International Journal of Farm Sciences **8(3):** 84-88, 2018; doi: 10.5958/2250-0499.2018.00088.5

Cognitive abilities of orphans in Karnataka: a pilot study

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 Received: 8.6.2018/Accepted: 12.6.2018

ABSTRACT

The research on cognitive abilities of orphans was conducted in the year 2016-2017 in Dharwad Taluka, Karnataka state with an objective to know the cognitive abilities of orphans. Data were collected using Wechsler's scale of intelligence, socio-economic status scale and self-structured questionnaire to collect auxiliary information. About 60 orphans were randomly selected in the age range of 6 to 18 years to know their cognitive abilities. Results revealed that 36.70 per cent of orphans were in the average, 51.70 per cent in below average and only 11.70 per cent in high level of intelligence. With respect to verbal test scores there was significant difference between boys and girls only in arithmetic sub-test and mean scores indicated that girls performed better than boys. In case of performance sub-test there was significant difference between boys and girls in block design and mazes sub-tests and mean scores indicated that boys performed better than girls. There was no significant difference between boys and girls in verbal intelligent quotient (IQ), performance IQ and total intelligence. Mean indices of cognitive process showed that there was significant difference between boys and girls in freedom from distractibility mean scores indicating that girls were better than boys. Both boys and girls were similar in verbal comprehension, processing speed and perceptual speed.

Keywords: Cognitive abilities; intelligence; verbal test; performance test

INTRODUCTION

Orphans exist in every age and in all civilizations. A child who is below 18 years of age and who has lost one or both parents may be defined as an orphan (George 2011). Maternal orphan is referred to a child who has lost his/her mother and paternal orphan is referred to a child who has lost his/her father. Double orphans are those who lost both their parents. Social orphans are children who are living without parents because of abandonment or because their parents gave them up as a result of poverty, alcoholism or imprisonment etc (Dillon 2008). The number of orphans in India stands at approximately 55 million children of age 0 to 12 years which is about 47 per cent of the overall population of 150 million orphans in the world (Dar et al 2016).

India is the world's largest democracy with a population of over a billion people of which 400 million are children. Approximately 18 million of this number of children lives or works on the streets of India and majority of them are involved in crime, prostitution, gang-related violence and drug trafficking. However a large number of these children is orphan (Shrivastava 2007). The children who have lost their parents are most vulnerable because they do not have the emotional and physical maturity to address their psychological trauma associated with parental loss. In the society orphan children can be considered to be at more risk than average children (Subbarao and Coury 2004). Loss of parents introduces a major change in the life of an orphan. These changes can easily affect not only the physical but also the psychological and mental well-being of children.

Cognition is the mental action or process of acquiring knowledge and understanding through thought, experience and the senses. It encompasses processes such as knowledge, attention, memory and working memory, judgment and evaluation, reasoning and computation, problem solving and decision making, comprehension and production of language etc. Human cognition is conscious and unconscious,

concrete or abstract as well as intuitive and conceptual. Cognitive processes use existing knowledge and generate new knowledge. Cognitive abilities are brain-based skills that are needed to carry out any task from the simplest to the most complex. During the first 3 to 4 years of life the anatomic brain structures that govern personality traits, learning processes and coping with stress and emotions are established, strengthened and made permanent. The nerve connections and neurotransmitter networks that are forming during these critical years are influenced by negative environmental conditions including lack of stimulation, child abuse or violence within the family. It is known that emotional and cognitive disruptions in the early lives of children have the potential to impair brain development. Hence the present study aims at studying the cognitive abilities of orphans and to know the influence of selected demographic variables on cognitive abilities in Karnataka state.

METHODOLOGY

Study was conducted in the year 2016-2017 in Dharwad Taluka of Karnataka state. A correlation research design was used to know the relationship between individual ecological factors with cognitive abilities of orphans. Prevalence of orphans was assessed by selecting 5 per cent villages of Dharwad Taluka, Karnataka and 25-30 per cent of the population was selected from foster care families of which 60 orphans were randomly selected to know the cognitive abilities. A self-structured questionnaire was used to collect personal information like age, gender, education of children, type of orphan, number of siblings and period of orphanhood. The socio-economic status scale developed by Aggarwal et al (2005) was used. It consisted of 23 statements which assessed caste, education, occupation and monthly per capita income from all sources, type of house and location, family possessions and possessions of earning members in the family, number of children and possessions of agricultural and non-agricultural land along with animals and social status of the family. The scores were given to different dimensions and added to obtain total score. The socio-economic status was classified as upper high, high, upper middle, lower middle, poor middle and very poor.

Wechsler's scale of intelligence for school children (WISC III) is an individually administered clinical instrument for assessing the intellectual ability of 6-16 years old children. WISC III consists of 13 sub-sets each measuring somewhat different aspects of intelligence. They are organized into two groups: the performance and verbal sub-sets. They are picture completion, coding, picture arrangement, block design, object assembly, symbol search, mazes, information, similarities, arithmetic, vocabulary, comprehension and digital span. Each sub-set has specific scoring pattern. On the raw scores equivalent scores are calculated by totaling sum of scaled scores for verbal and performance and full scaled scores. Finally for sum of scaled scores respective intelligence quotient is calculated.

RESULTS and DISCUSSION

The demographic characteristics of orphans indicated that 53.30 per cent were girls and 46.70 per cent were boys. In case of age of children 56.70 per cent were in the age group of 10 to 15 years, 25.00 per cent in the age group of 16-17 years and only 18.30 per cent in the age group of 6 to 9 years. As per the birth order of children 41.67, 35.00 and 23.33 per cent were last born, first born and middle born respectively. Majority of children were from small size (53.33%) followed by medium and large size families (38.33 and 8.34% respectively). It was observed that 70.00 per cent of children had been residing in nuclear families and remaining 30.00 per cent in joint families. It was highlighted that majority (81.70%) were maternal, 11.66 per cent were paternal and only 6.70 per cent were double orphans. In total 65.00 per cent of the respondents had lost their parents in the last 5 years followed by 6-10 years and more than 11 years (28.30% and 6.70% respectively). Only 10.00 per cent of children did not have any siblings; 41.70 per cent of children had only one and 46.60 had two siblings. With respect to socio-economic status 93.30 per cent of children belonged to lower middle class; only 5.00 per cent and 1.67 per cent belonged to upper middle and poor class of socio-economic status, respectively (Table 1).

With respect to cognitive abilities of orphan children majority (36.70%) of them were in average category of IQ followed by low average (28.30%). In case of boys 42.90 per cent were in average followed by low (32.10%) IQ. The similar trend was followed in case of girls IQ (Table 2).

Table 3 indicates that there was significant difference between boys and girls in arithmetic under

Table 1. Demographic characteristics of orphan children (n= 60)

Parameter	Class	Frequency	Percentage
Gender	Boys	28	46.70
	Girls	32	53.30
Age (years)	6-9	11	18.30
	10-15	34	56.70
	16-17	15	25.00
Birth order	First born	21	35.00
	Middle born	14	23.33
	Last born	25	41.67
Family size	Small	32	53.33
	Medium	23	38.33
	Large	5	8.34
Family type	Nuclear	42	70.00
	Joint	18	30.00
Type of orphan	Maternal orphan	49	81.70
	Paternal orphan	7	11.60
	Double orphan	4	6.70
Period of orphanhood (years)	0-5	39	65.00
	6-10	17	28.30
	>11	4	6.70
Number of siblings	0	6	10.00
	1	25	41.70
	2	28	46.60
	<3	1	1.7
Socio-economic status	Upper middle	3	5.00
	Lower middle	56	93.33
	Poor middle	1	1.67

Table 2. Frequency distribution of level of intelligence of orphan children by gender

Level of IQ	Boys	Girls	Total
Very superior	0	0	0
Superior	0	0	0
High average	2 (7.10)	5 (15.60)	7 (11.70)
Average	12 (42.90)	10 (31.20)	22 (36.70)
Low average	9 (32.10)	8 (25.00)	17 (28.30)
Borderline	4 (14.30)	9 (28.10)	13 (21.70)
Intellectually deficient	1 (3.60)	0 (0.00)	1 (1.70)

mean scaled scores of verbal tests. The boys had better arithmetic skill than girls. There was no significant difference between boys and girls in all other sub-tests such as information, similarities, vocabulary, comprehension and digital span. Mean scores of performance tests indicate that there was significant difference between boys and girls in object assembly and mazes. The boys had better object assembly skill than girls and girls had better mazes skills than boys. There was no significant difference between boys and girls in all other sub-tests such as picture completion, coding, picture arrangement block design and symbol search.

Summary of sub-scales of intelligence of orphan children by gender (Table 4) indicates that there was no significant difference between boys and girls in verbal IQ, performance IQ and full scale IQ. As per mean boys had higher mean than girls.

The data given in Table 5 show that mean indices of cognitive process of orphan children by gender indicate that there was significant difference between boys and girls in freedom from distractibility. The boys had higher freedom from distractibility than girls. In other cognitive processes both boys and girls

Table 3. Mean scaled scores of verbal tests of orphan children by gender

Paramter	Girls		Boys		t-value
	Mean	SD	Mean	SD	
Scores of verbal tests					
Information	9.35	3.53	8.46	3.22	1.019
Similarities	8.85	4.69	7.65	3.05	1.190
Arithmetic	5.17	2.37	6.96	2.17	3.046
Vocabulary	5.28	3.25	4.44	3.22	1.013
Comprehension	3.54	2.01	3.84	2.96	0.464
Digital span	7.89	2.80	9.00	2.87	1.505
Scores of performance tests					
Picture completion	6.35	2.33	5.84	2.68	0.787
Coding	10.04	6.55	8.44	5.16	1.055
Picture arrangement	3.82	1.42	4.18	2.10	0.780
Block design	5.89	1.67	5.72	2.41	0.316
Object assembly	3.57	1.68	6.16	2.41	4.745
Symbol search	9.43	4.47	9.06	4.59	0.312
Mazes	8.11	4.41	5.91	2.10	2.519

Table 4. Summary of subscales of intelligence of orphan children by gender

Intelligence test	Girls		Boys		t-value
	Mean	SD	Mean	SD	
Verbal IQ	89.074	13.32	89.31	13.98	0.068
Performance IQ	93.54	23.72	94.59	19.92	0.188
Full scale IQ	92.28	14.24	90.96	16.15	0.333

Table 5. Mean index of cognitive process of orphan children by gender

Process	Girls		Boys		t-value
	Mean	SD	Mean	SD	
Verbal comprehension	82.78	14.82	79.65	13.52	0.855
Perceptual organization	70.93	5.85	73.84	11.55	1.205
Freedom from distractibility	81.14	12.59	89.75	12.70	2.628
Processing speed	99.29	25.23	94.34	23.33	0.788

were similar. In case of verbal IQ the mean scores were lesser than average IQ in case of both boys and girls.

CONCLUSION

The study showed that 51.7 per cent orphans were in below average level of intelligence; there was significant difference between boys and girls only in arithmetic sub-test with respect to verbal test scores. The girls performed better than boys. There was significant difference between boys and girls in block design and mazes sub-tests in case of performance sub-test and boys performed better than girls. There was no significant difference between boys and girls with respect to verbal intelligent quotient, performance IQ and total intelligence. Mean indices of cognitive process indicated that there was significant difference between boys and girls in freedom from distractibility and girls were better than boys. Both boys and girls were similar in verbal comprehension, processing speed and perceptual speed.

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