



# ANALYSIS OF FINE AND GROSS MOTOR SKILLS IN PRESCHOOLERS: STUDY ON TRIBAL AREAS OF JAJPUR DISTRICT

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**ABSTRACT:** Motor skills are essential for baby physical strength and movement. Motor skills are broken up in to two categories: gross motor skills and fine motor skills. Mastering both are important for children's growth and independence gross motor skills are movements, related to large muscles such as legs arm and trunk. Working on gross motor skills helps a child gain strength and confidence in his/her body . it also helps them get exercise and physical activity, which is important for a healthy lifestyle. Developing these skills helps a child ability to do more complex skills in future activities. The present study was aimed to assess the of children belonging to tribal community of Sukinda block of jajpur district, Odisha. The children going to Preschool between 3-5 years age group was selected as sample for the study. The purpose of this study was to assess the gender based differences in gross and fine motor skill development of 3-5 year old preschool children. Data were collected through personal interviews with the help of Anthropometric Measurement and the Observation methods. The strength of this study was that the gross and fine motor skills were assessed using a standardized process. Oriented assessment tool that evaluated performance techniques for each components of a skills. This study provided valuable information that can be used to establish normative references for the gross and fine motor skills of tribal preschool children.

**Keywords:** Gross motor, Fine Motor, Preschool Children

## 1. INTRODUCTION

Motor development means the development of control over body movements through the coordinated activity of the nerve centers, the nerves and muscles. The study of motor development is important because it directly affects all other aspect of development. the physical health of a child to great extent depends upon exercise. If a child's motor coordination is not adequate he cannot perform as well other children of his age. For example, if three years old is not able to walk steadily, he will try to avoid physical play activities generally and this will in turn have an adverse effect on his physical development.

Motor development also influences the cognitive growth of the child. It is only when the child starts crawling and later walking that he is able to reach for new things, play with toys and satisfy his curiosity. As the child moves, and encounters new situation, he has to think, interpret and perhaps take a decision, thereby promoting his cognitive development. Good motor development also furthers the process of socialization. As the child explores his environments, he also discovers the joys of talking to people. He learns to play with friends. As the child starts playing, he learns to control his feelings and shows sportsmanship. The gradual learning of motor skills enhances a child's maturity, independence and feeling of security which increase his self-confidence. Health status especially that of preschool children is a sensitive indicator of health and psychological status of community. Preschool Children constitute the most vulnerable segment of any community. Their nutritional status is a sensitive indicator of community health and nutrition. Lenka (1991) made an attempt to study the nutritional status of children (0 – 3years) of Tribal of Odisha. The average values of height, weight, arm circumference, head circumference and chest circumference of children were less than ICMR standard in both sexes. Weight for height ratio of the children revealed that 30% children were suffering from severe malnutrition 34% children were suffering from moderate degrees of malnutrition and 36% children were found to be normal. P.K. Acharya (2000) made a Report on "Nutritional status, Dietary Habits and Culture in Urban Slums." Based on a survey of pre-school (1 to 5 years old) children and concluded that there is a strong correlation between malnutrition and apathy towards preschool education among the children. Hence, the researcher has suggested that for the preschool education of children, improvement of the nutritional conditions should be given priority, because skill attainment of children depends upon the preschool education, and preschool education depends upon nutritional status of children. The present survey has been carried out to record the anthropometric profile of the tribal children and assess their Physical and mental status.

### ***Gross Motor and Fine Motor Development:***

During the first 4 to 5 years of post natal life, the child gains control over gross movements. These movements involve the large areas of body used in walking, running, jumping and so on. After babies have gained control over the gross body movements, they are ready to learn skills. Skills refer to the ability to use a particular capacity e.g., gross motor skills is the ability to use large muscles and fine motor skill is the ability to use small muscles of the body. Originally gross motor skills are used by the child to do everything. Children pick up balls with their arms rather than hands; they pick up their pencils first with their hands rather than their fingers. At first, the gross motor movements of walking, running and climbing are exciting and thrilling because children discover that they can use their bodies purposefully and skillfully. As they gain control over the large muscles in the arms and legs, they learn to move in a variety of ways. By the age of 5 years the gross motor skills are evidently playing an important part in most of their activities

## Motor Skills Development

Gross motor skills involve the larger muscles, including arms and legs. Working on gross motor skills helps child gain strength and confidence in his/her body. It also helps them get exercise and physical activity, which is important for a healthy lifestyle. Developing these skills in future activities, such as playing with a team. Motor skills are essential for baby physical strength and movement . motor skills are broken up in to two categories: gross motor skills and fine motor skills. Mastering both are important for children's growth and independence gross motor skills are movements, related to large muscles such as legs arm and trunk. Fine motor development is the, development and control of small movement skills, such as reaching and grasping, while gross motor development refers to control over larger movement skills that tend to be less refined, such Crawling, Standing and Walking ( Berk, 2005).

Fine motor skills involve the smaller muscles in the fingers. The actions that require fine motor skills tend to be more intricate, such as drawing, and finger painting can be done at home to give young children the opportunity to develop their fine motor skills. Gross motor skills require less precision and accuracy. In fine motor skills, however, children engage in smaller, more precise movements, using the hand and fingers. Children at the ages of three to four use zippers and gain independence in dressing and undressing themselves. At this age, children can also begin using scissors to cut paper, but should be given blunt scissors for safety reasons. Three to four year olds start drawing with crayons, and can make twisting motion with their hands, useful opening door knobs or twisting the lids off containers. During the age of four to five, children continue to refine their fine motor skills and build upon earlier skills. For instance, they can now button and unbutton their clothes by themselves. Logan et al. (2011) reported that there is a strong correlation between motor skill development and physical activity participation among children. This development of motor skills has also been associated activity as well as greater cardiovascular fitness and maintenance of a healthier body weight as an adult ( Logon et al. 2011; Pope et al. 2011; Robinson et al. 2012). Fine motor development is the development and control of small movement skills, such as reaching and grasping, while gross motor development refers to control over larger movement skills that tend to be less refined, such as Crawling, standing and walking ?( Berk, 2005).

The present survey has been carried out to record the anthropometric profile of the tribal children and to assess their physical and mental status. The implications of the discussed research will help to promote social activities that appreciate and emphasize, select activities that involve the child's curiosity and creative abilities and formulating better recommendation for further research so as to reduce this nutritional burden.

## 2. MATERIALS AND METHODS

### Materials and Methods:

The Present study is an earnest attempt to assess the physical health status of preschool children (3-5 year) representing Santal, Munda and Juang tribe of 15 Anganwadi centers in Sukinda block of Jajpur district in Odisha. Data were collected through personal interviews with the help of Anthropometric Measurement and the Observation methods. Anthropometric measurements are main indicators in assessing physical status. Anthropometric measurements i.e. height, weight, chest circumference, mid arm circumference, head circumference and calculate BMI. All measurement was taken by one operator (C M) using measurement tape and weight was assessed to the nearest 0.1kg using weighing machine. The body mass index (BMI) was calculate as  $\text{kg/m}^2$ . Observation method has been used by the research through a variety of activities of the preschool children over an extended period of time that enable him/her to observe the cultural members in their daily lives and to participating in their activities to facilitate a better understanding of those behaviors and activities.

**Data Collection:** For the purpose of the data collection the researcher has personally gone to the villages and visited different AWW centers. To meet the research objective the researcher has collected both primary and secondary data by establishing rapport with the local community.

**Study Samples:** The Study was carried out in Sukinda block of Jajpur district, Odisha. It was a community based cross sectional survey among tribal preschool children. A total of 130 (Boys =80; Girls =50) participants were studies.

**Analysis of Data:** For data analysis purpose, the research has used statistical tools like mean and standard deviation graphics. 4 points rating scoring procedure was used, frequencies and percentage were used to analyze the data.

## 3. RESULT AND DISCUSSION

Discussion has been made on the topic of research problem on the basis of the result obtained out of the data analysis.

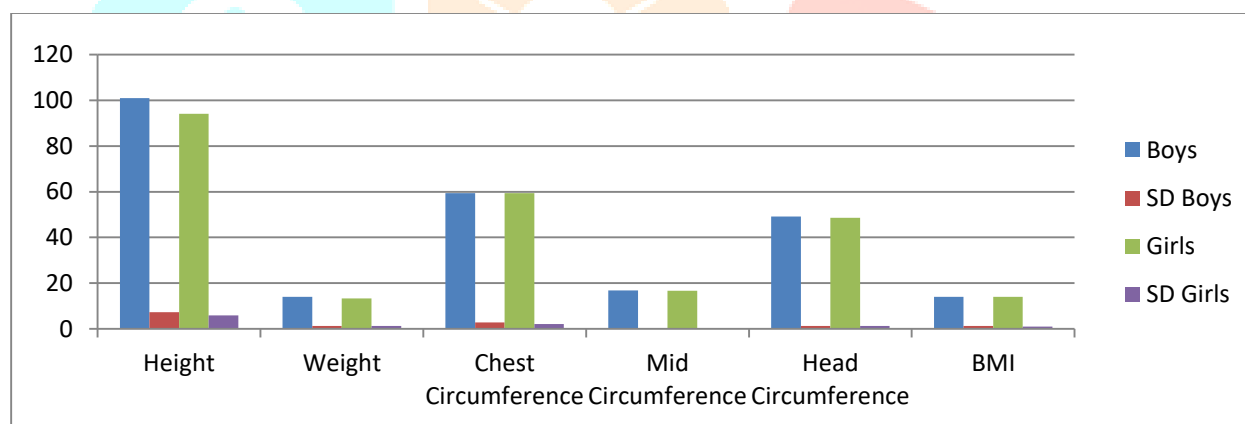
### Anthropometric Measurements

The was collected through structural question from different Anganwadi center of Sukinda block of Jajpur district. There around ten Anganwadi centers where boys = 80 and girls = 50 participate in the study. The Anthropometric Measurements( Height, weight, Chest Circumference. Mid arm Circumference, Head Circumference) by standard procedure.

**Table No -1 Anthropometric measurements of tribal preschool children**

Sl No.	Aspect	Boys		Girls	
		Mean	Standard Deviation	Mean	Standard Deviation
1	Height	100.99	7.29	94.134	5.96
2	Weight	13.98	1.27	13.32	1.30
3	Chest Circumference	59.38	2.79	59.33	2.08
4	Mid arm Circumference	16.87	0.22	16.68	0.19
5	Head Circumference	49.1	1.34	48.57	1.27
6	BMI	13.98	1.27	14.09	0.99

The above table shows us the result of anthropometric measurement. On the basis of data availed the mean value of height, weight, Chest Circumference, Mid arm Circumference, Head Circumference and BMI for the tribal boys in comparative higher than the tribal girls. As far as standard deviation of the above indicators is concerned boys also have a leverage effect.



**Figure -1 Anthropometric measurement of Boys and Girls**

The above graphs also clearly depicts the Mean Scores of physical development in respect to two groups i.e. Boy and Girl. It was observed that the boy s group obtained a higher Mean Scores in all variables if physical development than their counterparts. With regard to Physical Development boys higher Mean Scores( 100.99, 13.98, 59.38, 16.87, 49.1, 13.98) in all aspects like Height, Weight, Head circumference, Chest circumference and Mid arm circumference than girls ( 95.13, 13.32, 59.33, 16.68, 48.57, 14.09).

**Finer Motor Skill****Table No 2**

Sl No.	Aspect	Boys		Girls	
		Mean	Standard Deviation	Mean	Standard Deviation
1	Block building	2.104895	0.668331	2.639683	0.685866
2	Puzzle	2.447552448	0.939570787	1.53968254	0.711626797
3	Cutting	2.097902098	0.653427424	2.126984127	0.473018004
4	Paper Folding	2.965035	0.632596	2.365079	0.785908
5	Clay/Dough/Plasticine	3	0.627985826	2.547619048	0.614584645
6	Threading	1.181818182	0.421873148	1.404761905	0.49280538
7	Beads Spaghetti	2.671328671	0.785217506	3.647619048	0.503700591

Our Finer Motor Skills study was under taken to determine the prevalence of Anganwadi children between the age group of 3 – 5 years. Around ( boys = 80 , girls = 50 ) have participated to determine the skills we have taken different variable such as Block Building, Cutting, Beads Spaghetti and Threading girls are better than boys. Girls mean score (2.63, 2.12, 1.40, 3.64 ) better than boys mean score (2.10, .09, 1.18, 2.67) on the other hand aspect like Puzzle, paper folding, Clay/ Dough/ Plasticine and boys mean score (2.44, 2.09, 3,) better than girls mean score (1.53, 2.36, 2.54 ).

**Table No 3 Gross Motor Skills**

Sl No.	Aspect	Boys		Girls	
		Mean	Standard Deviation	Mean	Standard Deviation
1	Throwing	2.496503	0.710823	2.650794	0.751718
2	Catching	2.545454	0.540308633	2.80158730 2	0.7799470 88
3	Jumping	2.49650349 7	0.515589719	2.50793650 8	0.6032715 04
4	Ascending steps	2.160839	0.646228	1.920635	0.754752
5	Descending steps	2.181818	0.6350819	2.19841269 8	0.7268544 97
6	running	2.86014	0.892862	3.206349	0.70787

The Gross Motor Skills of Preschool children show different physical activities expressed by the boys and girls of early childhood year. With regard to all aspects like Throwing, Catching, Jumping, Ascending Steps, Descending Steps, Running. Girls have higher mean score ( 2.68, 2.84, 2.49, 2.21, 3.2) than boys ( 2.47, 2.54, 2.48, 2.21, 2.9) only the aspects of Ascending step boys mean score (2.16) higher than girls mean score (1.92).

#### 4. CONCLUSION

After analyzing all the data clearly notice the physical health status of the preschool tribal boys and girls having relevant differences. The tribal boys are found to be little better physical development than the tribal girls, so far as conceptual and readiness skill development in found

Girls are to be having better performances than the boys. In depth study we have unfolded that the physical and mental health status of tribal boys and girls in the age group of 03 – 05 years {mostly the preschool children of our study area of Sukinda block of Jajpur district.} The findings of the present study would be of great use for motivating the parents to send their children to Anganwadi center, which not only improve the nutritional standard of the tribal boys and girls in the age group of 03-05, would also ensure hearing skill development of the tribal children's. The study also is highly helpful in promoting girl child. This study also helpful to motivating tribal parents for send their girl children to Anganwadi centers, which is twin ensure greater development of health status in tribal areas. This particular piece of research study however could help the Anganwadi center to adopt measures for all round development of the tribal children in the age group of 03 – 05 by using large gross motor skills and fine motor skills. In the preschool education system in all these tribal areas the common goal is to make the children mentally and physically strong. Therefore, emphasis has been given to impart training to children about health and hygienic habits, speech abilities and observation capacities through storytelling, music and drawing, so that there would be physical, mental and emotional development of children..

In conclusion the gross and fine motor skill development of tribal preschool children involved gender based differences in object control skills. These findings provide valuable information that can be used to establish normative references for gross and fine motor skill of preschool children, which can be used in future studies. In conclusion, the present data confirm that individual differences in children's activity choices and activity levels are associated with proficiency on several motor skills.

#### Future Scope:

A close observation of the ground situation has exposed the gap and bottle neck in achieving all round development of the tribal preschool children in respect to their physical and mental health status. On the basis of the findings and responses from multi stakeholders consultation i.e. Anganwadi workers, parents and key informants, it was largely noticed that due to lack of a concentrated effort by the Anganwadi center in adopting special measure on never physical and mental activities has failed to achieve the desired result of a proper development of physical and mental health of the tribal children, at this back drop after a careful

examination of the bottle neck, it can be recommended here that to improve the situation, the following measures could be taken

- To introduce newer type of physical activities.
- To introduce newer type of mental activities.
- Special initiative to be taken by Anganwadi center towards learning and share by the tribal children.
- Use of large Gross motor skills and fine motor skills, which could use as all round development among the preschool tribal children in the study area.
- Educating the tribal children and empowering them is a challenge which can be achieved by collective effort of all the stakeholders of the society such as village community, private organizations, teachers, and government functionaries, elected representatives and the people in general.

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