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The Prevalence of Developmental Coordination Disorder at Kattupakkam, Tamilnadu.

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Abstract:
Objective: To find out the prevalence rate of Developmental Coordination Disorder (DCD) at Kattupakkam among 5 – 10 years of agegroup. **Method:** door to door survey was conducted at kattupakkam. Eight hundred and ninety eight children(N=898) participated in the study. The DevelopmentalCoordination Disorder Questionnaire (DCDQ) was used to identity DCD children at Kattupakkam. **Results:** Ftwenty nine children were identified as DCD and it revealed that the prevalence rate was 3.22%. There was no statistically significant difference in prevalence rate among genders. **Conclusion:** The study concluded that there is prevailing of Developmental Coordination Disorder amongthe age group of 5-10 years at Kattankulathur. The prevalence DCD suggests a need for awareness and education program for parents and teachers for early identification and intervention.

Key words: Developmental Coordination Disorder, DCDQ, Prevalence

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I. INTRODUCTION

Developmental coordination disorder (DCD),is a chronic neurological disorder beginning in childhood[1,2,3]. It affects planning of movements and co-ordination as a result of brain messages not being accurately transmitted to the body[4,5,6]. These problems interfere with activities of daily living skills[7],play and academic skills of the child. It is otherwise called as developmental dyspraxia. A diagnosis of DCD is done after rule out of cerebral palsy[8],muscular dystrophy[9], multiple sclerosis and Parkinson disease. It is noticeable by difficulty in learning fine and gross motor activities in comparison with peer age group. It affects their self-esteem,social abilities and continues throughout a child's life[10].Signs of developmental coordination disorder include:

- Delayed motor milestones such as sitting, kneeling,half-kneeling,creepingcrawling,standing or walking
- Clumsiness
- Slowness and difficulty with fine and gross motor skills like catching a ball, using scissors, handwriting, or riding a bike
- Problem in walking, tripping over feet[11]

The children motor skill impairment interferes with activities of daily living skills and negatively impacts a child ability to participate in school activities, work, leisure, and play leads to diagnosis of DCD[12].Research found that root cause of developmental coordination disorder is unknown. This condition is also researched from a dynamic systems perspective, which combines biological systems theory and ecological psychology, results shows that a DCD disorder results from an interaction between person or individual, task-oriented and environmental factors. Various researchers found that DCD children has problem in rhythmic coordination and timing as well as lack of executive functioning that affect working memory, inhibition and attention. Due to these problems some of the researchers misinterpret that dysfunction in these areas similar to Attention Deficit Hyperactivity Disorder[13].Developmental Coordination Disorder is not diagnosed before age of 5 years due to variation in the age at which children develop their motor skills. Children must rule out the possibility of a physical medical condition or learning disability. The prevalence of DCD is high among school going children and research found that there is atleast one child have DCD problem in every classrooms.GanapathySankar&Saritha[14]found that prevalence of DCD at kattankulathur village in Tamilnadu was 1.37%. The prevalence of DCD in USA is 5-8%,5.7% in Greek,1.8% in United Kingdom ,5-9% in Canada and 6% in worldwide[15,16]. Early identification of Developmental coordination disorder is necessary to

prevent poor academic performance,play and Activities of Daily Living skills in children. The purpose of this study was to identify prevalence rate of Developmental Coordination Disorder at
Kattupakkam village, Tamilnadu,India.

II. METHODOLOGY

Participants:

This is cross sectional study-survey design. Door to door survey was conducted by using Developmental Coordination Disorder Questionnaire. Eight hundred and ninety eight (n=898) children were participated in the study. Both boys and girls between the ages of 5-10 years (Mean age=7.8 years with standard deviation of 1.4 years)

III. INSTRUMENT USED

Developmental Coordination Disorder Questionnaire (DCDQ):

The Developmental Coordination Disorder Questionnaire (DCDQ) is a parent report measure and it is developed to assist early identification of Developmental Coordination Disorder (DCD) in children. Parents are asked to compare their child's motor performance to that of his/her peers using a 5 point Likert scale. This questionnaire provides a standard method to analyze a child's coordination in everyday functional activities. It consists of 15 items, which group into three distinct factors. The first factor contains a number of items related to motor control while the child was moving, or while an object was in motion, and is labelled "Control during Movement". The second factor contains "Fine Motor and Handwriting" items and the third factor relates to "General Coordination". It takes about 10-15 minutes to complete. The alpha coefficient for the total test DCDQ was 0.88. The alpha of each item, if that item was deleted, measured greater than 0.87 (range of 0.87 to 0.88). The total score of the DCDQ was significantly correlated with each of the items of the test, another measure of internal consistency. These item – total correlations ranged from r = 0.40 to r = 0.76, with all significant at the probability level of .0001.The total score of the DCDQ was significantly correlated with the four complete scores of the BOTMP[17](r = .46 to .54 , p<.0001).

Data collection procedure:

The Purpose of the study was explained to panchayat union leader and primary investigator collected details about number of street and houses at Kattupakkam village. Door to door survey was conducted at Kattupakkamvillage, Chennai and consent forms were obtained from concerned parents. The Developmental Coordination Disorder Questionnaire (DCDQ) was distributed to concerned parents and primary investigator explains the DCDQ in details and clarifiestheir doubts. Data was collected for further analysis by using descriptive statistics.

IV. RESULTS

Eight hundred and ninety eight children (n=898) were participated. The age range was 5 years to 10 years. Descriptive statistics was done to analyse the data. The result of this study revealed that 29 children met the criteria for a diagnosis of Developmental Coordination Disorder (DCD). It indicates that prevalence rate at kattupakkam is 3.22 in 100 children.

Table 1. The prevalence of Developmental Coordination Disorder (DCD) among the age group of 5-0 years

Age interval(years)	**Total sample(N=898)**	**Number of children diagnosed as DCD**	**Prevalence rate (%)**
5.0-5.11	183	2	1.09
6.0-6.11	187	3	1.6
7.0-7.11	204	5	2.45
8.0-8.11	179	8	4.46
9.0-9.11	145	11	7.58
5.0-9.11	**898**	**29**	**3.22**

The results of this study found that 3.22% of children have Developmental Coordination Disorder at Kattupakkam. Twenty nine children had DCD from eight hundred and ninety eight children at Kattupakkam. Further analysis revealed that prevalence rate is high (7.59) in age group of 9.0-9.11 years and low (1.6%) in the age group of 6.0-6.11 years at Kattupakkam. This findings revealed that the existence of Developmental CoordinationDisorder (DCD) among 5-10 years at Kattupakkam.

Table 2.The prevalence of Developmental Coordination Disorder among genders

Gender	Total sample(N=898)	Number of children diagnosed as DCD	Prevalence rate (%)
Boys	497	16	3.21
Girls	401	13	3.24

The results indicated that prevalence rate of DCD in boys is 3.21% and in girls is 3.24%.

V. DISCUSSION

Developmental Coordination Disorder (DCD) is commonly affects children handwriting, reading and mathematics calculation in academics, play and self care activities. Research found that there was strong relationship with learning disorder and psychiatric disorder in adolescence. The pediatrician and family physician do not identify the DCD. The present study was carried to identify prevalence rate of DCD at Kattupakkam. Results revealed that twenty nine children (3.22%) were screened as DCD and further analysis also done to confirm the DCD. The prevalence of DCD in USA is 5-8%,5.7% in Greek,1.8% in United Kingdom ,5-9% in Canada and 6% in worldwide.but in India GanapathySankar& Saritha[14] reported that the prevalence DCD is 1.26% at Kattankulathur,Tamilnadu and SanjivaniN.DhoteManisharathi&Tusharpalekr[18] reported that 1.16 %. The current study findings concluded that DCD prevalence rare is increased in India. Further study should be conducted in other geographical areas of India. Because in worldwide prevalence rate is increased.If the child perform more physical activity it might reduce DCD problems[19]. The current study was carried out in village which might be influence the results.The comparison of prevalence of DCD in gendersindicated thatprevalence rate is 3.21% in boys and 3.24% in girls. There was no statistically significant difference in gender.Certain limitations of the research need to be taken intoaccount when relating to the findings. One is the possibility ofpotential bias since the results are based only on parent's perception about child,which, by their very nature, are subjective assessment rather than objective and might be influencedby factors such as renunciation, over anxiety or wishful thinking.

VI. CONCLUSION

The current study found that the prevalence rate is 3.22% at Kattupakkam in Tamilnadu. It depicts that prevalence rate is increased. Awareness program and screening program should be conducted periodically in school and parental education,teacher education is recommended for early identification of DCD.

Conflict of interest: nil

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