

**EFFECTIVENESS OF PLAY ACTIVITY ON FINE  
MOTOR SKILLS AMONG MENTALLY RETARDED  
CHILDREN AT SELECTED MENTALLY RETARDED  
SCHOOL IN MADURAI**

**M. Sc (NURSING) DEGREE EXAMINATION  
BRANCH - IV COMMUNITY HEALTH NURSING  
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*A Dissertation submitted to*

**THE TAMILNADU Dr. M.G.R. MEDICAL UNIVERSITY  
CHENNAI – 600032**

*In partial fulfillment for the degree of*

**MASTER OF SCIENCE IN NURSING**

**APRIL - 2016**

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## **CERTIFICATE**

This is to certify that this dissertation titled, **“EFFECTIVENESS OF PLAY ACTIVITY ON FINE MOTOR SKILLS AMONG MENTALLY RETARDED CHILDREN AT SELECTED MENTALLY RETARDED SCHOOL IN MADURAI”** is a bonafide work done by **Mrs. SUBRAMANIAN UMARANI**, M.Sc (N) Student, College of Nursing, Madurai Medical College, Madurai - 20, submitted to THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY, CHENNAI in partial fulfillment of the university rules and regulations towards the award of the degree of **MASTER OF SCIENCE IN NURSING, BRANCH IV, COMMUNITY HEALTH NURSING**, Under our guidance and supervision during the academic period from 2014 – 2016.

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## ABSTRACT

**Title:** Effectiveness of play activity on fine motor skills among mentally retarded children at selected mentally retarded school in Madurai. **Objectives :** To assess the level of fine motor skills among mentally retarded children in both experimental and control group; to evaluate the effectiveness of play activity on fine motor skills among mentally retarded children and to associate the fine motor skills among mentally retarded children with their selected socio demographic variables. **Hypotheses:** There is a significant difference between pretest and post test level of fine motor skills among mentally retarded children; There is a significant difference between post test level of fine motor skills in experimental and control group of mentally retarded children, there is significant association between the fine motor skills among mentally retarded children with their selected socio demographic variables. **Conceptual frame work:** Modified wiedenbach's prescriptive theory. **Methodology:** True experimental pretest - posttest control group design was used. Study was conducted in Anbagam Institute for mentally retarded children, Madurai. 30 in each (experimental and Control) group selected by simple random sampling. Madras Developmental Programming System – Behavioural Scale used to assess the fine motor skills. Play activity was given to experimental group, 30 minutes for 15 days. Post test was conducted after 5 weeks. **Results:** A significant improvement in fine motor skills. Association between fine motor skills and type of delivery was significant at  $p < 0.042$ . **Conclusion:** Play activity was effective in improving the fine motor skills among mentally retarded children.



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# *Introduction*

# CHAPTER-I

## INTRODUCTION

**“The genes are the bricks and mortar to build the brain, The environment is the architecture”.** **-Christine Hohman**

A child is precious, beautiful and Source of joy and happiness. A focus for love and care - A subject of dream for its future. Children are members of families, communities, populations and overall society in which shapes the context, experiences and opportunities of their lives. Their well being is inextricably linked to the society in which they live. Mental health is a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community. The values we impart to our children today, consciously and unconsciously, will have a major impact on society tomorrow. Abraham Lincoln said, I don't know who my grandfather was, but I am more concerned to know what his grandson will be.

World Health Organization estimated that globally over 450 million people suffer from mental disorders. Currently mental and behavioural disorders accounts for about 12 percent of the global burden of diseases. This is likely to increase to 15 percent by 2020. Major proportions of mental disorders come from low and middle income countries .In India the highest number of disabled has been reported from the state of Uttar Pradesh nearly 3.6 million. Significant numbers of disabled from the state like Bihar is 1.9 million, West Bengal is 1.8million, Tamil Nadu and Maharashtra about 1.6 million each . Tamil Nadu is the only state, which has a higher number of disabled females than males. Among the states, Arunachal Pradesh has the



highest proportion of disabled males (66.6%) and lowest proportion of female disabled.

In India about 35 percent of total populations are children below 15 years of age, they are not only large in number but, vulnerable to various health problems and considered as special risk group. Children are major consumers of health care. A Child is unique individual. The childhood period is vital because of socialization process by the transmission of attitude, customs, and behavior through the influence of the family and community. Family's cultural and religious belief, educational level and ways of living influence the promotion and maintenance of child health. Children always need special care to survive and thrive. The triad problems poverty, population explosion and environmental stress are great threat towards child health in developing countries. Better nutrition, education and family planning are essential aspects to improve child health. Healthy well nourished children develops better physically, mentally and benefit more from education.

Child development refers to the process in which children go through changes in skill development during predictable time periods, called developmental milestones. Milestones are developmental landmarks the baby shows as it gets older. Based on the expected milestones, it is easy to determine whether the baby is developing normally. These milestones are however very variable. They can vary from child to child. In premature birth (when the baby's age is not corrected for gestational age ) or when there is a medical problem (eg cardiac) the milestones can be delayed. A family history of delayed development can also lead to developmental delay, which may be a normal variation or due to a genetic abnormality in the family.

Developmental delay occurs when children have not reached these milestones by the expected time period. For example, if the normal range for learning to walk is

between 9 and 15 months, and a 20-month-old child has still not begun walking, this would be considered a developmental delay. Developmental delays can occur in all five areas of development or may just happen in one or more of those areas. Additionally, growth in each area of development is related to growth in other areas. So if there is a difficulty in one area (e.g., speech and language), it is likely to influence development in other areas (e.g., social and emotional)

Motor control develops from the top to down and from central to peripheral muscles. Motor proficiency leads to the development of fundamental motor skills. Fundamental motor skills play a significant role in the development of a child's overall motor skill. Motor skills are related to self-efficacy of confidence in physical activity. Decreased competence and confidence may lead children with motor skill difficulties to avoid participating in physical activities. Since the baby birth, parents can monitor the development of fine motor skills. Fine motor developmental milestones are at the age of 4 months child reaches bidextrous (reaching out for objects with both hands), at 6 months reaches unidextrous (reaching out for objects with one hands) and transfer objects, at 9 month reaches immature pincer grasp and probes with forefinger, at 12 months reaches pincer grasp mature, at 15 months imitates scribbling and tower of 2 blocks, at 18 months scribbles and tower of 3 blocks, at 2 years tower of 6 blocks and strokes vertical and circular lines, at age of 3 years tower of 9 blocks and copies circle, at the age of 4 years copies cross and bridge with blocks and at the age of 5 years copies triangle

Early motor theories include the reflex theory and the hierarchical theory. These theories claim that reflexes are the building blocks of complex behaviour and that the nervous system is organized in a hierarchical fashion importantly, they gave rise to the neuro maturational model of motor development. According to this model,

the environment plays a secondary role in the emergence of motor skills. The neuro-maturational model is grounded in a basically medical model in conjunction with neuro-maturational norms that have traditionally been used as a basis for understanding signs of abnormal motor development, it has guided the selection and interpretation of assessment tools.

Fine motor development is primarily involves the development of fine manipulation skills and co ordination with age. First Eye- hand coordination it occurs between 12 to 20 weeks . The child observes his hands very intently, this called Hand regard, if persistence after 20 weeks consider abnormal. Second is hand to mouth coordination, it occurs at 6 months as ability to chew and abates by around 1 year of age. By 15 months the child can pick up a cup and drink without much spilling. By 18 months he can feed himself well using a spoon. Third Advanced Hand skills . Dressing Between 18 to 30 months children eager to learn dressing skills .Undressing being easier is learned before dressing . At 1 year the child starts to pull off mittens caps and socks . At around 18 months he can un zip but, fumbles with buttons . By 2 years can put socks and can undress completely . By 3 years he can dress and undress fully , if helped with buttons. By 5 years he can tie his shoelaces.

Fine motor skill is important to everyone. It does not matter if a person just wants to delay the aging process or wants to get better at a particular sport, hand-eye coordination is a key asset. Improving Fine motor skill can keep the reflexes keen. This helps improve everyday activities like brushing, eating, button and unbutton shirt and to play. Fine motor development is the ability to coordinate hand –eye movement in an orderly and progressive manner.

Play is an essential activity for all children. This is where real learning begins. Because some children with mental retardation are more limited in their physical

ability, it may not be easy for them to engage in spontaneous play, so be ready to give your child any assistance they may need to help them enjoy playing. This is an area where friends and family can be fully involved in the activity of their child's development. Playing has a direct impact on children's learning and intellectual growth. This fact has attracted the attention of the scientific experts to the extent that the science of play activity has been created. Game is a natural means for a child to express his self. Alfred Adler the famous psychologist says, never look at the game as a way to kill time. Gary Landers, states that game for children, is equal to talk for an adult. Games and toys are children's words. The definition of game by Ericsson was Game is ones performance, an attempt to harmonize the processes of physical and social self .

Anggraini Sudono (1995) suggested that game tools used in training fine motor is string up beads, put a tennis ball into the basket, catch a tennis ball, put puzzles, climbing. Fine motor skills are child's ability to do activities related to motion control and ability to concentrate. The younger the age of the child, the longer time required to concentrate on activities related to fine motor skills. Intelligence, fine motor skills of children vary. In terms of strength and accuracy, there are 4 year olds who are adept swimmer. There are also children who have not even 6 years old can eat neatly. Earlier girls have their dexterity of fine motor intelligence. While the boys are superior in step, throw, catch the ball, and climb or down the stairs. While the girls showed a greater ability when on tiptoe, jump, and run fast. This difference is also influenced by the child's innate and acquired stimulation.

Fine motor training is given with the aim to train the fine motor coordination or relaxes muscles are stiff hand. Fine motor training is a training process in an effort to improve child mental retardation in relaxing their hand muscle.

## **1.1 Need for study**

Mental Retardation covers a wide range of conditions. People with these conditions have an equally wide range of functioning some live independently, others live in structured environments, and still others need constant care. Mental retardation affects a person's ability to reason. It limits an individual's ability to think from the concrete to the abstract, from the specific to the general case. In everyday life, mental retardation affects judgment, socialization, education, and work. More severe cases of mental retardation may affect a person's safety, ability to perform everyday activities, and communication.

Based on American Association of Mental Retardation, Mental retardation can be classified Mild mental retardation with IQ level 52 – 67, need some special class placement and can attain only up to 4<sup>th</sup> to 6<sup>th</sup> standards at school levels and designated as educable. Moderate mental retardation with IQ level 36 – 51, can able to attain up to 2<sup>nd</sup> class standards in academic skills and considered as trainable. They can learn maximum up to self care activities. Severe mental retardation with IQ level 20 – 35 can learn only self care and simple conversational skills. They need much supervision and considered as custodial. Profound mental retardation with IQ level 0 – 19 is also considered as custodial and fully reliant on caregivers .

World Health Organization estimates that 10% of the world's population has some form of mental disability and 1% suffers from severe incapacitating mental disorders. Community-based surveys conducted during the past two decades in India showed that the total prevalence of psychiatric disorder was around 5.8%. In contrast, recent National Sample Survey Organization report revealed prevalence as little as 0.2%. An estimated 10% of the world's population experiences some form of disability or impairment. The United Nations Disability Statistic's Compendium

noted that disability rates are not comparable across the world because of differences in survey design, definitions, concepts and methods, as the proportion of disabled people per national population varies between less than 1% in Peru and 21% in Austria. In 1981 United Nation / World Health Organization studies estimated that on average 10% of all national populations were disabled. However in 1992, this estimate was modified to 4% for developing countries and 7% for industrialized countries. Differences are also seen across member states of the World Health Organization South East Asian Region.

In India as per census 2011, total mental retardation was 1,505,624 ,in that males were 870,708 and females were 634,916. The number of disabled persons enumerated in rural and urban India was 49,300 and 26,679,respectively.For every 100000 people in India, there were 1755 who were either mentally or physically disabled. Among the rural residents, the prevalence of disability was 1.85 per cent and that among the urban, it was 1.50 per cent. The rate for males was 2.12 and 1.67 per cent while that for females was 1.56 and 1.31 per cent in rural and urban India, respectively.

Major features of Mental Retardation are characterized by Delayed milestones of development, poor ability to learn new things, poor speech and comprehension, poor self-help skills, and poor school performance, poor memory and mental age is below the chronological age, so they need systematic training for learning activities of daily living and other essential adaptive skills. For this they need specific support to be trained at different levels corresponding to their degrees of Mental Retardation as it affects the overall development of the child, such as delay in acquiring language, social and self care skills. Ability to understand and comprehend are less or delayed, responses are slow and may have associated problems in hearing or vision. Some may

have reported history of seizures or fits that require continuous or long-term medication. Best form of management for these children is systematic and regular monitoring of training support for becoming self – reliant towards appropriate rehabilitation.

Early detection, prevention, medical and physical rehabilitation, Education and training of handicapped including Teacher training ,Employment ,Role of Non Governmental Organizations and creation of public awareness, Special Schools, Vocational Training, Teacher Training Voluntary Organisations are activities for mentally retarded . The Ministry of Labour manages 17 Vocational Rehabilitation Centres for the disabled for their placement. Some states are still reluctant to have Integrated Education for Disabled and inputs from Community Based Rehabilitation District Rehabilitation Centre, and Early Childhood Care and Education . However, some of the Non Governmental Organizations were active in rural areas in this regard The state governments were assisted in the matter of strengthening State Councils for Educational Research and Training and District Institute of Education and Training for augmenting the education of the handicapped.

At present, all State Councils for Educational Research and Trainings in the country have a special education unit and all District Institute of Education and Training have trained special educator, and Non Governmental Organizations have been strengthened to undertake the challenge. The Ministry of Labour is providing training through continuously training special educators, Non Governmental Organizations and Universities. The Early Childhood Care and Education scheme through Integrated Child Development Scheme, pre-school programme, and District Primary Education Programme have included disability education including mental retardation since 1999. The education of disabled and particularly mental retardation

has been amply activated by the establishment of the Rehabilitation Council of India through an Act of Parliament in September 1992, and effected in June, 1993 .

Role of Primary Health Centres in the present condition of mental retardation is much more relevant than others, because Primary Health Centres are the first interventive channel through which a rural mental retardation passes. Their role is like a first observer of detection and intervention of mental retardation in July 1999, the Rehabilitation Council of India started a national level programme, training programme for Primary Health Centre doctors, to train them in disability management. This programme is getting success. Like the success of Pulse Polio programme, this national level programme named-"National Programme on Orientation of Medical Officers Working in Primary Health Centres to Disability Management", is basically a training programme and this proposed programme will train 30,000 Medical Officers through a three-day orientation module on different aspects of disability management.

Some of the common preventive measures being followed, the pregnant mother is not exposed to X ray in the first trimester of pregnancy, the maternal age be restricted to 18-35. Rh factor be controlled through blood transfusion, Compulsory testing of blood and urine after birth to take care of recessive gene disorder by appropriate dietary control, Avoidance of consanguineous marriages, avoidance of lead paints, high temperature malnutrition, maternal use of intoxication, drugs, etc. The pregnant mother should take immunization against infections during pregnancy. The child should be immunized against diphtheria, whooping cough, tetanus, polio, measles, and TB during the first year of birth. Genetic counseling be provided to parents having mental retardation.



Fine motor refers to the development of small muscle movements in the hands, which require a child to manipulate and gain control over a range of materials and tools. Daily activities like open doors, button their shirt, pick up small objects, tie shoe laces, etc all are required fine motor skills to do these activities. Fine motor skills of the human hand including: the use of the fingers and thumb in gripping used in activities such as picking up small objects, using scissors, writing, painting, pulling and tugging shoe laces and so on. Development of fine motor skills depends on the reflexes and voluntary movements, such as the intentional grasping of objects and dropping them.

Play communicate children's innermost thoughts with the outside world and let them bring foreign objects under their control. Play allow children to show the experiences, thoughts, feelings and aspirations that are threatening to them. The play is a correct way to treat children, because children often face difficulties. (Moghadam and Ghanifar, 2015) in expressing feelings verbally through Play, children can reduce the barriers and show their feelings easier.

Play activity is an active approach that can be used individually or in groups. In a way that allows children to reveal their conscious and unconscious emotions through games. The golden period of development of the child passes through the game and in the natural process of the game playing, the children first understand and recognize themselves and then the external world and then with interactive and symbolic games with parents and peers enter the community and try out their future roles, self controlling, muscular and neuro controlling and coordination, thinking, problem solving and collaboration, first learned in the games and practiced to internalize. Various studies have admitted the effect of activity by playing with dolls to improve social skills and it has been confirmed that it can help the children learn

The communication skills of introvert children increases the learning of children with mental disability on adaptive behavior of educable mentally retarded children and psychologically damaged children from 3 to 11 years old .

Playing has a direct impact on children's learning and intellectual growth. This fact has attracted the attention of the scientific experts to the extent that the science of play activity has been created. It should be considered that the results obtained in this study can help significantly in the training of children with down syndrome, teachers and parents will learn play activity methods and can use the techniques to improve the children's fine motor skills .It should be considered that the results obtained in this study can help significantly in the training of children with mental retardation and parents will learn play activity methods and can use the techniques to improve the children's fine motor skills.

Fine motor training is given with the aim to train the fine motor coordination or relaxes muscles are stiff hand. Fine motor training is a training process in an effort to improve child mental retardation in relaxing their hand muscles . It should be considered that the results obtained from this study can help significantly in the training of children with mental retardation will use to improve the children's fine motor skills.

Considering the magnitude of the problem and the related review on mentally retarded children the investigator felt that the study has to be conducted to improve the motor skills among mentally retarded children. This motivated the investigator to take up a study on effectiveness of play activity among mentally retarded children.

## **1.2 Statement of the problem**

A study to evaluate the effectiveness of play activity on fine motor skills among mentally retarded children at selected mentally retarded school in Madurai.

## **1.3 Objectives**

- To assess the level of fine motor skills among mentally retarded children in experimental group and control group at selected mentally retarded school in Madurai. .
- To evaluate the effectiveness of play activity on the level of fine motor skills among mentally retarded children at selected mentally retarded school in Madurai.
- To associate the level of fine motor skills among mentally retarded children with their selected socio demographic variables.

## **1.4 Hypotheses**

H<sub>1</sub> - There is a significant difference between pre test and post test level of fine motor skills among mentally retarded children at selected mentally retarded school in Madurai.

H<sub>2</sub>- There is a significant difference between post test level of fine motor skills in experimental and control group of mentally retarded children at selected mentally retarded school in Madurai.

H<sub>3</sub>-There is significant association between the fine motor skills among mentally retarded children with their selected socio demographic variables.

## **1.5 Operational definitions**

### **Effectiveness:**

In this study it determines the extent to which the play activity has achieved the desired effects in improving fine motor skills among mentally retarded children.

### **Play activity**

In this study it refers to repeated activity by using various materials such as colour beads, ink filler, nut and bolt to improve fine motor skills of mild and moderate mentally retarded children, 30 minutes for 15 days.

### **Fine motor skills**

In this study it refers to observing the eye hand coordination, by using their smaller muscles of hands like palmar and finger grasp, hand and palmar grasp and pincer grasp using Madras Developmental Programming System – Behavioural scale.

### **Mentally retarded children**

In this study it refers to children who have been already diagnosed as mentally challenged children and classified as mild and moderate mental retardation based on their IQ level.

### **Selected mentally retarded school**

In this study it refers to special school exclusively for mentally challenged children, in which the special educator educate play activity by using various techniques like clay modeling, unbutton and button, and building blocks.

## **1.6 Assumption**

- Mentally retarded children may have different level of fine motor skills
- Play activity does not produce any harmful effect to subjects.

### **1.7 Delimitation**

- The study is limited to mentally retarded children at selected retarded school, in Madurai.
- The duration of the study period is limited to 6 weeks.

### **1.8 Projected outcome**

Play activity will improve fine motor skills among mentally retarded children. Mild and moderate mentally retarded children are educable and trainable respectively. When they educated and trained properly, their fine motor skills will improve.

*Review of  
Literature*

## **CHAPTER - II**

### **REVIEW OF LITERATURE**

**Polit (2012)** states that literature review is a critical summary of research on a topic of interest, often prepared to put a research problem in context. A literature review is an evaluative report of information found in the literature related to your selected area of study (Wikipedia).

Review of literature is a key step in the research process. Review of literature refers to extensive, exhaustive and the systematic examination of publication relevant to the research project. One of the most satisfying aspects of research review is the contribution makes to the new knowledge, insight and general scholarship of the researchers.

A literature review is a text of a scholarly paper, which includes the current knowledge including substantive findings, as well as theoretical and methodological contributions to a particular topic. It focuses on the relationship among different works, and relates the research to ones topic of interest. This chapter presents the review of literature and the conceptual framework which guided the study.

The chapter II is comprised of two parts.

Part-A: Review of literature

Part-B: Conceptual framework

#### **Part - A: Review of literature**

This chapter discuss about the related literature in to four sections. Reviews are collected on the basis of following headings

2.1 Literature related to mental retardation.

2.2 Literature related to effectiveness of play activity.

2.3 Literature related to effectiveness of play activity on fine motor skills.

2.4 Literature related to effectiveness of play activity on fine motor skills among mentally retarded children.

### **2.1 Literature related to mental retardation**

**Kavitha Reddy. K., (2012)** conducted a survey in Hyderabad to assess knowledge of people about causes and treatment of mental retardation in children. Survey report revealed that there was a stigma about mental illness as well as mental retardation in society. People believed that mental retardation was due to black magic, gods disgrace, or sins of ancestors. Even educated people believe that no treatment for mental disorder. Half of the population seek required treatment from traditional healers and religious institutions irrespective of the nature of the illness, 20% of the people seek medical treatment as well as religious care for mental illness and only 10% of the people go to mental hospital. People believed that going to mental hospital will reduces family dignity and have to face religious stress. Consanguineous marriage was most prominent cause for mental retardation in South India.

**Ahmad and Phalke,(2011)** conducted a study on health status and etiological factors among 58 mentally challenged children in school for mentally challenged at Sangamner. The study result revealed that majority of mentally challenged children (68.0%) were in 5-9 years age group, most of them had moderate retardation (43.0%). In majority of children (70.68%), no clinical syndrome was present. Most common clinical syndrome was Down's syndrome (17.23%), followed by Fragile X syndrome (6.89%). More than 60 percent children were off springs of consanguineous



marriages. Idiopathic causes (63.8%) followed by genetic causes (29.31%) were common etiological factors responsible for mental retardation.

**Rivilis, I. et al., (2010)** conducted a study on assessment of parental needs regarding care of their mentally handicapped child in USA. Research indicated that 76.6% of parents have expressed the need for seeking information regarding therapeutic, educational and vocational programs. Parents were interested to know more about training in communication, management of behavioral problems and training in Self-help area

**Rivard, L.M. et al., (2007)** conducted a study to assess the prevalence of mental retardation on 934 mental retarded children in selected cities of London in UK and found that 79% of children suffering with mild mental retardation, 12% of children having with moderate type of mental retardation and about 9% of children suffering with severe type of mental retardation.

**Wallen, M., (2007)** conducted a research project on home - based care programs for parents of children with intellectual disabilities at school of occupation and leisure sciences in Australia. The sample for the study was randomly chosen parents of mentally retarded children (n=45) of under four years age. Results indicated that parental education in home - based care is effective in making the parents to be efficient in training their mentally retarded child to be independent in their self-help skills.

**C.N. Ramgopal, P. Madhu Rao., (2004)** conducted a nation - wide study on level of mental retardation on welfare of people with Autism, Cerebral Palsy, Mental Retardation and Multiple Disability in India. Results revealed that there are 25 million citizens with mental retardation; 15 million are under ten years of age. One million are adults and 6 million suffer from moderate to profound level of mental retardation.

1 out of 1150 births of children is Down syndrome. Every 1 out of 2640 births are children with congenital hypothyroidism.

**Brown, Christopher J., (2003)** conducted a study on needs expressed by 100 parents of young children with mental illness in University of North Texas. Study revealed that 80% parent's demands for training in communication, management of behavior problems and training in home-based care of mentally retarded children. 1.8 percent of mothers know proper care of mental retarded children, approximately 12 millions are having deficient knowledge about care of mental retardation.

**Wilson, B.N. et al., (2001)** conducted a comparative study to assess the prevalence of mental retardation. The data from the Metropolitan Atlanta Developmental Disabilities were used. The administrative prevalence of mental retardation (I.Q of 70 or lower) was identified by review of records from multiple sources, with the public schools as the primary source. The result revealed that overall administrative prevalence of mental retardation is 12.0 per 1000 children. The rate from mild mental retardation (I.Q of 50-70) was 8.4 per 1000 and the rate of severe mental retardation (I.Q <50) was 3.6 per 1000. The prevalence was higher in Black children than White children (prevalence odds ratio =2.7) and in boys than in girls (prevalence odds ratio =1.4). Children with severe mental retardation had more coexisting disabilities than children with mild mental retardation.

**Ms. Sudipta, Mukherjee., (2001)** conducted a study about the prevalence of mental disability in luck now. The result showed the prevalence was higher among females (3.1%) than among males (1.5%) and the association was not significant ( $\chi^2 = 2.81$ ;  $P > 0.05$ ). The prevalence of disability among the elderly group (>60 years) was high (4%).The prevalence of disability was higher among the group of persons with low socioeconomic status (3%), and the association was not found to be

significant ( $\chi^2 = 2.41$ ;  $P > 0.05$ ). Around one-third (32%) of the disabled were illiterates, and those with education level above 10th standard had very low prevalence. As literacy level increased, the prevalence declined significantly ( $\chi^2 = 19.52$ ;  $P = < 0.00$ ).

**Mohammed Rafeel. L., (2000)** conducted a cross sectional study to assess knowledge and practices of parents in Middle Eastern Country, Lebanon. 127 mothers selected as sample. The study revealed that many countries of Middle East including Lebanon there is a stigma attached to families who have mental retarded child. These families complain of isolation and lack of community resources that could help them to cope with their circumstance to optimize the child's abilities. The results revealed that high percentage of mothers had depressive symptoms. The significant factor identified by this study was parents have lack of knowledge regarding care of mental retarded children and they need proper guidance.

**Durkin et al., (2000)** conducted a study to evaluate the contribution of prenatal, perinatal, neonatal and postnatal factors to the prevalence of cognitive disabilities among children aged 2–9 years in Bangladesh. A two-phase survey was implemented in 1987–1988 in which 10,299 children were screened for disability. In multivariate analyses, significant independent predictors of serious mental retardation in rural and urban areas included maternal goiter and postnatal brain infections. In rural areas, consanguinity and landless agriculture were also independently associated with the prevalence of serious mental retardation. In both rural and urban areas, independent risk factors for mild cognitive disabilities included maternal illiteracy landlessness, maternal history of pregnancy loss and small for gestational age at birth. Interventions likely to have the greatest impact on preventing cognitive disabilities among children in Bangladesh include expansion of existing iodine supplementation,

maternal literacy and poverty alleviation programs as well as prevention of intracranial infections and their consequences.

## **2.2 Literature related to effectiveness of play activity.**

**Nejla, Canbulat, et, al., (2013)** conducted a prospective study to compare two different distraction methods, distraction cards and kaleidoscope, on pain and anxiety relief of children during postoperative period. Using simple random sampling technique children was selected into three groups the distraction cards group, the kaleidoscope group, and the control group. Pain levels of the children were assessed by using the Wong Baker FACES Pain Rating Scale. Results revealed that there was a significant difference among the distraction card group ( $2.41 \pm 2.49$ ) and the kaleidoscope group ( $3.10 \pm 2.16$ ) had lower pain levels than the control group ( $4.44 \pm 3.64$ ). The conclusion of the study was distraction method with kaleidoscope was an effective method for pain and anxiety relief for postoperative children.

**William et,al. (2007)** conducted a True experimental study to evaluate the effects of therapeutic play on outcomes of children undergoing day surgery. Two hundred and three children admitted for day surgery were selected by randomized controlled trial. The experimental group received therapeutic play, the control group received routine information preparation. Result revealed that children in the experimental group reported significantly lower state anxiety scores in pre and post operative periods and exhibited fewer negative emotions at induction of anesthesia than children in the control group. The study provides some evidence that therapeutic play is effective in pre and post surgical management of children.

**Xavier, T. (2005)** conducted a quasi experimental study to assess the effectiveness of play activities in reducing anxiety among hospitalized children in Bangalore. Convenient sampling was used in which 60 preschoolers between the age

group of 3-6 years were selected. Data was collected using hospital observed checklist. Study result revealed that the experimental group mean and standard deviation was 53.4 and 1.73 respectively. The obtained 't' value was 49.04 at 0.05 level. For the control group mean and standard deviation were 53.1 and 0.96 respectively. The obtained 't' value 0.724 at 0.05 level. The findings showed that children were anxious in the pre test and were as in the post test showed that children were not anxious. The mean post test was significantly higher than the mean pre test score ( $t=p<0.001$ ). There was significant association between findings and demographic variables. The study concluded that children were anxious in the pre test where as post test anxiety was reduced, which indicated that play activity was effective

**Baggerly, Jennifer (2004)** conducted a study on the effects of on self-concept, depression, and anxiety of children who are homeless. 42 children (21 children in experimental group and 21 children in control group) were selected by purposive sampling and child-centered group play activity was given to experimental group. Statistical analysis revealed children receiving child-centered play activity significantly improved in self-esteem, anxiety, and depression demonstrating a moderate to large effect size. ( $p=0.05$ )

**Pan HL, .et al (2004)** conducted a study application of therapeutic play in the process of nursing a preschool patient to describes the application of therapeutic play to a 4-year-old female child with intestinal obstruction during the process of nursing. The patient suffered a Port-A in the clavicle and an ileostomy in the right upper abdomen. She cried incessantly and resisted nurses who attempted to change her dressing. Data were collected by participant observation, and it was found that the patient had problems dealing with anticipatory pain and body image and lacked an

emotional outlet. Therapeutic play was applied during the process of nursing. Result revealed that therapeutic play had improved her overall compliance, provided her with an emotional outlet, and helped her to understand her self-image, during the nursing process.

**Ciatworthy. S (2000)** conducted a study therapeutic play effects on hospitalized children to compare the effect of play activities on the level of anxiety after surgery in an intervention and control group of Iranian children. 75 Children aged 5 to 12 years were enrolled in intervention and the control group. The anxiety symptoms were assessed using State Trait Anxiety Inventory for children, children's Manifest Anxiety Scale and Yale Pre-operative Anxiety Scale. The result showed that anxiety score was lowered in the intervention group when compared to the control group and was statistically significant ( $P= 0.05$  level).

**Philips.D, Landreth.G.L,(1999)** examined the practices, issues, and perceptions of play therapy for children. Survey data were collected from 1,166 professionals practicing play therapy. Results show that according to this sample of play therapy professionals, play therapy is appropriate for most children aged 3–11 yrs. Early and middle childhood is the developmental territory that encompassed most of the children seen in play therapy. Play therapy was considered mostly or completely successful with 80% of children in treatment. There were few significant differences between male and female therapists.

**Zhar L. K. (1998)** conducted a study on therapeutic play for hospitalized preschoolers in Lebanon. Therapeutic play in the form of an interactive puppet show was administered to 50 preschool children one day before surgery in a hospital in Lebanon. A control group of 50 preschool children received routine care, but not therapeutic play. Physiological and behavioral measures were assessed on admission,

at the time of a stressful procedure (preoperative injection), after surgery, and after discharge. Although on admission there had been no significant differences between the means on physiological measures for the two groups, the children who received the therapeutic play intervention manifested markedly less anxiety and more cooperation and had significantly lower mean blood pressures and pulse rates during the injection than the control group. Following surgery, the experimental group took less time to void their bladders, another physiological indication of lower stress level. After hospital discharge, the children who had received therapeutic play had significantly lower scores on all six factors of the Post Hospital Behavior Questionnaire. This study demonstrates that therapeutic play is a valid means of reducing stressful responses to hospitalization and surgery among children in Lebanon.

**Ellison (1995)** conducted an experimental study on the effectiveness of play therapy in post operative pain in children following major surgeries. 40 post operative children (20 children each in experimental and control group) were selected by purposive sampling technique. Play therapy was given for a period of 8 weeks, to children within 12 to 48 hours after surgery by using combined play interventions for a period of 1 hour and pain assessment was done before and after play therapy by using Oucher scale, color rating scale and observation scale. The result showed that the play therapy had a significant effect in reducing the post operative pain in children at  $P = < 0.05$  level.

### **2.3 Literature related to effectiveness of play activity on fine motor skills**

**Jafarpour, (2015)** conducted a quasi experimental study to evaluate the Game activity effect on improving motor skills in children with Down syndrome in Birjand. 18 Down syndrome children was selected by simple random sampling technique (9

children in experimental group and 9 children in control group).The experimental group received 12 sessions of game activity. The results showed that game activity was effective in improving children's motor skills, there was no statistically significant difference between the effect of game activity on motor skills of boys and girls.

**Andersen Hammond, E.R,(2009)** conducted an objective evaluation of fine motor manipulation. New performance-based tool has been developed to evaluate finger and hand function accurately and precisely during manipulation of any object, independent of geometric and surface properties and to show test-retest reliability and evaluate criterion validity. Twenty healthy, right-handed participants were recruited. Three objects ranging in weight and size, requiring two or three fingers, were instrumented with a motion sensor that tracked 3D linear/angular motion. A computerized visual-guided tracking task was used to quantify motor performance during object manipulation. Two testing periods, one week apart were performed to evaluate test-retest reliability. Criterion validity was assessed by comparing performance with this tool to performance on commonly used clinical dexterity tests. The study revealed that new clinical tool is more effective to evaluate the finger and hand fine motor function during manipulation

**Charles JR (2006)** conducted a randomized control trial on efficacy of a child-friendly form of constraint-induced movement therapy in hemiplegic cerebral palsy. It involves restraint of the non-involved limb and extensive movement practice with the involved limb. Twenty-two were randomized to an intervention group (n=11) and a delayed treatment control group (n=11). Children wore a sling on their non-involved upper limb for 6 hours per day for 10 out of 12 consecutive days and were engaged in play and functional activities. Limb movement was measured by the



Jebsen-Taylor Test of Hand Function and fine motor-subtests of the Bruininks-Oseretsky Test of Motor Proficiency ( $p < 0.05$  in both cases). Caregivers reported significant increases in involved limb frequency of use and quality of movement. Results suggest that for a carefully selected subgroup of children with hemiplegic cerebral palsy, constraint-induced movement therapy modified to be child-friendly, appears to be efficacious in improving movement efficiency of the involved upper extremity

**Besio. S., (2002)** conducted a study on play therapy on emotional distress among hospitalized children with motor disabilities in U K. 20 children participated in three forms of play normative, therapeutic and educative play showed lower level of emotional distress than children in the control group. The findings of this study support the need for play therapy with hospitalized children. Play is to release stressor of hospitalization. It is also pointed out that play is an important aspect of recovery in the acute care setting.

**Jane Case-Smith., (2000)** conducted a study to evaluate the effects of occupational therapy services on fine motor and functional performance in preschool children. 44 preschool-aged children with fine motor delays who received occupational therapy services, eight fine motor and functional performance assessments were administered at the beginning and end of the academic year. Data on the format and intervention activities of each occupational therapy session were recorded for 8 months. Results revealed that the children received a mean of 23 sessions, in both individual and group format. Most of the sessions (81%) used fine motor activities, 29% addressed peer interaction, and 16% addressed play skills. The influence of play on therapy outcomes suggests that a focus on play in intervention activities can enhance fine motor and functional performance.

**De Gangi, G., (1993)** conducted a comparative study between a structured sensori motor therapy and child-centered activity in the treatment of preschool children with sensori motor problems. Structured sensori motor therapy was more useful in promoting gross motor skills and functional skills, as well as sensory integrative skills. Child-centered activity was more useful in improving fine motor skills. Children rated as having easy temperament and children who received treatment for the first time responded better to child-centered therapy in regard to behaviors and play.

#### **2.4 Literature related to effectiveness of play activity on fine motor skills among mentally retarded children.**

**Deplod (2012)** conducted a true experimental study to assess the effectiveness of play in moderately mentally challenged children at UK. 40 samples were randomly selected and 20 session play was given using toys and play materials for 30 minutes per session. Results proved that play is an effective tool which leads to development in the mentally challenged children and as the therapeutic effect which brings about beneficial outcome.

**Chi-hung.L., et.al., (2011)** conducted an experimental study to assess the effectiveness of play therapy on motor competence among mentally retarded child in Hongkong. The sample consisted of 60 pre-school of age 3 to 5 years of which 30 children in the experimental group and 30 children in the control group who were selected by random sampling method. Data was collected by child behavior check list. The play was given to the experimental group for 10 session and data was analyzed by the covariance and t test and reported that the motor competence in the experimental group children ( $t=128.07$ ) was significantly increased than the control group children ( $t=107.05$ )  $p < 0.001$ .

**Naderi F., et. al., (2010)** conducted an experimental study to assess the efficacy of play therapy on attention deficit hyperactivity disorder, anxiety and fine motor in Iran. Sample consisted of 80 children of age 8 to 12 years who were selected by simple random method. Data was collected by Conner's parent rating scale, Alwaz children anxiety test and Vineland social maturity scale and spiel Berger test. Data was analyzed by MANOVA and result revealed a significant difference in pre-test and post-test among children in experimental group and the obtained F value (29.59) in the attention deficit hyperactivity disorder, 16.51 fine motor skills and 74.67 in anxiety.

**Galligan AC (2009)** conducted a true experimental study to assess the effect of child centered play therapy on fine motor and gross motor skills among mentally challenged children in USA. The data was collected from 30 samples among mentally retarded children by simple random and demonstrated for 40 minutes per day for 25 days. The findings revealed that samples showed improvement in both fine and gross motor skills.

**Gayatri sankaranarayanan (2008)** conducted a quasi experimental study at Ramakrishna Mission Vidyalaya at Mangalore to assess the therapeutic effect of play on fine motor activity of mentally challenged children. 50 samples of mild mentally challenged children had selected and introduced play therapy. After one month intervention researcher found 30% increase of fine motor activity among mild mentally challenged children.

**Hadian M.R, Mortazavi S., (2007)** conducted a cross-sectional study to assess eye-hand coordination activities on educable mentally challenged children of age group 7-10 years. For 50 samples, 15 sessions of intervention for 45 minutes each, was performed and pegboard was used. After the intervention including eye-

hand co-ordination activities, pegboard test was again repeated and the result had a significant increase proved a significant difference in the pre-test score and post-test score. The study concluded that eye-hand co-ordination has positively affected the skill of hand movement.

**Bohnie, N.,(2006)** conducted a meta-analysis study to assess the effectiveness of play therapy and filial therapy on motor skills among mentally retarded children and it was an analysis of 93 studies which comprehends 3263 subjects of mean age 7 which includes both the sex. The result of the study revealed that play therapy and filial therapy was an effective intervention for mentally retarded children and its effect size was 0.80 ( $p < .001$ ) and the result reported that play therapy was effective intervention for the broad range of children's problems in various settings, across age and sex.

**Taneja., Beri., (2005)** conducted a study motor skills assessment and early intervention for preschoolers (4-6.5 yrs) with mental and developmental disorders ( $n = 6$ ) in a special kindergarten in Bihar aimed to propose individualized intervention programs, the quantitative results of this research revealed that great differences between fine and gross motor skills, and the study proposed that intervention plans could be accomplished through the implementation of common games as drawing, small toys manipulation, ball games, running, jumping.

**Sukristin O., (2004)** conducted a quasi experimental study to assess the effectiveness of co-operative play on motor skill abilities among mentally ill children in Kedri. 58 pre-school children were selected by purposive sampling method. Data was collected through observation sheet and intervention was given through co-operative play. Data was analyzed by wilcoxon signed rank test and Mann Whitney

U test at significance ( $p < 0.05$ ) and result revealed a significant increases in motor skill abilities among pre-school children in experimental group ( $p = 0.002$ ).

**Danger . E.S et. al (2003)** conducted an experimental study to assess the effectiveness of fine motor skills using child - centered group play therapy among mentally disabled children. Sample consists of 21 children including both sex aged 4-6 years selected by random sampling. Data was collected through Buski behavior rating scale. The result revealed a significant increases in mean scores (4.18).

**Sik W (2002)** conducted a quasi-experimental study to assess the impact of group play therapy on the motor skills of mentally retarded children in middle childhood. The sample of the study consisted of 5 girls of age between 7 and 8 years who were selected by purposive sampling. Data was collected by interview schedule. Intervention was given through group play therapy. Data was analyzed by 't' test and mean and post-test score had indicated that the central tendency has shifted from very or extremely characteristics (26%) to often characteristics (52%). The researcher reported that group play therapy had an influence on motor skills in positive manner.

**Johns E.M et. al (2000)** conducted an experimental study to assess the effectiveness of individual play activity on motor skills among mentally retarded children. Sample consists of 15 children, with 9 boys and 8 girls of aged 7-11 years. Data was collected by interview method and it was analyzed by analysis of covariance the result that the children in experimental group had significant improvement in both fine and gross motor skills.

**Winarni . D., Hastuti . W., (2000)** conducted a quasi experimental study to assess the level of fine motor skills on educable mental retardation of elementary level students in Sayidan II State Special School, Yogyakarta. 25 Samples, age of 13 – 16 years was selected from elementary school. Observation method used to collect data.

Intervention was given with few systematic approaches of simple plays like catching balls and throwing balls into basket. The results showed that there would be significant increase in motor skills among educable mental retardation children.

**Mcgurie E.D (1999)** conducted an experimental study to assess fine motor skills with child centered group play activity among mentally impaired children in a rural community of Texas. Sample consists of 15 children selected by simple random sampling techniques. Data was collected by child behavior and motion skill of materials. Intervention was given 30 minutes group play activity session for 10 weeks. Data was analyzed by ANCOVA test and “t” test. The result revealed a significant increase in F ration value among group children with child behavior checklist report 2.904 and significant ‘t’ test score ( $t=0.439$ ) of motion-control rating scale ( $p<0.05$ ).

## **2.5 Conceptual frame work**

Conceptual frame refers to interrelated concepts or abstractions assembled together in a rational scheme by virtue of their relevance to a common theme and it provides a perspective regarding interrelated phenomena. The conceptual frame work explains the phenomenon of interest and reflects the assumptions and philosophic views, variable under study, hypotheses formulated and the design of the study.

The present study aims to evaluate the effectiveness play activity on fine motor skills among mentally retarded children.

The frame work for the study is based on the wiedenbach’s prescriptive theory. It is a situation producing theory and directs action toward an explicit goal.

(wiedenbach 1969 ).

1. Prescription theory is made up of three factors or concepts as follows
  1. Central purpose – Which the Practitioner recognizes as essential to the particular discipline.

2. The prescription – For the fulfillment of the central purpose.
3. The realities – In the immediate situation that influence the fulfillment of the central purpose.

### **Central purpose**

The nurse's central purpose defines that quality of health she desires to effect or sustain in her patients and specifies what she recognizes to her special responsibility in caring for the patient .

Central purpose is a concept the nurse has thought through one she has put into words, believes in, and accepts as standard against which to measure the value of her action to the patient. It is based on her philosophy and suggests the nurses reason for being, the mission she believes is here to accomplish.

In this study the central purpose is to improve the fine motor skills among mentally retarded children (mild and moderate).

### **The prescription**

A prescription is a directive to activity which specifies both nature of the action that will most likely lead to fulfillment of the nurse's central purpose and the thinking process that determines it.

In this study the investigator directed play activity 30 minutes for 15 days for experimental group.

### **The realities**

After determination of central purpose and developed the prescription, nurse must consider the realities of the situation in which she has to provide the nursing care.

Weidenbach defines 4 realities as :

- 1 .The agent

2. The recipient
3. The goal
4. The means

### **Agent**

The agent who is the practicing nurse or her delegate is characterized by the personal attributes, capacities, capabilities, and most importantly commitment and competencies in nursing, as the agent the nurse is the propelling force that moves her practice towards its goal.

In this study agent is the investigator

### **Recipient**

The patient is the recipient of the nurse's action or the one on whose behalf the action is taken.

In this study the recipient is mentally retarded children.

### **Goal**

The goal is the desired outcome the nurse wishes to achieve. The goal is the end result to be attained by the nursing action.

In this study the goal is to improve the fine motor skills among mentally retarded children.

### **Means**

The means comprise the activities and devices through which the practitioner is enabled to attain her goal. The means include skills, techniques, procedures, and device that may be used to facilitate nursing practice.

In this study the means play activity.

Experimental group - Play activity 30 minutes for 15 days.

Control group - Without play activity



## **Nursing practice**

Nursing practice has three components.

1. Identifying the need for help.
2. Ministering the needed help.
3. Validating the needed help was met.

### **Identifying the need for help.**

The nurse observes the patient, looking for inconsistency, between the expected behavior of the patient and the apparent behavior.

In this study identify the need for help by pretest assessment

- ❖ Socio demographic data
- ❖ Assess the fine motor skills by using Madras Developmental Programming System- Behavioural Scale. ( Both experimental and control group )

### **Ministering the needed help.**

The nurse may give advice or information, make referral, apply a comfort measure, or carry out therapeutic procedure.

In this study ministering the needed help by

### **1. Prescription**

The investigator provides play activity, 30minutes for 15days for experimental group.

### **2. Realities**

Agent : Investigator

Recipient : Mentally retarded children

Goal : Improve fine motor skills

Facilities : Mentally retarded school

Means

❖ Experimental Group

Play activity for 30 minutes for 15 days.

❖ Control Group

Without play activity.

**Validating the needed help was met.**

After help has been ministered the nurse validates that the actions were indeed helpful. Evidence must come from the patient that the purpose of the nursing actions has been fulfilled.

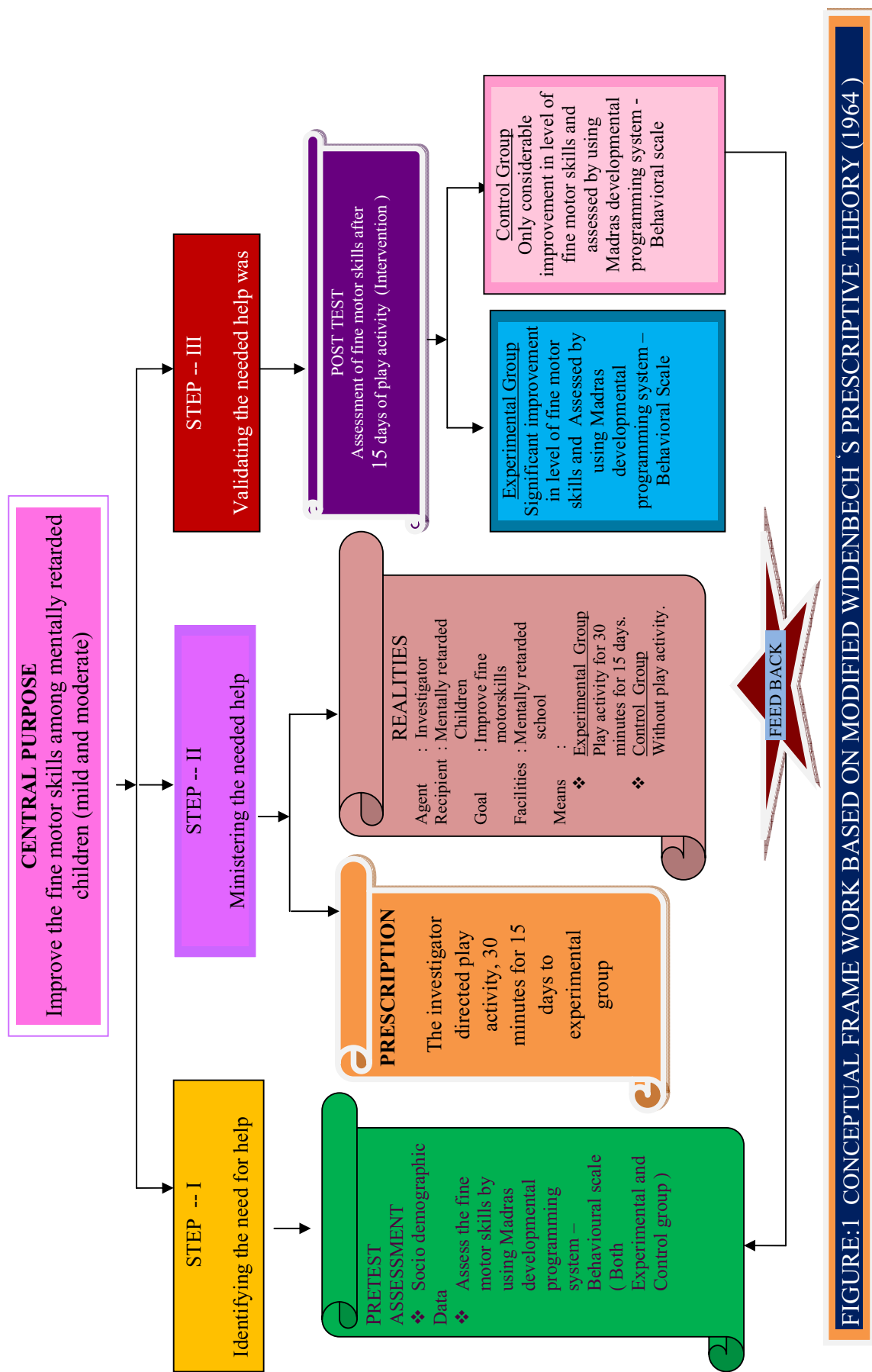
In this study validation is done by post test assessment of fine motor skills.

**Experimental Group:**

There was significant improvement in level of fine motor skills and was assessed by using Madras Developmental Programming System- Behavioural Scale.

**Control Group:**

There was only considerable improvement in level of fine motor skills and assessed by using Madras Developmental Programming System- Behavioural Scale.



**FIGURE:1 CONCEPTUAL FRAME WORK BASED ON MODIFIED WIDENBECH 'S PRESCRIPTIVE THEORY (1964 )**

*Research*  
*Methodology*

# CHAPTER – III

## METHODOLOGY

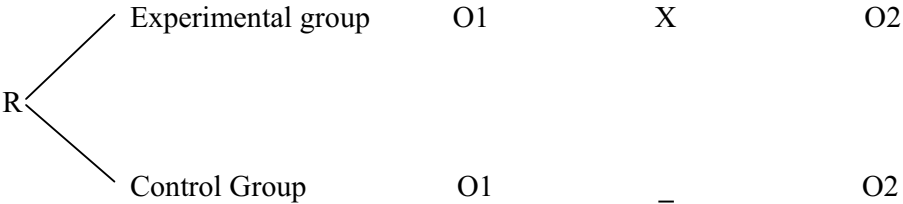
Research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically. In it we study the various steps that are generally adopted by a researcher in studying his research problem along with the logic behind them. This chapter provides a brief explanation of the method adopted by the investigator in this study. The methodology of research indicates the general pattern of organizing the procedure for assembling valid and reliable data for investigation. It includes the research approach, research design, setting of the study, population, sample, and sample size, sampling technique, description of the tool, pilot study, data collection procedure and plan for data analysis.

### 3.1 Research approach

In this study, the research approach was Quantitative approach.

### 3.2 Research design

The research design used for this study was True experimental, pretest - posttest control group design. The study emphasis randomization, control group and manipulation.



R - Randomization

- O1 - Pre test for both experimental and control group
- X - Play activity
- O2 - Post test for both experimental and control group

### **3.3 Research variables**

#### **Independent variable**

Play activity.

#### **Dependent variable**

Fine motor skills.

#### **Socio demographic variables**

##### **Children's:**

Age, Sex, Religion, Food habits, Level of mental retardation, Birth order of the child, Child maturity during birth.

##### **Parents:**

Father's and Mother's; Education and Occupation, Monthly income, Place of domicile, Type of marriage, Type of delivery, Any complication during delivery, Family history of mental retardation.

### **3.4 Setting of the study**

The study was conducted among Mentally retarded children studying in Anbagam Institution at Thamaraihatti and Anbagam Institution at Anupandi in Madurai.

Experimental group subjects were selected from Anbagam Institution for mentally retarded children at Thamaraihatti and control group subjects were taken from Anbagam Institution for mentally retarded children at Anupanadi in Madurai.

### **3.5 Population**

#### **Target Population**

The target population was mentally retarded children.

#### **Accessible Population**

Accessible population were mentally retarded children with mild and moderate, studying at Anbagam Institution in Madurai.

### **3.6 Sample**

Sample comprise of mild and moderate mentally retarded children studying at Anbagam Institution at Thamaraihatti and Anupanadi in Madurai, those who met the inclusion criteria.

### **3.7 Sample size**

Total sample size was 60, among that 30 samples were in experimental group and 30 samples were in control group.

### **3.8 Sampling technique**

The researcher adopted simple random sampling technique (lottery method) for the study.

### **3.9 Sampling criteria**

The subjects were selected based on the following inclusion and exclusion criteria.

### **Inclusion criteria**

- Children in the age group of 6 to 14 years, with mild and moderate mental retardation.
- Mentally retarded children, who are able to follow instructions about play activity.
- Both male and female mentally retarded children.

### **Exclusion criteria**

- Severe and profound mentally retarded children,
- Mentally retarded children, who are not able to understand and follow the instructions about play activity.

### **3. 10 Description of the tool**

The study tool consisted of two sections.

**Section A:** Semi structured interview schedule about demographic variables

**Section B:** Standardized Madras Developmental Programming System – Behavioural Scale

#### **Section A:**

This section consisted of clients Age, sex, food habits, birth order of the child, level of mental retardation, history of maturity, religion and parents education, occupation, income, place of domicile, type of marriage, type of delivery, complication during delivery and family history of mental retardation,

#### **Section B:**

Madras developmental programming system -Behavioural scale.



It consists of 20 yes or no type questions to assess fine motor skills.

### 3.11 Scoring procedure

Madras Developmental Programming System – Behavioural Scale consists of 20 items, each item carries one mark.

The marks ranges between 0 and 20. These raw scores have been converted to percentage score by using this formula,

$$\text{Percent score} = \frac{\text{Marks obtained}}{\text{Maximum possible score}} \times 100$$

Hence the marks ranges between 0 and 100. Finally the level of fine motor skill is categorized as follows

0 -	20 %	Very low
21 -	40 %	Low
41 -	60 %	Moderate
61 -	80 %	High
81 -	100 %	Very high

### 3.12 Testing of the tool

#### Content validity

Content validity was obtained from three community health nursing experts, experts in community medicine, psychiatrist and psychologist. The expert's suggestions were incorporated in the tool.

## **Reliability**

Internal consistency of the tool was assessed by using cronbach's alpha method and its r- value is 0.94. Stability was tested by Test - Retest method, using Karl Pearson's correlation formula and its r- value is 0.98. The reliability test score shows there is a stability and consistency in the tool items. Hence the tool was considered highly reliable for the study.

### **3.13 Pilot study**

Pilot study was conducted at Anbagam Institution for mentally retarded children Anupanadi from 1.6.2015 to 7.6.15 to test the feasibility of setting, samples relevance and practicability of the intervention among 10 subjects (5 subjects in experimental group and 5 subjects in control group ). The purpose of the study was explained to the head mistress, teachers and parents before starting the data collection. Informed consent was obtained from parents of each subjects. Confidentiality was maintained throughout the study. Mild and moderate subjects were selected and given pretest questions to the subject's parents. Play activity was given to experimental group 30 minutes for each child for 6 days . After 6 days of intervention, post test was conducted with same questionnaire for both groups. The findings evidenced that there was minimal statistical difference between pre test and post test scores on the level of fine motor skills among mentally retarded children. While conducting the study investigator was faced no difficulties and all the subjects were well cooperated. Pilot study revealed that the study was feasible. The tool was relevance and applicable to conduct the main study.

### **3.14 Data collection procedure**

The data collection was done for the period of 6 weeks from 03.08.2015 to 12.09.2015. The study was conducted at Anbagam Institution for mentally retarded children at Thamaraihotti as experimental group and Anbagam Institution at Anupanadi as control group in Madurai. The objectives of the study were explained to the head mistress, teachers and each subject's parents. Written Consent was obtained from parents of study subjects and was assured confidentiality. In experimental group according to inclusion criteria totally 38 samples were selected. Among 38 subjects 30 subjects were selected by simple random sampling technique by using lottery method. Similarly, in control group according to inclusion criteria totally 35 samples were selected. Among 35 subjects 30 subjects were selected by simple random sampling technique by using lottery method. Demographic data of the subjects was collected for both groups. Pre test was conducted by using Madras Developmental Programming System - Behavioural Scale for both groups. Experimental group was divided into two groups, 15 numbers in each group and play activity was demonstrated and practiced by each group 30 minutes for 15 days. Play activity consists of screw and unscrews - nut and bolt, segregation of colour beads and pick up and drop water by using ink filler. Play activity was not demonstrated to control group and they follow the routine class taught by their teachers. After completion of intervention post test was administered to both experimental and control group.

### **3.15 Plan for data analysis**

Data analysis is the systematic organization and synthesis of research data and in quantitative studies, the testing of hypotheses using those data. Data analysis enables the researcher to reduce, summarize, organize, evaluate, interpret and communicate numerical information to obtain answer to research questions.

The data were analyzed by using descriptive statistics and inferential statistics.

### **Descriptive Statistics**

- Demographic variables of the subjects were analyzed by using frequency and percentage distribution .
- Mean and standard deviation was used to analyze the level of fine motor skills among mentally retarded children.

### **Inferential Statistics**

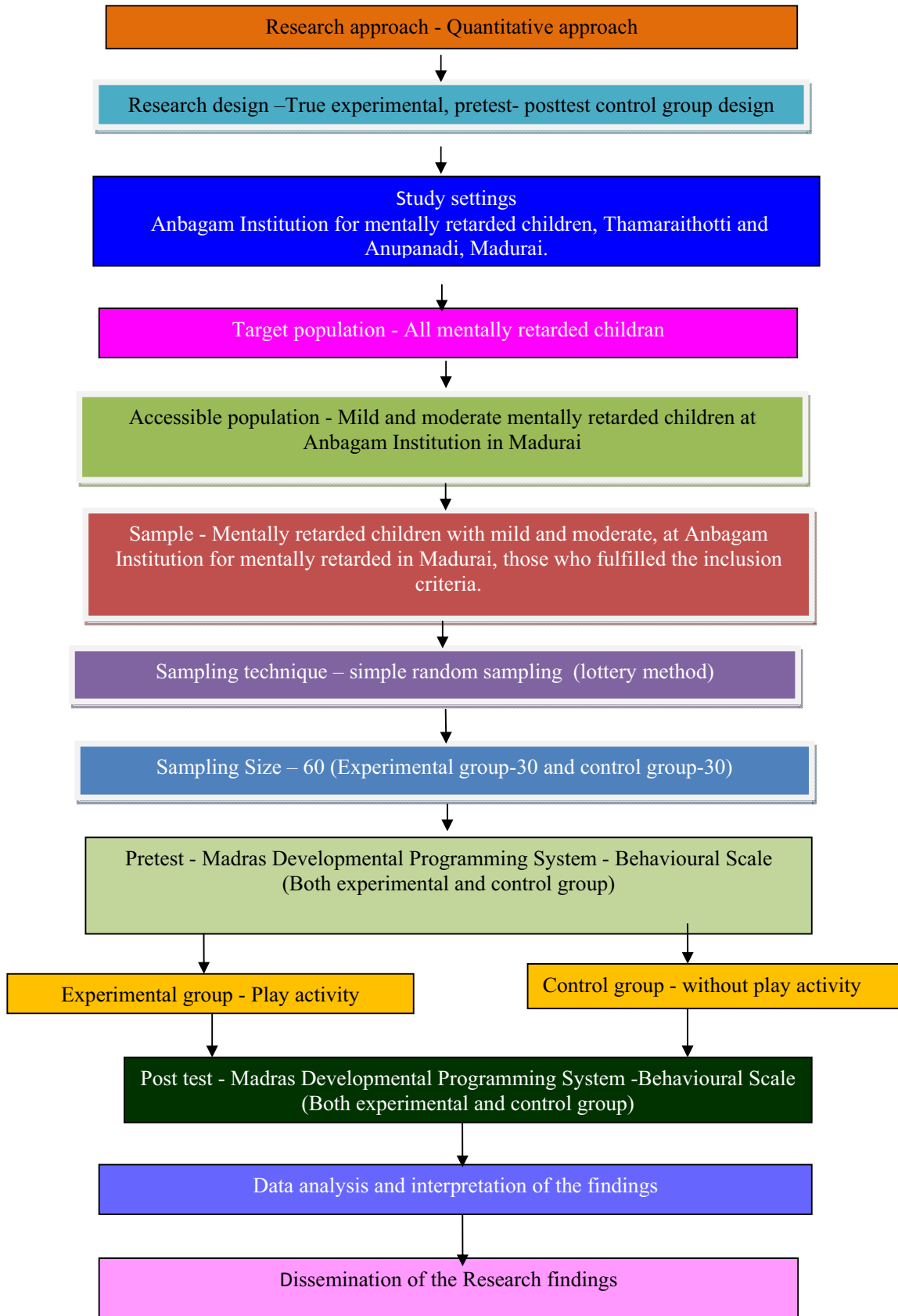
- Paired t-test and unpaired t-test were used to determine the effectiveness of play activity on improving the level fine motor skills among mentally retarded children studying at selected mentally retarded school.
- Chi-square test was used to find out the association between the levels of fine motor skills with their selected socio demographic variables.

The test findings were expressed in the form of tables and graphs.

### **3.16 Protection of human rights:**

Proposed study was conducted after the approval from dissertation committee and Government Rajaji Hospital, Madurai in order to protect the human rights. Formal written permission was obtained from the principal, Anbagam Institution for mentally retarded children. Each individual subject's parents was informed about the purpose of the study and confidentiality was ensured. Both verbal and written consent was obtained from all the study subject's parents and data collected was kept confidential. The names of the subjects were not disclosed in any form. The client had freedom to leave the study at any time without mentioning any reason. Anonymity was maintained throughout the study.

**Figure: 2 SCHEMATIC REPRESENTATION OF THE STUDY**



*Data Analysis*

*And*

*Interpretation*

## CHAPTER – IV

### DATA ANALYSIS AND INTERPRETATION

Data analysis is the systematic organization and synthesis of research data and in quantitative studies, the testing of hypotheses using those data (Polit, 2012). The analysis of research data provides the results of the study. These results need to be evaluated and interpreted, giving thought to the aims of the study, its theoretical basis, the body of related research evidence and limitations of the adopted research methods. Interpretations of statistical results form the basis for the discussion section of quantitative research reports.

The present chapter deals with analysis and interpretation of data collected from 60 mentally retarded children for assessing the effectiveness of play activity on level of fine motor skills. It is based on the data collected from the subjects through the Madras Developmental Programming System – Behavioural Scale of Dr Jeyachandren. The data were organized, tabulated, analyzed and interpreted by using descriptive and inferential statistics.

#### 4.1 Presentation of data

The study findings of the samples are presented in the following sections

**Section-I** : Distribution of socio demographic variables among mentally retarded children.

**Section-II** : Description of level of fine motor skills among mentally retarded children in experimental and control group.

**Section-III** : Effectiveness of play activity on level of fine motor skills among mentally retarded children in experimental group.

**Section-IV** : Association between the levels of fine motor skills among mentally retarded children with their socio demographic variables.

## Section - I

### Distribution of socio demographic variables among mentally retarded children

**Table – 1: Frequency and percentage distribution of socio demographic variables of mentally retarded children**

**n = 60**

S. No	Demographic variable		Group			
			Experimental		Control	
			f	%	f	%
1.	Age	6 – 8 years	6	20	7	23.3
		9 – 11 years	12	40	15	50
		12 - 14 years	12	40	8	26.7
2	Gender	Male	22	73.3	22	73.3
		Female	8	26.7	8	26.7
3	Religion	Hindu	25	83.4	24	80
		Christian	3	10	3	10
		Muslim	1	3.3	2	6.7
		Others	1	3.3	1	3.3
4	Food Habits	Vegetarian	4	13.3	3	10
		Mixed Diet	26	86.7	27	90
5	Level of Mental Retardation	Mild	17	56.7	16	53.3
		Moderate	13	43.3	14	46.7
		Severe	0	0	0	0
6	Education of Father	Non formal Education	6	20	5	16.7
		Primary	8	26.7	5	16.7
		Secondary	13	43.3	16	53.3
		Graduate	3	10	4	13.3



.No	Demographic variable		Group			
			Experimental		Control	
			f	%	f	%
7	Education of Mother	Non formal Education	8	26.7	5	16.7
		Primary	8	26.7	3	10
		Secondary	12	40	18	60
		Graduate	2	6.6	4	13.3
8	Occupation of Father	Government	1	3.3	2	6.7
		Private	8	26.7	10	33.3
		Labor	19	63.3	16	53.3
		Unemployed	2	6.7	2	6.7
9	Occupation of Mother	Government	1	3.3	1	3.3
		Private	2	6.7	1	3.3
		Labor	1	3.3	1	3.3
		Unemployed	26	86.7	27	90
10	Monthly Income of the Family	< 3000	3	10	3	10
		3001 to 5000	18	60	16	53.3
		5001 to 7000	7	23.3	6	20
		>7000	2	6.7	5	16.7
11	Place of domicile	Urban	17	56.7	15	50
		Rural	12	40	13	43.3
		Sub Urban	1	3.3	2	6.7

S. No	Demographic variable		Group			
			Experimental		Control	
			f	%	f	%
12	Type of Marriage	Non-Consanguineous	17	56.7	17	56.7
		I <sup>0</sup> Consanguineous	10	33.3	9	30
		II <sup>0</sup> Consanguineous	2	6.7	3	10
		III <sup>0</sup> Consanguineous	1	3.3	1	3.3
13	Type of Delivery	Normal	14	46.6	16	53.3
		Forceps	8	26.7	6	20
		Vacuum	2	6.7	2	6.7
		LSCS	6	20	6	20
14	Any complication During Delivery	Pre-natal infection	7	23.4	2	6.7
		Birth Asphyxia	19	63.3	20	66.7
		Birth Injury	1	3.3	3	10
		Epilepsy	3	10	5	16.6
15	Birth order of child	First Child	16	53.3	11	36.6
		Second Child	12	40	17	56.7
		Third Child	2	6.7	2	6.3
16	Child Maturity During delivery	Pre Term	3	10	4	13.3
		Full Term	26	86.7	25	83.4
		Post Term	1	3.3	1	3.3
17	Family History of Mental Retardation	Yes	3	10	2	6.7
		No	27	90	28	93.3

The above table reveals that

**In the aspect of age** majority of the subjects, 12 (40%) were in both 6-8 and 9-11 years and the remaining 6 (20%) were between 12 to 14 years in experimental group. In control Group most of subjects 15 (50%) were in 9-11 years, 8 (26.7 %) were in 12 to 14 years and 7 (23.3%) were belongs to 6-8 years.

**In regard to gender**, majority of the subjects 22 (73.3%) were males and 8 (26.7%) were females in both experimental and control group.

**In aspect of religion**, majority of subjects in experimental group 25 (83.4%) were Hindus, 3 (10%) were Christians and 1 (3.3%) belongs to both, Muslims and others. In control group most of subjects 24 (80%) were Hindus, 3 (10%) were Christians, 2(6.7%) were Muslims and 1(3.3%) belongs to others.

**In relation to the food habits**, majority of subjects 26 (86.7%) were in mixed food practice and 4 (13.3%) were vegetarian in experimental group. In control group most of subjects 27(90%) had mixed diet practice and 3 (10%) were vegetarian.

**In the aspect of level of mental retardation**, in experimental group most of subjects 17 (56.7%) were mild and 13 (43.3%) had moderate and none of them belongs to severe mental retardation. In control group, 16 (53.3%) were mild, 14 (46.70%) were belongs to moderate and none of them belongs to severe mental retardation.

**Based on the education of father** most of the subjects 13 (43.3%) had secondary education, 8 (26.7%) had primary education, 6 (20%) had non formal education and only 3 (10%) had obtained graduation in the experimental group. In control group most of subjects 16 (53.3%) had secondary education, 5 (16.7%) were had both non formal education and primary education and 4 (13.3%) were graduates.

**With regard to education of mother** 12 (40%) had secondary education, 8 (26.7%) had non formal education, 8 (26.7%) had primary education and 2 (6.6%) were graduates in the experimental group. In Control group most of subjects 18 (60%) had secondary education, 5 (16.7%) had non formal education, 4(13.3%) were graduates and 3 (10%) had primary education.

**Related to father's occupation,** majority 19 (63.3%) were labours, 8 (26.7%) were in private, 2 (6.7%) of them were unemployed and 1 (3.3%) had Government job in experimental group. In control group majority 16 (53.3%) were labors, 10 (33.3%) were in private and 2(6.7%) were in both Government and Unemployed.

**In the aspect of mother's occupation,** majority 26 (86.7%) were unemployed, 2 (6.7%) were in private and 1 (3.3%) subject in both Government and labour in experimental group. In control group majority 27(90%) were unemployed and 1(3.3%) were in Government, private and labour.

**About family income** in experimental group 18 (60%) subjects falls in between Rs. 3001 – Rs. 5000, 7 (23.3%) were earning between Rs. 5001 to Rs 7000, 2 (6.7%) were earning above Rs. 7000/- and 3 (10%) were earning less than Rs. 3000/-. In control group majority 16(53.3%) income falls between Rs. 3000/- to Rs. 5000/-, 6 (20%) were earning between Rs 5000 to Rs7000, 5 (16.7%) were earning more than Rs. 7000/- and 3 (10%) were earning less than Rs. 3000/-.

**With regard to place of residence** in experimental group majority of subjects 17 (56.7%) were residing in urban, 12(40%) in rural and 1(3.3%) in sub-urban. In control group most of subjects 15(50%) were residing in urban, 13 (43.3%) in rural and 2(6.7%) in sub-urban.

**Related to type of marriage** majority 17(56.7%) were non-consanguineous, 10(33.3%) were I<sup>0</sup> consanguineous, 2(6.7%) were II<sup>0</sup> consanguineous and 1(3.3%) was III<sup>0</sup> consanguineous marriage in the experimental group. In control group 17 (56.7%) non-consanguineous, 9(30%) were I<sup>0</sup> consanguineous, 3(10%) were II<sup>0</sup> consanguineous and 1(3%) was III<sup>0</sup> consanguineous.

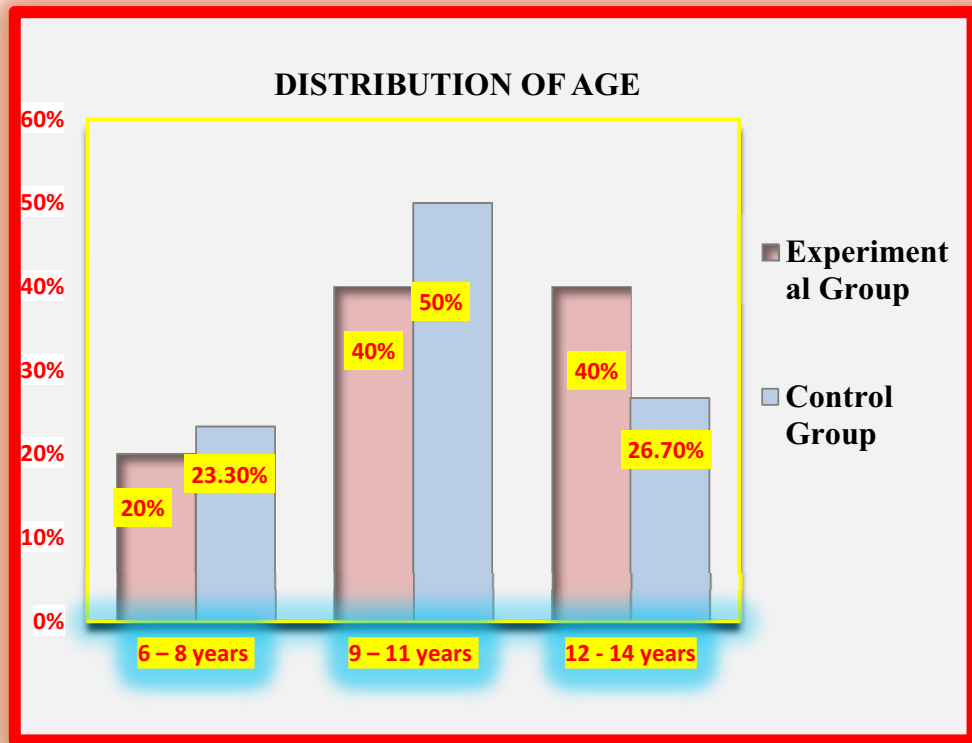
**On the account of type of delivery** mostly of subjects 14(46.6%) were delivered by normal, 8(26.7%) by forceps, 6(20%) by LSCS and 2(6.7%) through vacuum in experimental group. In control group majority 16(53.3) delivered by normal, 6 (20%) were by forceps, 6 (20%) were by LSCS, and 2 (6.7%) through vacuum.

**In regard to any complication during delivery,** in experimental group majority subjects 19(63.3%) had birth asphyxia, 7(23.4%) subjects mother had pre-natal infection, 3(10%) had epilepsy and 1(3.3%) had birth injury. In control group most of subjects 20(66.7%) had birth asphyxia, 2(6.7%) subject's mother had pre-natal infection, 5 (16.6%) subjects had epilepsy and 3(10%) had birth injury.

**Based on birth order of child** majority of subjects 16(53.3%) were first child, 12(40%) were second child and 2(6.7%) were third child in experimental group. In control group, most of subjects 17(56.7%) were second child, 11(36.6%) were first child and 2(6.7%) were third child.

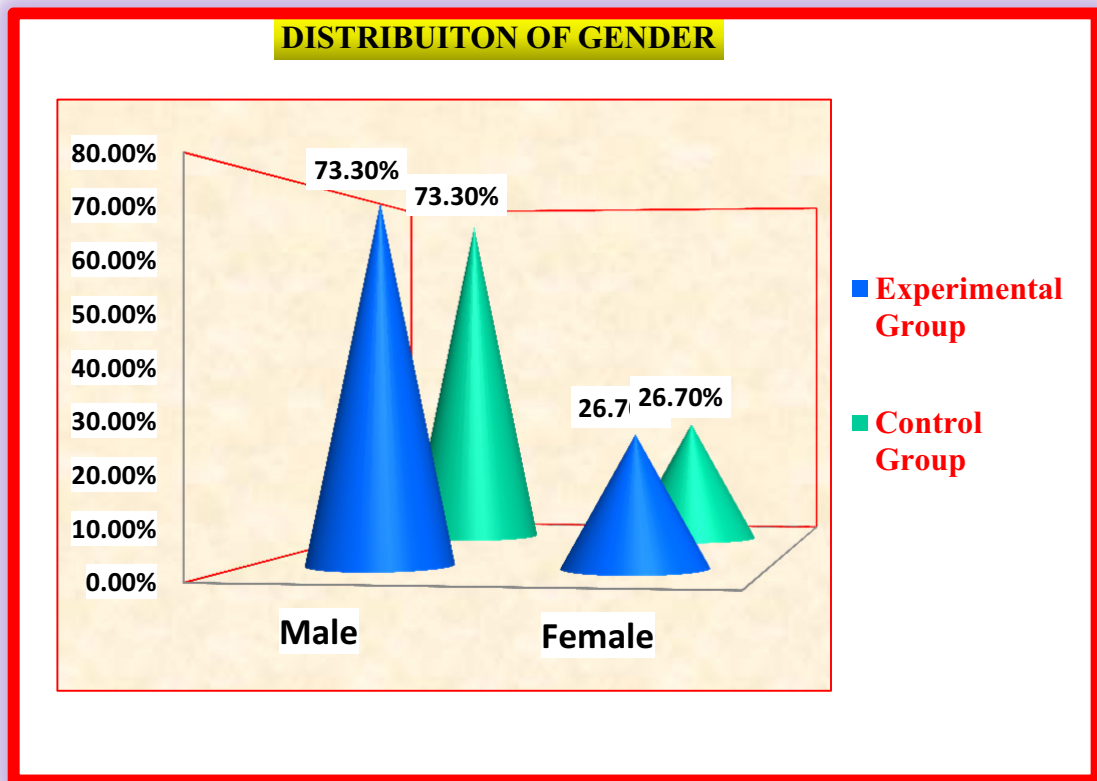
**In the aspect of child maturity during birth,** majority of subjects 26(86.7%) had full term, 3(10%) had preterm and 1(3.3%) had post term history in experimental group. In control group mostly of subject 25 (83.4%) had full-term, 4(13.3%) pre-term and 1(3.3%) in post term history.

**Regarding family history of mental retardation,** in experimental group majority of subjects 27 (90%) had no such instances, and 3(10%) had family history in their families. In control group most of subjects 28(93.3%) had no family history and 2(6.7%) had family history in their respective families.



**Figure-3: Percentage distribution according to their age in years in experimental and control group**

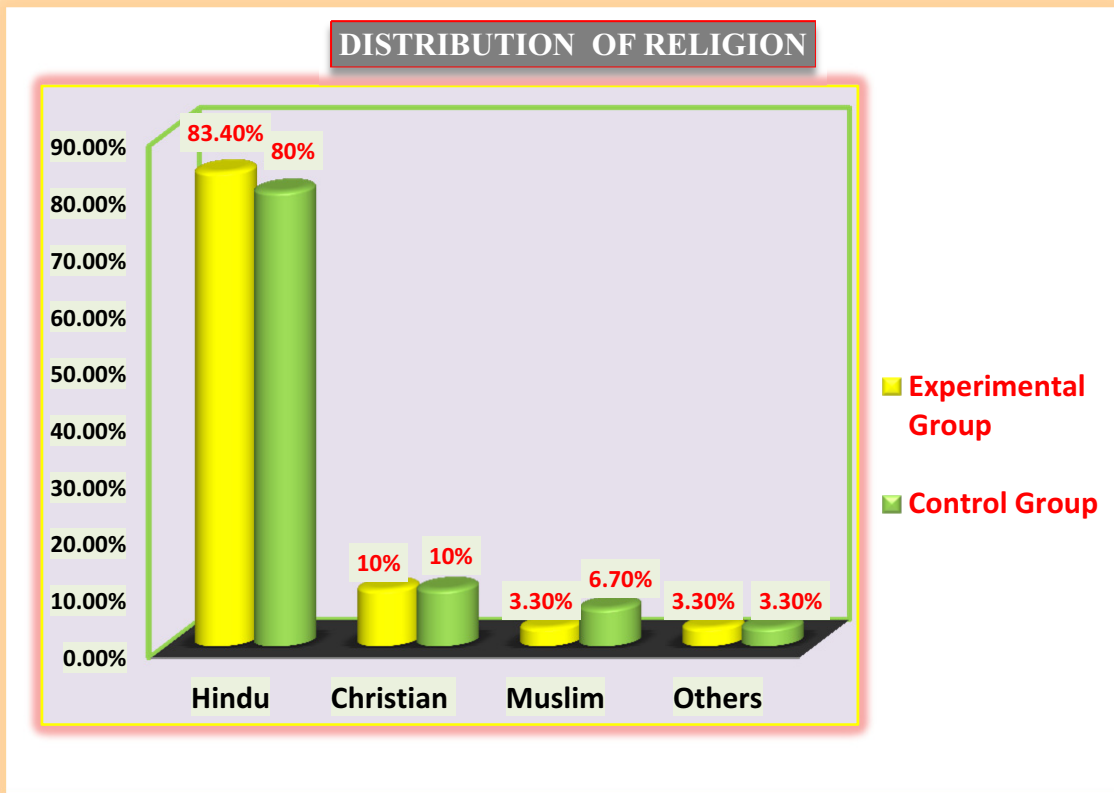
The above bar diagram reveals that majority of subjects 12(40%) were between 9-11 years and 12(40%) were between 12-14 years in experimental group and 15(50%) were between 9-11 years in control group.



**Figure – 4: Percentage distribution according to their gender in experimental and control group**

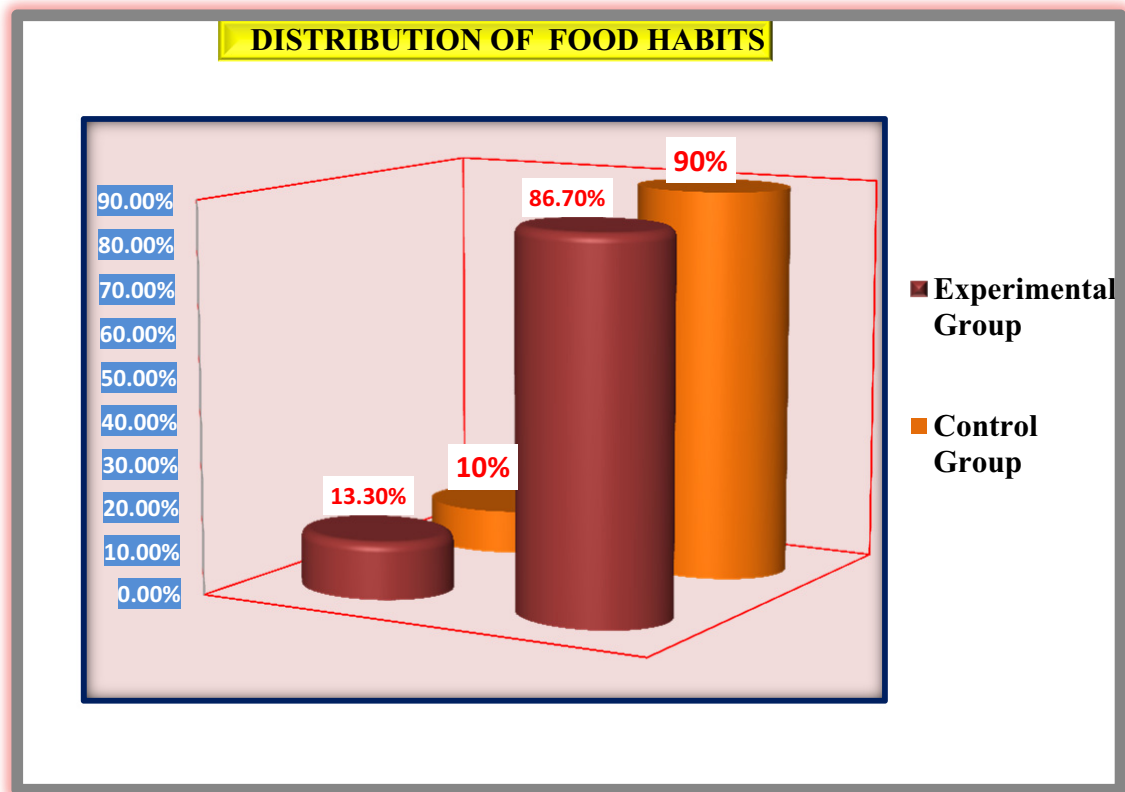
The above cone diagram shows that majority 22 (73.3%) of the subjects were males in experimental group and 22 (73.3%) of the subjects were males in control group





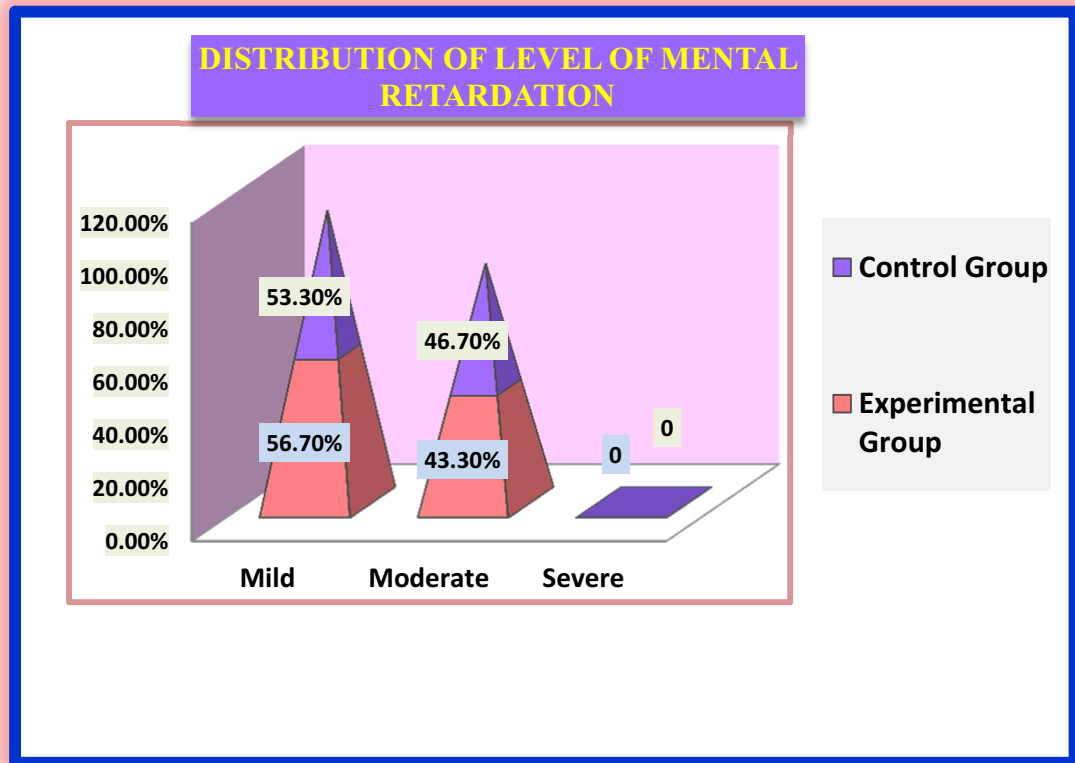
**Figure 5: Percentage distribution according to their religion in experimental and control group**

The above cylindrical diagram reveals that majority of the subjects 25(83.40%) were Hindus in experimental group and 24 (80%) were Hindus in control groups.



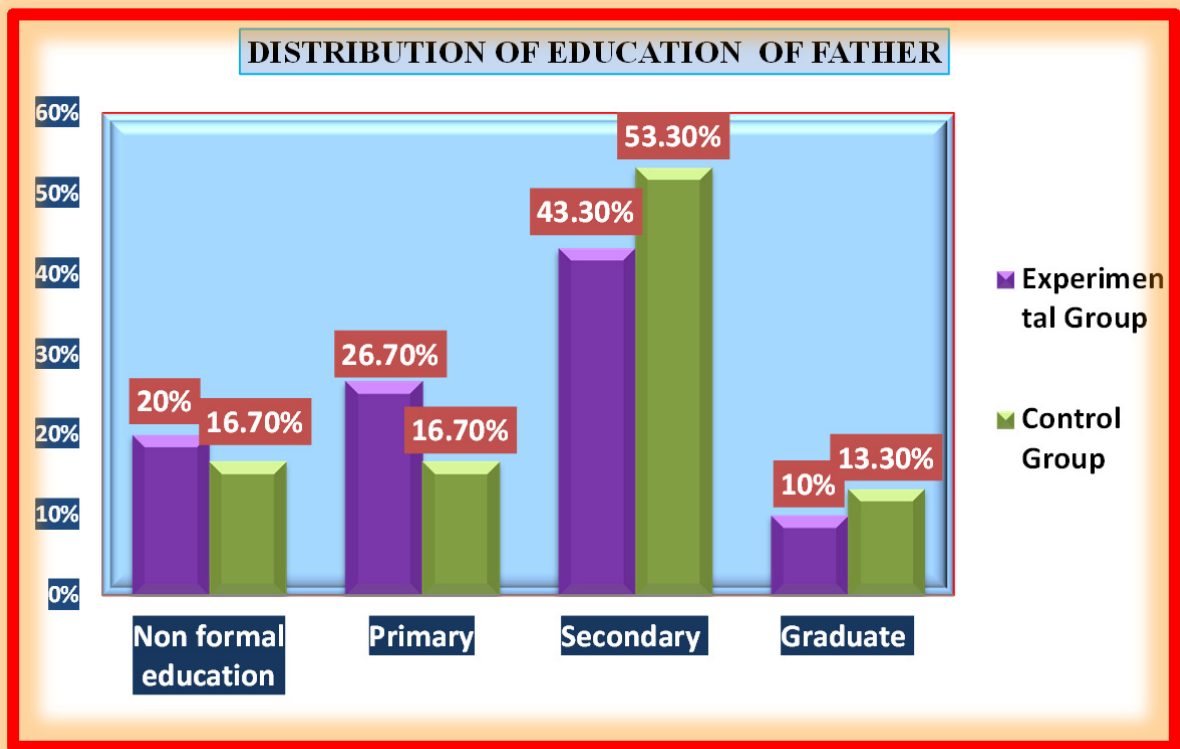
**Figure 6: Percentage distribution according to their food habits in experimental and control group**

The above cylindrical diagram reveals that majority of the subjects 26 (86.70%) were having mixed food habits in experimental group and in control group majority 27(90%) were having mixed food habits.



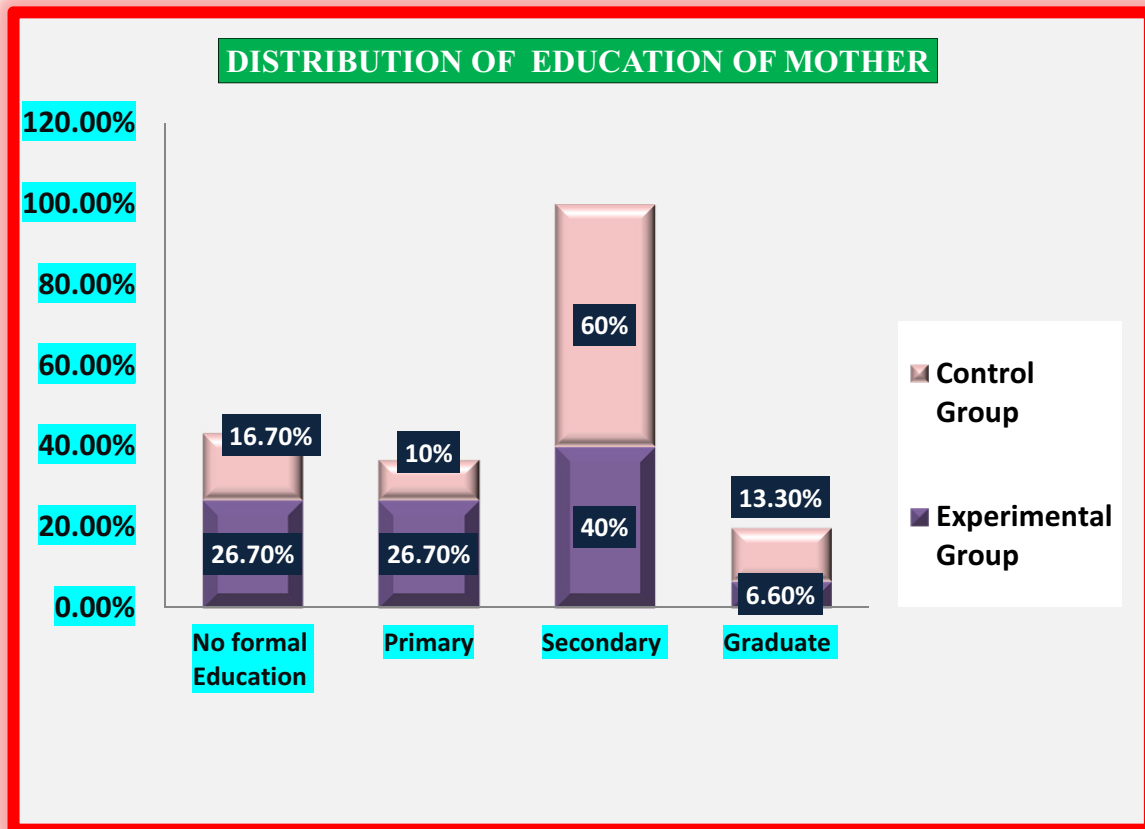
**Figure 7: Percentage distribution according to the level of mental retardation in experimental and control group**

The above cone diagram reveals that majority of the subjects 17(56.70%) were mild level of mental retardation in experimental group and 16(53.3 %) were mild level of mental retardation in control group.



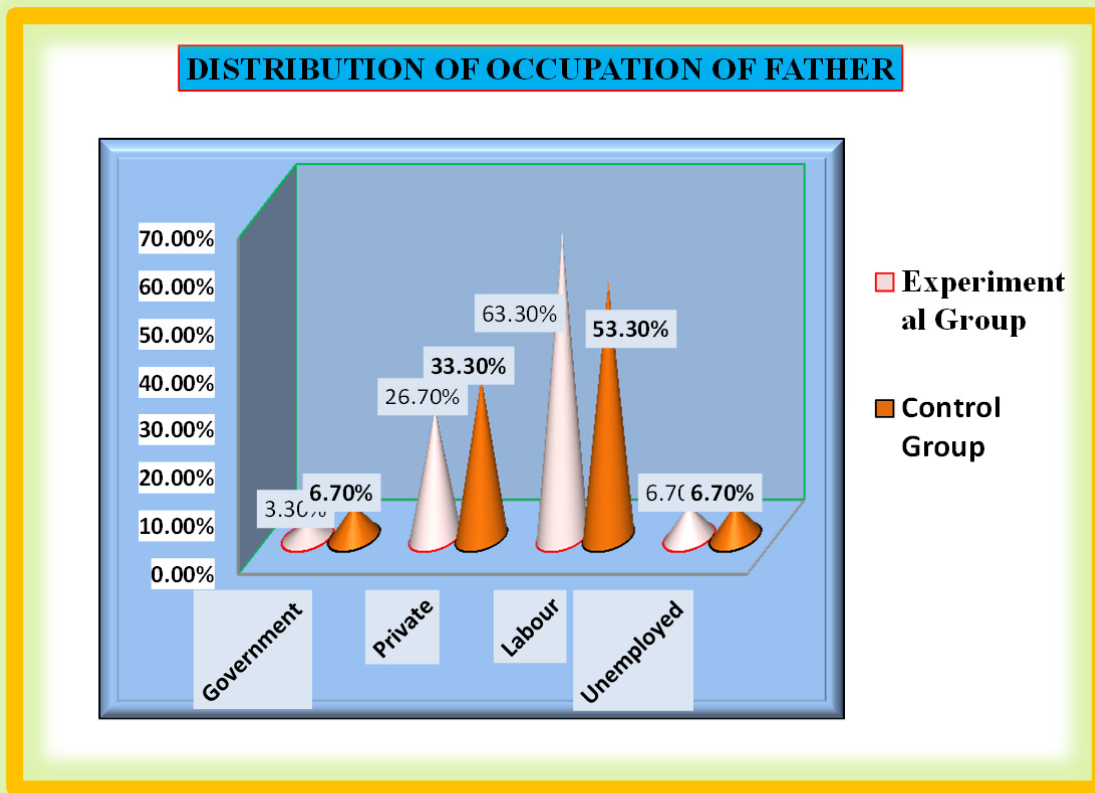
**Figure 8: Percentage distribution according to the education of father in experimental and control group.**

The above bar diagram reveals that majority of the subject's father 13(43.30%) were completed secondary education in experimental group and in control group 16(53.30%) had studied up to secondary education.



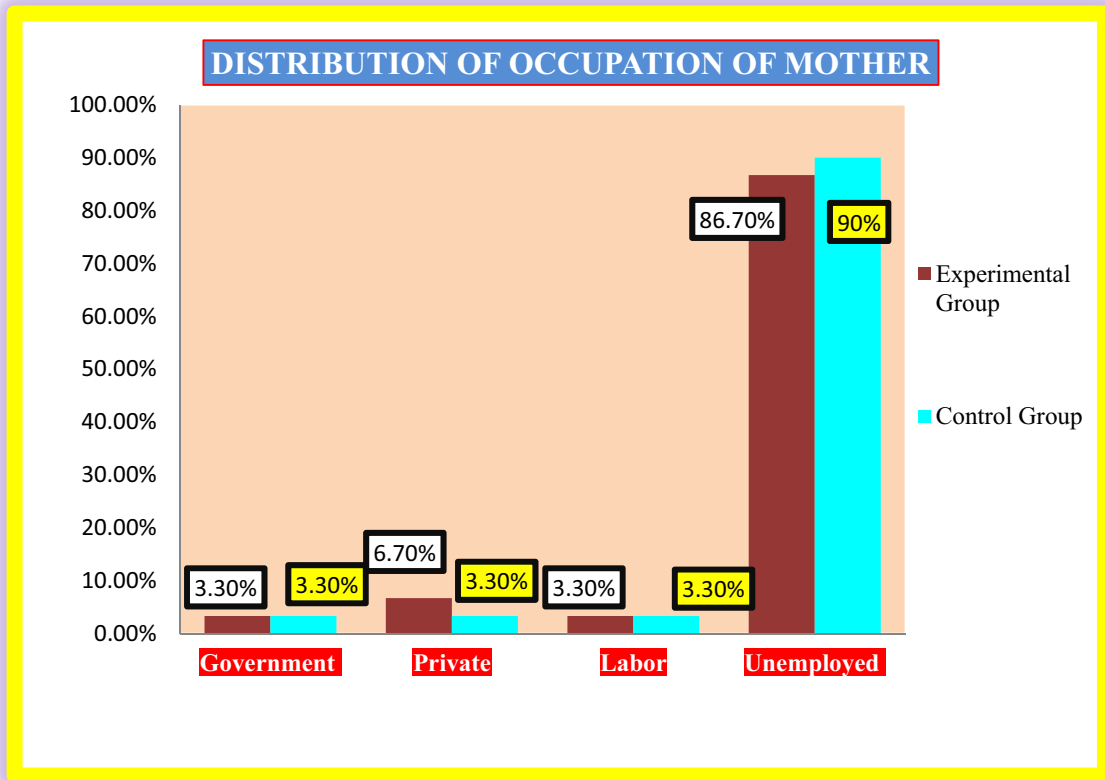
**Figure 9: Percentage distribution based on education of mother in experimental and control group**

The above bar diagram reveals that majority of subject's mothers 12(40%) were studied up to secondary education in experimental group and in control group 18(60%) studied up to secondary education.



**Figure 10: Percentage distribution based on occupation of father in experimental and control group**

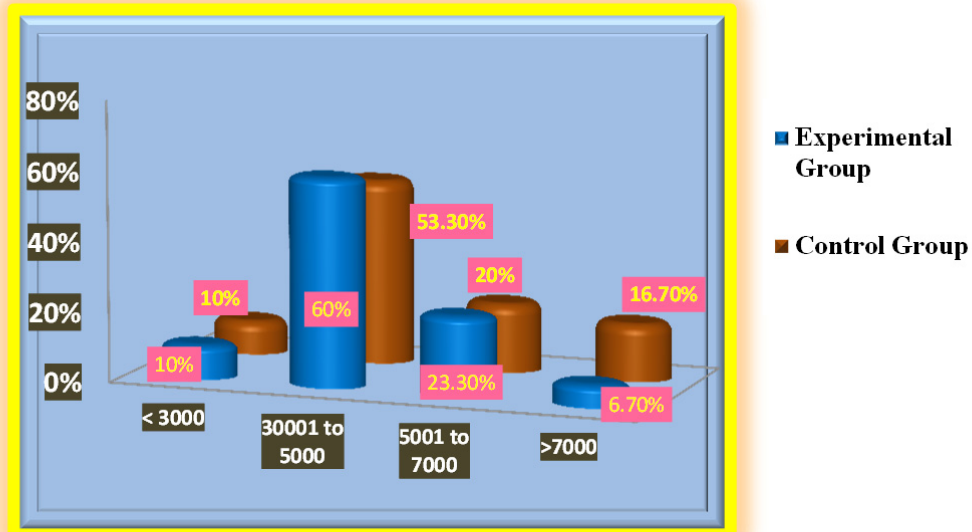
The above cone diagram shows that majority of subject's father 19 (63.30%) were labours in experimental group and 16 (53.3%) were labours in control group.



**Figure 11 : Percentage distribution based on occupation of mother in experimental and control group**

The above cone diagram shows that majority of subject's mothers 26(86.7%) were unemployed in experimental group and 27(90%) were unemployed in control group.

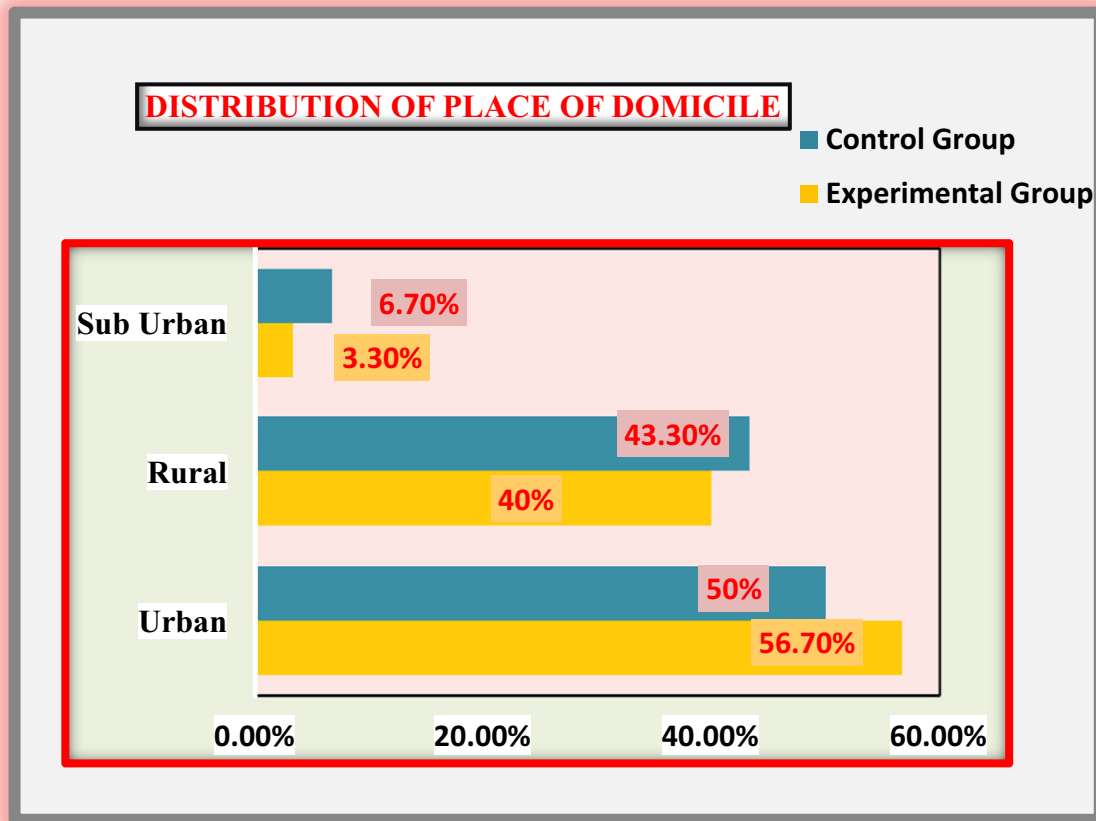
## DISTRIBUTION OF MONTHLY INCOME OF THE FAMILY



**Figure : 12 Percentage distribution according to monthly income of the family in experimental and control group**

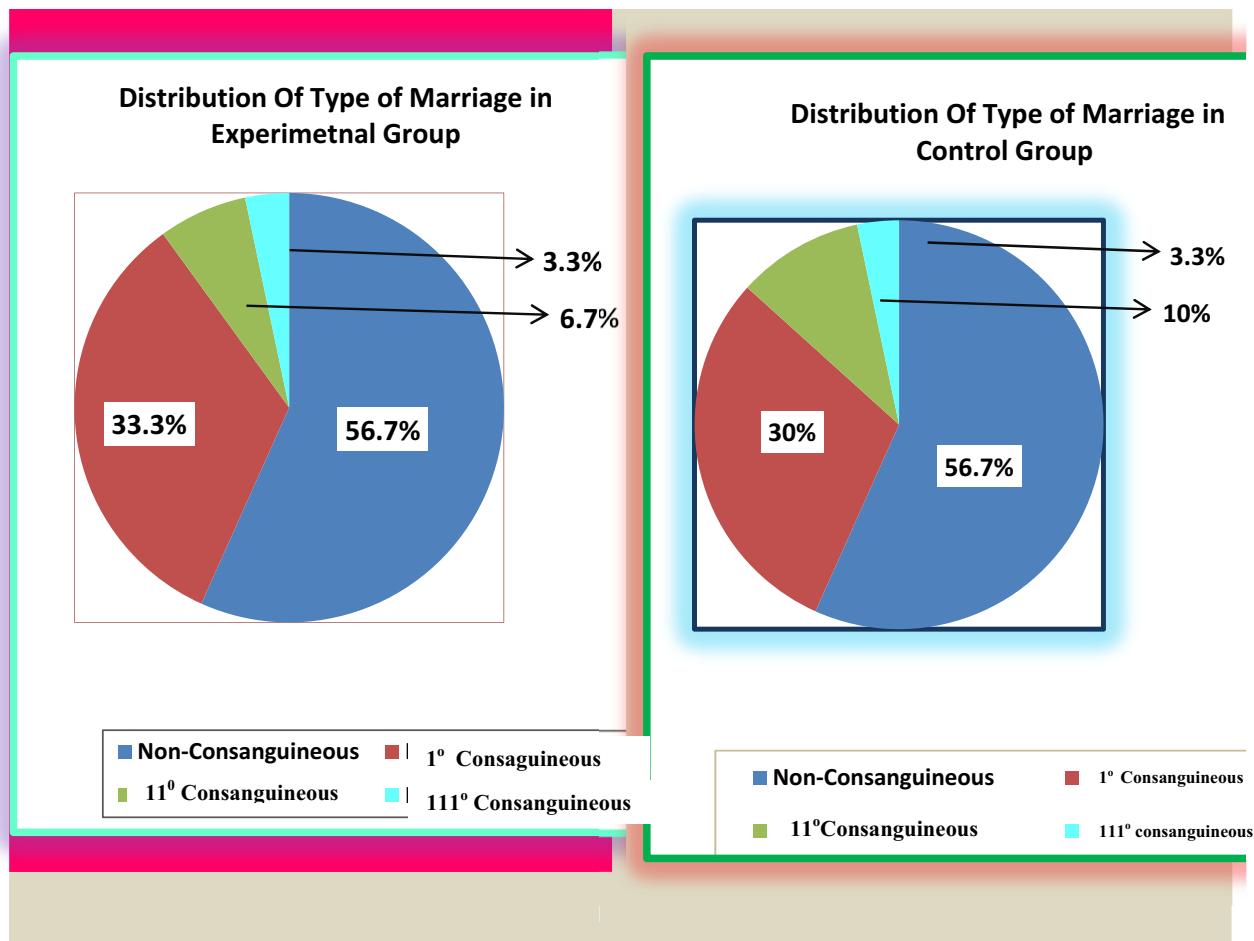
The above cylindrical diagram shows that majority 18(60%) subject's monthly income falls between Rs. 3001/- to Rs. 5000/- in experimental group and 16(53.3%) subject's monthly income falls between Rs. 3001/- to Rs. 5000/- in control group.





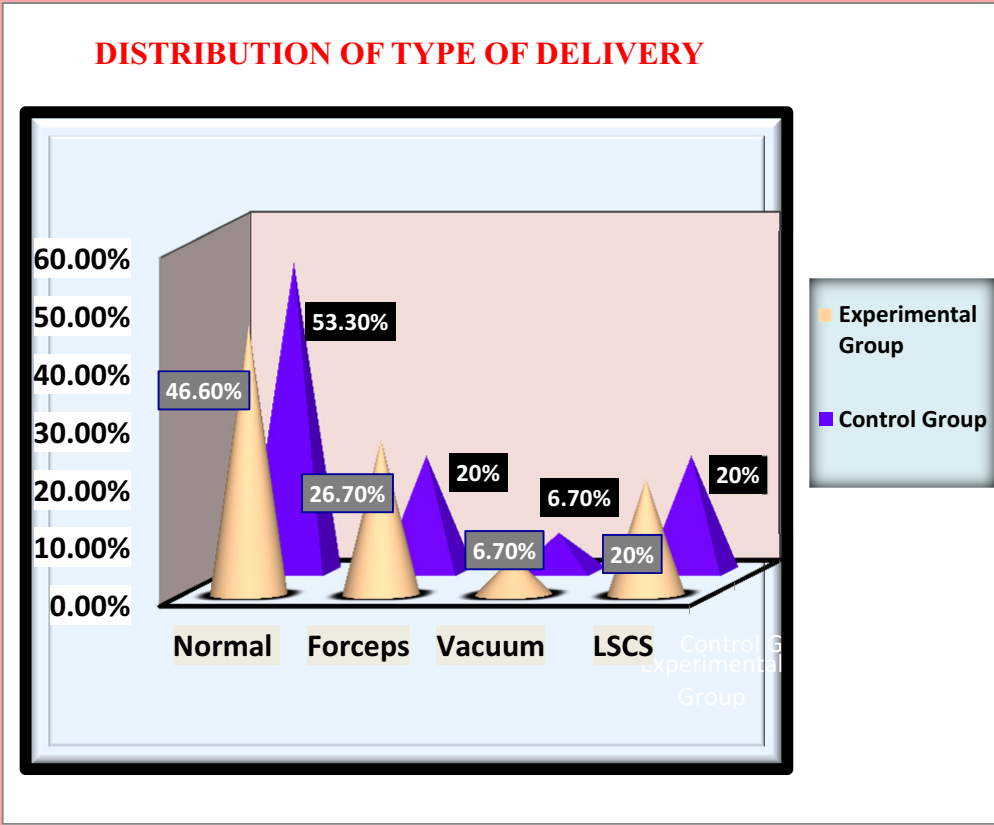
**Figure 13: Percentage distribution according to the place of domicile in experimental and control group.**

The above horizontal bar diagram shows that majority of the subjects 17(56.7%) were residing in urban in experimental group and in control group 15(50%) were residing in Urban.



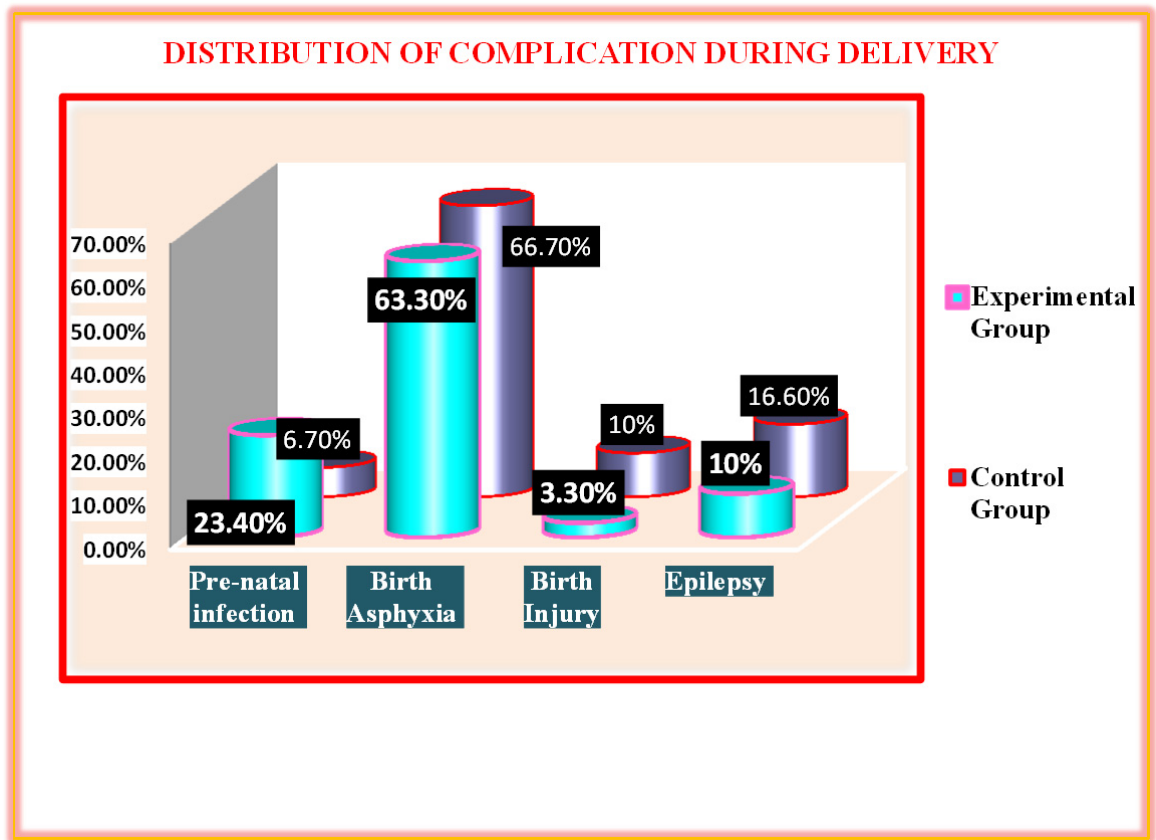
**Figure 14: Percentage distribution based on the type of marriage in experimental and control group.**

The above pie diagram shows that majority 17(56.7%) were non-consanguineous marriage in experimental group and in control group.



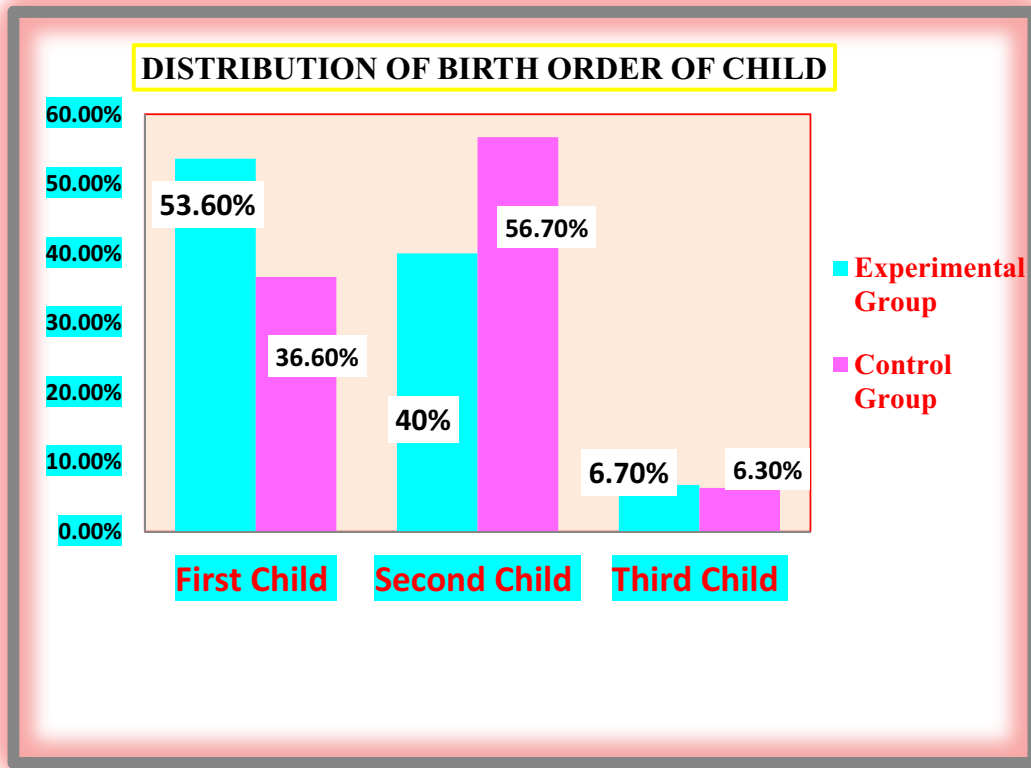
**Figure 15: Percentage distribution according to the type of delivery in experimental and control group.**

The above cone diagram reveals that majority of subjects 14(46.60%) were delivered by normally in experimental group and 16(53.3%) were delivered by normally in control group.



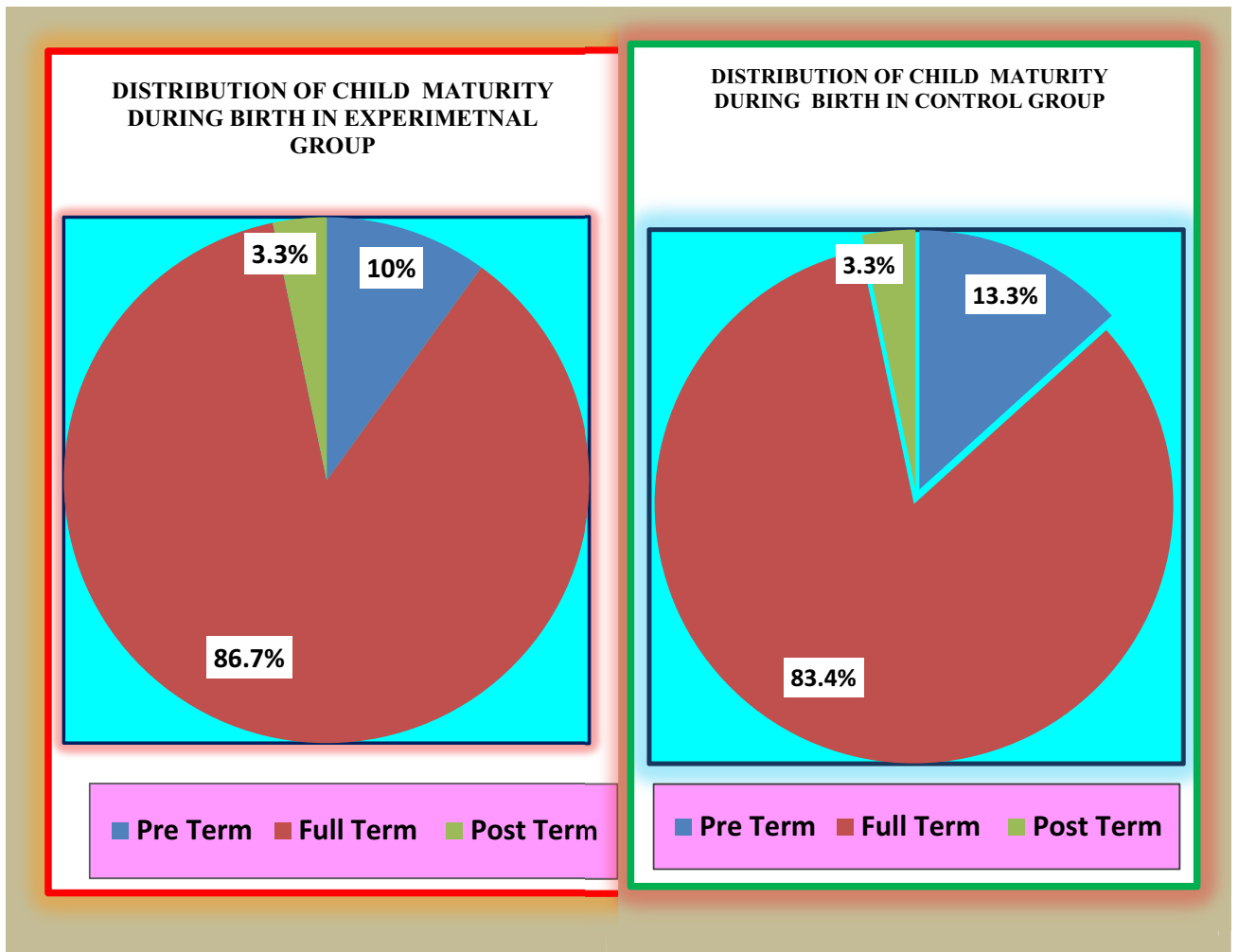
**Figure 16 : Percentage distribution based on the complication during delivery in experimental and control group.**

The above cylinder figure illustrates that majority of subjects in experimental group 19(63.30%) had birth asphyxia and in control group 20(66.70%) subjects had birth asphyxia.



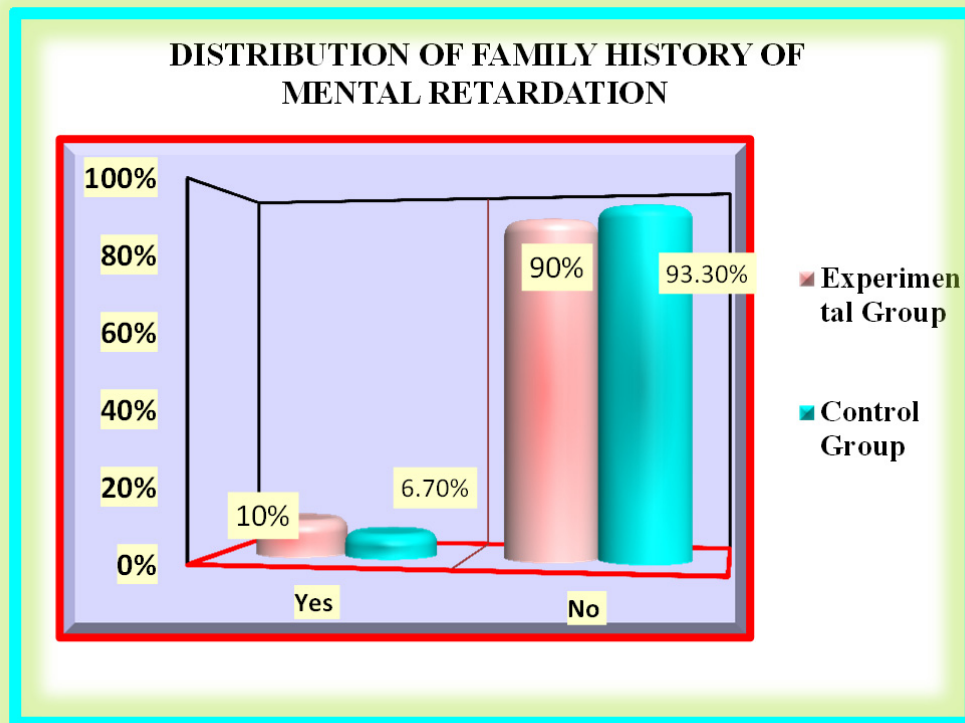
**Figure 17: Percentage distribution based to birth order of the child in experimental and control group.**

The above horizontal bar diagram shows that majority of subjects 16(53.30%) were first child in experimental group and 17(56.7 %) were second child in control group.



**Figure 18: Percentage distribution based on Child maturity during birth in experimental and control group.**

The above pie diagram reveals that majority of subjects 26(86.70%) were full-term in experimental group and 25(83.4%) were full-term in control group.



**Figure 19 : Percentage distribution based on family history of mental retardation in experimental and control group.**

The above bar diagram shows that majority of subjects 27(90%) had no family history of mental retardation in experimental group and majority of subjects 28(93.30%) had no family history of mental retardation in control group

## Section - II

### Description of level of fine motor skills among mentally retarded children in experimental and control group

**Table – 2: Frequency and percentage distribution of level of fine motor skills among mentally retarded children in experimental and control group**

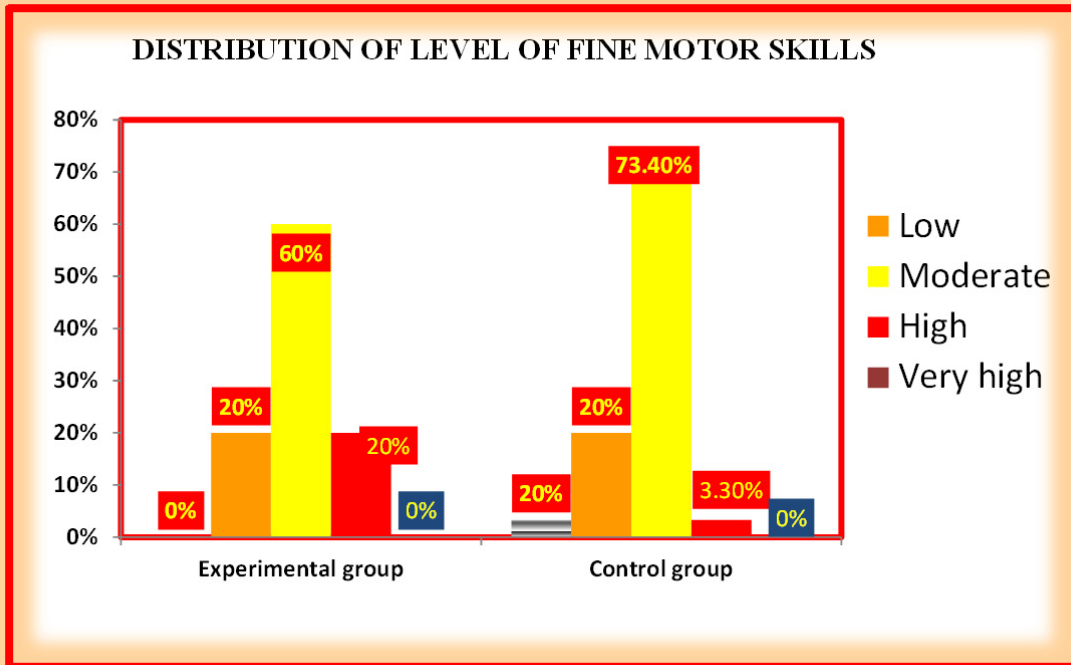
**n = 60**

S.NO	Range	Experimental		Control	
		f	%	f	%
1	Very Low (0-20)	1	3.3	1	3.3
2	Low (21-40)	5	16.7	6	20
3	Moderate (41-60)	23	76.7	22	73.4
4	High (61-80)	1	3.3	1	3.3
5	Very High (81-100)	0	0	0	0

The above table shows that most of the subjects 23(76.7%) were in moderate range, 5(16.7%) were in low range, 1( 3.3%) scored very low range and 1( 3.3%) scored high range on fine motor skills among experimental group.

In control group most of the subjects 22(73.4%) scored moderate, 6(20%) scored low, 1(3.3%) scored low range and 1(3.3%) scored high range on fine motor skills among control group. Hence none of the subjects scored very high score in among experimental and control group.





**Figure 20 : Percentage distribution according to the level of fine motor skills among mentally retarded children in experimental and control group.**

The above bar diagram reveals that majority of subjects 23(76.7%) scored moderate range on fine motor skills in experimental group and in control group 22(73.4%) scored moderate range on fine motor skills.

### Section-III

#### Effectiveness of play activity on level of fine motor skills among mentally retarded children in experimental group

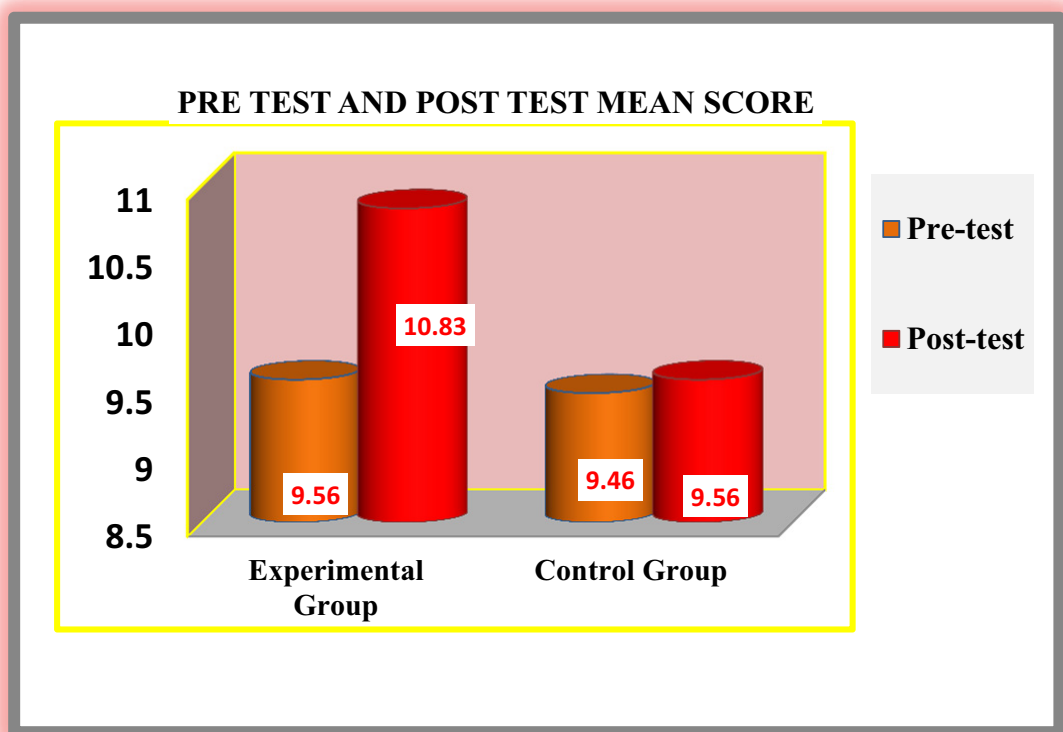
**Table-3: pre test and post test mean score level of fine motor skills between experimental and control group.**

n – 60

S. No	Group	Pre test Mean score	Post test Mean score	Mean Difference
1	Experimental Group	9.56	10.83	1.26
2	Control Group	9.46	9.56	0.10

The above table shows that in experimental group mean score was increased from 9.56 to 10.83 and it shows that 1.26 increased in level of fine motor skills after intervention. This indicates that play activity intervention was effective in improving the level of fine motor skills among experimental group.

s



**Figure : 21 Pre test and post test mean score level of fine motor skills among mentally retarded children in experimental and control group**

The above cylindrical diagram shows that in experimental group mean score was increased from 9.56 to 10.83 in level of fine motor skills after play activity intervention.

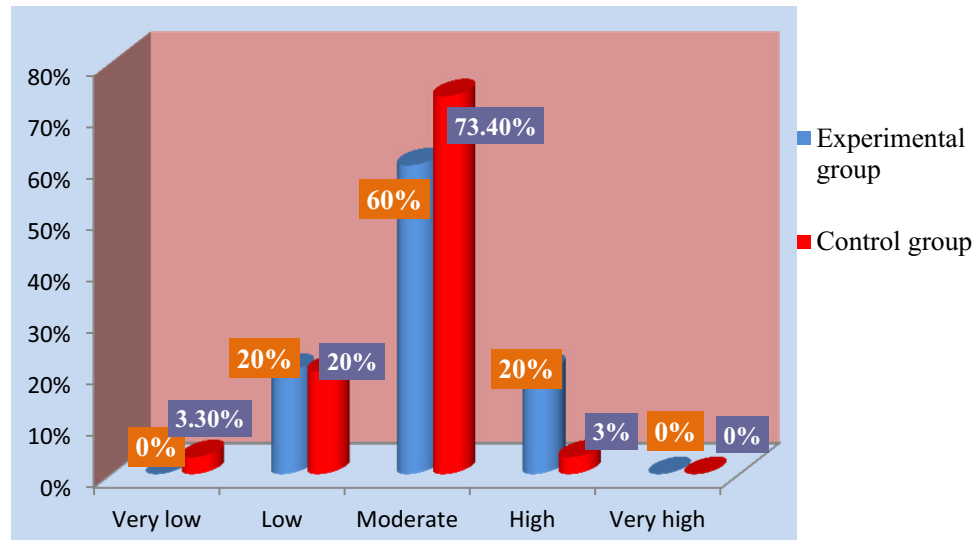
**Table – 4: Frequency and percentage distribution of post test level of fine motor skills among mentally retarded children in experimental and control group.**

**n- 60**

<b>S.no</b>	<b>Range</b>	<b>Experimental Group</b>		<b>Control Group</b>	
		<b>f</b>	<b>%</b>	<b>f</b>	<b>%</b>
1	Very Low	0	0	1	3.3
2	Low	6	20	6	20
3	Moderate	18	60	22	73.4
4	High	6	20	1	3.3
5	Very High	0	0	0	0

The above table shows that most of the subjects 18 (60%) were in moderate range, 6(20%) were in low and 6(20%) were in high range on level of fine motor skills in experimental group. In control group most of the subjects 22(73.4%) scored moderate range, 6 (20%) scored low, 1(3.3%) scored very low and 1(3.3%) are high range on level of fine motor skills. Hence none of the subjects scored very high score in experimental and control group.

**DISTRIBUTION OF POST TEST LEVEL OF FINE MOTOR SKILL  
IN EXPERIMENTAL AND CONTROL GROUP**



**Figure : 22 Percentage distribution of post test level of fine motor skill among mentally retarded children in experimental and control group.**

The above cone diagram reveals that majority of subjects 18(60%) scored moderate range on fine motor skills in experimental group and in control group 22(73.4%) scored moderate range on fine motor skills in post tes

**Table-5 : Mean, Standard deviation and 't' test on level of fine motor skills among mentally retarded children in experimental and control group**

Group	Experimental group			Control group			Student's Independent t- test
	Mean	S D	Student's Dependent t-test value	Mean	S D	Student's Dependent t-test value	
<b>PRE TEST</b>	9.566	2.486	<b>11.89** Significant at P &lt; 0.001</b>	9.466	2.315	1.361 Not Significant at P > 0.184	0.161 Not Significant at P < 0.873
<b>POST TEST</b>	10.833	2.320		9.566	2.254		<b>2.144*</b> <b>Significant at P &gt; 0.036</b>

\* - p< 0.05 significant, \*\* - p < 0.001 highly significant,\*\*\* - p < 0.0001 very highly significant

The above table reveals that in experimental group paired 't' – test value was 11.89 at 0.001 level of significance. Unpaired post test 't' value was 2.144 at 0.036 level of significance. It shows that there was a significant improvement in fine motor skills after play activity intervention.

## Section-VI

### Association between the level of fine motor skills among mentally retarded children with their socio demographic variables

**Table-6: Association between the level of fine motor skills among mentally retarded children with their socio demographic variables**

**n = 60**

S. no	Demographic variables	Fine Motor Skills Level										$\chi^2$	p value
		Very low		Low		Moderate		High		Very high			
		f	%	f	%	f	%	f	%	f	%		
1	Age											5.000 df=4	0.93 NS
	6 – 8 years	0	0	1	3.3	5	16.8	0	0	0	0		
	9 – 11 years	0	0	4	13.3	6	20	2	6.7	0	0		
	12 - 14 years	0	0	1	3.3	7	23.3	4	13.3	0	0		
2	Sex											0.455 df=2	0.73 NS
	Male	0	0	4	13.3	14	46.7	4	13.3	0	0		
	Female	0	0	2	6.7	4	13.3	2	6.7	0	0		
3	Religion											5.956 df=6	0.42 8 NS
	Hindu	0	0	4	13.3	15	50	6	20	0	0		
	Christian	0	0	1	3.3	2	6.7	0	0	0	0		
	Muslim	0	0	1	3.3	0	0	0	0	0	0		
	Others	0	0	0	0	1	3.3	0	0	0	0		
4	Food Habits											1.154 df=2	0.56 2 NS
	Vegetarian	0	0	0	0	3	10	1	3.3	0	0		
	Mixed Diet	0	0	6	20	15	50	5	16.7	0	0		
5	Level of Mental Retardation											2.172 df=2	0.33 8 NS
	Mild	0	0	3	10	9	30	5	16.7	0	0		
	Moderate	0	0	3	10	9	30	1	3.3	0	0		
	Severe	0	0	0	0	0	0	0	0	0	0		

S. no	Demographic variables	Fine Motor Skills Level										$\chi^2$	p value
		Very low		Low		Moderate		High		Very high			
		f	%	f	%	f	%	f	%	f	%		
6	Education of Father											3.205 df=6	0.783 NS
	Non formal Education	0	0	1	3.3	3	10	2	6.7	0	0		
	Primary	0	0	2	6.7	5	16.7	1	3.3	0	0		
	Secondary	0	0	3	10	7	23.3	3	10	0	0		
	Graduate	0	0	0	0	3	10	0	0	0	0		
7	Education of Mother											2.639 df=6	0.853 NS
	Non formal Education	0	0	2	6.7	4	13.3	2	6.7	0	0		
	Primary	0	0	1	3.3	6	20	1	3.3	0	0		
	Secondary	0	0	2	6.7	7	23.3	3	10	0	0		
	Graduate	0	0	1	3.3	1	3.3	0	0	0	0		
8	Occupation of Father											5.395 df=6	0.494 NS
	Government	0	0	0	0	1	3.3	0	0	0	0		
	Private	0	0	3	10	5	16.7	0	0	0	0		
	Labor	0	0	3	10	11	36.6	5	16.7	0	0		
	Unemployed	0	0	0	0	1	3.3	1	3.3	0	0		
9	Occupation of Mother											4.359 df=6	0.628 NS
	Government	0	0	0	0	1	3.3	0	0	0	0		
	Private	0	0	1	3.3	0	0	1	3.3	0	0		
	Labor	0	0	0	0	1	3.3	0	0	0	0		
	Unemployed	0	0	5	16.7	16	53.3	5	16.7	0	0		
10	Monthly Income of the Family											2.751 df=6	0.839 NS
	< 3000	0	0	1	3.3	1	3.3	1	3.3	0	0		
	30001 to 5000	0	0	4	13.3	10	33.3	4	13.3	0	0		
	5001 to 7000	0	0	1	3.3	5	16.7	1	3.3	0	0		
	>7000	0	0	0	0	2	6.7	0	0	0	0		
11	Place of domicile											2.663 df=4	0.616 NS
	Urban	0	0	3	10	9	30	5	16.7	0	0		
	Rural	0	0	3	10	8	26.7	1	3.3	0	0		
	Sub Urban	0	0	0	0	1	3.3	0	0	0	0		



S. no	Demographic variables	Fine Motor Skills Level										$\chi^2$	P value
		Very low		Low		Moderate		High		Very high			
		f	%	f	%	f	%	f	%	f	%		
12	Type of Marriage											2.824 df=6	0.831 NS
	Non-Consanguineous	0	0	4	13.3	10	33.3	3	10	0	0		
	I <sup>0</sup> Consanguineous	0	0	2	6.7	5	16.7	3	10	0	0		
	II <sup>0</sup> Consanguineous	0	0	0	0	2	6.7	0	0	0	0		
	III <sup>0</sup> Consanguineous	0	0	0	0	1	3.3	0	0	0	0		
13	Type of Delivery											<b>13.059</b> <b>df=6</b>	<b>0.042*</b> <b>Significant</b>
	Normal	0	0	4	13.3	8	26.7	2	6.7	0	0		
	Forceps	0	0	2	6.7	4	13.3	2	6.7	0	0		
	Vacuum	0	0	0	0	0	0	2	6.7	0	0		
	LSCS	0	0	0	0	6	20	0	0	0	0		
14	Any complication During Delivery											7.962 df=6	0.241 NS
	Pre-natal infection	0	0	2	6.7	5	16.7	0	0	0	0		
	Birth Asphyxia	0	0	2	6.7	12	40	5		0	0		
	Birth Injury	0	0	1	3.3	0	0	0	0	0	0		
	Epilepsy	0	0	1	3.3	1	3.3	1	3.3	0	0		
15	Birth order of child											2.639 df=4	0.620 NS
	First Child	0	0	3	10	9	30	4	13.3	0	0		
	Second Child	0	0	3	10	8	26.7	1	3.3	0	0		
	Third Child	0	0	0	0	1	3.3	1	3.3	0	0		
16	History of Maturity											5.299 df=4	0.258 NS
	Pre Term	0	0	0	0	1	3.3	2	6.7	0	0		
	Full Term	0	0	6	20	16	53.3	4	13.3	0	0		
	Post Term	0	0	0	0	1	3.3	0	0	0	0		
17	Family History of Mental Retardation											4.691 df=2	0.096 NS
	Yes	0	0	2	6.7	1	3.3	0	0	0	0		
	No	0	0	4	13.3	17	56.7	6	20	0	0		

\* - p < 0.05 significant, \*\* - p < 0.001 significant and \*\*\* - p < 0.0001 highly significant

The above table shows that there is significant association was found between the level of fine motor skills among mentally retarded children with their type of delivery. And there is no significant association between the post test level of fine motor skills and their other socio demographic variables such as age, gender, religion, food habits, level of mental retardation, education of father, education of mother, occupation of father, occupation of mother, monthly income of the family, place of domicile, type of marriage, any complications during delivery, birth order of child, history of maturity and family history of mental retardation.

# *Discussion*

## **CHAPTER - V**

### **DISCUSSION**

This chapter deals with the detailed discussion of the results of the data interpreted in the study. The aim of the study was to evaluate the effectiveness of play activity on fine motor skills among mentally retarded children.

Child's population is the greatest potential of any nation. Children need a healthy environment for achievement of normal growth and development, which enables the children enjoy a state of health i.e complete physical, mental, social and spiritual well-being. This equilibrium is disturbed, affecting the Child's population from independent function. Mentally retarded children with the developmental delay have a deficit in motor skills and adoptive behaviour. Play activity enables the mild and moderate mentally retarded children to develop their self help skills by their improvised motor coordination. The investigator adopted True experimental, pretest - posttest control group design. Sample consists of 60 mentally retarded children selected by random sampling technique. Among 60 subjects, 30 subjects were assigned to each experimental group and control group respectively. Pre test was conducted using a self-structured questionnaire for socio demographic variables and Madras Developmental Programming System – Behavioural Scale to assess the fine motor skill. The post test was conducted using the same questionnaire. The collected data were analyzed and interpreted by using frequency and percentage distribution, mean, standard deviation and paired and un paired 't' test.

The results were discussed based on the objectives.

### **Socio demographic variables of mentally retarded children at Anbagam institute in Madurai**

The study showed that majority of the subjects in experimental group 12(40%) were between 9-11 years, 12(40%) were between 12-14 years and in control group 15 (50%) were between 9-11 years.

Majority of the subjects 22 (73.3%) were male in experimental and control group

Majority of the subjects 25(83.4%) were Hindus in experimental group and 24 (80%) were Hindus in control group.

Regarding food habits, majority of the subjects 26 (86.7%) had mixed food habits in experimental group and 27 (90%) had mixed food habits in control group.

Majority of the subjects in experimental group 17(56.7%) were belongs to mild mental retardation and in control group 16 (53.3%) were belongs to mild mental retardation.

In experimental group majority of subject's father 13(43.3%) were studied up to secondary education and in control group 16 (53.3%) had studied up to secondary education.

Regarding educational status, in experimental group majority of subject's mother 8 (26.7%) had non formal education and 8 (26.7%) had primary education, in control group 18 (60%) had secondary education.

Related to occupation, in experimental group majority of subject's father 19(63.3%) were labours, and in control group 16(53.3%) were labours.

Majority of subject's mother 26(86.7%) in experimental group and 27(90%) in control group were unemployed.

In experimental group majority of subjects monthly income 18(60%) falls in between Rs. 3001/- to Rs.5000/- and in control group 16 (53.3%) falls in between Rs. 3001/- to Rs.5000/-.

Majority of the subjects in experimental group 17(56.7%) were residing in urban and in control group 15(50%) were residing in urban.

Based on type of marriage majority 17(56.7%) had Non-Consanguineous marriage both in experimental and control group.

In experimental group, majority the subjects 14(46.6%) were delivered by normal delivery and in control group 16(53.3%) also by normal delivery.

During delivery majority of subjects 19(63.3%) had birth asphyxia in experimental group and 20 (66.7%) had birth asphyxia in control group.

In experimental group majority of subjects 16 (53.3%) were first child and in control group majority 17 (56.7%) were second child.

Majority of subjects in experimental group 27(90%) and 28(93%) in control group had no family history mental retardation.

**The first objective of the study was to assess the level of fine motor skills among mentally retarded children in experimental group and control group at selected mentally retarded school in Madurai.**

In pre test majority of the subjects 23 (76.7% ) were in moderate range, 5 (16.7% ) were in low range, 1( 3.3%) scored very low range and 1( 3.3%) scored high range on fine motor skills among experimental group. In control group most of

the subjects 22 (73.4%) were scored moderate, 6 (20%) were scored low, 1 (3.3%) scored low range and 1(3.3%) were scored high range on fine motor scale among control group. Hence, none of the subjects scored very high score in pre test among experimental and control group.

This study finding was consistent with a quasi experimental study conducted by Sawyer JP (2007) at New Orleans to identify the level of motor skills of school children with mental retardation. 30 samples were selected and Standardized School Age Checklist was used to assess the motor activity. The study result showed that majority of the children 76% had low range fine motor skills.

**The second objective of the study was to evaluate the effectiveness of play activity on fine motor skills among mentally retarded children at selected mentally retarded school in Madurai.**

In experimental group the mean pre test score was 9.566 and post test mean was 10.833. The mean difference was 1.26. In control group the mean pretest score was 9.466 and post test mean was 9.566. The mean difference was 0.10.

This study finding was consistent with a quasi –experimental study conducted by Nisha C. Joseph (2012) in mentally retarded school at Bangalore to assess the effectiveness of play activity on motor activity among mentally retarded children. Using Non probability purposive sampling technique, 30 samples age between 5 to 12 years with mild and moderate mentally challenged children were selected and play activity were given for 1 hour a day for a period of 4 weeks. Standardized School Age Checklist was used to assess the level of motor activity. The pre test mean was 8.25 and post test mean was 10.12. The mean difference was. 1.87. The result showed significant improvement in the motor activity after intervention.

**Hence, that stated hypothesis - H<sub>1</sub> There is a significant difference between pre test and post test level of fine motor skills among mentally retarded children at selected mentally retarded school in Madurai was accepted.**

In experimental group paired 't' - test value was 11.89 significant at  $p < 0.001$ . In control group paired 't' - test value was 1.361 not significant at  $p > 0.184$ . Unpaired post test 't'-value was 2.144 significant at  $p < 0.036$ .

The study was consistent with a True - experimental study conducted by Benjamin and Mehlman (2008) at Kent state university to assess effect of non directive play on fine motor skills among institutionalized mentally retarded children. Sample size was 32 institutionalized mentally retarded children. After 11 sessions of play the unpaired pre test t value was 0.21 not significant at 0.001 level of significance. Unpaired post t test value was 1.86 at 0.001 level of significance. So the result showed non directive play improves the fine motor skills.

**Hence, that stated hypothesis -H<sub>2</sub> There is a significant difference between post test level of fine motor skills in experimental and control group of mentally retarded children at selected mentally retarded school in Madurai was accepted.**

**The third objective is to associate the level of fine motor skills among mentally retarded children with their selected socio demographic variables.**

The study revealed that there is significant association between the post test knowledge scores and selected socio demographic variables such as type of delivery ( $\chi^2 = 13.059, p - 0.042$ )

This study finding was consistent with Quasi experimental study conducted by Doric-Henry (2007) on Effects of directive play with institutionalized mentally retarded children at USA.( $p < 0.05$ ). A significant relationship was found between the



type of delivery ( $\chi^2 = 12.08$ ,  $p = 0.056$ ), age ( $\chi^2 = 10.25$ ,  $p = 0.005$ ) and post test level of fine motor skills.

**Hence, H<sub>3</sub> - There is significant association between the fine motor skills among mentally retarded children with their selected socio demographic variables was accepted.**

*Summary,*  
*Conclusion,*  
*Implications &*  
*Recommendations*

**CHAPTER – VI**  
**SUMMARY, CONCLUSION, IMPLICATIONS AND**  
**RECOMMENDATIONS**

This chapter deals with the summary of the study and conclusions drawn. It also clarifies the limitations of the study, the implications for different areas like nursing practice, nursing educations, nursing administration, nursing research and recommendations.

**6.1 Summary**

The present study was aimed at evaluating the effectiveness of play activity on fine motor skills among mentally retarded children in Anbagam Institute for mentally retarded children at Thamaraihotti and Anupanadi in Madurai.

**The objectives of the study were**

- To assess the level of fine motor skills among mentally retarded children in both in experimental group and control group at selected mentally retarded school in Madurai.
- To evaluate the effectiveness of play activity on the level of fine motor skills among mentally retarded children at selected mentally retarded school in Madurai.
- To associate the level of fine motor skills among mentally retarded children with their selected socio demographic variables.

**The following hypotheses were tested.**

H<sub>1</sub> - There is a significant difference between pre test and post test level of fine motor skills among mentally retarded children at selected mentally retarded school in Madurai.

H<sub>2</sub>- There is a significant difference between post test level of fine motor skills in experimental and control group of mentally retarded children at selected mentally retarded school in Madurai.

H<sub>3</sub> - There is significant association between the fine motor skills among mentally retarded children with their selected socio demographic variables.

The conceptual frame work used for this study was based on wiedenbach's prescriptive theory. A true experimental, pretest - post test control group design was used in this study. The independent variable was play activity and the dependent variable was fine motor skills. This study was conducted in Anbagam Institute for mentally retarded children at Thamaraihotti and Anupanadi in Madurai. The accessible population of the study were mild and moderate mentally retarded children in Anbagam Institute for mentally retarded children at Thamaraihotti and Anupanadi in Madurai.

The study subjects were selected by using simple random sampling technique and were assigned to experiment group and control group (30 in each group). The data collection tools used was

1. Semi structured interview schedule to assess demographic variables
2. Madras Developmental Programming System – Behavioural Scale was used to assess the fine motor skills.

Content validity was obtained from experts in community medicine, psychiatrist and psychologist and three community health nursing experts. Pilot study was conducted on 10 subjects at Anbagam Institute at Anupanadi in Madurai to find out the feasibility of study.

The main study was carried out for 6 weeks from 03.08.2015 to 14.09. 2015. Based on the objectives and hypotheses, the data collected were analyzed by using descriptive and inferential statistics.

### **Major findings of the study**

**Related to age**, majority of the subjects in experimental group 12 (40%) were between 9-11 years, 12 (40%) were between 12-14 years and in control group 15 (50%) were between 9-11 years.

**Based on gender**, majority of the subjects 22 (73.3%) were male in both experimental and control group.

**In regard to religion**, majority of the subjects 25(83.4%) were Hindus in experimental group and 24 (80%) were Hindus in control group.

**In relation to Food habits**, majority of the subjects 26(86.7%) had mixed food habits in experimental group and 27 (90%) had mixed food habits in control group.

**Based on level of mental retardation**, majority of the subjects in experimental group 17 (56.7%) were belongs to mild mental retardation and in control group 16 (53.3%) were belongs to mild mental retardation.

**In the aspect of educational status of father**, in experimental group majority 13 (43.3%) had studied up to secondary education and in control group 16 (53.3%) had studied up to secondary education.

**Based on educational status of mother**, in experimental group majority 8 (26.7%) had non formal education and 8(26.7%) had primary education. In control group 18 (60%) had secondary education.

**In regard to father's occupation**, in experimental group majority 19 (63.3%) were labours, and in control group 16 (53.3%) were labours.

**Related to mother's occupation**, majority 26 (86.7%) in experimental group and 27 ( 90%) in control group were unemployed.

**About monthly income of the family**, majority in experimental group 18 (60%) falls in between Rs. 3001/- to Rs.5000/- and in control group 16 (53.3%) falls in between Rs. 3001/- to Rs.5000/-.

**Regarding the place of domicile**, majority of the subjects in experimental group 17 (56.7%) were residing in urban and in control group 15 (50%) were residing in urban.

**Based on type of marriage**, majority 17 (56.7%) had Non-Consanguineous marriage both in experimental and control group.

**In regard to type of delivery**, majority the subjects in experimental group 14 (46.6%) by normal delivery and in control group 16 (53.3%) also by normal delivery.

**Related to complication during delivery** majority of subjects 19 (63.3%) had birth asphyxia in experimental group and 20 (66.7%) had birth asphyxia in control group.

**In the aspect of birth order**, in experimental group majority of subjects 16 (53.3%) were first child and in control group majority 17 (56.7%) were second child.

**Related to child maturity during birth**, in experimental group majority of subjects 26 (86.7%) and in control group majority of subjects 25 (83.4%) were full term.

**Based on family history of mental retardation**, majority of subjects in experimental group 27(90%) and 25 (93%) in control group had no family history of mental retardation.

Level of fine motor skills in pre test, majority of the subjects 23 (76.7%) were scored moderate range, 5 (16.7%) were scored low range, 1(3.3%) scored very low range and 1(3.3%) scored high range in experimental group. In control group most of the subjects 22(73.4%) were scored moderate range, 6 (20%) were scored low range, 1 (3.3%) were scored low range and 1(3.3%) were scored high range. Hence none of the subjects scored very high range among experimental and control group.

In post test regarding level of fine motor skills the majority of the subjects 18 (60%) were scored moderate range, 6 (20%) were scored low and 6 (20%) were scored high range and none of the subjects scored very low score in experimental group. In control group majority of the subjects 22 (73.4%) scored moderate, 6 (20%) scored low, 1 (3.3%) scored very low and 1 (3.3%) scored high range on fine motor skills. Hence none of the subjects scored very high score in post test among experimental and control group.

In experimental group pre test mean score was 9.566 and post test mean score was 10.833. Standard deviation of the Pre test was 2.486 and in Post test it was 2.320. The Mean difference was 1.26. The calculated paired “t” test value was 11.89 which was greater than tabulated value at 0.0001 level of significance. The calculated unpaired “t” test value was 2.144 significant at 0.036 level of significance. The

difference in the mean scores and “t” value showed a significant change in the level of fine motor skills. Thus the play activity was effective in improving fine motor skills among mentally retarded children.

The significant association was found between the level of fine motor skills among mentally retarded children with their type of delivery with  $\chi^2 = 13.059$  at 0.042 level of significance. And there was no significant association between the post test level of fine motor skills and other socio demographic variables such as age, gender, religion, food habits, level of mental retardation, education of father, education of mother, occupation of father , occupation of mother, monthly income of the family ,place of domicile ,type of marriage, any complications during delivery, birth order of child, history of maturity and family history of mental retardation .

## **6.2 Conclusion**

The study findings statistically proved that play activity improved the level of fine motor skills among mentally retarded children. So the researcher concluded that play activity is low cost, non invasive and highly feasible, it can be used to improve fine motor skills among mentally retarded children.

## **6.3 Implications of the study**

The researcher has derived the following implications from the study which are of vital importance in the field of nursing service, nursing education, nursing administration and nursing research.



### **Nursing practice**

- ❖ Community health nurse should educate mentally retarded children's parents about the benefits of play activity and encourage them to practice daily.
- ❖ Nurse can conduct school education program on play activity to promote physical and cognitive wellbeing.
- ❖ Research based evidence can be applied in fostering play activity in various community settings.
- ❖ Nurse has to read research articles, use library resources, access online service and to adopt the research findings.

### **Nursing education**

- ❖ Nurse educator incorporate research findings in clinical assignments.
- ❖ Nurse educator can conduct workshops and conferences for students regarding the use of complementary therapies in day-to-day nursing practice.
- ❖ Practical training on complementary can be incorporated in nursing curriculum.
- ❖ Nurse educator motivate the students to conduct research activity related to play activity.
- ❖ Nurse educator can prepare a self instructional material such as self learning packages which can be placed in school.

### **Nursing administration**

Nurse administrators are the back bone to provide facilities to improve knowledge regarding play activity, fine motor skills, mental retardation among school teachers and parents.

- ❖ The nurse administrator should organize an in service education program to improve knowledge on nurse's assessing skills, develop competency in identifying physical ability of mentally retarded children during school health visit.
- ❖ The nurse administrator must arrange training classes on play activity for nurses.
- ❖ Nurse administrator can allocate resources to conduct research regarding play activity.
- ❖ Separate budgets should be allocated for innovative educational aids.
- ❖ Local mass media can be used to popularize play activity as non pharmacological intervention to promote physical and psychological well being among mentally retarded children.
- ❖ The nurse administrator can motivate, supervise and guide the nurses to conduct play activity on fine motor skills in various settings.

### **Nursing research**

- ❖ The investigator focus their activities on current trends in play activity to improve fine motor skills among mentally retarded children.
- ❖ Disseminate the research results as early as possible.
- ❖ Disseminate the research findings locally, regionally and nationally.
- ❖ The nursing personnel have to broaden and expand their knowledge and skill to elicit problems and to conduct various researches.

#### **6.4 Recommendations**

- Education and training can be conducted for the nursing students to identify level of fine motor skills and recognize the importance of play activity intervention.
- This study can be replicated with a large sample size and in various setting for better generalization
- A comparative study can be done between play activity and other complementary therapies.

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# *Appendices*

## APPENDIX I

### LETTER SEEKING PERMISSION TO CONDUCT THE STUDY

From

S. Umarani,  
I year M. Sc (Nursing)  
College of Nursing,  
Madurai Medical College,  
Madurai – 625020.

To

The Dean  
Madurai Medical College  
Madurai – 625020.

Through proper channel,

Respected Sir,

Sub: Permission for conducting study in Anbagam Institution for Mentally retarded children, Madurai – requested – regarding.

I, Mrs. S. Umarani, I year M. Sc (Nursing) student, College of Nursing, Madurai Medical College, Madurai in partial fulfillment of M. Sc (Nursing) course, have a plan to conduct a dissertation study on **“A study to evaluate the effectiveness of play activity on fine motor skills among mentally retarded children at selected mentally retarded school in Madurai”**.

Kindly consider my request and permit to conduct the study.

Thanking you,

Date: 11/09/2014

Place: Madurai – 20

Yours Faithfully,

*Umarani*

(S.Umarani)

Forwarded  
S.P. — I  
11/9/14  
Principal  
COLLEGE OF NURSING  
Madurai Medical College  
Madurai-20.

From

S. Umarani,  
I year M. Sc (Nursing)  
College of Nursing,  
Madurai Medical College,  
Madurai – 625020.

To

The Principal,  
Anbagam Institution for Mentally retarded Children,  
Race Course road,  
Madurai – 625002.

Respected Madam,

Sub: College of Nursing, Madurai Medical College, Madurai – I Year M. Sc (Nursing), Community Health Nursing – Permission for conducting study in Anbagam Institution for Mentally retarded Children at Thamaraihotti & Anupanadi – requested – regarding.

I, Mrs. S. Umarani, I year M. Sc (Nursing) student, College of Nursing, Madurai Medical College, Madurai in partial fulfillment of M. Sc ( Nursing) course have a plan to conduct a dissertation study on “**A study to evaluate the effectiveness of play activity on fine motor skills among mentally retarded children at selected mentally retarded school in Madurai**”. I assure you that I will not interfere with the routine activity of the department.

Kindly consider my request and permit to conduct the study.

Thanking you,

Date: 03/07/14

Place: Madurai - 20

Yours Faithfully,

*Ume*

(S. Umarani)

*Forwarded*  
*S.P. /*  
*3/7/14*

*Permitted*

*Sri. Selva*  
*3/7/14*  
HEADMISTRESS  
ANBAGAM SPECIAL SCHOOL  
RACE COURSE ROAD  
MADURAI - 625 002.

## APPENDIX II

### Ethical committee approval letter

Ref.No.8102/E1/5/2014

Madurai Medical College,  
Madurai -20. Dated: 09.2014.

Institutional Review Board/Independent Ethics Committee  
Capt.Dr.B.Santhakumar,MD (FM). [deanmdu@gmail.com](mailto:deanmdu@gmail.com)  
Dean, Madurai Medical College &  
Government Rajaji Hospital, Madurai 625 020 . Convenor

Sub: Establishment – Madurai Medical College, Madurai-20 –  
Ethics Committee Meeting – Meeting Minutes - for September 2014 –  
Approved list – reg.

The Ethics Committee meeting of the Madurai Medical College, Madurai was held on  
September 12th 2014 at 10.00 Am to 12.00 Noon at Anaesthesia Seminar Hall at Govt. Rajaji  
Hospital, Madurai . The following members of the Ethics Committee have attended the meeting.

1.Dr.V.Nagarajan,M.D.,D.M(Neuro) Ph: 0452-2629629 Cell No.9843052029 <a href="mailto:nag9999@gmail.com">nag9999@gmail.com</a> .	Professor of Neurology (Retired) D.No.72, Vakkil New Street, Simmakkal, Madurai -1	Chairman
2.Dr.Mohan Prasad, MS.M.Ch. Cell.No.9843050822 (Oncology) <a href="mailto:drbkcmp@gmail.com">drbkcmp@gmail.com</a>	Professor & H.O.D of Surgical Oncology (Retired) D.No.32, West Avani Moola Street, Madurai.-1	Member Secretary
3. Dr.L.Santhanalakshmi, MD (Physiology) Cell No.9842593412 <a href="mailto:dr.Lsanthanalakshmi@gmail.com">dr.Lsanthanalakshmi@gmail.com</a> .	Vice Principal, Prof. & H.O.D. Institute of Physiology Madurai Medical College	Member
4.Dr.K.Parameswari, MD(Pharmacology) Cell No.9994026056 <a href="mailto:drparameswari@yahoo.com">drparameswari@yahoo.com</a> .	Director of Pharmacology Madurai Medical College.	Member
5.Dr.S.Vadivel Murugan, MD., (Gen.Medicine) Cell No.9566543048 <a href="mailto:svadivelmurugan_2007@rediffmail.com">svadivelmurugan_2007@rediffmail.com</a> .	Professor & H.O.D of Medicine Madurai Medical College	Member
6.Dr.A.Sankaramahalingam, MS., (Gen. Surgery) Cell.No.9443367312 <a href="mailto:chandrahospitalmdu@gmail.com">chandrahospitalmdu@gmail.com</a>	Professor & H.O.D. Surgery Madurai Medical College.	Member
7.Mrs.Mercy Immaculate Rubalatha, M.A., Med., Cell.No.9367792650 <a href="mailto:lathadevadoss86@gmail.com">lathadevadoss86@gmail.com</a>	50/5, Corporation Officer's Quarters, Gandhi Museum Road, Thamukam, Madurai-20.	Member
8.Thiru.Pala.Ramasamy, B.A.,B.L., Cell.No.9842165127 <a href="mailto:palaramasamy2011@gmail.com">palaramasamy2011@gmail.com</a>	Advocate, D.No.72,Palam Station Road, Sellur, Madurai-20.	Member
9.Thiru.P.K.M.Chelliah, B.A., Cell No.9894349599 <a href="mailto:pkmandco@gmail.com">pkmandco@gmail.com</a>	Businessman, 21 Jawahar Street, Gandhi Nagar, Madurai-20.	Member

.. 2 ..

The following Project was approved by the Ethical Committee


Name of P.G.	Course	Name of the Project	Remarks
S.Umarani adiumaskr@gmail.com	M.Sc (Nursing) <sup>1st</sup> year Community Health Nursing, Madurai Medical College, Madurai.	"A study to evaluate the effectiveness of play activity on fine motor skills among mentally retarded children at selected mentally retarded school in Madurai.	Approved

Please note that the investigator should adhere the following: She/He should get a detailed informed consent from the patients/participants and maintain it Confidentially.

1. She/He should carry out the work without detrimental to regular activities as well as without extra expenditure to the institution or to Government.
2. She/He should inform the institution Ethical Committee, in case of any change of study procedure, site and investigation or guide.
3. She/He should not deviate the area of the work for which applied for Ethical clearance. She/He should inform the IEC immediately, in case of any adverse events or Serious adverse reactions.
4. She/He should abide to the rules and regulations of the institution.
5. She/He should complete the work within the specific period and if any Extension of time is required He/She should apply for permission again and do the work.
6. She/He should submit the summary of the work to the Ethical Committee on Completion of the work.
7. She/He should not claim any funds from the institution while doing the work or on completion.
8. She/He should understand that the members of IEC have the right to monitor the work with prior intimation.

  
Member Secretary  
Ethical Committee

  
Chairman  
Ethical Committee

  
DEAN/Convenor  
Madurai Medical College &  
Govt. Rajaji Hospital, Madurai.

To  
The above Applicant  
-thro. Head of the Department concerned

17.8  
24/9/14

.. 2 ..

## APPENDIX III

### TRAINING CERTIFICATE FOR PLAY THERAPY



**THE VALLIAMMAL INSTITUTION (TVI)**  
2/18A Upstairs, B.B. Road 2<sup>nd</sup> St., Pankajam Colony , Madurai-625 009.  
☎ 98942 49630; 98430 40226 email: ananthibetsy@rediffmail.com

Reg. No. PCC/47/May 15/299 Date: 29/05/15



**Certificate Course in Basic Counselling and  
Play Therapy on Fine Motor Skills**

*This is to certify that .....S. UMARANI..... has completed our  
**CERTIFICATE COURSE IN BASIC COUNSELLING AND PLAY  
THERAPY ON FINE MOTOR SKILLS (24 hrs Part-time Education  
Programme designed and offered by experts) by effectively participating in  
theory & practical classes and successfully completing all the exercises.  
She has been placed in First Class***

  
Prof. Dr. S. Jeyaprasam M.Sc.,M.A.,M.A.,Ph.D.,  
Director  
Rajarajan Institute of Science (RISE)

  
Dr. B. Ananthavalli M.Sc.,M.A.,M.Phil.,Ph.D.,  
Director & Secretary  
The Valliammal Institution (TVI)



**APPENDIX IV**  
**CERTIFICATES OF VALIDATION**

**CERTIFICATE OF VALIDATION**

This is to certify that the tool

SECTION – A: Demographic Variables

SECTION – B: Madras Developmental Programming System – Behavioural Scale

Prepared for data collection by S. Umarani, II year M. Sc (N), College of Nursing, Madurai Medical College, Madurai, who has undertaken the study field on thesis entitled, “A Study to evaluate the effectiveness of play activity on fine motor skills among mentally retarded children at selected mentally retarded school in Madurai” has been validated by me.

*H. Sakthi*  
*3/7/15*

SIGNATURE OF THE EXPERT

NAME:

DESIGNATION:

DATE:

**ASSOCIATE PROFESSOR**  
Institute Of Community Medicine  
Madurai Medical College  
Madurai

## CERTIFICATE OF VALIDATION

This is to certify that the tool

SECTION – A: Demographic Variables

SECTION – B: Madras Developmental Programming System – Behavioural Scale

Prepared for data collection by S. Umarani, II year M. Sc (N), College of Nursing, Madurai Medical College, Madurai, who has undertaken the study field on thesis entitled, “A Study to evaluate the effectiveness of play activity on fine motor skills among mentally retarded children at selected mentally retarded school in Madurai” has been validated by me.



**SIGNATURE OF THE EXPERT**

**NAME:**

Dr. T. KUMANAN, M.D.(PSY).DPM  
Reg. No. 42957

**DESIGNATION:**

Professor of Psychiatry / Senior Civil Surgeon  
Madurai Medical College / Govt. Rajaji Hospital  
Madurai

**DATE:**

31.7.2015


### CERTIFICATE OF VALIDATION

This is to certify that the tool

SECTION – A: Demographic Variables

SECTION – B: Madras Developmental Programming System – Behavioural Scale

Prepared for data collection by S. Umarani, II year M. Sc (N), College of Nursing, Madurai Medical College, Madurai, who has undertaken the study field on thesis entitled, “A Study to evaluate the effectiveness of play activity on fine motor skills among mentally retarded children at selected mentally retarded school in Madurai” has been validated by me.

  
1/8/15  
SIGNATURE OF THE EXPERT

NAME: N. SURESH KUMAR

DESIGNATION: Asst. Prof. cum Clinical  
psychologist

DATE: 1/8/15

**N. SURESH KUMAR. M.A., M.Phil.**  
Asst. Prof. Cum Clinical Psychologist  
Dept. of Psychiatry  
Madurai Medical College  
Madurai-20.

CERTIFICATE OF VALIDATION

This is to certify that the tool

SECTION – A: Demographic Variables

SECTION – B: Madras Developmental Programming System – Behavioural Scale

Prepared for data collection by S. Umarani, II year M. Sc (N), College of Nursing, Madurai Medical College, Madurai, who has undertaken the study field on thesis entitled, “A Study to evaluate the effectiveness of play activity on fine motor skills among mentally retarded children at selected mentally retarded school in Madurai” has been validated by me.



SIGNATURE OF THE EXPERT

NAME: DR. Y. JOHN SAM ARUN PRABHU

DESIGNATION: Professor, CSI JALOW

DATE: 4/8/15

Mr. Y. John Sam Arun Prabhu,  
M.Sc.,(N)M.Sc.,(Psy),PGDHM  
HOD, Community Health Nursing  
CSI Jeyaraj Annapackiam  
College of Nursing  
Pasumalai, Madurai-625 004

### CERTIFICATE OF VALIDATION

This is to certify that the tool

SECTION – A: Demographic Variables

SECTION – B: Madras Developmental Programming System – Behavioural Scale

Prepared for data collection by S. Umarani, II year M. Sc (N), College of Nursing, Madurai Medical College, Madurai, who has undertaken the study field on thesis entitled, “A Study to evaluate the effectiveness of play activity on fine motor skills among mentally retarded children at selected mentally retarded school in Madurai” has been validated by me.



SIGNATURE OF THE EXPERT

NAME: Dr Juliet Sylvia

DESIGNATION: Professor in Community,  
Health Nursing

DATE: 4/9/15

### CERTIFICATE OF VALIDATION

This is to certify that the tool

SECTION – A: Demographic Variables

SECTION – B: Madras Developmental Programming System – Behavioural Scale

Prepared for data collection by S. Umarani, II year M. Sc (N), College of Nursing, Madurai Medical College, Madurai, who has undertaken the study field on thesis entitled, “A Study to evaluate the effectiveness of play activity on fine motor skills among mentally retarded children at selected mentally retarded school in Madurai” has been validated by me.



SIGNATURE OF THE EXPERT

NAME: P. SUBBALAKSHMI

DESIGNATION: PROFESSOR

DATE: 21/07/15

## APPENDIX – V

### INFORMED CONSENT FORM

#### ஒப்புதல் படிவம்

இந்த ஆராய்ச்சியின் விவரங்களும் அதன் நோக்கங்களும் முழுமையாக எனக்கு தெளிவாக விளக்கப்பட்டது.

எனக்கு விளக்கப்பட்ட விஷயங்களை நான் புரிந்துகொண்டு, எனது சம்மதத்தை தெரிவிக்கிறேன்.

இந்த ஆராய்ச்சியில் பிறரின் நிர்பந்தமின்றி என் சொந்த விருப்பத்தின் பேரில் எனது மகனை/ மகளை பங்கு பெறவைக்கிறேன் மற்றும் எனது மகன் / மகள் இந்த ஆராய்ச்சியிலிருந்து எந்நேரமும் விலகிக் கொள்ள அனுமதி அளிக்கப்பட்டுள்ளது. மேலும் எனது மகன் / மகளுடைய விபரங்கள் ரகசியமாக வைத்துக்கொள்ளப்படும் என்றும் உறுதியளிக்கப்பட்டுள்ளது.

நான் என்னுடைய சுயநினைவுடன் மற்றும் முழு சுதந்திரத்துடன் இந்த ஆராய்ச்சியில் என் மகனை/மகளை பங்கு கொள்ள சம்மதிக்கிறேன்.

**APPENDIX VI**  
**RESEARCH TOOL- ENGLISH**  
**SOCIO DEMOGRAPHIC DATA**

Sample No \_\_\_\_\_

Read it carefully and tick (✓) the appropriate

- 1) Age in completed years
  - a) 6 to 8 years
  - b) 9 to 11 years
  - c) 12 to 14 years
  
- 2) Gender
  - a) Male
  - b) Female
  
- 3) Religion
  - a) Hindu
  - b) Christian
  - c) Muslim
  - d) Others
  
- 4) Food Habits
  - a) Vegetarian
  - b) Mixed diet
  
- 5) Level of mental retardation
  - a) Mild
  - b) Moderate
  - c) severe
  
- 6) Education of Father
  - a) Non formal education
  - b) Primary education
  - c) Secondary education
  - d) Graduate



- 7) Education of Mother
- a) Non formal education
  - b) Primary education
  - c) Secondary education
  - d) Graduate
- 8) Occupation of Father
- a) Government
  - b) Private
  - c) Labour
  - d) Unemployed
- 9) Occupation of Mother
- a) Government
  - b) Private
  - c) Labour
  - d) Unemployed
- 10) Monthly income of the family
- a) < Rs 2000
  - b) Rs 2001 – Rs 3000
  - c) Rs 3001 – Rs 4000
  - d) > Rs 4000
- 11) Place of Domicile
- a) Urban
  - b) Rural
  - c) Sub urban
- 12) Type of Marriage
- a) Non-Consanguineous
  - b) I° Consanguineous
  - c) II° Consanguineous
  - d) III° Consanguineous
- 13) Type of Delivery
- a) Normal Vaginal Delivery
  - b) Forceps

- c) Vacuum
  - d) LSCS
- 14) Any complication during delivery
- a) Pre-natal infection
  - b) Birth asphyxia
  - c) Birth injury
  - d) Epilepsy
- 15) Birth Order of the child
- a) First Child
  - b) Second Child
  - c) Third Child
- 16) History of Maturity during birth
- a) Pre Term
  - b) Full Term
  - c) Post Term
- 17) Family History of Mental Retardation
- a) Yes
  - b) No

## FINE MOTOR SKILL ASSESSMENT QUESTIONS

S.NO	FINE MOTOR ACTIVITY	YES	NO
1.	Closes hand around an object placed in hand		
2.	Reaches for and grasps object		
3.	Uses both hands at the same time ,when handling an object		
4.	Picks up small objects using thumb and fingers only		
5.	Makes a stack of three cans or tiffin carrier containers or wooden blocks		
6.	Uses a spoon to stir sugar / salt to mix a drink		
7.	Strings three one inch beads or spools on to a string		
8.	Opens the door, operating door knob /latch / handle		
9.	Screws and un screws a jar or bottle lid		
10.	Carries a filled paper cup without crusing, tipping or spilling		
11.	Tears off a perforated sheet		
12.	Places key correctly, locks and opens the lock		
13.	Pours liquid from a pitcher into a tumbler without spilling		
14.	Uses clips and safety pins		
15.	Cuts out a picture involving straight lines using scissors from a magazine		
16.	Cuts out a picture involving circular lines using scissors from a magazine		
17.	Folds a letter/fits into an envelope, applies gum to seal and puts on a stamp		
18.	Cuts / opens sachets /wrappers and empties into a container.		
19.	Strikes a safety match to light a candle / lamp		
20.	Threads a medium sized sewing needle with 2 tries		

**APPENDIX VII**  
**RESEARCH TOOL –TAMIL**

**தன்னிலை விபரக்குறிப்பு**

மாதிரி எண்: \_\_\_\_\_

கீழ்க்கண்டவற்றை கவனமாக படித்து பொருத்தமானவற்றை (✓) குறியிடவும்.

1. முழுமையடைந்த வயது
  - அ. 6 முதல் 8 வயது வரை
  - ஆ. 9 முதல் 11 வயது வரை
  - இ. 12 முதல் 14 வயது வரை
2. பாலினம்
  - அ. ஆண்
  - ஆ. பெண்
3. மதம்
  - அ. இந்து
  - ஆ. கிறிஸ்தவர்
  - இ. இஸ்லாமியர்
  - ஈ. பிற மதத்தவர்
4. உணவுப்பழக்க வழக்கம்
  - அ. சைவம்
  - ஆ. அனைத்து வகை
5. மனவளர்ச்சி குன்றிய அளவு
  - அ. மிதமான
  - ஆ. நடுநிலையான
  - இ. மிக அதிகமான
6. தந்தையின் கல்வி நிலை
  - அ. முறைசாராக்கல்வி
  - ஆ. ஆரம்பக்கல்வி
  - இ. இடைநிலைக்கல்வி
  - ஈ. பட்டதாரி

7. தாயின் கல்வி நிலை
- அ. முறைசாராக்கல்வி
- ஆ. ஆரம்பக்கல்வி
- இ. இடைநிலைக்கல்வி
- ஈ. பட்டதாரி
8. தந்தையின் தொழில்
- அ. அரசு வேலை
- ஆ. தனியார் வேலை
- இ. விவசாயம்
- ஈ. வேலை இல்லாதவர்
9. தாயின் தொழில்
- அ. அரசு வேலை
- ஆ. தனியார் வேலை
- இ. கூலி
- ஈ. வேலை இல்லாதவர்
10. குடும்பத்தின் மாத வருமானம்
- அ. ரூ.3000க்கும் கீழ்
- ஆ. ரூ.3001 முதல் ரூ.5000 வரை
- இ. ரூ.5001 முதல் ரூ.7000 வரை
- ஈ. ரூ.7000க்கும் மேல்
11. வசிப்பிடம்
- அ. நகர்ப்புறம்
- ஆ. கிராமப்புறம்
- இ. புறநகர்புறம்
12. திருமணத்தகுதி
- அ. உறவுமுறையில்லா
- ஆ. முதல் தலைமுறை சொந்தம்
- இ. இரண்டாம் தலைமுறை சொந்தம்
- ஈ. மூன்றாம் தலைமுறை சொந்தம்

13. பிரசவித்த தன்மை

அ. சுகப்பிரசவம்

ஆ. ஆயுதப் பிரசவம்

இ. வெற்றிடம் உபயோகித்த பிரசவம்

ஈ. அறுவை சிகிச்சை

14. பிரசவத்தின் போது ஏதேனும் பிரச்சனை ஏற்பட்டதா?

அ. கர்ப்ப காலத்தில் தொற்று நோய்

ஆ. குழந்தை பிறக்கும் போது மூச்சுத்திணறல்

இ. பிரசவத்தின் பொழுது குழந்தைக்கு காயம்

ஈ. வலிப்பு

15. எத்தனையாவது குழந்தை?

அ. முதலாவது

ஆ. இரண்டாவது

இ. மூன்றாவது

16. பிறப்பின் பொழுது குழந்தையின் முதிர்ச்சி?

அ. குறைமாத குழந்தை

ஆ. நிறைமாத குழந்தை

இ. முதிர்ந்த குழந்தை

17. குடும்பத்தில் வேறு யாரேனும் மன வளர்ச்சி குறைபாடு உள்ளதா?

அ. ஆம்

ஆ. இல்லை

**நுண் செயற்பாட்டுத்திறன் அறியும் வினாக்கள்**

வ. எண்	வாக்கியம்	ஆம்	இல்லை
1.	கையில் வைக்கப்பட்ட பொருளை இறுகப் பிடித்தல்		
2.	பொருளை கைப்பற்றுவதற்கு கை நீட்ட முயலுதல்		
3.	பொருளை கையாளும் போது ஒரே நேரத்தில் இரு கைகளை கையாளுதல்		
4.	கட்டை விரல் மற்றும் ஆள் காட்டி விரல்களை மட்டுமே சிறிய பொருள்களை எடுத்தல்		
5.	மூன்று தகர குவளைகள் அல்லது மூன்று பாத்திர அடுக்கு அல்லது மூன்று மரக்கட்டைகளை ஒன்றின் மேல் ஒன்றாக அடுக்கி வைத்தல்		
6.	பானத்தில் சர்க்கரை அல்லது உப்பினை கலக்க கரண்டியை பயன்படுத்துதல்		
7.	ஒரு அங்குல அளவுள்ள மூன்று மணிகள் அல்லது நீருளுளை வட்டுக்களில் மென் கயிறை கோர்த்தல்		
8.	கதவின் தாழ்ப்பாள், கைப்பிடியை திருகி கதவை திறத்தல்		
9.	குவளை அல்லது கண்ணாடி புட்டியின் மூடியை மூடி திறத்தல்.		
10.	நீர் நிறைந்த காகித டம்ளரை நசுக்காமல், உடைக்காமல், சிந்தாமல் எடுத்து வருதல்		
11.	துளையிட்ட காகிதத்தை கிழித்தல்.		
12.	சாவியை சரியாக துவாரத்தில் பொருத்தி பூட்டை திறந்து மறுபடி பூட்டுகிறார்.		
13.	வாயகன்ற பாத்திரத்திலிருந்து மற்றொரு டம்ளருக்கு தண்ணீரை கீழே சிந்தாமல் ஊற்றுதல்		
14.	பிடிப்பு ஊக்கு (துணி கிளிப்) மற்றும் காப்பூசியை பயன்படுத்துதல்.		

வ. எண்	வாக்கியம்	ஆம்	இல்லை
15.	இதழ்களில் உள்ள நேர்கோடிட்ட படத்தை கத்தரிக் கோலைப் பயன்படுத்தி சரியாக வெட்டுதல்.		
16.	இதழ்களில் உள்ள வட்ட வடிவ படத்தை கத்தரிக் கோலைப் பயன்படுத்தி சரியாக வெட்டுதல்		
17.	அஞ்சல் உறையில் கடிதத்தை மடித்து வைத்து, பசையால் உறையை ஒட்டி, தபால் தலையை சரியான இடத்தில் ஒட்டுகிறார்.		
18.	முத்திரையிடப்பட்ட சிறுபையை அல்லது உறையை வெட்டி அல்லது திறந்து பொருட்களை முழுமையாக வெளியே எடுத்தல்		
19.	தீக்குச்சியை உரசி மெழுகுவர்த்தி அல்லது விளக்கு பற்ற வைத்தல்.		
20.	இரண்டு முயற்சிக்குள் நடுத்தர அளவு ஊசிக்குள் நூலை கோர்த்தல்.		



## APPENDIX – VIII

### CERTIFICATE OF TAMIL EDITING

#### TO WHOMSEVER IT MAY CONCERN

This is to certify that the dissertation, “A STUDY TO EVALUATE THE EFFECTIVENESS OF PLAY ACTIVITY ON FINE MOTOR SKILLS AMONG MENTALLY RETARDED CHILDREN AT SELECTED MENTALLY RETARDED SCHOOL IN MADURAI” by Mrs. S. Umarani, M Sc (Nursing ), II year student, college of Nursing, Madurai Medical College, Madurai – 20 has been edited for Tamil language appropriateness.



Signature

NAME : சி. சி. இளங்குமாரன் எம். ஏ. பி. எல். எம். பி. டி. பி.  
DESIGNATION : டி. சி. உத்தரவினா (சுமார்) அரசு மேல்நிலைப்பள்ளி,  
DATE : சென்னை-625 002  
தேனி மாவட்டம்

## APPENDIX – IX

### CERTIFICATE OF ENGLISH EDITING

#### TO WHOMSEVER IT MAY CONCERN

This is to certify that the dissertation, "A STUDY TO EVALUATE THE EFFECTIVENESS OF PLAY ACTIVITY ON FINE MOTOR SKILLS AMONG MENTALLY RETARDED CHILDREN AT SELECTED MENTALLY RETARDED SCHOOL IN MADURAI" by Mrs. S. Umarani, M Sc (Nursing ), II year student, college of Nursing, Madurai Medical College, Madurai – 20 has been edited for English language appropriateness.



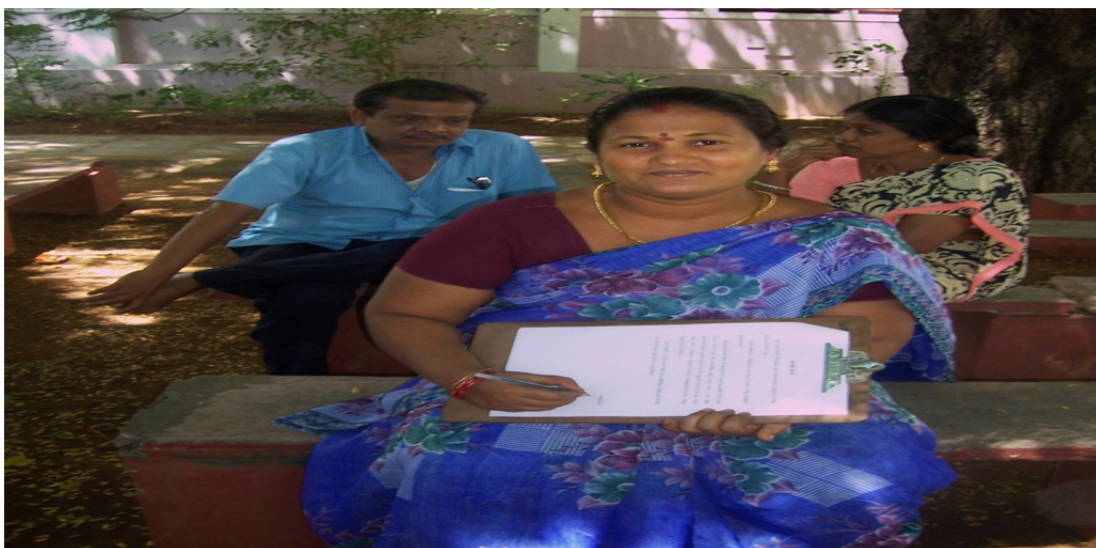
Signature

பி. சீமரானி, M.A., M.Ed., M.Phil.  
தலைமையாசிரியர்  
அரசு மேல்நிலைப்பள்ளி  
சில்வாம்பட்டி-625 602.  
தொலைபேசி: 0856 373704299

NAME : A. MOHAN  
MA, MED, M.Phil, (English)  
DESIGNATION : Headmaster.

**APPENDIX - X**  
**PHOTOGRAPHS**

**Researcher getting consent from parent**



**Researcher demonstrating the play activities**



**Researcher observing the subjects play activities**



