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A study on coordinative ability and kinesthetics perception in relation to emotional and behavioural problems among santal students

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Abstract

Objective: The main purpose of the study was to compare on kinesthetic perception and coordinating ability in relation to emotional and behavioural problems among santal students.

Study Area: The subject was selected from rural areas of Purulia district under the state of West Bengal.

Subjects: Total 60 (sixty) male santal students (20 under 12yrs, 20 under 14yrs and 20 under 16yrs) were selected randomly for the purpose of the present study. The age of the subjects were ranged between 12-16 years.

Variables: Coordinative ability, kinesthetic perception, emotional and behavioural problems were considered as the variables for the present study and measured by 'Eye hand coordination test' (Ball transfer), 'Distance perception jump' test and Adult Self Report (ASR) checklist.

Statistics: Mean, SD and one way analysis of variance (ANOVA) were employed as statistical measures for formulation of result.

Findings: The result of the present study showes that there are significant differences found in respect of coordinative ability and kinesthetic perception among santal students. And also no significant negative relationship is found between coordinative ability and kinesthetic perception with emotional and behavioural problems.

Implementation: If emotional and behavioural problems increasing contributing factors are minimized then psycho motor ability may be developed and healthful santal culture may be created.

Conclusion: Significant increments are observed on coordinative ability and kinesthetic perception in respect of chronological growth of students. The increasing growth of the emotional and behavioural problems of santal students negatively correlates (not significantly) the psycho motor ability to develop.

Keywords: santal students, kinesthetic perception, coordinative ability, emotional and behavioural problems

1. Introduction

In tribal societies, the inhabitants are found to continue their traditional lifestyles. But, the urbanization throughout the world already has changed the natural environment and affected spontaneous involvement in traditional tribal lifestyles too (Roy M). And they are suffering from several psychological problems which are different from general caste people.

The majority of the community epidemiological surveys of childhood psychiatric disorders estimate the rate of clinical maladjustment among children. In infancy and childhood, interaction with the environment and the experiences arising there from enable the individual to program his mental software in order to do able to solve complicated problem, make decisions, think rationally, judge correctly, form concepts, assimilate ideas, innovate and create things. Much of the class-room academics e.g. study of history, geography, philosophy, mathematics, language, science etc. fall under cognitive learning (Kamlesh 2002) [24].

The kinesthetics sense, unlike the other five senses which require external impulses, is dependent upon internal stimulation. For effective coordination of a motor act to take place there must be constant sensory stimuli set up by the act itself which "feedback" the result of movement and produce correction in the nervous system. The "feedback" of sensory information about movement and body position is called proprioception. Receptors for proprioception which are widely distributed throughout the body and also may be classified as vestibular and kinesthetics sense. Both are important and perform essential roles in the accomplishment of skillfull performance. (James C. Bryant, May, 1969) [25].

Emotional and behavioural problem in student and adolescence is an important public health issues. However, there is currently limited epidemiological evidence in terms of its prevalence or stability over time in India, and limited evidence about the role of parenting programmes in supporting parents and student experiencing such problems.

2. Method and Materials

Subjects were randomly selected from large numbers of population of Purulia district under the state of West Bengal. Total 60 male samples were selected on three equal groups. Groups were divided according to age i.e. under 12 years (G_1=20), under 14 years (G_2=20) and under 16 years (G_3=20) group.

Variables were regarded under psycho motor component and psychological problems i.e. kinesthetic perception, coordinating ability and emotional and behavioural problems.

Kinesthetic perception was assessed by "Distance perception jump" test. It measured the ability to perceive distance by concentrating on the effort involved in a jumping. The jumping distance to the nearest 1/4 inch from the target line to the farthest heel was measured and recorded in inches.

Coordinating ability was measured through the "Eye hand coordination test (Ball transfer)". This test, as evident from its name, is used to test the coordination between eyes and hands. This test measures simultaneously agility and speed. The subjects were given two trails after a slow practice trial. Best ball transferring time was recorded from left box to right box (up to 10 balls) and time was recorded in nearest seconds.

Emotional and behavioural problems were measured by the Adult Self Report (ASR), a 126-item checklist, developed by Achenbach & Rescorla (2003) [26]. The ASR gives scores on eight syndrome scales, namely- anxious/depressed, withdrawn, somatic problems, thought problems, attention problems, aggressive behaviour, rule-breaking behaviour and intrusive behaviours. Test-retest reliability of the syndrome scales ranges from .83 to .94 and the internal consistency reliability co-efficient ranges from .51 to .97. For the present study, Telugu version of the Adult Self Report was used (Gopal, 2010) [27].

Statistical techniques of mean, standard deviation, standard error, correlation of coefficient and further one way analysis of variance (ANOVA) were done on the four variables among the three different age groups and the LSD (equivalent to no adjustment) post-hoc test was done on those dimensions in which "F" ratios were found to be significant, in order to verify whether the difference really exist or not for which the level of significance was set at 0.05 level of confidence.

3. Result and Discussions

The result of the study has been presented in tabular and numerical form as given here under.

Table 1: One way analysis of variance (ANOVA) done on coordinating ability and kinesthetic perception among different age groups of santal student

Variables	Source of Variance	d.f	SS	MSS	"F" value
Coordinating ability	Between Groups	2	101.1	50.54	3.835*
	Within Groups	57	751.2	13.18	
Kinesthetic Perception	Between Groups	2	35.34	17.67	5.442*
	Within Groups	57	185.1	3.247	

*Significant at 0.05 level of confidence, "F"$_{0.05}$ (2, 57) =3.15

In Table 1 it is clearly revealed that significant differences are found in respect of coordinating ability and kinesthetic perception among (under 12, under 14 and under 16 yrs) Santal students. Since the calculated "F" value of coordinating ability (3.835) and kinesthetic perception (5.442) are found to be higher than that of the required "F" value (3.15) to be significant at 0.05 level of confidence.

Table 2: Analysis of critical differences of coordinating ability and kinesthetic perception among (under 12yrs, under 14yrs and under 16yrs) santal school students

Variables	Under 12 Yrs	Under 14 Yrs	Under 16 Yrs	Mean Differences	CD at 5% level
Coordinating ability	35.4105	32.93	-------	1.5	2.296
	35.4105	-------	29.388	3.177*	
	--------	32.93	29.388	1.677	
Kinesthetic perception	3.6735	2.192	-------	1.202*	1.14
	3.6735	-------	0.6455	1.853*	
	--------	2.192	0.6455	0.652	

*Significant at 0.05 level

The above table 2 reveals that significant differences exist between the means scores of under 12 & under 16 years (MD=3.177) and insignificant differences are found between under 12 & under 14 years (MD=1.5) and under 14 & under 16 years (MD=1.677) santal students in respect of coordinating ability where the critical difference is 2.296. Significant mean differences are found between mean scores of under 12 & under 14 years (MD=1.202), of under 12 & under 16 years (MD=1.853) and insignificant differences are found between of under 14 & under 16 years (MD=0.652) in respect of kinesthetic perception where the critical difference is 1.14.

Table 3: One way analysis of variance (ANOVA) has done on emotional and behavioural problems among different age groups of santal students

Variables	Syndromes	S v	d.f	SS	MSS	"F" value
Emotional problems	Anxious/ depressed	Between groups	2	8.586	4.293	0.218
		Within groups	57	1125	19.73	
	Withdrawn/ depressed	Between groups	2	0.625	0.312	0.036
		Within groups	57	489	8.579	
	Somatic complaints	Between groups	2	5.952	2.976	0.6
		Within groups	57	282.9	4.963	
	Thought problems	Between groups	2	81.34	40.67	5.505*
		Within groups	57	421.1	7.388	

Behavioural problems	Attention problems	Between groups	2	105.7	52.83	3.43*
		Within groups	57	877.9	15.4	
	Rule breaking behaviour	Between groups	2	53.87	26.94	4.88*
		Within groups	57	314.6	5.52	
	Aggressive behaviour	Between groups	2	260.6	130.3	6.291*
		Within groups	57	1180	20.71	
	Intrusive behaviour	Between groups	2	0.813	0.407	0.048
		Within groups	57	484.8	8.506	

*Significant at 0.05 level of confidence, "F"$_{0.05}$ (2, 57) =3.15

The result indicates that significant differences are found in respect of thought problem (5.505), attention problem (3.43), rule breaking behaviour (4.88) and aggressive behaviour (6.291). Insignificant differences are found in respect of anxious/ depressed (0.218), withdrawn/ depressed (0.036), somatic complaints (0.6) and intrusive behaviour (0.048) among santal students. Since the table value 3.15 is set at 0.05 level of confidence.

Table 4: Analysis of critical differences of emotional and behavioural problems among (under 12yrs, under 14yrs and under 16yrs) santal school students

Variables	Under 12 Yrs	Under 14 Yrs	Under 16 Yrs	Mean Differences	CD at 5% level
Thought problems	3.515	5.44	-------	1.625	1.719
	3.515	-------	6.3	2.785*	
	-------	5.44	6.3	0.86	
Attention problems	7.993	5.34	-------	2.653*	2.482
	7.993	-------	5.04	2.953*	
	-------	5.34	5.04	0.3	
Rule Breaking behaviour	2.945	3.42	-------	0.475	1.486
	2.945	-------	5.15	2.205*	
	-------	3.42	5.15	1.73*	
Aggressive behaviour	4.529	6.38	-------	1.851	2.878
	4.529	-------	9.575	5.046*	
		6.38	9.575	3.195*	

*Significant at 0.05 level

From the above table-4 it is observed that significant mean differences exist between the means scores of under 12 & under 16 years in respect of thought problems (MD=2.785), attention problems (2.953), rule breaking behaviour (2.205), and aggressive behaviour (5.046). Insignificant mean differences exist between the means scores of under 12 & under 14 years in case of thought problems (MD=1.625), rule breaking behaviour (0.475), and aggressive behaviour (1.851).

Table 5: Relationship of emotional and behavioural problems with coordinating ability and kinesthetic perception among santal students

Independent Variables	Dependent Variables	Groups	Mean	S D	S E M	"r" Value	
						C A	K P
Coordinating ability and Kinesthetic perception	Anxious/ depressed	12 Yrs	11.93	3.701	0.828	-0.3739	-0.2702
		14 Yrs	12.44	4.583	1.025	-0.2485	-0.1348
		16 Yrs	12.85	4.949	1.107	-0.0851	-0.0114
	Withdrawn/depressed	12 Yrs	5.625	2.178	0.487	-0.1625	-0.1345
		14 Yrs	5.5	3.974	0.889	-0.1226	-0.0491
		16 Yrs	5.375	2.28	0.51	-0.0856	-0.024
	Somatic complaints	12 Yrs	2.68	2.271	0.508	-0.1302	-0.0316
		14 Yrs	3.28	2.134	0.477	-0.0402	-0.1786
		16 Yrs	3.4	2.275	0.509	-0.0047	-0.4408
	Thought problems	12 Yrs	3.515	2.394	0.535	-0.4197	-0. 2858
		14 Yrs	5.44	3.285	0.735	-0.4026	-0.1803
		16 Yrs	6.3	2.375	0.531	-0.1347	-0.1758
	Attention problems	12 Yrs	7.993	4.622	1.033	-0. 3062	-0.2437
		14 Yrs	5.34	4.241	0.948	-0.0067	-0.3161
		16 Yrs	5.04	2.618	0.585	-0.1403	-0.1648
	Rule breaking behaviour	12 Yrs	2.945	1.812	0.405	-0.2786	-0.0968
		14 Yrs	3.42	2.34	0.523	-0.3421	-0.158
		16 Yrs	5.15	2.793	0.625	-0.4177	0.3997
	Aggressive behaviour	12 Yrs	4.529	2.595	0.58	-0.1119	-0.2256
		14 Yrs	6.38	3.821	0.854	-0.1779	-0.2332
		16 Yrs	9.575	6.387	1.428	-0. 2662	-0.2779
	Intrusive behaviour	12 Yrs	4.546	2.889	0.646	-0.0723	-0.1672
		14 Yrs	4.71	3.07	0.686	-0.1961	-0.0921
		16 Yrs	4.83	2.783	0.622	-0.2904	-0.1058

*Significant at 0.05 level of confidence, 'r'$_{0.05}$ (18) =0.444

It is seen from table- 5 that 'r' 'value of anxious/depressed, withdrawn/depressed, somatic complaints, thought problems attention problems rule breaking behaviour, intrusive behaviour with coordinative ability and kinesthetic perception insignificantly and negatively correlate among under 12yrs, under 14yrs and under 16yrs age groups.

4. Discussion of Findings

The result of the present study shows that significant differences are found in kinesthetic perception and coordinating ability among under growing age groups of santal students. Because the age is gradually acquired higher physical fitness and their neuro-physiological demands are more. In the age of sixteen years the neuro physiological factors develop and continue still puberty. Coordinating ability is increased may be due to effect of aging on the myelination of neurons. The factors affecting the psycho motor ability are experiences, fitness, and tolerance to fatigue, illness, distraction, mood, poor vision and poor hearing. Kinesthetic perception and coordinating ability are basically psychomotor ability which is controlled by psychic sensory and neuromuscular coordination. Psycho motor factors are related by golgi tendon organs which are propioceptors encapsulated in tendon fibers and are located near junction of the muscle and tendon fibers**.**

The result indicates that significant differences are found in emotional and behavioural problems among under growing age groups of santal students. This may be because of the maturity in respect to age, their involvement in physical and cultural activities as it is a way to anticipate the happenings which is because of every child is eager to participate in physical and sporting activities. Research now tells us that a definite relationship exists between cognitive function and childhood emotional or behavioural disorders. Aggressive behaviour is learned by observing parents, siblings, friends, and characters on television and in the movies. School phobia may be accompanied by physical illness associated with tension and extreme emotion. Goins (2012) [28] reported that cognitive ability negatively correlates to the emotional and behavioural problems. W.H.O defines adolescence as the period of life between the ages of 10-to 19 years when the adolescent struggles to develop his individuality while still conforming to societal norms.

Our results show that negative correlations are found between emotional problems with two psycho motor components. Because psycho motor ability is controlled by neuro physiological and psychological factors and its demands are increased. Emotional and behavioural problem is a psychological problem and it is increased to the certain level accordingly chronological age upto still puberty. For this with the increasing growth emotional and behavioral problems negatively correlate the psycho motor ability to develop. In another study on school-going adolescents of Delhi, 50% of the students were found to have problems of emotional maladjustment. Baba H (2015) [2, 29] experienced that student academic success is a significant relationship between emotional and kinesthetic intelligence. Elsley S (2008) [7, 30] motor ability was positively related to a child's emotion comprehension. Findings also supported the study conducted by Sarkar (2013) [19, 31].

5. Guidance for Implementation

Implementation is associated that if emotional and behavioural problems increasing contributing factors are minimized then kinesthetic perception and coordinating ability may be developed and healthful santal culture may be created.

6. Conclusions

- Significant increments are observed on coordinative ability and kinesthetic perception in respect of chronological growth of students.
- The increasing growth of the emotional and behavioural problems of santal students negatively correlates (not significantly) the psycho motor ability to develop.

7. References

1. Ahmad *et al.* Prevalence of psychosocial problems among school going male adolescents". Indian J Community Med. 2007; 32:219-21.
2. Baba H. The effect of kinesthetic intelligence emotional intelligence and interior-exterior control to their academic achievement. The online journal of recreation and sports. 2015, 4-1.
3. Barrow HM, McGee RM. A Practical Measurement for Evaluation in Physical Education. Lea & Febiger, Philadelphia, 1979.
4. Clarke HH. Application of Measurement to Health and Physical Education (5th Edition), New Jersey: Prentice-Hall Inc, 1976.
5. Cohen *et al.* An epidemiological study of disorders in late childhood and adolescence- age and gender specific prevalence. J Child Psychol Psychiat. 1993; 34(6):851-867. [PubMed]
6. Egger *et al.* Common emotional and behavioral disorders in preschool student": Presentation, nosology, and epidemiology. Journal of Child Psychology and Psychiatry. 2006; 47:313-337.
7. Elsley S. Motor Coordination and Social–Emotional Behaviour in Preschool-aged Children International Journal of Disability Development and Education Impact Factor. 2008; 55(2):143-151. DOI: 10.1080/10349120802033592
8. Heward *et al.* Emotional and Behavioral Disorders in Children: Characteristics - Pearson Allyn Bacon Prentice Hall, Updated. 2010
9. Johnson Barry L, Nelson Jack K. Practical Measurements for Evaluation in Physical Education, New Delhi: Surjeet Publication, Third Edition, Third Reprint, 2012.
10. Kansal Devinder K. Text Book of Applied Measurement, Evaluation & Sports Selection", New Delhi: DVS Publications, 1996.
11. Kaplan *et al.* Physical abuse risks for adolescents of psychiatric disorders. American Journal of Psychiatry. 1998; 155(7):954-59. [PubMed]
12. Norton K, Olds T. A Text Book of Body Measurement for Spots and Health Education Anthropometrica (1ST edition), New Delhi: CBS publishers & Distributors, 2006.
13. Ramesh Kumar PA. Cross Sectional Analysis of coordinative Abilities of Students from Ten to Sixteen

Years of Age, Unpublished MPE. Thesis, LNIPE, Gwalior, 1993.
14. Pathak R, *et al.* Behavioural and emotional problems in school going adolescents" The Gerontological Society of America, Australas Med J. 2011; 4(1):15-21.
15. Prof. Verma J. Prakash. A Text Book on Sports Statistics, sports publication. 1986.
16. Rambha Pathak. Behavioural and Emotional Problems in School Going Adolescents", Australian Medical Journal. 2011; 4(1):15-21. Published online 2011 Jan 31. doi: 10.4066/AMJ.2011.464, PMCID: PMC3448127
17. Rathore *et al.* Comparative Study of Kinesthetic Perception of Male and Female Basketball Players Indian Journal of Sports Studies. 2001; 6(2):20-23.
18. Roy M *et al.* Physical Fitness Status of Rava Indo-Mongoloid Tribal Youths in Comparison to General Youths of India, Journal of sports and recreation. 2014, 3(9). ISSN No 2277-8160.
19. Saugata Sarkar. A Study on Relationship between Creative Motor Response and Kinesthetic Perception of Student, International journal of innovative research& development. 2013, 2:9.
20. Singh Hardyal. Science of sports training DVS Publication, New Delhi, Reprent, 1997.
21. Srinath *et al.* Epidemiological study of child & adolescent psychiatric disorders in urban & rural areas of Bangalore, Indian J. Med Res. 2005; 122:67-79. [PubMed]
22. Wang *et al.* A research report on behaviour problems of 2432 school student in urban areas of Beijing. China". Mental Health. 1988; 2:114-15.
23. Wiles NJ, *et al.* Physical activity and emotional problems amongst adolescents: a longitudinal study. Soc Psychiatry Psychiatr Epidemiol. 2008; 43(10):765-72.
24. Kamlesh *et al*. Long-term positive associations between music lessons and IQ. Journal of Educational Psychology: 2002, 457-468.
25. James C, Bryant. Early childhood computer experience and cognitive and motor development. Pediatrics, 1969.
26. Rescorla *et al*. What proportion of youth are physically active? Measurement issues, levels and recent time trends. Br J Sports Med. 2003; 45:859-865.
27. Gopal *et al*. Physical activity of Canadian children and youth: accelometer results from the 2007–2009 Health Measures Survey. Healt Rep. 2010; 22:15-22.
28. Goins *et al*. Levels of physical activity and sedentary time among 10- to 12-year-old boys and girls across 5 European countries using accelerometers: An observational study within the Energy-project. Int J Behav Nutr Phys Act, 2012.
29. Baba H, *et al*. Associations between physical activity, fitness, and academic achievement. J Pediatr. 2015; 155:914-918.
30. Elsley S, *et al*. Physical activity, emotional and behavioural problems, maternal education and self-reported educational performance of adolescents. Health Educ Res. 2008; 25:368-379.
31. Sarkar, *et al*. Physical activity, sedentary behavior, and academic performance in Finnish children. Med Sci Sports Exerc. 2013; 45:2098–2104.