill and Taylor, (2004) on parental involvement in school and children's academic achievement showed that student and family characteristics affect levels of parental involvement. Working-class families and those in which mothers work full-time tend to be less involved in their children's activities including sports. Parents of children with intellectual disabilities are more affected due to the extra burden since their children require more attention as compared to parents of able-bodied children. The study
compared educational involvement of parents with and without ID. However, there are
discrete findings on the parameters that influenced the extent to which parents were
involved. The current study assessed the correlation of parents’ demographic factors and
the frequency of attendance in an organized physical activity programme for children
with ID.

A study by Nord and West, (2001) on fathers’ and mothers’ involvement in their
children’s schools by family type and resident status indicate that parents’ gender, age
and level of family stability predict levels of involvement. In addition, fathers who devote
time to their sons give them a greater chance to grow up as confident adults. The study
further noted that boys, who felt that their fathers devote time, especially to talk to them
about their worries, school work and social lives, emerge as motivated and optimistic
men. Early father involvement protects against delinquency in later life; the involvement
of fathers exerts an influence on children’s positive attitudes towards their growth and
development. Jeynes, (2007) reveal that parents’ beliefs about their responsibilities as
parents, ability to affect children’s education and perceptions of children’s interests in
school subjects have been shown to predict levels of involvement in their children’s
activities.

In a study on academic determinants of parental involvement in academic excellence
among learners with ID, Desforges and Abouchaar (2003) state that the extent and form
of parental involvement is strongly influenced by family social class, maternal level of
education, material deprivation, maternal psycho-social health and single parent status
and to a lesser degree, by family ethnicity. When parents get involved in the activities of their children, positive effect on children’s achievement and impact caused by different frequencies of parental involvement have a bigger impact than differences associated with variations in the quality of programmes (Bomjin and Dummer, 2008). The findings of these studies outlined the influence of parents’ characteristics and academic excellence. Parental involvement in sports and physical activities was missing.

Parents of children with intellectual disability risk losing jobs following frequent absenteeism either to take care of their children or due to several visits to hospitals (Menear, 2007). This affects the parents’ income and may hinder full parental involvement due to some expenses that are incurred. Difficulties associated with disabilities such as chronic health conditions, conflicts with work schedules and strained marital relationships due to cultural beliefs such as exposing their children lead to less parental involvement (Iverson, 2010). According to Foster et.al (2006), service provider’s perceptions of parents or the degree to which they feel parental involvement is important in children’s activities, nature of activities, social-economic and educational backgrounds may affect parental involvement.

2.5 Factors Influencing Parental Involvement

Parents play an important role in influencing their children health, growth and future achievements (Hedwig, 2014). Motor abilities are fundamental skills which are critical in the independence of a child and most often developed through child play and other forms of PA (Haibach et.al, 2011). World Health Organization (WHO), (2010) identified PA as
a preventive health measure that is important to individuals from all walks of life and lack of PA is a significant health risk among persons with ID. Parents can assist in determining opportunities for PA, support programmes, encourage participation and serve as role models in the activities but levels of involvement can be influenced by a myriad of attributes (McKeon, Slevin and Taggart, 2013)

2.5.1 Children Characteristics

Katherine, (2014) describes children with ID as those who display mental limitations and are exposed to a sedentary lifestyle. Due to delayed motor development and functional dependency, many children with ID are excluded from routines with peers and family as well as community including early childhood programmes that foster development (Bianca, 2013). In addition, children with ID show in-consistent patterns in motor skills and engage less in physical activity as compared to their peers without ID. Milisa and Hana, (2010) highlighted the importance of motor skills and emphasized that problems that delay development can be tackled by parents who initiate early intervention measures. Murdock and Hobbs, (2011) opines that engaging in community based physical activity programmes provided parents and their children with ID effective and safe services. Further, the study indicated that such programmes at the community level compensated for children with ID who were likely to miss out on the school physical education programme as compared to their typically developing peers. Kiley and Nicole, (2014) found out that children with ID participated in fewer physical activities than their peers without disabilities both at school and home environment necessitating parental involvement as a strategy for intervention. Monna and Gauthier, (2008) expressed that a
child’s birth position determines amount of a parent’s attention. They argued that first born children are more likely to have greater access to parental time and involvement.

2.5.2 Parents’ Demographic Characteristics

Demographic characteristics such as gender, age, education level, marital status and occupation are considered as determinants of parental involvement in their children’s activities.

2.5.2.1 Parents’ Gender

Level of parental involvement has continued to be a gender role discussion in research and there is no doubt that fathers play a critical role in their children’s lives. Laxman, McBride, Jeans, Dyer, Santos, Kern, Sugimura, Curtiss and Welglarz-ward (2015) studied fathers’ involvement in early intervention activities of their children with disabilities and revealed that there was a significant association with decreased paternal depression compared to non-involved fathers. Studies affirm that involved fathers can influence the cognitive, health and well-being of their children’s life. Gaillo, Woods, Jellett and Porter, (2013) found out that mothers of children with disability experience higher levels of fatigue given the additional caregiving demands, parenting challenges and pressures of managing family life when raising a child with disability hence get into depression faster than fathers. Willingham-Storr, (2014) explained that mothers provided the most support to their children with ID leaving them more likely to experience stress. Levels of stress among parents of children with intellectual disabilities are dependent on professional services given and social support network from significant others. He further
opined that most services rarely address needs of parents. In addition, the review reported that fathers experienced high levels of tiredness that interfered with the quality of time they got involved in their children’s activities at home. Fathers also experience difficulties finding supportive social network. Willingham-Storr, (2014) posited that parents who are engaged with their children’s daily routines brought significantly positive change and parents felt more confident as well as empowered. However, a gap still exists in quantifying true acceptance of the role of the father as care giver and dealing with the extra demands of parenting children with disabilities in a female dominated society that fathers express the feeling of being second-class citizens in the world of their children (Zecevic, Trembley, Lovsin and Lariviere, 2010)

2.5.2.2 Age of Parents

Studies differ in qualifying parents’ peak of involvement in their children activities. Epstein, (2010) pointed out that older parents are likely to be more involved in their children activities based on positive parental attitudes and economic stability. Njelesani et.al, (2014) opined that younger parents had more energy and agility to participate in their children’s activities. Shields and Hanneke, (2008) concluded that low levels of involvement among younger parents emanates from poor quality of couples relationship, quality of employment and informal unions.

2.5.2.3 Level of Education and Awareness on Early Intervention Process

Studies have supported the relationship between a parent’s level of education and involvement in educational achievements of their children. Dabrowska and Pisula, (2010)
indicated that parents who had higher education standards had more stress levels owed to the fact that they were much aware of the future implications facing their children with ID and challenges that families may experience. Studies supports that college educated affluent parents are more involved in educational activities of their children compared to parents with lower education levels. Education increases the levels of perceived stress. Muhammad and Gagnon, (2009) revealed that higher levels among females and males with post-secondary education compared to less educated counterparts.

2.5.2.4 Marital Status

Several studies support that the presence of a child with disability destabilizes the marital dynamics and the condition of the child can jeopardize the couple’s relationship, influencing a parents capability to deal with emotional instability (Mackey and Goddard, 2006; Pelchat, Lefebvre and Levert, 2007; Hebert, 2014). Marital status of a mother dictates stress levels. Muhammad and Gagnon, (2009) revealed that unmarried mothers reported higher stress levels compared to those in marriage. Desforges and Abouchaar, (2003) revealed that single parents status has problems associated with maternal psychosocial health especially depression and had negative impact on levels of parental involvement. Willingham-Storr, (2014) highlighted that parenting a child with intellectual disabilities is a role that can lead to family conflict and stress, feelings of exhaustion and resentment leading to decreased ability to address psychosocial issues.
2.5.2.5 Parents’ Occupations

One of the biggest barriers to parental involvement is time. Working parents might not have adequate time to participate in their children’s activities and most of parents in formal employment expected to spend more time at work and leave their children under the care of caregivers or relatives while non-working parents might get engaged in other commitments (Monna and Gauthier, 2008). This might negatively affect quality of parental involvement. Parents’ work engagement and other responsibilities reduce the amount of time and energy required for effective participation in intervention programmes for their children with ID, such as play and physical activity.

2.6 Other Related Studies

Although all parents want their children to succeed in their activities, not all of them have the same resources or opportunities to be involved in their children's skill learning (Martin, 2006). Parents and caregivers, who work full-time or take care of multiple children and lack enough information on available opportunities and are less exposed, face significant barriers to participation in their children's activities (Bomjin and Dummer, 2008). A study by Epstein (2005) on national standards for parent/family involvement conceptualized six types of parental involvement which affect a child’s performance and motivation. These include parenting, communicating, volunteering, learning at home, advocacy and collaborating. Menear, (2008) indicates that nature of children with intellectual disabilities highly require the six types of parental involvement to achieve the goals of motor development as they participate in physical activity and sports especially at early years. Schwartz, (2005) explains that behavioural involvement
refers to parents' public actions representing their interest in their child's activities such as attending an open house activity or volunteering at the school and parent–child interactions communicate positive attitudes about the child. These findings were the backdrop for the conceptual framework for the current study.

Most often, parents continuously send their children off to participate in their different programmes and expect them to do well while they can add an important extra ingredient that will boost their children's success at all levels of their performance (Schwartz, 2005). Parental participation is the ingredient that makes the difference (Stewart, 2008). Parents' active involvement with their child's education at home and in school has been known to bring great rewards and a significant impact on their children’s lives. According to Jeynes (2007), the children of involved parents are absent from school less frequently, behave better, do better academically from pre-school through high school, go farther in school and go to better schools. Similarly, involving parents in physical and sporting activities can enhance achievement of healthful living.

A study by Stewart (2008), on school structural characteristics, student effort, peer associations and parental involvement showed that consistent parental and family involvement in and out of school child’s activities such as sports, trips, recreation and fun events encourage learning which is even more important than parents' income, education level or cultural background. By actively participating in their child's daily activities at home, school and community level, parents send some critical messages to their children
and demonstrate their interest in these activities and reinforce the idea that performing to the highest potential is important.

A study by Mactavish et al. (2007) on family involvement in Special Olympics indicated that children with intellectual disabilities whose parents and siblings participated in the Special Olympics programmes registered improved performance. In addition, success of Special Olympics competitions and programmes at international and national levels provide an illustration of quality and excitement in optimal performance in the athletes with intellectual disability and the significance in their development when family members are present to support them. A study by Iverson (2010) found that parents who helped their young children with intellectual disability after school time had been reported to have increased in their communication, independence and readiness to schooling.

A study by Holt and Knight (2014) indicated that participation in sports enhanced physiological well-being and promoted social adjustment. Further, the study revealed that family support and parental involvement determined the amount of shared experiences among parents and adolescents with ID. In addition, the study found out that regular participation in moderate physical activity offered in Special Olympics programmes improved independence among adolescents with ID and offered an opportunity for parents to share experiences thus improved abilities to cope with psychological issues. However, they recommended a further research on involving parents in physical activity as an early intervention strategy for young children with ID. This guided
recommendation also formed the basis for this study that aimed at assessing physical and psychosocial benefits of parental involvement in an organized physical activity programme for children with ID.

Bukhala, (2012) investigated the effectiveness of using trained peer tutors in enhancing physical activity participation among youths with and without intellectual disabilities. Results indicated significant improvements in motor performance and positive experience among parents of the children who participated in the sports programme. In this study, participants were youths who took part in a sports programme under trained volunteer coaches. Although parents’ responses showed significant improvement of their children behavior, they were not directly involved in the practical participation in the sports and the participants were youths. The study did not account for the participation of young children with ID and their parents.

Favazza, Mwangi and Masila, (2014) conducted a study on the young athletes experience in Kenya. The purposively selected participants were learners with ID between the ages of 3-7 years. The intervention took place within the school environment. Results of the study indicated that all children improved their motor skill abilities above the norm by more than one standard deviation. Considering the amount of time the learners spent (30 minutes per day), continuity with support of the families was critical to implement individualized early intervention. However, the school programme may not accommodate parents and their children and there is need to train and involve parents in physical and play activities skills that can be performed in the context of the family and learning to
extend after and during school break. This guided the current study that involved both parents and their children with ID in organized physical activity programme every Saturday for three months. Saturday was arrived at as the day most parents are free from official working duties.

Bianca, (2013) posited that participation in co-curricular activities such as sports provided positive social support. In her study, she observed play behavior of children with Down syndrome between the age of 3-5 years. Results of the study indicated that children who had experience in play at pre-school environments were more involved in cooperative play with peers compared to those who had never been to school. Parents’ ratings of social skills were higher among children with ID who participated in sports outside school activities than those who did not. Chapel, Columna, Lytle and Bailey (2012) expounded that involving parents in their children activities would help programmers incorporate parents expectations in the programme. However, majority of parents feel unprepared and lacked the requisite training to provide physical activity opportunities for children.

Further, Bianca, (2013) explained that parents perceived themselves as not having the qualifications to provide suitable physical activity. After intervention, parents expressed more desire to learn physical activity that they could do at home with their children and lacked the knowledge of how to make programme modifications for children with ID. Parents reported that participation in physical activity helped the children improve their motor skills and improve health and fitness levels. This information provided a backdrop
for parents’ ratings of social skill performance for children with ID who participated in an organized physical activity programme.

Gaunt and Scott, (2014) studied 148 couples involvement in the activities of their children aged 6 years and found out that fathers had a strong negative association with the extent of involvement but had less influence in their children attaining fundamental skills. In contrast mothers positive relationship with increased development of fundamental skills. A study by Farran, Staffileno, Gilley, McCann, Li, Castro and King, (2008) indicated a significance association between amount of involvement in the physical activity intervention and increased functional capacities of the children with disability. Ingber, Al-Yagon, and Dromi, (2010) studied 114 mothers who attended early intervention program for their children with hearing disability. The study focused on the unique value of mothers’ characteristics that influenced their involvement in the early intervention. Results in the study indicated that there was a significant increase in physical and emotional gains among parents and children involved in the PA and sports for children with physical disabilities. Although the studies indicated gains in children motor skills, it was not clear whether the gains were associated to parents’ demographic characteristics.

Leigh et.al, (2012) opines that strong parental involvement is associated with significant gains in social and emotional support. Parental involvement is strongly influenced by family social class, level of education and psychosocial health (Hedwig, 2014). Although raising a child from infancy through adulthood is a daunting task for all parents, a child
with disability demand a significantly higher level of attention compared to a typically developing child (Minear, 2007). Parenting a child with ID for instance is associated with high stress levels among the parents (Bianca, 2013; Dabrowska and Pisula, 2010). Several methods have been used to help parents adjust to the negative psychological effects. Plant and Sanders, (2007)) indicated that psychotherapy and counselling are among approaches professionals have successfully applied in stressed parents.

Boddy, Downs, Knowles and Fairclough, (2014) supported individual therapy such as engaging in a children’s daily activity which found to have a significant influence in reducing stress related issues among parents of children with developmental disability. Jefrrey, (2015) posited that an approach to decrease stress levels, parents needed opportunities to learn and share their feelings with others and a more open and in an actively involved environment. Laxman, McBride, Jeans, Dyer, Santos, Kern, Sugimura, Curtiss and Welglarz-ward, (2015): Bitsko, Phipps, Roehr. and Barnheisers, (2009) documented benefits and achievements of children whose parents are involved in their sports and recommended a research on gains parents would achieve after they took part in sports together with their children with disabilities.

Kurani, Nerurkar, Miranda, Jawadwala and Prabhulkah, (2009) argued that when parents are involved in the intervention programmes for their children with ID, the children got more exposure and practice at home which resulted in great improvement in motor ability performance. However, the studies did not report on the parents’ gains. The current study involved parents in an organized physical activity programme for children
with ID and sought to establish the relationship between parent’s demographic characteristics and abilities to deal with psychosocial issues before and after participation in the intervention programme. O’Dweyer, FairClough, Knowles and Stratton, (2012) echoed the socio-ecological models that suggest that involving parents as intervention targets in physical activity for children as an effective approach that foster healthier lifestyles. They opined that motor skills training are effective in early childhood years. To support this argument, O'Dweyer et.al, (2012) recruited 77 families of children with Down syndrome, a characteristic of intellectual disability (ID) and split them into intervention and comparison groups.

Dionne and Martini, (2011) recommended the use of floor time play (FIT) approach as an intervention process for children with disabilities where the parent sets aside 20-30 minutes periods a day to get down on a clean floor and play with the child encouraging and prompting correct motor skill performance. The current study engaged children with ID in fun physical activities and sports for 2 sets of 45 minutes every Saturday for three months. Pre-test scores in sedentary time and PA levels were taken and then subjected the intervention group to a 10 weeks organized ‘active play’ where family and children with ID were involved guided by trained active play professionals. The control groups continued with normal routines of engaging in PA and post test scores were recorded. Comparing the results for the intervention and comparison groups, significant intervention effects were observed. In the comparison group, sedentary time had reduced by 1.5% and total PA increased by 4.5% during weekdays and weekends respectively while in the intervention group sedentary time reduced by 4.5% and total PA increased
by 13.1% in the same order. Cook and Oliver, (2011) have supported that structured recreational programmes inculcate positive social relationships and acceptance. Results of a four week recreational summer programme, where children participants aged 5-10 years were exposed to equal treatment indicated significant gains in athletic skills and social interaction.

2.7 Summary of Reviewed Literature

Studies by Nord and West (2001), Hill and Taylor (2004), Epstein (2005), Jeynes (2007) and Stewart (2008) focused on parental involvement in regular “able-bodied children’ with more emphasis on school academic performance. Studies by Kersh (2005), Mactavish (2005), Bomjin and Dummer, (2008) addressed issues related to parent and family influence in physical and sports activities of children with intellectual disabilities in South Korea, USA and Canada respectively. Holt and Knight, (2014) studied benefits of participation in sports for adolescents in Special Olympics programs in Melbourne but emphasized on further research on practical involvement in early intervention physical activities for young children. All these studies provide evidence that parental involvement in their children’s activities has influence on their performance, achievements and adjustments. In addition, a study by Favazza and Siperstein (2006), on evaluation of young athletes’ program in USA indicated that the pre-scholars with intellectual disability had great improvement in motor skills. However, there appears to be paucity of literature that traces parental involvement in the physical activity and sports geared towards early interventions in motor skills in young children with intellectual disabilities in Kenya. Bitsko, Phipps, Roehr and Barnheisers, (2009) indicated that adopting parental
involvement in community based programmes for their children with disabilities, was a principle that influenced children’s education, health and well-being. Laxman et.al, (2015) revealed that parental involvement was critical in the initial play activities that nurtured and created a sense of belongingness for children. In their study, Bitsko et.al, (2009) reported that majority of the parents lacked knowledge on the appropriate physical activities to engage their children in. Further, recommendations of the study by Favazza et.al, (2014), on need to identify more strategies to practically involve parents in early intervention play activities for children with ID also guides this study. Study results reported tremendous gains among children whose parents were consistently involved than those who were not. Parents’ ratings showed higher levels of motivation to introduce other activities. Findings in most of studies concentrated on the benefits of parental involvement on the child and little information on the parents’ gains after they participated directly or indirectly in their children’s activities. Similarly, most of studies depended on trust that parents would guide the children in performing the activities and lacked the practical participation. Benefits of parental involvement in the achievements of their children has received significance amount of research attention in the general population but surprisingly very little research has been conducted on gains parents would achieve when they got involved in their children activities. However, hands – on practical experience is likely to provide more concrete and conclusive results. The current study used an organized physical activity programme for parents and children with ID under the guidance of a coach trained in young athletes’ activities to establish the physical and psychosocial benefits of involving parents in organized physical activity for children with ID.
CHAPTER THREE: METHODOLOGY

3.1 Research Design

This study adopted a quasi-experimental non-equivalent control group research design in which there was a pre-test and post-test to evaluate the physical and psychosocial outcome of parental involvement in the organized physical activity programme for children with ID. The design was found suitable for the study as it allowed for unequal control and experimental group to be compared. In addition the participants were purposively chosen based on the high numbers of children with intellectual disability learning in the two inclusive early childhood education center rather than through randomization. The experimental group parents participated in organized physical activities and sports jointly with their children with disability while parents were not directly involved in organized physical activity in the control group.

Parents’ responses and children’s motor skill level before and after treatment were used to determine changes which arose from a three month physical activity intervention programme. The quasi experimental non-equivalent control group research design was suitable for the study because it allowed the researcher to evaluate the responses from the non-equal number of parents and observations from the children in the experimental and control groups at two-time points then compare significant differences (Schaw 2012, Orodho, 2004 and Mugenda and Mugenda, 1999).
3.2 Measurement of Variables

The independent variables were parents’ demographic characteristics (gender, age, education level, marital status and occupation as well as participation in PA). Dependent variables included: motor skills gains among children with ID who participated in organized PA, extent of parents’ participation and psychosocial benefits.

3.3 Study Location

The study was carried out in Nairobi County; in two purposively selected sites that offered early childhood education for children with intellectual disabilities whose numbers of ECD learners exceeded 20. The two sites that had been identified included: Mary - Rice in Kibera, a community-based programme with 25 learners with intellectual disabilities in the ECD and Buruburu Baptists - Embakasi with 21 learners (City Education Special Schools Register, 2013). The two sites were purposively selected due to their uniqueness in the high numbers of children with ID who had attained pre-school age, 4-6 years compared to special units in Nairobi County where all ages are combined.

3.4 Target Population

The study targeted parents and their children with intellectual disabilities age between 4-6 years in the early childhood development (ECD) education centres in Nairobi County. There are four inclusive ECD centres in Nairobi County. The target population included either both parents, a family member or a guardian to the children with ID in the selected ECD centers expected at 128 parents and their 64 children who are registered
learners with intellectual disabilities in the inclusive ECD centers making a total population of 193 (Table 3.1 below).

Table 3.1: Distribution of Inclusive ECD Centres by Total Number of Learners, those Identified with ID and Expected Number of their Parents in Nairobi County.

<table>
<thead>
<tr>
<th>Name of Inclusive ECD centre in Nairobi County</th>
<th>Total number of learners</th>
<th>Total number of learners with ID</th>
<th>Numbers of learners with ID of age 4 – 6 years</th>
<th>Expected Number of parents children with ID in the ECD centres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Little- Rock, Ayani</td>
<td>300</td>
<td>25</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>Mary –Rice, Kibera</td>
<td>50</td>
<td>43</td>
<td>25</td>
<td>50</td>
</tr>
<tr>
<td>Christ-the-King</td>
<td>60</td>
<td>17</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Nairobi-Believers Academy</td>
<td>36</td>
<td>8</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Buruburu Baptist – Embakasi</td>
<td>359</td>
<td>51</td>
<td>21</td>
<td>42</td>
</tr>
<tr>
<td>Total</td>
<td>805</td>
<td>144</td>
<td>64</td>
<td>128</td>
</tr>
</tbody>
</table>

**Source:** City Education Special Schools Register, (2013)

3.4.1 Inclusion Criteria

The study included a population of parents and their children with intellectual disability males and females, aged 4 to 6 years attending early childhood education (pre-school) in the two purposively selected centers in Nairobi County. Children’s age was checked from
school records and confirmed from parents’ report. In addition, the children were expected to have been assessed and confirmed to have intellectual disability, which was confirmed from the learner’s school admission file. The study involved practical participation in organized physical activities, hence included children with ID and has the ability to move independently and follow simple instructions.

3.4.2 Exclusion Criteria

The study excluded parents and their children with ID attending ECD who use assistive devices for mobility and had severe health conditions that might hinder participation in the physical activities as well as those who were likely to attain 7 years of age before the end of the intervention programme.

3.5 Sample Size and Sampling Procedure

Purposive sampling procedure was used to sample two ECD centers due to their uniqueness in the high number of learners with ID of age 4-6 years that is Little–Rock, Ayani 25 learners and 25 parents/ guardian as well as Buruburu, Embakasi with 21 learners and 21 parents respectively (Table 3.1). The two centers were then randomly selected into control and experimental groups. The sample size in the purposively selected sites constituted a sample size of 92(84%). In the experimental group, 21 children with ID and their 21 parents met the inclusion-exclusion criteria. However 18 children and their 18 parents completed the intervention. In the control group, 17 children with ID and their 17 parents met the selection criteria but only 14 children and 14 parents completed the intervention. The total sample was 76 participants who met the
requirements of being included in the study and 64 (83.8%) completed the treatment. This was considered an adequate sample for the quasi–nonequivalent control group design that was used in this study.

3.6 Research Instruments

In order to achieve the objectives of the study, data was collected using three research instruments: Parents’ questionnaire, test of gross motor development and attendance checklist.

3.6.1 Parents’ Questionnaire

The questionnaire was used to collect information from parents of the children with intellectual disability who were recruited as subjects in this study. The tool was developed by the researcher with the help of the supervisors and consisted of two parts; section A was made of close ended items that gathered parents’ demographic characteristics while section B required parents to rate their children’s abilities to perform motor skills as well as self-ratings in abilities to deal with psychosocial skills before and after participating in the organized physical activity programme at a five point Likert scale (Appendix F).

3.6.2 Attendance Checklist:

The attendance checklist was adapted from attendance sheet by (Favazza .et.al.2011). It was used to record frequency of attendance to the organized physical activity programme. The reliability of the tool had been tested at an index of 0.85. The tool had been
successfully used in the young athletes expansion programme in Kenya therefore it was adopted and not subjected to reliability test. Parents’ and their children consistency in physical activity programme was recorded on the attendance checklist (Appendix G) throughout the intervention.

3.6.3 Test of Gross Motor Development (TGMD2)

Test of Gross Motor Development (TGMD2) was adapted from (Ulrich, 2000). It is a norm-referenced tool that measure common gross motor skills in children aged 3-11 years. The tool had been tested for reliability at coefficient index of 0.85 in the locomotor subset scores and 0.88 in the object manipulation scores respectively (Ulrich, 2000). The tool has been used by a wide range of professionals that include regular and special teachers, psychologists and physical therapists. The tool is used to identify children who are significantly below the norm in gross motor skill development and are eligible for special intervention measures in physical education and activities. The tool has a detailed description and procedures of performing the gross motor skills with a simplified scoring system. Data collected from using the TGMD2 can be used to develop or implement instructional programmes, monitor performance progress, evaluate interventions and conduct other research in gross motor development in early childhood. The Test of Gross Motor Development (TGMD2) (Ulrich, 2000) was used to measure changes in motor skills performance for children with ID participating in the organized physical activity programme and scores were taken before and after the intervention programme. TGMD has a series of 12 different physical activities that the children were asked to perform at their optimal following demonstrations from the research assistants.
The activities were selected from those recommended for children in early childhood education during physical education lesson. The skills were divided into locomotor and object manipulation subsets. The tool has been successfully used in evaluation of young athletes’ programmes in several States in America, Europe and Kenya. Protocols for conducting motor ability performance tests are in Appendix I.

3.7 Recruitment and Training of Research Assistants

The researcher had been trained in the young athletes expansion programme at Special Olympics International (SOI) in the use of TGMD2. Afterwards the researcher and selected coaches were involved in a successful eight week research in young athletes expansion programme under Special Olympics Kenya (SOK) using similar research tools. Based on this background, most of the coaches trained in YA were recruited as research assistants in this study. Prior to commencement of the study there was retraining of the research assistants. The training involved practical demonstrations of the skills in the Test of Gross Motor (TGMD2) tool and practice on the procedures of administering questionnaire items to parents. A short video clip emphasizing on actual biomechanics in the TMGD2 was also shown to the research assistants. In addition, the research assistants were involved in the test-retest of the parents’ questionnaire using one of the inclusive ECD centers (Nairobi-Believers Academy) that was not included in the study. This way the research assistants were considered competent to undertake this study.
3.8 Pretesting the Research Instruments

During the training items of research tool were discussed and procedures demonstrated. The research tools were subject to a pre-test which provided an opportunity for the research team with the feasibility tests and administrative procedures prior to the actual execution of data collection. Pre-testing was conducted among parents and their children with intellectual disabilities in one inclusive early childhood education center that was not targeted in the main study. The test re-test method was used and analyzed statistically to determine the reliability of the instruments. During the pretesting, the questionnaires were administered to the selected group of parents and their children with ID from one of the inclusive ECD and the same repeated after two weeks.

3.9 Reliability and Validity of the Research Instruments

Reliability refers to the extent that a research tool produces same and consistent result after repeated use with a similar population even if used by a different researcher. Validity refers to the level of accuracy, relative to some objective standard or measure. Test-retest method was used to determine reliability of the research tool. The parents’ questionnaire was administered to five parents of children with intellectual disability and the same repeated after a period of two weeks. Analysis of test-retest was used to determine the coefficient correlation index (Neil, (2002); Heffer, (2014,)). The number of similarly responded to questions were calculated as a percentage of the total items. Each questionnaire consisted of 39 items. There were five parents who responded to the questions and total score for all was 195. The same questions were administered to same
group of parents and items that concurred with the first test were 163. Cronbach alpha formula was used to calculate coefficient index as shown

$$\alpha = \frac{N \cdot \bar{C}}{\bar{V} + (N - 1) \cdot \bar{C}}$$

$$= \frac{195.163}{2} + (195 - 1) \cdot 163$$

$$= \frac{31785}{36838}$$

$$= 0.86$$

$\alpha$ represents the Cronbach Coefficient Reliability Index

$N$ represents the number of items in the questionnaire

c-bar represents the average inter-item covariance

v-bar represents the average variance

Cronbach alpha revealed a high level of internal consistency at a reliability index of 0.86. The coefficient index was considered adequate for this study. This way reliability of the questionnaire was achieved.

Content validity of a research instrument refers to the degree to which the measuring device truly measure what the test intended to measure. To determine content validity expert opinion was sought. The study had experimental and control group therefore, there was need to determine the internal validity of the parents’ questionnaire. This was done to determine if significant relationship exists between independent and dependent variables (Kirk, R., 2013). To reduce the interference of other aspects rather than the intended treatment, respondents were similar in terms of children involved those with
intellectual disability of age 4-6 years and attended an inclusive ECD center. The activities were identical and similarly trained coaches demonstrated and instructed the activities. Experiences of the test-retest were subjected to critiquing by the supervisors and lecturers from the Physical Education as well as Special Needs departments. This way, content validity was achieved.

Test of gross motor development (TGMD2) was the tool used to test motor performance changes in the children participants. The tool had been successfully used among children with intellectual and developmental disabilities in earlier studies in Europe and replicated in Kenya. Therefore, the tool had been internationally validated and tested for reliability index both in the performance of locomotor and object manipulation skills. The reliability index at 0.85 in the locomotor subset scores and 0.88 for the object manipulation scores was considered accurate and adapted for this study (Ulrich, 2000). Therefore, TMGD2 was not subjected for test-retest.

3.10 Data Collection Techniques

The parents of children with intellectual disability in the targeted ECD centers were contacted through the teachers in charge at the selected sites and the researcher organized to meet them on an agreeable day(s) and time. During the meetings, the researcher explained of the intended research, the targeted participants and the procedures that were to be used in the study. In addition, parents were given opportunities to ask questions. It was clarified that participation in the research was purely on voluntary basis and consent forms were given. The parents were given a week to deliberate on the consent with their
spouses and other family members then show acceptance to participate by signing on their own behalf and ascent for their children too. Data collection started with a pre-test of gross motor skills for the children with ID using TGMD and administration of a parent’s questionnaire then an intervention given using an organized physical activity programme (Appendix H) which was conducted every Saturday for two hours within three months. During physical activities sessions, the experimental group had children with intellectual disability participate together with their parents under the guidance of a trained coach on young athletes Special Olympics programmes. The control group had children with ID participate while their parents observed under the guidance of a similarly trained coach. An activity log was given to each parent on a weekly basis to help their children with ID practice on the learnt skills. Thereafter, a post-test was administered; parents gave their responses to items in section B of the parents’ questionnaire, and at the same time a motor ability test was carried out using the same TGMD among the children with ID.

3.11 Data Analysis and Presentation

Data was cleaned and organized for analysis using the Statistical Package for Social Sciences (SPSS) version 20.0. Data on demographic characteristics of the participants (parents and children) was summarized using descriptive statistics in the form of frequency distributions and percentages. Independent samples t-test was used to compare mean differences and the results presented in tables. Pearson’s Correlation Coefficient (r) was used to measure the strength of association between parents’ demographic
characteristics and frequency of attendance in the organized physical activity programme for their children with ID. The hypotheses were tested at a 0.05 level of significance.

The study sought to establish the relationship between parents’ demographic characteristics and their frequency of attendance in the organized physical activity programme for children with ID. Pearson’s correlation coefficient(r) was used to measure the strength of correlation.

3.12 Logical and Ethical Considerations

Research proposal was approved by Kenyatta University’s Graduate School and authorized the researcher to conduct the study(Appendix A).The researcher sought and was granted ethical approval to conduct the study from the Kenyatta University Ethics and Review Committee( Appendix B) and a research permit from the National Council for Science and Technology (Appendices C and D). Further, consent forms detailing the study procedures were presented to the parents (Appendix E). The parents who accepted to voluntarily participate in the study were asked to sign either the English or Kiswahili consent form on their own behalf and their child/children participants with intellectual disability. To ensure confidentiality, participants identified were coded using numbers to avoid use of names and assured that participation was purely voluntary. Further participants were protected by ensuring that no photographs were taken and if any, faces were covered and blurred to conceal identity.
CHAPTER FOUR: RESULTS

4.1 Introduction

The current study was set to establish physical and psychosocial benefits of involving parents in physical activities for children with intellectual disability. The study used a questionnaire to collect demographic information as well as parental ratings. In addition, children motor abilities were tested using Test of Gross Motor Development (TGMD2) tool. Further an attendance checklist was used to collect information on the frequency of attendance to the three-month organized physical activity programme.

Descriptive statistical method were used to answer some research questions while statistical tools were used to test research hypotheses as described earlier on in chapter three. Data analysis and interpretation of the study findings are presented in this chapter. Data analysis was done using SPSS version 20.0 and then presented using tables that were organized according to the study objectives. Hypotheses were tested using statistical tests that included independent t-test, paired samples t-test and Pearson’s Correlation Coefficient (r) at a significance level of 0.05.

4.2 Demographic Characteristics of Study Participants

The study had a control and an experimental group and was conducted in two sites, that is, Buruburu (control group) and Kibera (experimental group). In control group, 21 children with ID were recruited and their parents were included as subjects of the study. Out of these, 17 of the children were included in the study and four excluded since they could not move independently. However, only 14 (82.4%) completed the study. In the
experimental group, 25 children with ID were recruited and their parents were included in the study as subjects. Among them, 20 were included in the study while the other five were excluded using the inclusion and exclusion criteria described in chapter three. However, 18(90%) participants completed the study.

4.2.1 Gender and Birth Position of the Children Participants.

The age of the children participants was pre-determined based on the age concept in motor skills development and learning which is rapid between 2-6 years (Haibach, Reid and Collier, 2011). Children within 4-6 years of age are in early childhood development education class and were accessible for the study. However, it was in the interest of the study to establish the demographic factors of the participating children with ID which included gender, birth position and manner the participating child’s disability was discovered. This part of demographic information of the subjects is presented in Table 4.1.

Table 4.1  Demographic information on Gender and Birth Position of the Children Participants by Site

<table>
<thead>
<tr>
<th>Gender</th>
<th>Control Group ( n =14)</th>
<th>Experimental Group (n =18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>12</td>
<td>85.7%</td>
</tr>
<tr>
<td>Female</td>
<td>2</td>
<td>14.3%</td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>100%</td>
</tr>
</tbody>
</table>

Birth Position of Participating Children

<table>
<thead>
<tr>
<th>Birth Position of Participating Children</th>
<th>Control Group ( n =14)</th>
<th>Experimental Group (n =18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>First born</td>
<td>9</td>
<td>64.3%</td>
</tr>
<tr>
<td>Middle born</td>
<td>2</td>
<td>14.3%</td>
</tr>
<tr>
<td>Last born</td>
<td>3</td>
<td>21.4%</td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>10%</td>
</tr>
</tbody>
</table>
Demographic characteristics for children who participated in the study and successfully completed the intervention were split in two groups: control group had 14 (82.4%) and this was considered a sufficient sample for a control in an intervention (Kirk, 2013). Majority were male 12 (85.7%) and only 2 (14.3%) were female. In the experimental group, the total number of children who participated were 18 (90%). Similarly, most of children were male 10 (55.6%) and 8 (44.4%) were female. The research design used in the study was quasi-nonequivalent control group and therefore, the sample in the experimental group was considered adequate (Schaw, 2012). Most of the participants in the experimental group were male, 10 (55.6%), and female were 8 (44.4%). The child’s birth position is said to influence amount of attention received from the parent (Herbert, 2014) and was important in this study. In both groups, majority of the children were the first borns in their families. The control group had 9 (64.3%) and 10 (55.6%) in the experimental group. This showed that majority of the children with ID who participated in the study were first born in their families, and considering their age, they had not participated in a similar intervention programme which was a pre-requisite of the study participants.

4.2.2 Relationship of Accompanying Adults to Children Participants

Children with intellectual disability depend on others without disability to guide them in daily activities and majority are parents or care givers (Muhammad, Tariq, Ashq and Ahmed, 2011). This study sought to establish the relationship of the adult accompanying the children participants throughout the intervention period. The results are presented in Table 4.2.
Table 4.2: Relationship of Accompanying Adults to Children who Participated in the Organized Physical Activity Programme

<table>
<thead>
<tr>
<th>Relationship of Accompanying Adults to the Children</th>
<th>Control Group (n =14)</th>
<th>Experimental Group (n =18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother</td>
<td>10 71.4%</td>
<td>17 94.4%</td>
</tr>
<tr>
<td>Father</td>
<td>4 28.6%</td>
<td>0 0%</td>
</tr>
<tr>
<td>Grandmother</td>
<td>0 0%</td>
<td>1 5.6%</td>
</tr>
<tr>
<td>Total</td>
<td>14 100%</td>
<td>18 100%</td>
</tr>
</tbody>
</table>

Adults who accompanied the children participants were relevant in this study. In the control group, 10 (71.4%) were mothers and the rest (4, 28.6%) were fathers. However, in the experimental group, 17 (94.4%) were mothers and only 1 (5.6%) was a grandmother. This indicated that majority of the adults who accompanied the children with ID in the organized physical activity program were mothers and might be influenced by the traditional social prescriptions of gender roles.

4.2.3. Discovery of a Child’s Disability

This study sought to find out the manner in which the children’s disability was discovered. The results are presented in Table 4.3.

Table 4.3: Information on Method the Participating Children’s Disability was Discovered.

<table>
<thead>
<tr>
<th>Method Children’s Disability was Discovered</th>
<th>Control Group (n =14)</th>
<th>Experimental Group (n =18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>At birth</td>
<td>0 0%</td>
<td>1 5.6%</td>
</tr>
<tr>
<td>Observed delayed growth</td>
<td>6 42.8%</td>
<td>11 61%</td>
</tr>
<tr>
<td>From a medical practitioner</td>
<td>8 57.2%</td>
<td>3 16.7%</td>
</tr>
<tr>
<td>From the child’s teacher</td>
<td>0 0%</td>
<td>3 16.7%</td>
</tr>
<tr>
<td>Total</td>
<td>14 100%</td>
<td>18 100%</td>
</tr>
</tbody>
</table>
In the control group, majority of the children had their disability discovered from a medical practitioner 8 (57.2%) while in the experimental group, observation of delayed growth had the highest frequency 11 (61%). Only 3 (16.7%), in the experimental group discovered that their children had a disability from the child’s teacher.

4.3 Demographic Characteristics for Parents Recruited as Subjects in the Study

Parental involvement in their children’s activities was the key focus in the study. Therefore, this study sought to establish the demographic characteristics of parents recruited as subjects in the study in terms of their gender, age category, occupation, marital status and level of education.

4.3.1. Parents’ Gender.

Amount of time parents spend and get directly involved with their children’s activities may depend on gender of the parent. Female parents are generally reported to spend more time with children during infancy while as the child advances to early childhood, the role could change and children will tend to spend more time with their male parents (Bodde and Seo, 2009). This study sought to establish the gender of parents whose children with ID participated in the study, and the information is presented in Table 4.4.
Table 4.4: Gender of Parents whose Children Participated in the Study

<table>
<thead>
<tr>
<th>Parents’ Gender</th>
<th>Control group (n =14)</th>
<th>Experimental group(n=18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Female</td>
<td>10</td>
<td>18</td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>18</td>
</tr>
</tbody>
</table>

In the control group, there were 4 (28.6%) male parents who participated in the study but the female parents were the majority (10, 71.4%). Only female parents (18, 100%) participated in the experimental group.

4.3.2 Age Categories of Parents whose Children Participated in the Study

The demands of raising a child may depend on the parents’ age and dictates the parents’ stress level especially among parents of children with intellectual disability (Plant and Sanders, 2007). The study sought to establish the age categories of parents whose children participated in the organized physical activity program. The information is presented in Table 4.5.

Table 4.5: Age Categories of Parents of the Children who Participated in the Study

<table>
<thead>
<tr>
<th>Parents’ Age Category</th>
<th>Control group (n =14)</th>
<th>Experimental group(n=18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 25 years</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>26 – 30 years</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>30 – 35 years</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>36 – 39 years</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>40 – 49 years</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>50 years and above</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>18</td>
</tr>
</tbody>
</table>
Majority of the parents in the control group were in two age categories, that is 36 to 39 years (5, 35%) and 40 to 49 years (5, 35.7%) while a large population of those in the experimental group were in the age category of 30 to 35 years (8, 44.4%). The youngest parents in the control group were in the age category of 26 to 30 years (2, 14.3%) while in the experimental group, the youngest parents were below 25 years (2, 11.1%) and also had the oldest parent who was above 50 years (1, 5.6%).

4.3.3. Parents’ Occupations and their Highest Levels of Education

An individual’s occupation may be highly influenced by the highest level of education and this may be a factor that can positively or negatively affect extent of parents’ involvement in their children’s activities especially those whose children have disabilities (Bianca, 2013). Therefore, this study sought to establish the occupations and education levels of parents of children living with intellectual disability. This information is presented in Table 4.6.
Table 4.6: Occupations and Highest Level of Education for Parents whose Children Participated in the Study

<table>
<thead>
<tr>
<th>Parents’ Occupations</th>
<th>Control group (n =14)</th>
<th>Experimental (n =18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Casual labour</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>0%</td>
<td>83.3%</td>
</tr>
<tr>
<td>Business</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>14.3%</td>
<td>11.1%</td>
</tr>
<tr>
<td>Formal employment</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>85.7%</td>
<td>5.6%</td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parents’ Highest Level of Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never went to school</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Primary</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Secondary</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>College training</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>University</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Total</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

In the control group, most of the parents (8, 57.1%) had either college training or university education (6, 42.9%) and the largest number were in the formal employment (12, 85.7%) while majority of those in the experimental group had primary education (14, 77.7%) and provided casual labour (15, 83.3%) which could be associated with low levels of education and lack of professional training.

4.3.4. Marital Status

Parenting a child with disability may be a challenging task for a single parent as compared to shared responsibility between couples (Bianca, 2013). This study therefore, sought to establish the marital status of parents of children with intellectual disability.
who participated in the organized physical activity program. The information is presented in Table 4.7.

**Table 4.7: Marital Status of Parents of Children who Participated in the Study**

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Control group (n =14)</th>
<th>Experimental group (n =18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Married</td>
<td>13</td>
<td>9</td>
</tr>
<tr>
<td>Separated</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Windowed</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>18</td>
</tr>
</tbody>
</table>

Majority of the parents in the control group (13, 92.9%) were married and this was also the case in the experimental group (9, 50%). In the control group, only 1 (7.6%) of the parents was single while the number was higher (6, 33.3%) in the experimental group. Only 1 (5.6%) of the parents were separated and windowed (2, 11.1%) in the experimental group.

4.4. Consistency of Parents’ Involvement in the Organized Physical Activity Programme for their Children with ID

The study sought to establish whether mothers’ and fathers’ frequency of attendance was influenced by their demographic characteristics (gender, age, level of education, occupation and marital status). Parents’ attendance was split into two: mothers’ and fathers’ frequency of attendance. Pearson’s correlation coefficient (r) was used to establish the relationship between parents’ demographic characteristics and frequency of attendance in the organized physical activity programme. The correlation results of the
relationship between gender of parents and their frequency of attendance of the organized physical activity programme for their children with ID are presented in Table 4.8 below.

Table 4.8: Relationship between Gender and Frequency of Attendance of the Organized Physical Activity Programme for Children with ID (n=32)

<table>
<thead>
<tr>
<th>Parents’ Gender</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mothers’ Frequency of Attendance</td>
<td>.751**</td>
<td>.000</td>
</tr>
<tr>
<td>Fathers’ Frequency of Attendance</td>
<td>-.311</td>
<td>.083</td>
</tr>
</tbody>
</table>

N = 32, ** Correlation is significant at p< 0.05

Pearson's Correlation Coefficient (r) was computed to assess the relationship between parents’ gender and their frequency of attendance of the organized physical activity programme of their children with ID. Table 4.8 shows that there was a positive strong correlation in frequency of mothers’ attendance r (32) = .751 with a high statistical significance (p < .05) while there was a weak negative correlation in fathers’ frequency of attendance r (32) = -.311 and was not significant (p = 0.083). This indicated that mothers were more frequent in the organized physical activity programme for their children with ID than fathers.
Table 4.9: Relationships between Participating Parents’ Age and Frequency of Attendance of the Organized Physical Activity Programme for their Children with ID (n=32)

<table>
<thead>
<tr>
<th>Parents’ Age Category</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mothers’ Frequency of Attendance</td>
<td>-0.030</td>
<td>0.871</td>
</tr>
<tr>
<td>Fathers’ Frequency of Attendance</td>
<td>0.225</td>
<td>0.216</td>
</tr>
</tbody>
</table>

N = 32, Correlation is significant at p< 0.05

Pearson's Correlation Coefficient (r) was computed to assess the relationship between parents’ age and their frequency of attendance in the organized physical activity programme of their children with ID. Table 4.9 shows that there was a weak negative correlation between mothers’ frequency of attendance in relation to their age groups $r \ (32) = -0.030$ though not significant ($p = 0.871$) and there was a moderate positive relationship between father’s frequency of attendance in relation to their age categories $r \ (32) = 0.225$ which was not significant ($p = 0.216$). Hence, $H_{01 \ (a)}$ was not rejected. This implies that parents’ age did not influence their frequency of attendance of the organized physical activity program for their children with ID.
Table 4.10: Relationship between Parents’ Occupation and Frequency of Attendance of the Organized Physical Activity Programme for their Children with ID (n= 32)

<table>
<thead>
<tr>
<th>Parents’ Occupation</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mothers’ Frequency of Attendance</td>
<td>-0.713**</td>
<td>.000</td>
</tr>
<tr>
<td>Fathers’ Frequency of Attendance</td>
<td>0.384*</td>
<td>.030</td>
</tr>
</tbody>
</table>

N = 32, ** Correlation is significant at p< 0.05

Pearson's Correlation Coefficient (r) was computed to assess the relationship between parents’ occupation and the frequency of their attendance of the organized physical activity programme of their children with ID. Table 4.10 shows that there was a strong negative correlation between mothers’ frequency of attendance in relation to their occupations $r (32) = -0.713$ with high statistical significance ($p < 0.05$). The table also indicates that there was a moderate positive correlation between fathers’ frequency of attendance in relation to their occupations $r (32) = 0.384$ and was significant ($p = 0.03$). This shows that mothers who were in the non-formal employment had higher frequency of attendance than those in the formal employment while fathers in the formal employment had higher frequency of attendance.
Table 4.11: Relationship between Parents’ Levels of Education and Frequency of Attendance of the Organized Physical Activity Programme for Children with ID (n=32)

<table>
<thead>
<tr>
<th>Parents’ Highest Level of Education</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mothers’ Frequency of Attendance</td>
<td>-0.700**</td>
<td>0.000</td>
</tr>
<tr>
<td>Fathers’ Frequency of Attendance</td>
<td>0.421*</td>
<td>0.016</td>
</tr>
</tbody>
</table>

N = 32, ** Correlation is significant at p< 0.05

Pearson's Correlation Coefficient (r) was used to assess the relationship between parents’ level of education and frequency of attendance of the organized physical activity of their children with ID. Table 4.11 indicates that there was a strong negative correlation between mothers’ levels of education and frequency of their attendance of the organized physical activity programme for their children with ID r (32) = -0.700 with a high statistical significance (p < 0.05) while there was a moderate positive correlation between fathers’ levels of education and their frequency of attendance of the organized physical activity for their children with ID r (32) = 0.421 which was not significant (p = 0.016). This implies that mothers with lower levels of education were more frequent than those with higher levels while fathers who had college and university levels of education were more frequent.
Table 4.12: Relationship between Parents’ Marital Status and Frequency of Attendance of the Organized Physical Activity Programme for their Children with ID (n=32)

<table>
<thead>
<tr>
<th>Parents’ Marital Status</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mothers’ Frequency of Attendance</td>
<td>-.009</td>
<td>.962</td>
</tr>
<tr>
<td>Fathers’ Frequency of Attendance</td>
<td>.038</td>
<td>.834</td>
</tr>
</tbody>
</table>

N = 32, Correlation is significant at p< 0.05

Pearson's Correlation Coefficient (r) was computed to assess the relationship between parents’ marital status and frequency of their attendance of the organized physical activity programme for their children with ID. Table 4.12 shows that there was a very weak negative correlation between mothers’ frequency of attendance of the organized physical activity programme for their children with ID in relation to their marital status r (32) = -.009 and was not significant (p = .962) while there was a weak positive correlation between fathers’ frequency of attendance in relation to their marital status r (32) =.038 with no statistical significance (p = .834). This shows that mothers’ marital status did not influence their attendance of the activities of their children and fathers who attended the activities of their children were in the company of their spouses.
4.5. Psycho-Social Gains for Parents from their Involvement in the Physical Activity Programme of their Children with ID in Relation to their Demographic Characteristics

Leeni & Karin (2014) report that parents participating in PA together with their children with physical disability provided a feeling of togetherness and a social context. Childress (2011) viewed family sports programmes as sources of fun and excitement, and contributes to a holistic of the body and mind to both children and parents. The current study therefore, sought to find out the relationship between parents’ demographic characteristics and abilities to deal with psycho-sociological issues and extent of involvement. Pearson’s correlation coefficient (r) was used to establish association between parents’ demographic characteristics and their psycho-social gains of their involvement in organized physical activity programme for their children with ID. This information is presented in table 4.13.
Table 4.13: Associations between Parents Demographic Characteristics and Psychosocial Benefits of their Involvement in the Organized Physical Activity Programme of their Children with ID (n=32)

<table>
<thead>
<tr>
<th>Difference in parent self-rating (P1-P2)</th>
<th>Gender</th>
<th>Age category</th>
<th>Occupation</th>
<th>Level of education</th>
<th>Marital status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability in social skills</td>
<td>Pearson Correlation</td>
<td>-.151</td>
<td>-.087</td>
<td>.142</td>
<td>.132</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.411</td>
<td>.638</td>
<td>.440</td>
<td>.471</td>
</tr>
<tr>
<td>Level of involvement</td>
<td>Pearson Correlation</td>
<td>-.088</td>
<td>.154</td>
<td>.393*</td>
<td>.424*</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.631</td>
<td>.400</td>
<td>.026</td>
<td>.016</td>
</tr>
<tr>
<td>Ability to deal with psychological issues</td>
<td>Pearson Correlation</td>
<td>-.307</td>
<td>-.130</td>
<td>.437*</td>
<td>.446*</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.087</td>
<td>.477</td>
<td>.012</td>
<td>.011</td>
</tr>
</tbody>
</table>

N=32, * Correlation is significant at p< 0.05

Results in Table 4.13 show that there was a moderate positive significant correlation between parents’ occupations and difference in levels of involvement and abilities to deal with psychological issues r(32) = 0.393 with statistical significance (p = 0.026) and r(32) = 0.477 which was also significant (p = 0.012) respectively. Similarly, results showed moderate positive significant relationship between parents’ education and levels of involvement and abilities to deal with psychological issues r (32) = 0.424, p = 0.016 and 0.446, p=0.011). This implies that parents in the formal employment that were educated reported better levels of involvement in their children’s activities as well as better abilities to deal with psychosocial issues.
4.6 Parents’ Ratings of Motor Abilities of their Children with ID before and after Participating in the Organized Physical Activity Programme

In this section of the study, the main objective was to compare parents’ ratings (PR) of their children’s motor abilities before and after an organized physical activity intervention program. The study was to determine within groups and between groups mean differences in PR and children’s performance of skills in locomotion, object manipulation, activities of daily living and social skills. A likert scale of five items was used to rate the performance of a skill as: very good (5), good (4), average (3), poor (2) and very poor (1). The parents’ responses were compared using paired t-test statistics as presented in Table 4.14

Table 4.14: Parents’ Rating Children’s Abilities in the Control Group (n=14)

<table>
<thead>
<tr>
<th>Children Abilities</th>
<th>Nature of test</th>
<th>Mean</th>
<th>SD</th>
<th>95% Confidence Interval</th>
<th>t</th>
<th>Sig.(2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower</td>
<td>Upper</td>
<td></td>
</tr>
<tr>
<td>Locomotion</td>
<td>Pre-test</td>
<td>3.81</td>
<td>.668</td>
<td></td>
<td>- .832</td>
<td>.839</td>
</tr>
<tr>
<td></td>
<td>Post-test</td>
<td>4.31</td>
<td>.747</td>
<td></td>
<td>-.832</td>
<td>-.839</td>
</tr>
<tr>
<td>Object manipulation</td>
<td>Pre-test</td>
<td>2.76</td>
<td>.477</td>
<td></td>
<td>-1.52</td>
<td>-.899</td>
</tr>
<tr>
<td></td>
<td>Post-test</td>
<td>3.97</td>
<td>.602</td>
<td></td>
<td>-1.52</td>
<td>-.899</td>
</tr>
<tr>
<td>ADL skills</td>
<td>Pre-test</td>
<td>2.57</td>
<td>.592</td>
<td></td>
<td>-1.23</td>
<td>-.693</td>
</tr>
<tr>
<td></td>
<td>Post-test</td>
<td>3.54</td>
<td>.536</td>
<td></td>
<td>-1.23</td>
<td>-.693</td>
</tr>
<tr>
<td>Social skills</td>
<td>Pre-test</td>
<td>2.64</td>
<td>.625</td>
<td></td>
<td>-1.54</td>
<td>-.673</td>
</tr>
<tr>
<td></td>
<td>Post-test</td>
<td>3.75</td>
<td>.657</td>
<td></td>
<td>-1.54</td>
<td>-.673</td>
</tr>
</tbody>
</table>

*Significant at p< 0.05, df =13
Table 4.14 above presents parents’ responses that rated their children’s motor abilities in control group before and after the organized physical activity programme. The results were used to establish within group mean differences. A paired-samples t-test was used to determine whether there was a statistically significant mean difference between the pre-test and post-test results of parents’ ratings of their children’s performance in locomotion, object manipulation, activity of daily living and social skills before and after participating in an organized physical activity programme. Parents’ rating showed that their children improved in their motor abilities. Locomotion skills after intervention had a measure of 4.31 ± .747 compared to 3.81 ± .668 before intervention, a statistically significant increase of 0.768 (95% CI, -0.832 to -.168) \( t(13) = -3.253, p = 0.006, d = .871 \) and object manipulation after intervention had a measure of 3.97 ± .602 compared to 2.76 ± .477 before intervention, a statistically significant increase of 0.439 (95% CI, -1.52 to -.899), \( t(13) = -8.32, p < 0.05, d = 2.22 \). The children’s ADL skills after intervention had a measure of 3.54 ± .556 compared to 2.57 ± .592 before intervention, a statistically significant increase of 0.501 (95% CI, -1.23 to -0.693), \( t (13) = -7.69, p < .05, d = 2.06 \) and social skills after intervention had a measure of 3.75 ± .657 compared to 2.64 ± .625 before intervention, a statistically significant increase of 0.803 (95% CI, -1.54 to -.673), \( t(13) = -5.51, p < .05, d = 1.47 \). The statistical mean was not correlated and the highest effect was realized in object manipulation of size \( d = 2.22 \). The p value indicated statistically significant difference in all cases and therefore, hypothesis (H_{02}) that parents’ ratings of the motor abilities of their children with ID do no significantly differ before and after participating in organized physical activity programme in the control group was rejected. This was an indication that the rating of parents on the motor abilities of their
children with ID was significantly higher after participating in an organized physical activity program.

**Table 4.15: Parents’ Rating of their Children’s Abilities in the Experimental Group (n=18)**

<table>
<thead>
<tr>
<th>Children Abilities</th>
<th>Nature of test</th>
<th>Mean</th>
<th>SD</th>
<th>95% Confidence Interval</th>
<th>t</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower</td>
<td>Upper</td>
<td></td>
</tr>
<tr>
<td>Locomotion</td>
<td>Pre-test</td>
<td>3.07</td>
<td>.460</td>
<td>-1.09</td>
<td>-458</td>
<td>-5.13 .000*</td>
</tr>
<tr>
<td></td>
<td>Post-test</td>
<td>3.84</td>
<td>.506</td>
<td>-1.33</td>
<td>-701</td>
<td>-6.79 .000*</td>
</tr>
<tr>
<td>Object manipulation</td>
<td>Pre-test</td>
<td>3.17</td>
<td>.460</td>
<td>-1.67</td>
<td>-939</td>
<td>-7.53 .000*</td>
</tr>
<tr>
<td></td>
<td>Post-test</td>
<td>4.18</td>
<td>.493</td>
<td>-1.61</td>
<td>-103</td>
<td>-9.64 .000*</td>
</tr>
<tr>
<td>Activities of Daily Living skills</td>
<td>Pre-test</td>
<td>2.72</td>
<td>.513</td>
<td>-1.67</td>
<td>-939</td>
<td>-7.53 .000*</td>
</tr>
<tr>
<td></td>
<td>Post-test</td>
<td>4.03</td>
<td>.629</td>
<td>-1.61</td>
<td>-103</td>
<td>-9.64 .000*</td>
</tr>
<tr>
<td>Social skills</td>
<td>Pre-test</td>
<td>2.97</td>
<td>.513</td>
<td>-1.61</td>
<td>-103</td>
<td>-9.64 .000*</td>
</tr>
<tr>
<td></td>
<td>Post test</td>
<td>4.29</td>
<td>.602</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant (p< 0.05), df = 17

Table 4.15 above presents’ parents rating of their children’s motor abilities in the experimental group. A paired-samples t-test was used to determine whether there was a statistically significant mean difference between the pre-test and post-test results of parents’ ratings of their children’s performance in locomotion, object manipulation, activity of daily living and social skills before and after participating in an organized physical activity programme. Parents’ rating showed that their children improved in their motor abilities as follows: locomotion skills after intervention had a measure of 3.84 ±
.506 compared to 3.07 ± .460 before intervention, a statistically significant increase of 0.757 (95% CI, -1.09 to -0.458), t(17) = -5.13, p < .05, d = 1.21 and object manipulation after intervention measured 4.18 ± .493 compared to 3.17 ± .460 before intervention, a statistically significant increase of 0.427 (95% CI, -1.33 to -0.701), t(17) = -7.01, p < .05, d = 1.66. The children’s ADL skills after intervention had a measure 4.03 ± .629 compared to 2.72 ± .513 before intervention, a statistically significant increase of 0.759 (95% CI, -1.67 to -0.939) t(17) = -7.71, p < .05, d = 1.07 and social skills after intervention had a measure of 4.29 ± .602 compared to 2.97 ± .513 before intervention, a statistically significant increase of 0.547 (95% CI, -1.61 to -1.03) t(17) = -9.64, p < .05, d = 2.27. Although the statistical mean calculation was not correlated there was a high level of statistical significant difference in all cases and most effect was noted in the social skills of size d = 2.27. Therefore, hypothesis (H02) that parents’ ratings of motor abilities of their children with ID do not significantly differ before and after participating in the organized physical activity programme in the experimental group was rejected. This shows that rating of parents of their children with ID was significantly higher after participating in the organized physical activity programme.

4.7 Magnitude of Mean Differences in Motor Abilities of Children between the Control and Experimental Groups

Quasi-experimental nonequivalent control group research design was used in this study. Therefore, the study sought to compare mean differences between the control and experimental groups in parents’ ratings of motor skills performance of their children with
ID. The group mean difference was computed using the score in post-test minus the pre-test score (P2-P1) in each motor ability category. The results are presented in Table 4.1

Table 4.16: Magnitude of Mean Differences between Control (n=14) and Experimental (n=18) Group on Parents’ Rating of their Children’s Motor Abilities

<table>
<thead>
<tr>
<th>Parents’ rating of children abilities by group</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>MD</th>
<th>t</th>
<th>Sig.(2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locomotor skills</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>14</td>
<td>.500</td>
<td>.575</td>
<td>.167</td>
<td>.679</td>
<td>0.502</td>
</tr>
<tr>
<td>Experimental</td>
<td>18</td>
<td>.667</td>
<td>.764</td>
<td>.167</td>
<td>.679</td>
<td>0.502</td>
</tr>
<tr>
<td>Object Manipulation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>14</td>
<td>1.25</td>
<td>.550</td>
<td>-.250</td>
<td>1.21</td>
<td>.0.237</td>
</tr>
<tr>
<td>Experimental</td>
<td>18</td>
<td>1.00</td>
<td>.606</td>
<td>-.250</td>
<td>1.21</td>
<td>.0.237</td>
</tr>
<tr>
<td>Activities of Daily Living (ADL) skills</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>14</td>
<td>.964</td>
<td>.469</td>
<td>.386</td>
<td>1.56</td>
<td>.0.127</td>
</tr>
<tr>
<td>Experimental</td>
<td>18</td>
<td>1.34</td>
<td>.805</td>
<td>.386</td>
<td>1.56</td>
<td>.0.127</td>
</tr>
<tr>
<td>Social skills</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>14</td>
<td>1.11</td>
<td>.751</td>
<td>.47</td>
<td>1.45</td>
<td>.0.153</td>
</tr>
<tr>
<td>Experimental</td>
<td>18</td>
<td>1.58</td>
<td>1.01</td>
<td>.47</td>
<td>1.45</td>
<td>.0.153</td>
</tr>
</tbody>
</table>

Paired samples test analysis (p<0.05), df = 30

Group statistics were used to compute the magnitude of mean differences in parents’ ratings of their children’s motor ability performance. Independent samples t-test was used to determine whether there was a statistically significant mean difference results between the control and experimental group of parents’ ratings of their children.
performance in locomotion, object manipulation, activity of daily living (ADL) and social skills. Table 4.16 on parents’ rating of their children’s motor abilities show that there were higher mean differences in the experimental group in locomotion measure of 0.677 ± 0.764 compared to 0.500 ± 0.575 in the control group but the statistical difference was not significant \( t(30) = 0.679, p = 0.502 \). In object manipulation, the control group had a higher mean difference measure of 1.25 ± 0.550 compared to a measure of 1.00 ± 0.606 in the experimental group although the statistical difference was not significant \( t(30) = -1.21, p = 0.237 \). Mean difference in ADL skills were relatively higher in the experimental group with a measure of 1.34 ± 0.805 compared to a measure of 0.964 ± 0.469 in the control group, indicating no statistically significant difference \( t(30) = 1.56, p = 0.127 \). Mean difference in social skills was higher in the experimental group with a measure of 1.58 ± 1.01 compared to a measure 1.11 ± 0.751 in the control group. The statistical difference was not significant \( t(30) = 1.45, p = 0.153 \). Therefore, hypothesis \( H_0 \) was not rejected. This implies that parents’ rating of their children’s motor abilities was relatively similar between the control and the experimental groups.

4.8. Psychosocial Benefits of Parental Involvement in Activities of Children with ID

Raising a child with intellectual disability may demand longer time, energy and commitment to attend to the extra tasks and subsequently interrupt a parent’s daily work routines which may lead to an increase in psychosocial problems (Plant and Sanders, 2007). The study therefore, sought to compare the likert scale mean scores and parents’ self-rating before and after involvement in an organized physical activity programme for their children with ID. This information is presented in Table 4.17.
Table 4.17: Comparison of Parents’ Self-Rating on Benefits of their Involvement in Activities of their Children with ID (Control Group n=14)

<table>
<thead>
<tr>
<th>Parents’ Rating</th>
<th>Self-Rating</th>
<th>Mean</th>
<th>SD</th>
<th>95% Confidence Interval</th>
<th>T</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower</td>
<td>Upper</td>
<td></td>
</tr>
<tr>
<td>Dealing with psychological issues</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td></td>
<td>3.75</td>
<td>.666</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td></td>
<td>4.46</td>
<td>.473</td>
<td>-1.15</td>
<td>-.252</td>
<td>-3.24</td>
</tr>
<tr>
<td><strong>Parents’ ability to deal with social issues</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td></td>
<td>3.71</td>
<td>.475</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td></td>
<td>4.41</td>
<td>.407</td>
<td>-.934</td>
<td>-.465</td>
<td>-6.45</td>
</tr>
</tbody>
</table>

*Significant at p< 0.05, df =13

Paired-sample t-test was used to determine whether there was statistically significant mean difference between the pre and post-test results in parents’ self-ratings on benefits of their involvement in activities of their children with ID. Table 4.17 above indicates that parents had better ability to deal with their psychological issues after participating in the organized physical activity programme arising from a measure of 4.46 ± .473 compared to 3.75 ± .666 before the intervention program, a statically significant increase of 0.941 (95% CL, -1.15 to -.252), t(13) = -3.34, p = 0.005, d = 0.954. Similarly, parents improved their abilities to deal with social issues after intervention with a mean measure of 4.41 ± .467 compared to 3.71 ± .475 before participating in activities of their children with ID. A statistically significant increase of 0.542 (95% CL, -1.15 to -.252), t (13) = -6.45, p < .001 d = 1.73 was realized. Hence, hypothesis (H₀) was rejected. This implies
that self-rating of the parents on the benefits of their involvement in the organized physical activity programme was significantly higher after intervention.

Table 4.18: Comparison of Parents’ Self-Rating on Benefits of their Involvement in Activities of their Children with ID within Group Mean Differences for the Experimental Group (n=18)

<table>
<thead>
<tr>
<th>Parents’ self-ratings in</th>
<th>Mean</th>
<th>SD</th>
<th>T</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dealing Psychological issues</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>2.90</td>
<td>.541</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>4.40</td>
<td>.343</td>
<td>-10.48</td>
<td>.000*</td>
</tr>
<tr>
<td>Ability to deal with social issues</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>3.42</td>
<td>.313</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>4.59</td>
<td>.698</td>
<td>-15.29</td>
<td>.000*</td>
</tr>
</tbody>
</table>

*Significant at p< 0.05, df =17

Paired-samples t-test was used to determine whether there was a statistically significant mean difference in the experimental group between the pre-test and post-test results for the parents’ self-ratings on benefits of their involvement in an organized physical activity program for their children with ID. Table 4.18 above reveals that parents in the experimental group had better abilities to deal with psychological issues after participating in the organized physical activity programme with a measure of 4.40 ± .343 compared to a measure of 2.90 ± .541 before the intervention. A statistically significant difference of 0.715(95% CL, -9.01 to -5.99), t(17)= -10.48, p < .05, d = 0.954. In addition,
the parents improved their social interactions after the intervention with a measure of 4.59 ± .698 compared to a measure of 3.42 ± .313 before intervention a statistically significant increase of 0.381 (95% CL, -6.63 to -5.02), \( t(17) = -15.29, \ p < .05, \ d = 1.73 \).

Therefore, hypothesis (H₀₃) was rejected. This indicates that parents’ self-rating on the benefits of their involvement in the organized physical activity program for their children with ID was significantly higher after the intervention.

Table 4.19: Magnitude of Mean Difference between Control (n=14) and Experimental (n-18) in Parents’ Self-Rating on Benefits of their Involvement in their Children’s Activities.

<table>
<thead>
<tr>
<th>Parents’ self-ratings</th>
<th>Groups</th>
<th>Mean</th>
<th>SD</th>
<th>T</th>
<th>Sig.(2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychological issues</td>
<td>Control</td>
<td>14</td>
<td>.757</td>
<td>.603</td>
<td>.004*</td>
</tr>
<tr>
<td></td>
<td>Experimental</td>
<td>18</td>
<td>1.39</td>
<td>.555</td>
<td>3.08</td>
</tr>
<tr>
<td>Social issues</td>
<td>Control</td>
<td>14</td>
<td>.700</td>
<td>.405</td>
<td>.001*</td>
</tr>
<tr>
<td></td>
<td>Experimental</td>
<td>18</td>
<td>1.67</td>
<td>.323</td>
<td>3.62</td>
</tr>
</tbody>
</table>

*Significant at p<0.05, df = 30

Group statistic was carried out to establish the magnitude of mean difference between control and experimental groups. Independent sample test was used to determine whether there was a statistically significant mean difference between control and experimental results in parents’ self-ratings on benefits of their involvement in activities of their children with ID. Table 4.19 above indicates that the mean difference in the experimental
group in psychological issues was higher a measure of $1.39 \pm .555$ compared to a measure of $0.757 \pm .603$ in the control group. There was a statistically significant difference of $t(30) = 3.08$, $p = 0.004$. Similarly, mean differences in the experimental group were higher in abilities to deal with social issues with a measure of $1.67 \pm .323$ compared to a measure of $0.700 \pm .405$ in the experimental group. A statistically significant difference of $t(30) = 3.62$, $p < .05$. Hence, hypothesis ($H_{05}$) was rejected. This indicates that parents’ self-ratings on benefits of their involvement in their children’s organized physical activities were higher in the experimental group.

Table 4.20: Comparison of Parents’ Self-Rating on Level of their Involvement in Activities of their Children with ID Control Group (n=14)

<table>
<thead>
<tr>
<th>Parents’ Self-Rating</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>2.64</td>
<td>.624</td>
<td>-3.75</td>
<td>13</td>
<td>.002*</td>
</tr>
<tr>
<td>Post-test</td>
<td>3.46</td>
<td>.882</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant at $p < 0.05$

Paired-sample t-test was used to determine whether there was a statistically significant mean difference between the pre and post test results in parents’ self-ratings on level of their involvement in activities of their children with ID. Table 4.20 above indicates that parents were more involved in the physical activities of their children after intervention a measure of $3.46 \pm .882$ compared to a measure of $2.64 \pm .624$ before intervention. A statically significant increase of $t(13) = -3.37$, $p = 0.002$. Therefore, hypothesis ($H_{03}$) was
rejected. This indicates that self-rating of parents on the level of their involvement in the activities of their children was significantly greater after participating in the organized physical activity program of their children with ID.

Table 4.21: Comparison of Parents’ Self-Rating on Levels of Involvement in Activities of their Children with ID within Group Mean Differences

Experimental Group, n=18

<table>
<thead>
<tr>
<th>Parents’ self-ratings in Levels of Involvement</th>
<th>Mean</th>
<th>SD</th>
<th>T</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>2.48</td>
<td>.514</td>
<td>-10.84</td>
<td>17</td>
<td>.000*</td>
</tr>
<tr>
<td>Post-test</td>
<td>4.09</td>
<td>.389</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*S*Significant at *p* < 0.05

A paired-samples t-test was used to determine whether there was a statistically significant mean difference between the pre and post test results in parents’ self-ratings on level of involvement organized physical activities of their children with ID. Table 4.21 above revealed that parents in the experimental group had an increase in their level of involvement in the activities of their children after intervention a measure of 4.09 ± .389 compared to a measure of 2.48 ± .514 before intervention, a statistically significant difference of t(17) = -10.84 and *p* < .05. Hence, hypothesis (H₀₃) was rejected. This implies that self-rating of parents on levels of their involvement in the activities of their children with ID was greater after the intervention.
Table 4.22: Magnitude of Mean Differences between Control (n=14) and Experimental (n=18) Group in Parents Self-Ratings on Levels of Involvement in their Children’s Activities

<table>
<thead>
<tr>
<th>Parents’ self-ratings</th>
<th>Groups</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of involvement</td>
<td>Control</td>
<td>14</td>
<td>.842</td>
<td>.781</td>
<td>2.09</td>
<td>30</td>
<td>.045*</td>
</tr>
<tr>
<td></td>
<td>Experimental</td>
<td>18</td>
<td>2.06</td>
<td>2.05</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant at p<0.05

Group statistics was used to compare mean differences between control and experimental group on parents’ levels of involvement in their children’s activities. Independent sample test was used to determine whether there a statistically significant mean difference exists between the control and experimental results in parents’ self-ratings on level of involvement organized physical activities of their children with ID. Table 4.22 above revealed that parents in the experimental group had a higher mean difference in their level of involvement in the activities of their children a measure of 2.06 ± 2.05 compared to a measure of .842 ± .781 in the control group. A statistically significant difference of t(30) = 2.09 and p =0.045. Hence, hypothesis (H₀) was rejected. This implies that self-rating of parents on levels of their involvement in the activities of their children with ID was greater in the experimental group than those in the control group.
4.9 Mean Differences in Children’s Motor Skill Performance in Control and Experimental Groups

The study sought to compare mean differences in the overall performance in motor skills by the children with ID before and after intervention. Results are presented in table 4.23.

Table 4.23: Cumulative Mean Scores in Children Motor Performance in the Control Group (n=14)

<table>
<thead>
<tr>
<th>Motor ability scores</th>
<th>Mean</th>
<th>SD</th>
<th>T</th>
<th>Sig-2 tailed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cumulative mean scores in locomotor skills</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>6.036</td>
<td>4.18</td>
<td>-8.061</td>
<td>.000*</td>
</tr>
<tr>
<td>Post-test</td>
<td>13.64</td>
<td>3.97</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cumulative mean score in object manipulation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>6.68</td>
<td>3.42</td>
<td>-5.051</td>
<td>.000*</td>
</tr>
<tr>
<td>Post-test</td>
<td>12.79</td>
<td>4.08</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*S*Significant (*p* < 0.05)

A paired-samples t-test was used to determine whether there was a statistically significant mean difference between the pre and post-test results in motor ability skills for children who participated in the control group. Table 4.23 above shows higher mean scores in locomotor skills after intervention a measure of 13.64 ± 3.973 compared to a measure of 6.04 ± 4.18 before the intervention. A statistically significant difference was observed at \( t (13) = -8.061 \) and *p* < .05. In object manipulation, post-test mean scores were greater a
measure of $12.79 \pm 4.08$ compared to a measure of $6.68 \pm 3.42$ before the intervention. A statistically significant difference was observed $t (13) = -5.051$ and $p < .05$, thus hypothesis ($H_0$) was rejected. This implies that motor ability performance of children with ID who participated in the control group was much higher after participating in the organized physical activity programme.

Table 4.24: Mean Differences in Children Motor Performance in the Experimental Group (n=18)

<table>
<thead>
<tr>
<th>Motor ability scores</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>Sig-2 tailed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cumulative mean scores in locomotor skills</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>7.61</td>
<td>4.69</td>
<td>-7.816</td>
<td>.000*</td>
</tr>
<tr>
<td>Post-test</td>
<td>16.50</td>
<td>2.83</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cumulative mean score in object manipulation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>5.72</td>
<td>3.10</td>
<td>-7.402</td>
<td>.000*</td>
</tr>
<tr>
<td>Post-test</td>
<td>18.61</td>
<td>6.29</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant ($p< 0.05$), df = 17

Paired-samples t-test was used to determine whether there was a statistically significant mean difference between the pre and post-test results in motor skill abilities among participating children in the experimental group. Table 4.24 above depict mean score in locomotor skill for the children after intervention a measure of $16.50 \pm 2.83$ compared to a measure of $7.61 \pm 4.69$ before intervention. A statistically significant difference was
observed at $t(17) = -7.816$ and $p < .05$. Similarly, children participating in the organized physical activity programme showed improvement in object manipulation skills after intervention a measure of $18.61 \pm 6.29$ compared to a measure of $5.72 \pm 3.10$ before the intervention. A statistically significant difference was observed $t(17) = -7.402$, $p < .05$. Hence, hypothesis ($H_0$) was rejected. This indicates that motor ability performance of children with ID who participated in the experimental group increased after participating in the organized physical activity programme.

**Table 4.25: Magnitude of Cumulative Mean Difference in Motor skill Ability between Control (n=14) and Experimental (n=18) Groups**

<table>
<thead>
<tr>
<th>Cumulative motor ability scores</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>Sig-2 tailed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cumulative mean scores in locomotor skills</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>14</td>
<td>7.61</td>
<td>3.53</td>
<td>-3.017</td>
<td>.005*</td>
</tr>
<tr>
<td>Experimental</td>
<td>18</td>
<td>8.89</td>
<td>4.83</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cumulative mean score in object manipulation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>14</td>
<td>6.11</td>
<td>4.52</td>
<td>-0.834</td>
<td>0.411</td>
</tr>
<tr>
<td>Experimental</td>
<td>18</td>
<td>12.89</td>
<td>7.39</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant ($p=0.05$), df = 30

Group statistics was used to compare mean differences between control and experimental group in the cumulative mean difference in motor ability performance of children with ID who participated in the organized physical activity programme. Independent sample test
was used to determine whether there was a statistically significant mean difference between the control and experimental groups. Table 4.25 above reveals that cumulative mean difference scores were higher in object manipulation of the experimental group a measure of $8.89 \pm 4.83$ compared to a measure of $7.67 \pm 3.53$ in the control group. A statistically significant difference of $t(30) = -3.017$ and $p = 0.005$. Hence, hypothesis ($H_0$) was rejected. This implies that cumulative mean difference scores for children who participated in the organized physical activity programme were higher in the experimental group where parents participated together in the PA together with their children compared to those whose parents who did not participate directly.

Table 4.26: Comparison of Motor Skill Performance of the Participating Children across their Gender in Control Group n=14

<table>
<thead>
<tr>
<th>Nature of test</th>
<th>child's gender</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>F</th>
<th>t</th>
<th>Sig(2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test locomotor</td>
<td>Male</td>
<td>12</td>
<td>6.29</td>
<td>4.36</td>
<td>.301</td>
<td>.546</td>
<td>.593</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>2</td>
<td>4.50</td>
<td>3.54</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-test locomotor</td>
<td>Male</td>
<td>12</td>
<td>13.92</td>
<td>4.23</td>
<td>1.53</td>
<td>.616</td>
<td>.240</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>2</td>
<td>12.00</td>
<td>1.41</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test object</td>
<td>Male</td>
<td>12</td>
<td>6.71</td>
<td>3.66</td>
<td>.810</td>
<td>.077</td>
<td>.386</td>
</tr>
<tr>
<td>manipulation</td>
<td>Female</td>
<td>2</td>
<td>6.50</td>
<td>2.12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-test object</td>
<td>Male</td>
<td>12</td>
<td>13.33</td>
<td>4.03</td>
<td>.123</td>
<td>1.26</td>
<td>.732</td>
</tr>
<tr>
<td>manipulation</td>
<td>Female</td>
<td>2</td>
<td>9.50</td>
<td>3.54</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant (p=0.05), df = 12
Table 4.26 above, revealed that mean scores in motor skill performance of the children with ID who participated in the control group improved after intervention. In the pre-test the male had higher means in locomotor a measure of 6.29 ± 4.36 compared to female a measure of (4.50 ± 3.54). The differences were not statistically significant t (12) =0.546, p=0.593. Post-test means in locomotor, male children had higher scores (13.92 ± 4.23 compared to female scores of 12.00 ± 1.41 and no statistical significance difference t (12) =0.616,p=0.240. Male children with ID had higher mean scores in object manipulation skills a measure of 6.71 ± 3.36 in the pre-test compared to female score of 6.50 ± 2.12. Similarly, male children with ID had higher post-test scores at 13.33 ± 4.03 compared to female scores of 9.50 ± 3.54 and no statistical significance difference t(12)=1.26, p=0.732. Therefore, hypothesis (H_{07}) was not rejected. This implies that motor skill performance was not influenced by the participating child’s gender.
Table 4.27: Comparison of Motor Skill Performance of the Participating Children Across their Gender in Experimental Group n=18

<table>
<thead>
<tr>
<th>Nature of test</th>
<th>child's gender</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>T</th>
<th>Sig( 2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test locomotor</td>
<td>Male</td>
<td>10</td>
<td>8.20</td>
<td>5.67</td>
<td>.584</td>
<td>.015*</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>8</td>
<td>6.88</td>
<td>3.31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-test locomotor</td>
<td>Male</td>
<td>10</td>
<td>18.20</td>
<td>1.69</td>
<td>3.82</td>
<td>.620</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>8</td>
<td>14.38</td>
<td>2.56</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test object manipulation</td>
<td>Male</td>
<td>10</td>
<td>5.80</td>
<td>3.68</td>
<td>.115</td>
<td>.115</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>8</td>
<td>5.63</td>
<td>2.45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-test object manipulation</td>
<td>Male</td>
<td>10</td>
<td>17.70</td>
<td>1.25</td>
<td>-.676</td>
<td>.049*</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>8</td>
<td>19.75</td>
<td>9.56</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*S=Significant (p=0.05), df = 16

Table 4.27 above, indicates that mean scores in motor skill performance of the children with ID in the experimental group increased after participating in the organized physical activity programme. Locomotor pre-test scores were higher among children a measure of 8.20 ± 5.67 compared to female a measure of (6.58 ± 3.31). A statistical significant difference of t (16) =0.584, p=0.015. Post-test means in locomotor, male children had higher scores 18.20 ± 1.69 compared to female scores of 14.38 ± 2.56 and no statistical significance difference t (16) =3.82, p=0.620. Male children with ID had slightly higher scores in object manipulation skills a measure of 5.80 ± 3.68 in the pre-test compared to female score of 5.63 ± 2.45. There was no statistically significant difference t (16) =0.115, p=0.115. Post-test in object manipulation, female children participants registered
higher scores of $19.75 \pm 9.56$ compared to male scores of $17.70 \pm 1.25$. A statistical significance difference $t(12) = -0.676$, $p=0.049$. Therefore, hypothesis ($H_{05}$) was rejected in pre-test locomotor skills and post-test object manipulation. This implies that motor skill performance was influenced by gender of the participating child. Male children with ID had higher scores in locomotor skills before while female were better after intervention in object manipulation.

**Table 4.28: Participating Children Demographic Factors and Cumulative change Motor Skill**

<table>
<thead>
<tr>
<th>Children demographic Factors</th>
<th>Cumulative change in object manipulation skills</th>
<th>Cumulative change in locomotor skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participating child's gender</td>
<td>Pearson Correlation</td>
<td>.191</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.294</td>
</tr>
<tr>
<td>Child's birth position</td>
<td>Pearson Correlation</td>
<td>.026</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.889</td>
</tr>
<tr>
<td>Manner child’s disability was discovered</td>
<td>Pearson Correlation</td>
<td>.204</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.262</td>
</tr>
</tbody>
</table>

$N = 32$, Correlation is significant at $p< 0.05$

Pearson's correlation coefficient ($r$) was computed to assess the association between the children's characteristics and cumulative change in motor ability skill performance. Results in table 4.28 indicated that there was a weak positive correlation between children’s gender and cumulative mean score in objet manipulation $r(32) = .191$, $p = .294$. The results also showed that there was a weak positive correlation between the
children’s birth position and cumulative object manipulation $r (32) = .026, p = .889$. Non-significant moderately positive correlation between the manner children’s disabilities was discovered $r (32) = .204, p = .262$ was also recorded. Similarly, there was weak negative relationship between children’s gender and cumulative mean score in locomotor skills $r (32) = -.132, p = .471$ while there was weak positive correlation between children’s birth position $r (32) = .017, p = .928$. Also there was a weak non-significant positive correlation between manner children’s disability was discovered and cumulative motor scores in locomotor skills $r (32) = .280, p = .121$. Therefore, ($H_{06}$) that there would be no significant difference between cumulative motor ability and children demographic factors were not rejected. This implies that the children’s demographic characteristics (gender, birth position and manner in which their disability was discovered) did not influence change in motor abilities among children who participated in the intervention programme.
CHAPTER FIVE: DISCUSSION

5.1 Demographic Characteristics

Findings from this study showed that a higher proportion of the children with intellectual disability (ID) who participated in the organized physical activity (PA) programme were male in both control (85.7%) and experimental (55.6%) groups respectively. This agrees with studies that have documented organized sports for children with intellectual disability in Special Olympics sports programmes where similar phenomena of more male than female athletes have been reported (Special Olympics Kenya, 2011; Bukhala, 2012; Bianca, 2013). The current study also showed that majority of children with ID who participated in the PA intervention programme were first borns in their families both in the control group (64.3%) and experimental group (55.6%) respectively. Intellectual disability is associated with molecular genetic chromosome disorder with complex multiple aetiologies that is not fully understood (Bianca, 2013; Kathrine, 2014). However, studies that have quantified birth order effects explain that the risk of giving birth to a child with ID increase and decrease with birth rank such that the first-born or last born are more likely to be affected (Tychele, Vasyl and Aravinda, (2011). This concurs with findings in the current study which revealed that most of the children who participated were first-borns.

As indicated in Table 4.2, majority of the parents who accompanied children with ID to the organized PA programme were mothers (71.4%) despite more than half (65.6%) of them indicating that they were married. Studies that have analysed gender roles found out that traditionally, female parents assumed the responsibility of caring for children while
male parents worked. In addition, mothers play nursing roles and are involved in daily
routines of their children as well as bearing the extra demands inherent with caring for
children with developmental disabilities including accompanying them for therapy
(Mackey and Goddard, 2006; Dianne et.al, 2007). The burden of care has social–cultural
connotation and mothers struggle to establish and maintain the personhood of their
children irrespective of their disabilities (Jerry, Nick and Hellen, 2015). This agrees with
findings of the current study that showed high resilience among mothers who were the
majority and consistently accompanied their children with ID to the organized physical
activity programme throughout the intervention period.

From the findings of this study, most of the parents in the control group (57.2%)
discovered the disability of their children from a medical practitioners while in the
experimental group (61%) observed delayed growth. Manner in which a disability is
discovered can determine the start and nature of intervention activities that can be used
for children with ID (Murdock and Hobbes, 2011). Most children with ID are associated
with low motor skills resulting from being excluded from play by their peers and may
deteriorate with increased lack of exposure to play activities (Milisa and Hana, 2010;
Hedwig, 2014). It was noted that children with ID recruited for the study had similar
entry behaviour and therefore, the manner in which disability was discovered did not
affect gains in their motor abilities after participating in the physical activity programme.

The current study showed that a large proportion (62.5%) of the parents ranged between
30 to 49 years of age. Studies that have investigated effect of parents’ age and child
bearing associated advanced parent’s age with increased genetic mutation risk factor leading to high possibilities of giving birth to a child with delayed developmental milestones (Cramm and Nieboer, 2011; Tycle.et.al, 2011). Although a large proportion (62.5%) of the parents who accompanied their children to the organized physical activity programme ranged between 30 to 49 years of age, this was not sufficient enough to support the view that the parents’ age is a determinant of the disability in the children with ID who participated in the study.

From the findings of the current study, majority of parents in the control group had either college or university education (57.1% and 42.9%) and were in formal employment (85.7%) while in the experimental group, 77.7% had primary education and 83.3% provided casual labour. Parents with higher levels of education are associated with increased parental involvement in educational activities of their children (Dabrowska and Pisula, 2010). Working parents are likely to miss out on daily routine activities for their children and this lowers levels of involvement (Bianca, 2013; Hedwig, 2014). It was observed that parents in the experimental group were more consistent and participated with their children in the physical activities compared to those in the control group despite reporting lower education levels and also providing casual labour. This differs with studies (Dabrowska & Pisula, 2010; Bianca, 2013; Hedwig, 2014) that associated higher education levels with increased parental involvement.
5.2 Parents’ Frequency of Attendance in the Organized Physical Activity Programme for their Children with ID

Findings from the current study assessed the relationship between parents’ frequency of attendance to an organized physical activity for their children with ID and their gender, age, level of education, occupation and marital status. Study reports indicate that parents influence on young children’s physical activity depends on their consistency of attendance to available programmes and has significant effect on the gains the children achieved (Zecevic, Trembley, Lovsin and Lariviere, 2010).

It has also been noted that children with ID who were accompanied for therapy by adult special educators had a positive relationship compared to those unaccompanied Zwolinska et.al (2014). It is suggested that special educators were more knowledgeable on the importance of the therapy and were expected to extend basic therapy skills at school. Further, parents who encouraged peer play for their children with autism and have frequently participated attained better contractual skills (Milisa and Hana, 2010).

Parenting a child with ID requires multifaceted interventions that engage the parent and the child. Involving parents in organized physical activity is considered one of the intervention strategies (Cramm and Neiboer, 2011) and parents who were consistently involved in their children’s organized sports activities during school holidays were positively associated to improved psychological well-being and increase in child’s functioning capacity, social and communication skills. Further, Hedwig (2014) posit that
parents of children with ID face unique challenges that are socially prescribed and influenced levels of parental involvement. He cited low levels of education, gender, work and income as key determiners of parents’ engagement to their children’s daily activities. This agrees with the current study that revealed significant association between psychosocial benefits gained after participating in organized PA for children with ID and parents’ occupation as well as levels of education. Parents’ with high education levels also had formal employment and this influenced their abilities to deal with psychosocial issues of parenting children with ID

5.2.1 Parents’ Gender and Frequency of Attendance to Activities of Children with ID

The current study revealed that mothers were more frequent in the organized physical activity programme for children with ID than fathers that can be attributed to the socially prescribed gender roles. Studies that support parental involvement (Murphy et.al, 2008; Zecevic et.al, 2010; Bianca, 2013; Jerry et.al, 2015) reveal that both parents’ involvement is important in all aspects of a child’s development but the burden of care is perceived as a socio-structural constraint leaving mothers more venerable to meet the daily tasks of child care. Olsen and Funnel (2010) posited that fathers’ consistent involvement in play among children below 5 years was statistically associated with the improvement of children’s’ levels of participation in play activities. However, there were variations in levels of involvement that fathers recorded less frequent and direct interaction while mothers had more direct interactions and frequently found in the same settings with their
children. Findings in the current study showed a positive strong correlation \((r=.751, p<.05)\) for mothers that had high statistical significance and a non-significant negatively moderate correlation \((r=-.311, P=.083)\) for fathers’ frequency of attendance. Hence, this concurs with other findings that mothers’ are likely to be more frequent in their children’s activities than fathers. There was no father who attended the organized physical activity programme for their children with ID in the experimental group while a very small proportion (4, 28.6%) of fathers attended the programme with their spouses in the control group. This can be attributed to fathers’ role as providers while the duty of care is seen more as mothers’ role prompting mothers to struggle in establishing strategies to increase independence of their children with ID. Therefore, the mothers sought opportunities to have their children with ID benefit from available programmes explaining their high frequencies of attendance to the organized physical activity programme which was evidenced in this study.

5.2.2 Parents’ Age and Frequency of attendance to the Organized Physical Activity Programme

The current study revealed that parents accompanying their children with ID in the organized physical activity programme were of diverse age categories and this was not significantly associated with frequency of attendance. Studies that have investigated effects of parental age and involvement in children’s activities (Shields and Hanneke, 2008) argue that younger parents are likely to record lower levels of involvement in their children’s daily routines compared to experienced and stable older parents. Njelesani et.al (2014) found no evidence attributed to parental involvement and parents age. This
concurs with findings in the current study which indicated that there was no significant correlation between parents’ age and their frequency of attendance in the organized physical activity for their children with ID. The organized physical activity for children with ID attracted parents within different age categories, an indication that age did not influence parents’ frequency of attendance to organized PA of their children with ID.

5.2.3 Parents’ Occupation and Frequency of Attendance to the Organized Physical Activity Programme

The current study revealed that mothers who were in non-formal employment recorded higher frequency of attendance in the organized physical activity programme for children with ID. In contrast, the results of the study indicated fathers in formal employment were more frequent in the intervention programme. Murphy et.al, (2008) found out that work commitments posed a challenge to optimal parental involvement. Further, they revealed that nature of a parent’s occupation dictates the amount of time a parent spend while directly engaged in promoting participation of their children with disability in sports and physical activity. Parents help determine their children’s access to opportunities for physical activities, encourage them to participate and serve as role models during activities. Therefore, parents should create intimate and cohesive family contexts that promote and support their children’s activities (O’Dweyer et.al, 2014).

Parents who are in formal employment are likely to be less engaged on the daily routines of their children due to tight working schedules (Stacer & Perruci, 2013). Findings in the current study indicated that mothers’ occupations had significantly strong negative
correlation \( r=-0.713, p<.05 \) while fathers’ occupation had a positive moderate correlation \( r=0.384, p=0.030 \) to frequency of attendance to the organized physical activity programme of their children with ID. The results in the current study partly agrees with Stacer and Perruci, (2013) that male parent’s occupation influences consistency of attending to their children’s activities. However, the strong negative correlation among mothers’ occupations and frequency of attendance to organized physical activity programme showed that mothers’ occupation did not affect their frequency of attendance to their children’s activities.

5.2.4 Parents’ Level of Education and Frequency of Attendance to the Organized Physical Activity Programme

Findings of the current study indicated a significant negative correlation \( r = -0.700, p < .05 \) between mothers’ levels of education and frequency of attendance to the organized physical activity programme, while fathers’ had a positive moderate correlation \( r = .421, p = 0.016 \) an indication that higher levels of education was not a contributing factor to mothers’ consistency in attending PA for their children with ID. In most societies, education has been equated to a high social-economic indicator and awareness level of life patterns (Stacer and Perruci, 2013). Similarly, Monna and Gauthier, (2008) indicate that parents with higher educational levels are more likely to have greater awareness of health issues and make health choices that promote PA for their children. More also, parents’ education can influence parental involvement in children’s activities whereby parents who are well educated are expected to be more involved than those with lower levels of education (Hedwig, 2014). However, results from the current study showed an
inverse relationship between mothers’ level of education and frequency of attendance to the organized PA programme. This does not concur with the findings of the studies by Monna and Gauthier, (2008); Stacer and Perruci, (2013) and Hedwig, (2014) which indicated that parents’ with higher levels of education are more involved in the activities of their children. It was evident that majority of consistent parents’ were mothers’ in the control group who had lower levels of education.

5.2.5 Parents’ Marital Status and Frequency of Attendance to the Organized Physical Activity Programme

In the current study, marital status was not associated with mothers’ frequency of attendance to the organized physical activity of children with ID although fathers who participated in the study accompanied their spouses whenever they attended the physical activity intervention programme of their children with ID. Epstein (2010) studied parents’ level of involvement in their children’s activities at the elementary grade and used a self-rating scale to determine their perceptions. Results showed that single parents felt more pressure to fully get involved to their children’s leisure time activities at home and weekends as compared to married parents. This differs with findings in the current study which indicated that there was no significant association between parents’ marital status and frequency of attendance to the organized PA programme for their children with ID. The study showed that most of the adults who were frequent to the children’s physical activity programme were mothers who reported that they were married. The diversity can be attributed to by the traditionally prescribed gender roles and caregiving duties assumed as mothers’ responsibilities.
5.3 Physical Benefits of Parental Involvement in Organized Physical Activities of Children with ID.

From the findings of this study, there was a high significant difference (p<.05) in cumulative change of mean scores in children’s motor abilities for both experimental and control groups. This was an indicator that the sampled children with ID were homogeneous in the two groups and received similar treatment. The children with ID were subjected to a three-months organized PA program under the guidance of trained coaches. Studies that have investigated importance of PA among children with ID argue that although children with ID learnt skills from their peers at school, the rate was comparatively low compared to those whose parents and siblings were involved in family sports and PA (Chelsea, 2014; Dragos et.al, 2013). The studies subjected children with multiple disabilities (Intellectual Disability and Cerebral Palsy) to a 6 months aquatic therapy intervention program twice a week for 45 minutes per session and statistical significant increase, (p=0.001) was observed. Similarly, Milisa and Hana, (2010) assessed the influence of early intervention on motor skills performance for preschoolers with autism after participation in PA for 8 weeks using Motor Assessment Battery for Children. Their findings indicated a significant improvement though the children were not accompanied by their parents. Elippin and Crairs (2011) in a study on parent-implemented interaction aimed at increasing joint attention with their 38 children with autism spectrum disorder and result indicated a significance increase in functional capacity in the treatment group than the control. The control group was not given any treatment. The results from the current study agree with studies by Milisa & Hana,
(2010); Ellipin and Crairs, (2011); Dragos et.al, (2013); Chelsea, (2014) which affirm that providing opportunities for children with ID to participate in organized activities greatly improved their motor abilities.

Results from the current study compared the magnitude of cumulative mean difference in motor skill ability between control and experimental groups that showed a significant difference (p=0.005). This was an indicator that parents’ participation in PA jointly with their children is associated with the higher mean score difference among children with ID in the experimental group. Most of the parents who participated in the PA together with their children reported to have learnt skills that they practiced with their children at homes.

5.4 Parents’ Ratings on Motor Abilities Performance of their Children with ID

Results from the parents’ ratings that involved four subscales: child’s ability to perform locomotor activities, object manipulation skills, activities of daily living (ADL) and social skills showed high significant improvements both in the control and experimental groups. Further, magnitude of mean difference in parents’-ratings of their children’s motor abilities performance before and after participating in the organized PA, showed a non-significant difference. Research studies on participation of children with disabilities outside of school revealed significant impact was recorded among children who participated in the community based programmes and was positively correlated to increased social inclusion as well as quality of life (Tonkin et.al, 2014; Haibach et.al,
2011). This concur with the findings of the current study that engaged children with ID 4-6 years of age, and showed great improvement in performing motor skills such as basic movements, throwing, catching, hopping, striking, balancing running and jumping that formed a base for more complex sport-specific movement patterns. There was an increase in social skills and enhanced abilities in performing activities of daily living attributed to the impact of participating in organized PA.

**5.4.1 Motor Ability Performance**

The current study showed that parents’ ratings of their children motor abilities had greatly improved after participating in the organized PA programme. Zwolinska, Podstawki and Monosielska (2014) reveal that children developed fundamental motor skills at a differentiated manner and those with ID may require early intervention programmes in which adults are involved. In their study, they assessed children with ID 5-6 years attending therapy on development movement. Results indicated significant influence on motor skills improvement in children who were accompanied by adult special educators and concluded that children with ID can greatly improve in their motor skills abilities if given a chance to be a part of early intervention program. Karpljuk, Masleja and Videmek (2012) involved individuals with intellectual disability in an eight week martial art training programme. Results of a t-test showed statistically significant differences between the initial and final measurements of seven subsets of motor abilities. The results concur with findings in the current study that assessed children with ID who participated in an organized PA, 4-6 years of age and their parents were asked to rate their motor abilities. Findings showed high significance difference (p<.05) in motor
abilities after participating in the organized PA that were similar for both experimental group, in which parents were directly involved in the activities and control group though parents were not directly involved. The results did not have significant magnitude of mean difference between control and experimental groups. This was an indication that the children with ID in the control and experimental groups received an equal guidance in organized programme of PA and the children had similar entry and exit behaviour.

5.4.2 Activities of Daily Living

Findings in the current study that indicated high significant improvement (p<.05) in the activities of daily living (ADL) skills especially in self-feeding, basic washing and toileting both in the experimental and the control group respectively. Studies that have assessed self-care skills among children with ID (Bartlo & Klein, 2011) reveal that children with ID learn personal care at a slower rate. More also, Kiley, Nicole & Megon, (2014) and Childress, 2011) explain that childhood play provided opportunities for young children with ID to practice skills inherent for development of self-care skills. The studies showed significant relationship between PA and perfecting personal care among children developmental disability. In their study, 19 children with developmental disabilities aged 3-6 years were given a 12 week PA program at a special Kindergarten and the pre and post test scores compared. A significant increase in feeding and basic washing was observed. This agrees with the current study that the parents’-rating indicated an improvement in children’s ability to feed on their own, toileting and basic-washing. This was associated with improved motor skills inherent with self-care.
5.4.3 Social Skills in Children with ID

From the findings of this study, an improvement in parents’ rating on their children’s social skills after participating in the organized PA programme was reported. Children have great abilities to learn social skills and those with intellectual disability are not left out (Linare, 2010). Similarly, Zarrett, Sorensen and Cook, (2015) reveal that children with ID who participated in the afterschool programmes jointly with their peers provided an opportunity for inclusion and there was a significant positive increase in social interaction. Involving children with ID of 3-5 years of age in extracurricular activity encouraged cooperative play with peers than those who had never been involved in play (Bianca, 2013). Murphy et.al, (2008) followed children with ID in an adapted physical education (APE) class and observed the amount of PA the children engaged in. The results indicated that the children who were involved in APE class had higher rate of social activities with their peers compared to those who did not take part. Also, O’Dweyer et.al, (2012), Hedwig, (2014) and Zwolinska et.al, (2014,) report that parents’ rating on social skills were higher for children with ID who participated in sports compared to those who were less involved. Significance difference was observed in the post–test scores. This concurs with the findings of the current study that showed a high significant difference (p<.05) in parents’-rating of children’s social skills after participating in the organized PA programme. This is associated to providing opportunities for children with ID to take part in PA.
5.5 Psychosocial Benefits of Parental Involvement in Activities of their Children with ID

In the current study, parents’ had an opportunity to rate their benefits after being involved in their children’s organized PA programme. Results from the study showed improved mean scores after participating in the organized PA programme of their children with ID. Studies that have investigated family involvement in PA (Carraro and Gaudreau, 2015) indicate significant association between levels of participation in PA and coping with emotional conflict. In studies by Orr and Phoenix, (2015) and Mactavish et.al, (2007) found out that engaging young children in physical activity together with family caregivers had a significant reduction in frustration associated with caregiving tasks as well as elevated levels of relaxation among the participating group compared to those not involved. This was in line with findings of Eun-Ok, Ok-Kyung, Chee and Wonshik (2015) who involved midlife women taking their children with ID for occupational therapy in an organized form of physical activity. The women were asked to rate themselves using a four Likert scale questionnaire after three months which showed significant improvement in emotional abilities. Results in this study indicated significant decrease in hostility, diminished emotional tension and increase social interaction.

Similarly, Samadi, McConkey, and Kelly, (2012) involved parents of children with autism (a condition also associated with intellectual disability) in a family centred short course in a control and experimental group then compared the parents’– self rating scores on stress levels and family functioning. They compared the scores before and after participation in the short course. Independent t-test scores showed no significant
differences between the two groups. The experimental groups recorded higher mean score difference which related to increased parent-child connectedness in play and other leisure time activities and this showed a positive significant correlation to parents’ emotional growth (Maria et al., 2012). Studies by Mactavish et al., (2007), Carraro and Gaudren, (2015); Eun-ok et al., (2015); Orr and Phoenix, (2015) showed significantly high improvements on parental ratings of health of their children, reduction in parents’ stress levels and increased family functioning after participating in community programmes in PA. This agrees with findings in the current study that compared parents’ self-ratings before and after participation in an organized PA programme for their children with ID. A high significant difference (p < 0.05) was observed.

Further, the current study that assessed magnitude of mean difference in parents’ self-rating of their psychological gains associated with their involvement in the organized PA programme for children with ID. Findings in the current study indicated that there was a significant difference (p = 0.001) between control groups and experimental in the parents’ ability to deal with psychological issues. The findings agree with studies by Linares, (2010), O’Dweyer et al., (2012) and Zwolinska et al., (2014) which indicated that parents who directly interacted with their children’s therapy and PA recorded significantly improved emotional levels. The parents in the experimental group jointly participated with their children in the organized PA program while those in the control group were indirectly involved. Although parents in the experimental group had reported challenges in performing some of the activities, they did not bow out. The consistent in participation and supporting their children to perform the PA attributes to the significance
difference among parents’ self-rating in the experimental group. These prompted the researcher to replicate direct participation of parents in the control group together with their children after the post test. The progression agrees with Samadi et.al. (2012) who carried out a study on effect of family centered education programme in a group of parents and recorded changes. Parents reported improved health, reduced parenting stress and increased self-efficacy and introduced the similar treatment to the second group and extended the intervention period.

5.6 Parents’ Self-Ratings of Level of Involvement in Activities of Children with ID

Results on parents’ self-rating on their level of involvement in this study showed an increase after participating in the organized PA programme. Studies that have examined factors that influence extent to which parents are directly involved in the activities of their children reveal that levels of involvement are associated to parents’ attributes, social–cultural issues, educational levels, economic status and children characteristics (Dukes, 2007; Plant and Sanders, 2007; Murdock and Hobbs, 2011; Tonkin et.al, 2014). It has also been noted that parents’ past experiences, exposure and awareness on the value of children’s participation in organized PA determined levels of parental involvement among parents of children with delayed developmental milestones (Moshin et.al, 2011; Muhammad et.al, 2011; Njelesani et.al, 2014). This concur with findings from the current study that showed a significant difference both in the control (p = 0.002) and experimental groups (p < 0.05) respectively after participating in the organized PA. This was attributed to the parents’ desire to improve the independence of their children with ID.
Results from the study also showed that magnitude of mean differences in levels of involvement between control and experimental groups had a significance difference (p=0.045). It was concluded that the difference was a result of parents’ participating in the same activities with their children in the experimental group while those in the control group observed from the periphery of the play-ground.

5.7 Relationship between Parents Demographic Characteristics and Psycho-social Gains of their Involvement in Organized PA for their Children with ID

An overall evaluation of the parents’ demographic characteristics and their relationship to psychosocial gains revealed significant differences in parents’ occupation and levels of education. There was no significant difference in parents’ gender, age category and marital status. Studies that have evaluated the association between parental involvement and demographic factors reveal that interrelations between parents’ characteristic indicated significance increase in levels of parental involvement. Gender as factor showed that mothers who were involved in the intervention PA programme of their children with disabilities than fathers. Mackey and Goddard, (2006) recorded a direct association to reduced anxiety and anger. Similarly, Farran et.al, (2008) explained that the extent to which caregivers of children with developmental disabilities were involved in the PA together with the children determined changes in levels of depression. The results showed significant positive correlation between caregivers’ participation and decrease in depression and increased social inclusion. Results in the current study concurs with Mackey and Goddard, (2006) and Farran et.al, (2008) where parents’ self-
rating indicated a statistical significant improvement in their abilities to deal with psychological issues (p = .003) and social interaction (p < .05) respectively after participating in the organized physical activity programme for their children with ID.

5.7.1 Parents’ Gender and Abilities to Deal with Psychosocial Issues.

It has been noted that gender issues and disability in children are key in stress levels among parents of children with ID (Baker, Brookman, Fraza and Stahner, (2005); Dabrowska and Pisula, (2010) and as a result, fathers and mothers are likely to experience different levels of stress associated with birth of children with disabilities. However, parents who are involved in early intervention activities for their children with disability report improved emotional well-being (Laxman et.al, (2015). Fathers’ involvement in daily routines of their children with disabilities showed a significant association with decreased paternal depression compared to non-involved fathers (Laxman et.al, 2015). After participating in an inclusion programme, mothers reported significant reductions in child-related stress. Elippin and Crairs (2011) posit that enhancing father-child involvement in early autism intervention lead to improved outcomes to the child and benefits cascading to reduce family stress as well as improved coping mechanism. The findings of the current study showed moderate negative non-significant correlation (r=-0.307, p=0.087) between parents’ gender and ability to deal with psychosocial issues, an indication that parents’ gender did not influence abilities to deal with psychosocial issues hence, differed with studies by Baker et.al, (2005) and Elippin and Crairs, (2011). The parents’ gender in this study did not influence
psychosocial gains after their involvement in the organized PA programme of their children with ID.

### 5.7.2 Parents’ Age and Ability to deal with Psychosocial Issues

Findings from the current study reveal that parents’ age was not associated with abilities to deal with psychosocial issues. Studies that have investigated effects of a parents’ age and levels of involvement posit that parental age determines the quality of parental involvement and young parents have greater energy and were likely to be more committed to their children’s PA (Shields and Hanneke (2008)). Contrary, Daly, Shareck, DeVries, Griffiths, Sheerin, McBennett, and Haggins, (2015) reveal that older parents had positive attitude and experience to face parenting challenges. Their study findings showed a significant positive correlation in coping with social and psychological problems among older parents. These findings differed with results from the current study that showed a very weak negative non-significant correlation ($r=-0.130$, $p=0.447$) between parents’ age and abilities to deal with psychosocial issues. It was concluded that parents’ age was not a determiner in abilities to deal with psycho-social issues in this study.

### 5.7.3 Parents’ Level of Education and Abilities to Deal with Psychosocial Issues

The current study observed that all of the parents in the control group (100%) had college education while those in the control group had 77.7% with primary education. Studies that have quantified the relationship between parents’ education levels and abilities to deal with stress associated to birth of a child with disability reveal positive correlation
Further, Durand (2011) revealed that maternal levels of education accounted for more significance variance showing that those with higher education levels had higher abilities to manage negative emotions and social exclusion. This is in line with finding of Cramm and Nieboer (2011) who explained that higher education and income levels had been positively associated to fewer psychological life stressors. Similarly, Hedwig, (2014); Tamin, Idris. Mansyur and Syarit, (2014) reported that parents with higher education levels had better approaches to deal with psychological challenges than less educated parents. This was associated with abilities to seek intervention programmes for their children with disabilities leading to reduced stress. This results agree with findings of the current study that showed a significant moderate positive correlation (p=0.016) on levels of education and parents ability to deal with psycho-social challenges. It was concluded that parents with higher levels of education had better abilities to deal with psychosocial issues associated with parenting children with intellectual and developmental disabilities.

5.7.4 Parents’ Occupations

Findings from the current study showed a positive significant correlation (r = .437, p = .012) between parents’ occupation and abilities to deal with psychosocial issues. Studies that have evaluated parents’ occupations associate formal employment with a stable income which determines the quality of time a parent spent engaging in their children activities (Childress, (2011); Hedwig, (2014); Laxman.et.al, (2015). Their studies revealed a strong significant correlation between parents working hours and time spent involved in children’s activities both at home and school. This agrees with the current
study which showed significant relationship between parents’ occupation and improved abilities to deal with psychosocial issues. It emerged that parents in the formal employment had better abilities to deal with stress associated with parenting a child with ID. This can be attributed to ability to provide financial resources associated with extra demands in caring for children with ID.

5.7.5 Marital Status and Abilities to Deal with Psychosocial Issues

Results in the current study indicated that most of the parents accompanying children with ID to the PA programme were married although this showed non-significant relationship between marital status and parents’ abilities to deal with psychosocial issues. Epstein, (2010) posit that marital status of a parent had a positive correlation with parental involvement in children’s school activities. Results in her study indicated a higher statistical significant difference in psychological wellbeing for married parents compared to single parents. Hedwig, (2014) further reported that single unmarried parents felt more pressure in parenting their children with disability than married ones. The studies by Epstein, (2010) and Hedwig, (2014) differs with findings from the current study that showed a very weak negative non-significant correlation between participating parents’ marital status and ability to deal with psychosocial issues. This implies that even single parents had improved abilities to deal with psychosocial issues after participating in the organized PA for their children with ID.
5.8 Cumulative change in Children’s Motor Skill Performance.

Findings from this study showed significant improvements in the cumulative motor skills of the children with ID after participating in the organized PA. Studies that have investigated variables influencing changes in children’s motor skill performance argue that the improvement is dependent on the levels of parental involvement (Kurani, Nerurkar, Miranda, Jawadwala & Prabhulkah, 2009). Houwen, Visscher, Lemmink and Hatman, (2009) argued that motor skills performance determine the interaction between a child’s predisposition and impairments. Further, they suggest that opportunities to participate in meaningful PA reduce barriers in movement leading to improved independence to perform self-care task. Childress, (2011) posit that physical activity inform of child play provided opportunities for young children to interact with peers and engage in activities that promote motor skill development. Kuran et.al (2009) reported that although play in young children with ID was greatly affected by the nature of disability, participation in fun play activities during recess time had significant increase in motor skills abilities among children who participated in the play activities. In the current study, physical benefits in children participants with ID were assessed using test of gross motor development protocol. The study findings concurs with studies by Houwen et.al, (2009); Kuran et.al, (2009) and Childress, (2011) that showed significant increase (p < 0.05) in locomotor and object manipulation skills were recorded in children who participated in the organized PA.

Results to examine magnitude of mean differences between control and experimental groups showed a significant difference (p = 0.005). It had been reported that higher
motor skill scores are likely to be observed in children with ID whose parents are consistently involved than those less involved (Lars et.al, (2003); Leigh et.al, (2012); Maria et.al, (2014). Further, they concluded that parental involvement affects children’s motor skill development. Results in the current study showed significant difference in both control and experimental groups. However, magnitude of difference in mean scores had a statistical significant difference indicating that the experimental group had higher improvement then the control group. The findings of the current study agree with studies by Lars et.al, (2003); Leigh et.al, (2012); Maria et.al, (2014) where parents who consistently participated in the PA together with their children with ID contributed to better motor skill performance than parents who were indirectly involved.

5.9 Children’s Demographic Factors and Cumulative change in Motor Skills

The current study showed that there were more male children with ID who participated in the organized PA than their female peers. Results from this study showed significant differences between pre-test and post-test mean scores in locomotor (p=0.015) and object manipulation (p = 0.049). It had been noted that a male children attain abilities to perform physical activities skills faster that female peers (Boddy et.al, 2014). This agrees with studies that compared levels of physical activities between male and female participants as they revealed that males are more active than female (Dunst, (2009); Boddy et.al, (2014); Chelsea, (2014). This is attributed to parents participating jointly with their children with ID in the experimental group where majority of children were males.
Results from the current study showed non-significant difference between cumulative change in motor skills and children’s demographic factors (birth position and manner the children’s disability was discovered). It has been noted that children with disabilities and fall in the middle births are at higher advantage of inclusive play among other older siblings (Tyclele et.al, 2011). Their results reported a significant correlation (p<.05) in motor skill performance among middle births differing with the current study that showed a very weak non-significant correlation (r = 0.026, p = 0.889) between birth position and cumulative motor skill performance.

Similarly, research that has studied the onset and process used to discover a child’s disability may determine start of intervention process with those learning from a pediatrician likely to receive advice on early intervention activities (Schalock et.al, (2011); Jeffrey, (2015). Findings from this study differ because the results showed a weak non-significant correlation (r =.204, p = .262) between method the participating child’s disability was discovered and cumulative change in motor skill performance. This differs with the current study that showed a non-significant weak correlation (r=0.191, p=0.294) between cumulative change in motor skills and children’s birth position. It was concluded that the change in cumulative mean scores in motor skills performance was not influenced by the children’s birth position and manner their disabilities were discovered.
CHAPTER SIX: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 Summary of Findings

The study was based on a theoretical model of parental involvement that explored the benefits of involving parents in an organized physical activity programme for children with ID. During intervention, children with intellectual disability were subjected to organized physical activities. In the experimental group, accompanying adults (parents) performed the activities jointly with their children with ID while in the control group, parents did not join their children in the coach-led physical activities. The study assessed physical and psychosocial benefits of parents’ participation in the intervention programme and compared the pre-test and post-test results of the children’s motor skills and parents’ ratings. There were significant differences in motor skills performance among children with ID as well as a significant increase in abilities to deal with psychosocial issues among parents of children with ID in Nairobi County.

The findings revealed that there were more male children with ID who participated in the organized PA both in the control (85.7%) and (55.6%) in the experimental group. In terms of children’s birth position, majority were first borns both in the control (64.3%) and (56.6%) in the experimental group. The study’s findings also indicate that there were more female parents who accompanied their children with ID to the organized PA both in the control (71.4%) and experimental groups (100%) compared to male parents (28.6%). However, majority of parents in both groups were married (92.9%; 50%) and most of them were between 30 to 49 years of age. It also emerged that most parents in the control group had college and university education (57.1%; 42.9%) and they were in formal
employment while majority of parents in the experimental group had primary education (77.7%) and provided casual labour.

Participation in organized PA was found to have significantly improved ($p < 0.001$) motor skill abilities, performance of activities of daily living and social skills among children with ID. Parents’ involvement in their children’s organized PA programme was found to be significantly associated ($p < 0.001$) with parents’ gender, occupations and education levels. Similarly, parents’ occupations and educational levels were highly correlated ($p < 0.05$) with their abilities to deal with psychosocial issues associated with parenting a child with ID after participating in the organized physical activity programme.

A summary of the findings on the study variables is presented below

### 6.2 Frequency of Attendance of the Organized Physical Activity Programme for Children with ID

Parents’ gender, occupations and levels of education were associated with frequency of attendance of the organized PA programme for their children with ID. Mothers had direct relationship to frequency of attendance in the PA compared to inverse correlation among fathers meaning that most of adults who accompanied children with ID to the physical activity programme were mothers. Parents who participated in the organized physical activity programme were either in formal or non-formal employment. The inverse relationship between mothers’ occupations and frequency of attendance to their children’s PA programme showed that the mothers opted to be more involved in their
children’s activities every Saturday the programme was conducted. The fathers’ occupations’ were associated to their low frequency in accompanying their children with ID to the organized PA programme.

Parents’ education levels showed an inverse relationship between mothers’ frequency to the organized PA programme. However, parents who had attained only primary level education in the experimental group were more frequent in the organized physical activity of their children with ID than those with college and university training. The age category and marital status had no significant influence to parents’ frequency of attendance to their children’s PA programme. It was concluded that some of the parents’ attributes (gender, occupation and education) influenced levels of parental involvement.

6.3 Ability to Deal with Psychosocial Issues

Parents’ ability to deal with psychosocial issues significantly improved after the intervention. Sampled t-test showed that parents in the experimental group had higher means difference which was attributed to parents’ participating in the organized physical activities jointly with their children with ID. The direct relationship between parents’ occupation and abilities to deal with psychosocial issues was an indicator that parents who were in formal employment were more likely to deal with stress associated with parenting children with ID than those in casual labour. Similarly, parents’ education level had a direct relationship showing educated parents were significantly able to deal with psychosocial issues associated with extra task of caring for children with ID than less educated parents. Parents’ gender, age and marital status were not determiners of abilities
to deal with psychosocial issues inherent with extra demands of parenting children with ID.

6.4 Parents’ Ratings of their Children Motor Abilities

There was a high significant increase in motor ability performance after participating in the organized PA programme both in the experimental and the control group. Although mean differences were high among children with ID in the experimental group than those in the control group, this did not significantly differ in parents’ ratings of their children’s motor abilities. This was an indication that the groups of children with ID were homogeneous and equally benefited from the organized PA programme. However, cumulative mean scores were significantly higher among children with ID in the experimental group than those in the control. This was associated to parents in the experimental group participating in the same activities jointly with their children which opportunities for parents to practice the activities with their children at home. In addition, parents’ consistent involvement and supporting their children with ID to perform the physical activities may have contributed to the variance.

6.5 Parents’ Self - Ratings on Gains of their Involvement

Parents rated their levels of involvement and there was a significant increase in parents’ levels of involvement. In comparison of the magnitude of mean score difference, parents in the experimental grouped significantly improved more than those in the control group. The disparity was contributed to direct involvement of parents in the experimental group during the PA intervention programme.
6.6 Children Demographic Factors and Motor Skill Performance

Children demographic factors were assessed to establish their relationship with motor skill performance. The male children with ID recorded significantly higher mean scores in cumulative motor abilities than female children with ID who participated in the study. However, there was no significant relationship between child’s birth position and manner in which the child’s disability was discovered and cumulative mean change in motor skill performance. The children in the study were within similar age group (4 to 6 years) and they were subjected to the same physical activities programme. However, during participation male children with ID were more actively involved than their female counterparts, hence explaining the difference in the scores of motor skill performance.

6.7 Conclusions

The study concludes that parental involvement in organized physical activities programme of children with ID resulted to physical and psychosocial benefits to both children and parents participants. The process serves as an early intervention strategy in fundamental motor skills for the children with intellectual disability and an approach to address emotional distress among parents. The findings in this study agree with results from other studies on parental involvement in physical activities of children with disabilities albeit concentration on changes in motor skills in the children compared to parents’ gains. The complex difficulties that prevent children with ID from accessing child play also causes emotional stress and social isolation among their parents. Therefore, the impact of direct parental involvement in organized physical activities of children with ID cannot be underestimated. Involving parents in organized PA creates
opportunities for them to share their experience, improve social interaction and attained knowledge in early intervention skills hence, reduced psychological tension. Parents’ demographic characteristics are predictors of levels of involvement and the outcome determines abilities to deal with psycho-social issues associated with parenting children with intellectual disabilities. Consistent involvement of parents in physical activities of their children with intellectual disability instills satisfactory adjustment in extra parenting demands. This improvement is directly associated with the extent to which parents are actively involved in their children’s activities.

6.8 Recommendations for Policy

It is evident from the current study that children with ID can equally benefit from participating in organized physical activity. In addition, parental involvements in children’s physical activities boost parents’ psychosocial well-being. Therefore, the study recommends that organizations such as Special Olympics Kenya, National Council for Persons with Disability and other stakeholders to initiate more programmes on early intervention using physical activity at the community level.

Parenting a child with intellectual disability exposes care givers to extra burdens mostly associated to psychological stress. Based on findings from this study, parents reported improved psychosocial well-being after participating in PA programme of their children with ID. It is recommended that professionals in disability matters involve parents in implementing early intervention programmes that promotes increased level of parental involvement and opportunities to share experiences.
Consistent participation in physical activities is associated with high levels of improvement in motor skills performance and mastery of specific sports skills. Gains in motor skill performance among children with ID depend on their parents’ frequency of attendance to intervention programmes that use physical activity. Therefore, it is recommended that experts in physical activity to rigorously involve parents as co-trainers as a fundamental ingredient to continually engage their children more frequently.

6.9 Recommendations for Practice

Children with intellectual disability display complex difficulties that combine with low IQ and delayed motor development which prevents them from accessing child play and interaction with peer early. This exposes children with disabilities to over dependence in functional capacities. In addition, parents of children with ID silently bear with the extra caregiving demands that include attending to the child’s basic daily routines, self-care and behavioural problems. Parents of these children are exposed to emotional and psychological distress as well as social isolation. Based on the findings from the study, Children with ID who frequently participate in organized physical activity have reported substantial improvement in motor, social and personal care skills. Therefore, it is important for parents to set some time to organize play and physical activities for children with ID within home environment. It is recommended that parents to seek more information in adapted physical activities as intervention strategies to improve functional capacities for children with intellectual disability.
Findings from the current study showed higher improvement in motor skills abilities among children whose parents were jointly involved in the activities. Most of the children observed their parents perform the activities and easily took their turns in performing the same activities. It is therefore, recommended that parents to consistently volunteer and jointly participate in physical activities and sports along with their children with intellectual disability. This provides opportunities for parents to enhance their skills in PA and purpose to engage their children in similar intervention programmes more often.

From the study findings, parents’ reported improved abilities to deal with psychological issues and social interactions since the organized physical activity offered them opportunities to observe the abilities of their children with ID as well as share experiences. Therefore, it is recommended that parents to accompany their children with ID to available community based Special Olympics programmes more frequently increased chances to learn from other parents.

6.9 Relevant Recommendations for Further Studies

Most studies have successfully documented benefits children attain when parents are involved in their diverse activities both in and out of school. However, further studies can address parents’ gains attributable to their continued involvement that may include:

1) The study concentrated on influence of parents’ demographic characteristics and their involvement in their children’s’ activities, there is need to investigate other
variables (number of children, social economic status and residential areas) that affect levels of involvement and psycho-social well-being.

2) Based on findings of this study, male parents who participated in physical activities programme for their children with ID was quite low, therefore there is need to investigate this phenomenon.

3) Due to the small sample size of 32 parents and 32 children with intellectual disability in the study, results are not necessarily generalizable. However, a further study on a wide population is recommended.

4) Studies to focus on the accessibility of intervention programmes using physical activity for children with ID and their parents at community level in Kenya.

5) The current study focused on motor abilities gains among children with ID who participated in the three-month organized physical activity programme. Further studies to investigate other aspects such as physical fitness changes and specific levels of functional capacities after longer periods of similar intervention programmes.
REFERENCES


APPENDIX A: Research Authorization Letter from Kenya University

Graduate School

Kenya 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

Date: 24th May, 2014

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

Dear Sir/Madam,

I write to introduce Ms. Wairimu who is a Postgraduate Student of this University. She is registered for Ph.D. Degree programme in the Department of Physical & Health Education in the School Applied Human Sciences.

Ms. Wairimu intends to conduct research for a proposal entitled, “Physical and Psycho-Social Benefits of Parental Involvement in Organized Physical Activities for Children with Intellectual Disabilities in Nairobi County, Kenya”.

Any assistance given will be highly appreciated.

Yours faithfully,

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

JK/cao
APPENDIX B: Ethics Review Approval Letter for the Study from

Kenyatta University Ethics and Review Committee

[Image of the letter]

1. IDENTIFICATION OF PROTOCOL

The application before the committee is with a research topic “Physical and psycho-social benefits of parents involvement in organized physical activities for children with intellectual disabilities in Nairobi County, Kenya” received on 13th June, 2014.

2. APPLICANT

Mwangi Jane Waitimu, Department of Physical & Health Education.

3. STUDY SITE

Kibera and Embakasi, Kenya.

4. DECISION

The committee has considered the research protocol in accordance with the Kenyatta University Research Policy (section 7.2.1.3) and the Kenyatta University Ethics Review Committee Guidelines AND APPROVED that the research may proceed for a period of ONE year from 5th September, 2014.

5. ADVICE/CONDITIONS

i. Progress reports are submitted to the KU-ERC every six months and a full report is submitted at the end of the study.

ii. Serious and unexpected adverse events related to the conduct of the study are reported to this board immediately they occur.

iii. Notify the Kenyatta University Ethics Committee of any amendments to the protocol.

iv. Submit an electronic copy of the protocol to KUERC.

When replying, kindly quote the application number above.

If you accept the decision reached and advice and conditions given please sign in the space provided below and return to KU-ERC a copy of the letter.

[Signature]

PROF. NICHOLAS K. GIKONYO
CHAIRMAN ETHICS REVIEW COMMITTEE

[Signature]

Dated this day of...SEP... 2014.

cc. Vice-Chancellor
Director: Institute for Research Science and Technology
APPENDIX C: Research Authorization Letter for the Study from National Council for Science and Technology

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471, 2241349, 310371, 2219420
Fax: +254-20-318245, 318249
Email: secretary@nacost.go.ke
Website: www.nacost.go.ke
When replying please quote

Ref: No.

NACOSTI/P/14/2920/2978

Jane Wairimu Mwangi
Kenyatta University
P.O. Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “Physical and psycho-social benefits of parental involvement in organized physical activities for children with intellectual disabilities in Nairobi County, Kenya,” I am pleased to inform you that you have been authorized to undertake research in Nairobi County for a period ending 31st December, 2015.

You are advised to report to the County Commissioner and the County Director of Education, Nairobi County 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. S. K. LANGAT, OGW
FOR: SECRETARY/CEO

Copy to:

The County Commissioner
The County Director of Education
Nairobi County.
APPENDIX D: Research Permit for the Study from National Council for Science and Technology

THIS IS TO CERTIFY THAT:
MISS. JANE WAIRIMU MWANGI
of KENYATTA UNIVERSITY, 0-100
Nairobi, has been permitted to conduct research in Nairobi County

on the topic: PHYSICAL AND PSYCHO-SOCIAL BENEFITS OF PARENTAL INVOLVEMENT IN ORGANIZED PHYSICAL ACTIVITIES FOR CHILDREN WITH INTELLECTUAL DISABILITIES IN NAIROBI COUNTY, KENYA.

for the period ending: 31st December, 2015

Applicant’s Signature

National Commission for Science, Technology & Innovation

Secretary

Permit No.: NACOSTIP/14/29/20/2978
Date Of Issue: 32th August, 2014
Fee Recieved: Ksh 2,000
APPENDIX E: INFORMED CONSENT FORM

Date………………

Study Title: Physical and Psycho-Social Benefits of Parental Involvement in Organized Physical Activities for Children with Intellectual Disabilities in Nairobi County, Kenya

Researcher: Mwangi Jane Wairimu

Study location: Little Rock Early Childhood Development Education (ECDE) centre, Kibera and Christ the King ECDE, Embakasi both in Nairobi County, Kenya

Introduction: My name is Jane Mwangi, a PhD student at Kenyatta University. I will be evaluating physical and psychosocial benefits of parental involvement in an organized physical activity and sports for young children with intellectual disabilities of age 4-6 years for the next three months. The programme includes fun activities such as children play activities, songs, jumping, and throwing, catching, kicking and striking balls. This consent form is presented to you as part of the request that you and your child participate in the current study. It is important that you read it in order to understand why the study is being carried out, the benefits to you and athletes and the risks there may be as you participate. The evaluation will involve the observation and assessment of the motor skills and activity level of your child. We will also ask you (parent) questions related to ability levels of your child and your interventions measures that will help us gather some personal information related to your involvement in your child’s physical activity, your child’s motor ability level and activities of daily living as well as your personal rating in psychological and social skills as a parent of a child with intellectual disability.
**Participant selection:** I visited the Inclusive Early Childhood Development and Education centre where our child attends school. Your child was recruited to take part in a research study. As a parent of this child between the ages of 4-6 years, you are also required to take part in this study.

You are free to decide if you will be in this study or not.

**Study procedures:** This research will involve you the parent by answering a few questions provided in the form of a questionnaire. A research assistant will help to clarify any questions that you may not understand before you begin to answer the questionnaire.

Your child will be assessed the level of motor ability using fun activities that will include songs, jumping, and throwing, catching, kicking and striking balls during the start of the study. You and your child will be expected to participate in an organized physical activity programme every Saturday for a period of three months. A repeat of the section two of the questionnaire and a second assessment of your child’s motor ability shall be done at the end of the programme.

**Risks:** By participating in this research, there are no anticipated discomforts or risks. The organized physical programme that entails fun activities for young children will be conducted by trained coaches who can administer first aid in case of injuries and a first aid kit shall be in place at all times.

**Benefits or reimbursements:** You will not be given any money or gifts for participating in this research. Your participation is entirely voluntary.

**Reward:** A certificate of participation shall be given to you at the end of the programme.

**Confidentiality:** The information that we collect in this research will be kept confidential. Only the consent form will have your name and personal information. A personal code
will be used to identify the questionnaire that you fill. Information about you that will be collected will be kept away and no one but the researchers will be able to see it. Any information about you will have a number on it instead of your name. Only the researchers will know what your number is and the information shall be used for academic purpose only.

**If you have a problem or have other questions**

If you have a problem that you think might be related to taking part in this research, or any questions about the research, please contact: Jane Mwangi on 0721354297 and Kenyatta University Ethical and Review Committee on email: kurec@ku.ac.ke.

**STATEMENT OF CONSENT AND SIGNATURES**

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have been asked have been answered to my satisfaction. I consent voluntarily on behalf of my child and myself to be participants in this study.

Participants names Parent __________________ Child’s __________________

Signature of Parent __________________

Date ___________________________  Thumb print
APPENDIX F: Questionnaire for Parents

SECTION A: Parents Personal Information.

I am going to ask you questions about your personal life. Respond to them to the best of your knowledge.

1. Gender

A. Male [ ]
B. Female [ ]

2. What is your relationship with the child with intellectual disability?

A. Mother [ ]
B. Father [ ]
C. Sister [ ]
D. Brother [ ]
E. Grandmother [ ]
F. Aunt [ ]
G. Uncle [ ]
H. Care-giver [ ]

3. What is your age? Tick from the age brackets given

A. Below 25 years [ ]
B. 26-30 years [ ]
C. 30-35 years [ ]
D. 36-39 years [ ]
E. 40-49 years [ ]
F. 50 years and above [ ]
4. What is the birth position of the child?
   A. First born [ ]
   B. Middle born [ ]
   C. Last born [ ]

5. What is your occupation?
   A. Student [ ]
   B. Casual worker [ ]
   C. Farmer [ ]
   D. Business person [ ]
   F. Formal Employment [ ]

6. What is your highest level of education?
   A. Never went to school [ ]
   B. Primary [ ]
   C. Secondary [ ]
   D. College training [ ]
   E. University [ ]

7. What is your marital status?
   A. Single [ ]
   B. Married [ ]
   C. Separated [ ]
   D. Windowed [ ]

8. How did you discover that your child has a disability?
   A. At birth [ ]
B. Observed delayed growth [ ]
C. From a medical practitioner [ ]
D. Child’s teacher [ ]
E. Others specify………………………………..
SECTION B: How can you rate your child in performing the following skills?

A) Locomotion skills

1. Standing     [ ] Very good       [ ] Good       [ ] Average       [ ] Poor       [ ] Very poor
2. Walking      [ ] Very good       [ ] Good       [ ] Average       [ ] Poor       [ ] Very poor
3. Running      [ ] Very good       [ ] Good       [ ] Average       [ ] Poor       [ ] Very poor
4. Jumping      [ ] Very good       [ ] Good       [ ] Average       [ ] Poor       [ ] Very poor
5. Balance      [ ] Very good       [ ] Good       [ ] Average       [ ] Poor       [ ] Very poor

B) Object manipulation skills

1. Catching     [ ] Very good       [ ] Good       [ ] Average       [ ] Poor       [ ] Very poor
2. Throwing     [ ] Very good       [ ] Good       [ ] Average       [ ] Poor       [ ] Very poor
3. Kicking      [ ] Very good       [ ] Good       [ ] Average       [ ] Poor       [ ] Very poor

C) Activities of Daily Living skills

1. Self–feeding [ ] Very good       [ ] Good       [ ] Average       [ ] Poor       [ ] Very poor
2. Toileting    [ ] Very good       [ ] Good       [ ] Average       [ ] Poor       [ ] Very poor
3. Basic washing[ ] Very good       [ ] Good       [ ] Average       [ ] Poor       [ ] Very poor
4. Dressing     [ ] Very good       [ ] Good       [ ] Average       [ ] Poor       [ ] Very poor

D) Social skills

1. Communicating[ ] Very good       [ ] Good       [ ] Average       [ ] Poor       [ ] Very poor
2. Playing with peers [ ] Very good       [ ] Good       [ ] Average       [ ] Poor       [ ] Very poor
3. Associate with children[ ] Very good [ ] Good       [ ] Average       [ ] Poor       [ ] Very poor
4. Relate with siblings[ ] Very good [ ] Good       [ ] Average       [ ] Poor       [ ] Very poor
E) As a parent how do rate your level of involvement in your child’s activity

1. Identifying physical activities [ ] Very good [ ] Good [ ] Average [ ] Poor [ ] Very poor
2. Role model in play activities [ ] Very good [ ] Good [ ] Average [ ] Poor [ ] Very poor
3. Coach as a volunteer [ ] Very good [ ] Good [ ] Average [ ] Poor [ ] Very poor
4. Assist in communication [ ] Very good [ ] Good [ ] Average [ ] Poor [ ] Very poor
5. Training PA for children [ ] Very good [ ] Good [ ] Average [ ] Poor [ ] Very poor

F). As a parent how do you rate your ability to deal with the following psychological issues

1. Stress of raising a ID child [ ] Very good [ ] Good [ ] Average [ ] Poor [ ] Very poor
2. Negative emotions [ ] Very good [ ] Good [ ] Average [ ] Poor [ ] Very poor
3. Accepting an ID child [ ] Very good [ ] Good [ ] Average [ ] Poor [ ] Very poor
4. Stigmatization [ ] Very good [ ] Good [ ] Average [ ] Poor [ ] Very poor
5. Marital relationships [ ] Very good [ ] Good [ ] Average [ ] Poor [ ] Very poor

G). As a parent how do you rate your ability to deal with the following social issues

1. Openly discussing your child [ ] Very good [ ] Good [ ] Average [ ] Poor [ ] Very poor
2. Joining emotional support groups [ ] Very good [ ] Good [ ] Average [ ] Poor [ ] Very poor
3. Visiting social place with child [ ] Very good [ ] Good [ ] Average [ ] Poor [ ] Very poor
4. Letting child interact with peers [ ] Very good [ ] Good [ ] Average [ ] Poor [ ] Very poor
5. Be in family functions with child [ ] Very good [ ] Good [ ] Average [ ] Poor [ ] Very poor
FOMU YA KUKUBALI KUSHIRIKI KWA HIARI.

Tarehe………………

Mada ya utafiti: Manufaa ya kimwili na nafsi katika jamii yanayotokana na hali ya kuwashirikisha wazazi katika mazoezi ya viungo yanayoandaliwa kwa ajili ya watoto wenye ulemavu wa kiakili katika kaunti ya Nairobi, Kenya.

Mtafiti: Mwangi Jane Wairimu.

Eneo la utafiti: Little Rock Early Childhood Development Education (ECDE) centre, Kibera na Christ the King ECDE, Embakasi, vyote katika kaunti ya Nairobi, Kenya

Utangulizi:

Jina langu ni Jane Mwangi, mwanafunzi wa shahada ya uzamili katika chuo kikuu cha Kenyatta. Nitakuwa nikitathmini manufaa ya kimwili na nafsi katika jamii yanayotokana na hali ya kuwashirikisha wazazi katika mazoezi ya viungo yanayoandaliwa kwa ajili ya watoto wa umri wa kati ya miaka 4-6 wenye ulemavu wa kiakili kwa miezi mitatu ijayo. Mpango huu unahusu shughuli za kujivinjari kama vile michezo ya watoto, nyimbo, kuruka na kutupa, kushika, kupiga na kugonga mipira. Fomu ya kukubali kushiriki kwa hiari imewasilishwa kwako ili kukuomba wewe na kukuomba katika utafiti huu. Ni vema kuisoma fomu hii ili ulewe ni kwa nini tu tunakumbuka utafiti huu, manufaa yake kwako na kwa wakimbiaji na hatari zozote zinazoweza kutokea wakati wa kushiriki kwako. Tathmini hii itahusisha utazamaji na ukadiriwa na stadi za mwendo na kiwango cha utendaji wa mtoto wako. Tutakuuliza wewe(mzazi) maswali yanayohusiana na kiwango cha uwezo wa mtoto wako na mikakati yako ya kumsaidia ambayo itatusaidia sisi kukusanya habari za kibinafsi zinazohusu kushirikishwa kwako katika mazoezi ya
viungo ya mtoto wako, kiwango cha uwezo wa mwendo na shughulizi za maisha ya kila siku pamoja na upimaji wako wa stadi ya kisaikolojia na kijamii kama mzazi wa mtoto mwenye ulemavu wa kiakilili.

**Uteuzi wa washiriki:** Nilitembelea kituo cha Inclusive Early Childhood Development and Education centreambapo mtotowako husoma. Mtoto wako aliteuliwa kushiriki katika utafiti huu. Kama mzaziwa mtoto huyu wa umri wa kati ya miaka 4-6, unahitajika pia kushiriki katika utafiti huu.Una hiari ya kukubali au kukataa kushiriki katika utafiti huu.

**Utaratibu wa utafiti:** Utafiti huu utakuhusisha wewe mzazi katika kujibu maswali machache yaliyo kwenyehojaji. Mtafiti msaidizi atakusaidia kufanua zaidi maswali ambayo huenda usiyaelewe kablahaujaanza kuyajibu maswali hayo. Tutakadiria kiwango cha uwezo wa mwendo cha mottowako kwa kutumia shughuli hizo za kujivinjari kama vile nyimbo, kuruka na kurusha, kushika, kupiga au kugonga mipira wakati tunapoanza utafiti huu. Wewe na mtoto wako mtahitajika kushiriki katika shughuli ya mazoezi ya viungo vya mwili kila Jumamosi kwa kipindi cha miezi mitatu. Marudio ya sehemu ya pili ya hojaji na ukadiriaji wa uwezo wa mwendo wa mtoto wako kwa mara ya pili utafanywa mwishoni mwa shughuli hii.

**Hatari.** Hamna hatari zozote za kiafya zinazotarajiwa kutowana na kushiriki kwako katika utafiti huu. Shughuli iliyoandaliwa ya mazoezi ya viungo ambayo inahusisha watoto kujivinjari itatekelezwa na wakufunzi waliahitimu ambao watatoa huduma ya kwanza ikiwa kutakuwa na tatizo lolote la kuumia na hivyo basi kisanduku cha kutoa huduma ya kwanza kitakuwepo kwa wakati wote huo.

**Faida au malipo.** Hautapewa pesa au zawadi zozote kwa kushiriki katika utafiti huu.
Kushiriki kwako ni kwa hiari.

**Tuzo.** Utatuzwa cheti cha kushiriki baada ya shughuli hii.


**Ikiwa una tatizo au maswali mengine.** Ikiwa una swali ambalo unadhani kuwa linahusiana na kushiriki kwako katika utafiti huu au maswalimengine kukuhusu utafiti huu, tafadhali wasiliana na: Jane Mwangi kwa nambari **0721354297** na Kenyatta University Ethical and Review Committee kwa barua pepe: kurec@ku.ac.ke

**Ungamo la kushiriki kwa hiari na sahihi.** Nimeisoma au nimesomewa taarifa hii. Nimekuwa na fursa ya kuuliza maswali kuuhusu na kila swali niliouliza limejibiwa na nimeridhika. Ninakubali kwa hiari kushiriki katika utafiti huu.

Jina la mshiriki ____________________________ Alama ya kidole.

Sahihi ya mshiriki__________________________

Tarehe____________________________
HOJAJI YA WAZAZI

SEHEMU YA A: Habari za kibinafsi za mzazi

Nitakuuliza maswali yanayohusu maisha yako ya kibinafsi. Yajibu ifaavyo kadiri ya uwezo wako.

1. Jinsia
   A. Mume [ ] B. Mke [ ]

2. Unahusiana vipi na mtoto huyu mwenye ulemavu wa kiakili?
   A. Mama [ ]
   B. Baba [ ]
   C. Dada [ ]
   D. Kaka [ ]
   E. Nyanya [ ]
   F. Shangazi [ ]
   G. Mjomaba [ ]
   H. Mlezi [ ]

   A. Chini ya miaka 25 [ ]
   B. Kati ya miaka 26-30 [ ]
   C. Kati ya miaka 30-35 [ ]
   D. Kati ya miaka 36-39 [ ]
   E. Kati ya miaka 40-49 [ ]
   F. Miaka 50 au zaidi [ ]

4. Mtoto wako ni mzaliwa wa ngapi?
A. Mzaliwa wa kwanza.  
B. Mzaliwa wa katikati  
C. Mzaliwa wa mwisho  

5. Unafanya kazi gani?
A. Mwanafunzi  
B. Mfanyakazi wa kibarua  
C. Mkulima  
D. Mfanya biashara  
F. Kazi ya mshahara  

6. Umesoma hadi kiwango gani?
A. Sijasoma  
B. Shule ya msingi  
C. Shule ya sekondari  
D. Chuo  
E. Chuo Kikuu Kikuu  

7. Hali yao ya ndoa ni ipi?
A. Sijaoa/sijaolewa  
B. Nimeoa/ nimeolewa  
C. Tumetengana  
D. Mjane  

8 Ulijua vipi kuwa mtoto wako ana ulemavu?
A. Wakati wa kujifungua  
B. Niliona kuchelewa kwa ukuaji wake
C. Kutoka kwa daktari

D. Kutoka kwa mwalimu wa mtoto

E. Namna nyingineyo (Eleza)………………………………….

SEHEMU YA B: Utapima vipi uwezo wa utendaji wa mtoto wako katika stadi zifuatazo?

A). Stadi za mwendo

1. Kusimama   [ ] Vizuri sana   [ ] Vizuri   [ ] Kadiri   [ ] Vibaya   [ ] Vibaya sana
2. Kutembea   [ ] Vizuri sana   [ ] Vizuri   [ ] Kadiri   [ ] Vibaya   [ ] Vibaya sana
5. Kusimama bila kuanguka[ ] Vizuri sana [ ] Vizuri [ ] Kadiri [ ] Vibaya [ ] Vibaya sana

B). Ustadi wa kuchezea chombo.

1. Kushika   [ ] Vizuri sana   [ ] Vizuri   [ ] Kadiri   [ ] Vibaya   [ ] Vibaya sana
2. Kutupa     [ ] Vizuri sana   [ ] Vizuri   [ ] Kadiri   [ ] Vibaya   [ ] Vibaya sana

C). Shughuli za stadi ya maisha ya kila siku

2. Kuenda cho[ ] Vizuri sana   [ ] Vizuri   [ ] Kadiri   [ ] Vibaya   [ ] Vibaya sana
3. Usafi wa kimsingi [ ] Vizuri sana [ ] Vizuri [ ] Kadiri [ ] Vibaya [ ] Vibaya sana
D) Stadi za kijamii

1. Kuwasi 
   [ ] Vizuri sana [ ] Vizuri [ ] Kadiri [ ] Vibaya [ ] Vibaya sana

2. Kucheza na wenzake [ ] Vizuri sana [ ] Vizuri [ ] Kadiri [ ] Vibaya [ ] Vibaya sana


E) Kama mzazi, utapima vipi kiwango chako cha juhudi za kushiriki katika shughuli hizi za mtoto wako?

1. Kutambua shughuli za mazoezi viungo [ ] Vizuri sana [ ] Vizuri [ ] Kadiri [ ] Vibaya
   [ ] Vibaya sana

2. Kielezo katika michezo yake [ ] Vizuri sana [ ] Vizuri [ ] Kadiri [ ] Vibaya
   [ ] Vibaya sana

   [ ] Vibaya sana

4. Kusaidia katika mawasiliano[ ] Vizuri sana [ ] Vizuri [ ] Kadiri [ ] Vibaya
   [ ] Vibaya sana

5. Kutoa mafunzo ili kukabiliana na kwa kutumia [ ] Vizuri sana [ ] Vizuri [ ] Kadiri
   [ ] Vibaya [ ] Vibaya sana

F). Kama mzazi, utapima vipi uwezo wako wa kukabiliana na masuala haya ya kisaikikolojia.

1. Matatizo ya kumlea mtoto mwenye ulemavu wa kiaxili [ ] Vizuri sana [ ] Viz [ ]
   Kadiri
2. Hisi mbovu [ ] Vizuri sana [ ] Vizuri [ ] Kadiri [ ] Vibaya [ ] Vibaya sana
4. Unyanyapaa/kushutumiwa [ ] Vizuri sana [ ] Vizuri [ ] Kadiri [ ] Vibaya [ ] Vibaya sana
5. Uhusiano katika ndoa [ ] Vizuri sana [ ] Vizuri [ ] Kadiri [ ] Vibaya [ ] Vibaya sana

G). Kama mzazi, utapima vipi uwezo wako wa kukabiliana na masuala haya ya kijamii.
1. Kumzungumzia mtoto wako mwenye ulemavu wa kia kili waziwazi [ ] Vizuri sana [ ] Vizuri [ ] Kadiri [ ] Vibaya [ ] Vibaya sana
2. Kuijunga na makundi ya kufari jiana [ ] Vizuri sana [ ] Vizuri [ ] Kadiri [ ] Vibaya [ ] Vibaya sana
# APPENDIX G: FREQUENCY ATTENDANCE CHECKLIST

<table>
<thead>
<tr>
<th>Name of site</th>
<th>Participants Code</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Child attendance (P-present &amp; A-absent)</th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Adult accompanying</td>
<td>Age</td>
<td>Level of education</td>
<td>Occupation</td>
<td>Marital Status</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
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<td>Father</td>
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<td>Caregiver</td>
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<td>Neighbour</td>
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</tbody>
</table>
APPENDIX H: TEST OF GROSS MOTOR DEVELOPMENT
(TGMD) – TOOL

Name/Code…………………………..     Site name…………
Male [ ] Female [ ]                                     Class Level………
Date of Testing………………       Date of birth……………….       Actual Age………..
Testers Name……………….     Date of testing………

<table>
<thead>
<tr>
<th>Subset scores</th>
<th>Skill performance</th>
<th>Raw Score</th>
<th>Standard score(Max 20) in non-ID children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locomotor Skills</td>
<td>Run</td>
<td>------/4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gallop</td>
<td>........../4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hop</td>
<td>........../5</td>
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<tr>
<td></td>
<td>Leap</td>
<td>........../3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Horizontal Jump</td>
<td>........../4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Slide</td>
<td>........../4</td>
<td></td>
</tr>
<tr>
<td>Total score</td>
<td></td>
<td>....../24</td>
<td></td>
</tr>
<tr>
<td>Object manipulation skills</td>
<td>Striking a ball</td>
<td>........../4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dribble</td>
<td>........../4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Catch</td>
<td>........../5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kick</td>
<td>........../3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overhead throw</td>
<td>........../4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Underhand roll</td>
<td>........../4</td>
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</tr>
<tr>
<td>Total score</td>
<td></td>
<td>....../24</td>
<td></td>
</tr>
<tr>
<td>Locomotor skills</td>
<td>Pre-Test</td>
<td>Post-Test</td>
<td></td>
</tr>
<tr>
<td>---------------------------</td>
<td>----------</td>
<td>-----------</td>
<td></td>
</tr>
<tr>
<td>Skill</td>
<td>Procedure /directions</td>
<td>Performance Criteria ( 1 is the score for correct action and 0 for no action)</td>
<td>T1</td>
</tr>
<tr>
<td>Run</td>
<td>Place two cones 50ft apart.</td>
<td>1. Arms move in opposition to legs, elbows bent</td>
<td></td>
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<tr>
<td></td>
<td>Make sure there is at least 8-10ft of space beyond the second cone for a stopping distance. Tell the child to run as fast as s/he can from one cone to the other when you say ‘Go’. (Two trials).</td>
<td>2. Brief period where both feet are off the ground</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Equip: Tape measure, masking tape, cones</td>
<td>3. Narrow foot placement landing on heel or toe (i.e. not flat footed)</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>4. Non-support leg bent approximately 90 degree (i.e. close to buttocks)</td>
<td></td>
</tr>
<tr>
<td>Gallop</td>
<td>Mark off a distance of 25ft with two cones or tape. Tell the child to gallop from one cone to the other. Repeat a second trial by galloping back to the original cone. (Two trials).</td>
<td>1. Arms bent and lifted to level at takeoff</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Equip: Tape measure, masking tape, cones</td>
<td>2. A step forward with the lead foot followed by a step with the trailing foot to a position adjacent to or behind the lead foot</td>
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<tr>
<td></td>
<td></td>
<td>3. Brief period when both feet are off the floor</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>4. Maintains a rhythmic pattern for four consecutive gallops</td>
<td></td>
</tr>
</tbody>
</table>

**Skill Score**
<table>
<thead>
<tr>
<th>Skill</th>
<th>Pre-Test</th>
<th>Post-Test</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hop</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A minimum of 15ft of clear space. Tell the child to hop three times on his or her preferred foot and then three times on the other foot. (Two trials)</td>
<td>1. Nonsupport leg swings forward in pendular fashion to produce force</td>
<td></td>
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<tr>
<td></td>
<td>2. Foot of nonsupport leg remains behind body</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Arms flexed and swing forward to produce force</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Takes off and lands three consecutive times on preferred foot</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Takes off and lands three consecutive times on non-preferred foot</td>
<td></td>
</tr>
<tr>
<td><strong>Skill Score</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Locomotor skills</strong></th>
<th>Pre-Test</th>
<th>Post-Test</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Leap</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A minimum of 20 feet of clear space, place a beanbag on the floor. Attach a piece of tape on the floor so it is parallel to and 10ft away from beanbag. Have the child stand on the tape and run up and leap over the beanbag. Repeat a second trial</td>
<td>1. Take off on one foot and land on the opposite foot</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. A period where both feet are off the ground longer than running</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Forward reach with the arm opposite the lead foot</td>
<td></td>
</tr>
<tr>
<td><strong>Skill Score</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<p>| <strong>Horizontal Jump</strong>  |          |           |
| A minimum of 10ft of clear and tape. Mark off a starting line on the floor. Have the child start behind | 1. Preparatory movement include flexion of both knees with arms extended behind body |           |</p>
<table>
<thead>
<tr>
<th>Skill</th>
<th>Directions and materials</th>
<th>Performance criteria</th>
<th>Pre-Test</th>
<th>Post-Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>the line. Tell the child to jump as far as s/he can. Repeat a second trial</td>
<td>2. Arms extend forcefully forward and upward reaching full extension above the head</td>
<td>3. Take off and land on both feet simultaneously</td>
<td>4. Arms are thrust downward during landing</td>
<td></td>
</tr>
<tr>
<td><strong>Skill Score</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slide</td>
<td>A minimum of 25ft of clear space, a straight line, and 2 cones. Place the 25ft apart on top of a line on the floor. Tell the child to slide from one cone to the other and back. Repeat a second trial.</td>
<td>1. Body turned sideways so shoulders are aligned with the line on the floor</td>
<td>2. A step sideways with lead foot followed by a slide of the trailing foot to a point next to the lead foot</td>
<td>3. a minimum of four continuous step-slide cycles to the right</td>
</tr>
<tr>
<td>Locomotor Subtest Raw Score (sum of the 6 skill scores)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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</tr>
</tbody>
</table>

**Objective control Skills**

<table>
<thead>
<tr>
<th>Skill</th>
<th>Pre-Test</th>
<th>Post-Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity</td>
<td>Description</td>
<td>Skill Score</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Striking a stationary ball | A 4-inch lightweight ball, a plastic bat, and a batting tee (cone). Place the ball on the batting tee at the child’s belt level. Tell the child to hit the ball hard. Repeat a second trial | 1. Dominant hand grips bat above non-dominant hand  
2. Non-preferred side of the body faces the imaginary tosser with feet parallel  
3. Hip and shoulder rotation during swing  
4. Transfer body weight to front foot  
5. Bat contacts ball                                                                                                                                                                                                                   |
| Skill score              |                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                       |
| Stationary dribble       | An 8-10 inch playground ball for children ages 3-5, a basketball and a flat surface. Tell the child to dribble the ball four times without moving his/her feet, using one hand, and then stop by catching the ball. Repeat a second trial | 1. Contacts ball with one hand at about belt level  
2. Pushes ball with fingers (not slap)  
3. Ball contacts surface in front of or to the outside of the foot on the preferred side  
4. Maintains control of the ball for four consecutive bounces without having to move the feet to retrieve it                                                                                                                                 |
| Skill Score              |                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                       |
| Catch                    | A 4-inch plastic ball, 15 ft of clear space and tape. Mark off two lines 15 ft apart. The | 1. Preparation phase where hands are in front of the body and elbows are flexed                                                                                                                                                                                                                                                                                                                                 |
child stands on one line and the tosser on the other. Toss the ball underhand directly to the child with a slight arc aiming for his/her chest. Tell the child to catch the ball with both hands. Only count those tosses that are between the child’s shoulder and belt. Repeat a second trial.

<table>
<thead>
<tr>
<th>Skill Score</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Objective control skills</th>
<th>Pre-Test</th>
<th>Post-Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kick</td>
<td>An 8-10 inch plastic, playground or soccer ball, a beanbag, 30 ft of clear space and tape. Mark off one line 30ft away from wall and another line 20 ft from the wall. Place the ball on top of the beanbag on the nearest the wall. Place the on top of the beanbag on top of the line nearest the wall. Tell the child to run up and kick the ball hard</td>
<td>1. Rapid continuous approach to the ball</td>
</tr>
<tr>
<td>Overhead throw</td>
<td>Skill score</td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>A tennis ball, a tape and 20ft of clear space. Tell the child to stand on masking tape 20 ft away from target and throw the ball hard as s/he can to the target. Repeat a second trial</td>
<td>1. Wind up is initiated with downward movement of hand/arm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Rotates the hip and shoulders to a point where the non-throwing hand side faces the target</td>
<td>3. Weight is transferred by stepping with the foot opposite the throwing hand</td>
</tr>
<tr>
<td></td>
<td>4. Follow –through beyond the ball release diagonally across the body toward the non-preferred side</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Underhand or arm Roll</th>
<th>Skill Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A tennis ball/softball, tape, two cones and 25ft of clear space. Place the two cones against a wall so they are 4 ft apart, Attach a piece of the tape on the floor 20ft from the wall. Tell the child to roll the ball hard so that it goes bwn the cones. ( 2 trials)</td>
<td>1. Preferred hand swings down and back, reaching behind the trunk while chest faces cones</td>
</tr>
<tr>
<td></td>
<td>2. Strides forward with foot opposite the preferred hand toward the cones</td>
</tr>
<tr>
<td></td>
<td>3. Bends knees to lower body</td>
</tr>
<tr>
<td></td>
<td>4. Releases ball close to the floor so ball does not bounce more than 4 inches high</td>
</tr>
</tbody>
</table>
APPENDIX I: Organized Physical Activity and Sports

**Programme**

*Source: Special Olympics Young Athletes Activity page 3-19*

<table>
<thead>
<tr>
<th></th>
<th>Directions</th>
<th>Demonstrations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WEEK ONE</strong></td>
<td>Focus group discussion and PRE-TESTING</td>
<td></td>
</tr>
<tr>
<td><strong>WEEK TWO</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scarf game</td>
<td>Encourage the child to follow movement of a scarf with eyes. Encourage the child to try and catch the moving scarf</td>
<td></td>
</tr>
<tr>
<td>Scarf</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sport song</td>
<td>Clap to sing a song / move in circles (allow creativity)</td>
<td></td>
</tr>
<tr>
<td>I spy an object</td>
<td>Call out the name of an object placed somewhere in the play area and then everyone races to the object by walking, running, crawling etc</td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Obstacle course</td>
<td>Use verbal and demonstration to pass through an obstacle. Ask the children to try in turns</td>
<td></td>
</tr>
<tr>
<td>Free play with balls</td>
<td>Encourage free play with the balls and organize a mini game</td>
<td></td>
</tr>
</tbody>
</table>

**WEEK THREE**

<table>
<thead>
<tr>
<th>Inchworm wiggle</th>
<th>Bend forward so that hands and feet are on the ground and encourage the child to move like an inchworm</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bunny hop</strong></td>
<td>Bend forward like squatting and hope like a bunny</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------------------------------------------</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Bridges and tunnels</strong></th>
<th>One child/adult forms a tunnel and another walks under or one forms a bridge and another walks over</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>Mini game</strong></th>
<th>Fun activities competitions</th>
<th>Guided by coach</th>
</tr>
</thead>
</table>

**WEEK FOUR**

<table>
<thead>
<tr>
<th><strong>Follow the leader</strong></th>
<th>In groups and march following the leaders instruction and actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity</td>
<td>Instructions</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>Follow the path</td>
<td>Encourage the child to follow a path marked by numbers</td>
</tr>
<tr>
<td>Side stepping</td>
<td>Encourage the child to sidestep right and left onto a variety of markers</td>
</tr>
<tr>
<td>Run and carry</td>
<td>Encourage a child to run a distance, pick up an object</td>
</tr>
</tbody>
</table>
and back to staring point

| Mini game | As guided by coach |

**WEEK FIVE**

<p>| Running | Encourage the child to run a 20m distance and back in turn |</p>
<table>
<thead>
<tr>
<th>Walking on a balance beam</th>
<th>Place a straight bar and ask the child to walk over maintaining the balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step and jump</td>
<td>Encourage the child to step up onto two boxes and jump down</td>
</tr>
<tr>
<td>Jumping a block</td>
<td>Encourage the child to jump the block</td>
</tr>
<tr>
<td>----------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>Low high jump</td>
<td>Encourage the child to jump over the low height bar</td>
</tr>
<tr>
<td>Mini game</td>
<td><strong>WEEK SIX</strong>---throwing, catching, bounce and rolling a ball</td>
</tr>
<tr>
<td>Activity</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Throwing</td>
<td>Encourage the child to throw a ball furthest one can</td>
</tr>
<tr>
<td>Catching</td>
<td>Partners throw the ball to each other 10 m apart</td>
</tr>
<tr>
<td>Bounce and catch</td>
<td>Encourage the child to bounce and catch the ball</td>
</tr>
<tr>
<td>Rolling the ball</td>
<td>Partners sit 10m apart and roll the ball to each other</td>
</tr>
<tr>
<td>Mini game</td>
<td>WEEK SEVEN  striking and kicking</td>
</tr>
<tr>
<td>-----------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>Basic sports skills: soccer/Tennis</td>
<td></td>
</tr>
<tr>
<td>WEEK EIGHT</td>
<td>dribbling and goalkeeping</td>
</tr>
<tr>
<td>-------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>Basic sport skill:</td>
<td></td>
</tr>
<tr>
<td>goalkeeping</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WEEK NINE, WEEK TEN &amp; WEEK ELEVEN—mini games in the learnt skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combined activities, fun activities and group competitions</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WEEK TWELVE—POST TESTING and Focus group discussions</th>
</tr>
</thead>
</table>
APPENDIX J: Map of Nairobi County