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ASSESSMENT OF AUTISM SEVERITY AMONG CHILDREN UNDER 5-15 YEARS USING ISAA SCALE**P Nazni^{1*} and Shiny Ravi¹****Corresponding Author: P Nazni, ✉ naznip@gmail.com*Received on: 12th December, 2015Accepted on: 8th March, 2016

Autism was delineating as a “pervasive developmental disorder” characterized by severe impairment in several areas of development such as social interaction, communication and imagination. It was also defined as a polygenetic developmental neurobiological disorder with multiorgan system involvement, though it predominantly involves central nervous system dysfunction. This disorder has a broad impact on cognitive and neurologic functioning. The present study is to evaluate the demographic features and severity of autism among the special schools of three different districts. This study examined the Indian Scale for Assessment of Autism (ISAA) as a tool for diagnoses a severity of autism among 400 children from the age of 5-15 years referred for possible autism. The cut-off score to identify the severity of autistic disorder using ISAA scale was < 70 for no autism, 70 to 106 for mild autism, and 107 to 153 for moderate autism and above 153 for severe autism. Results were identified as, among 400 selected autistic children, 78.2% of children were in the condition of mild autism, 10.8% of children were in the state of moderate autism, whereas 11.0% of children were in severe autism. By using ISAA scale, severity of autism among the selected subjects was acquired in which result was found as mild level of autism was more prevalent among the selected subjects of three different districts.

Keywords: Autism disorder, Indian scale for assessment of autism, Diagnosis, Severity of autism

INTRODUCTION

Autism is delineated as a complex biological disorder characterized by difficulties with speech; abnormalities of posture or gesture; problems with understanding the feelings of others; sensory and visual misperceptions, fears and anxieties; and behavioral abnormalities such as compulsive/obsessive behavior and ritualistic movements Williams (2011).

The word autism comes from the Greek word “autos” meaning self and people with autism prefer solitude to social interaction. But Desorgher (2000) defined autism as not a psychological condition but a neuro-gastro-immunological

disorder resulting from an immuno- genetic error during foetal development. Arews *et al.* (1999) opined that autism manifests in the first three years of life and persists into adulthood. Most cases emerge before the age of two and a half and few are diagnosed after the age of five Delong (2008).

Autism disorder varies from mild to severe, seldom it can be present alone or in addition to other conditions such as mental retardation, attention-deficit/hyperactivity disorder, anxiety disorders, depression or epilepsy; neurological problems such as brain cell differences and neurological chemical imbalances have been suggested as the cause of autism Nazni *et al.* (2008).

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The symptoms of autism manifest by the age of three years, and affected individuals often require constant care from family members and professionals because these children display abnormal behaviors that cause serious distress for both the child and the family. Dominick *et al.* (2007) opined that unusual eating habits, abnormal sleep patterns, temper tantrums and aggression to self and to others are among the most common abnormal behaviors Kolevzon *et al.* (2007).

Autism can be devastating for affected families; there cannot be a more wrenching experience than to watch a severely disabled child struggle with life in a world with which they can hardly communicate. Families also reported high levels of burden following their child's diagnosis as they are confronted with extraordinary demands on their time, energy, and financial resources (Barbarese *et al.*, 2005).

Children with autism frequently have significant eating difficulties with highly restricted range of food choices. Eating habits and patterns are often unusual and have an impact on family life Williams *et al.* (2000). The autistic children were tend to refuse more foods and restrict their diets to a smaller variety of foods than other children Lowe *et al.* (2007).

Dietary intervention is the cornerstone in the treatment of autism. Making calculated omissions and additions to food choices is the first step in improving autistic children's health and well being. Certain food substances are known to be problematic and should be avoided and other foods rich in healing nutrients are beneficial when added to childrens' diets (Matthews, 2009). Based on the above literature the study was carried out with the objectives are as follows,

MATERIALS AND METHODS

Selection of Subjects

The total study sample comprised of 400 autistic children of both genders ranging in the age of 5 to 15 years studying in various special schools of selected districts such as Thanjavur, Karaikkal and Tiruchirapalli were selected. The subjects were selected on the basis of convenience sampling method.

Formulation of Interview Schedule

A detailed interview schedule was formulated by the investigator in order to elicit information pertaining to the demographic features, dietary pattern, health status and personal habits of the selected subjects.

Tool

Indian scale used for diagnosing and measuring autism is the Indian Scale for Assessment of Autism (ISAA). This scale was based on CARS and has 40 items divided under six domains – social relationship and reciprocity; emotional responsiveness; speech, language and communication; behavior patterns; sensory aspects and cognitive component. The items are rated from 1 to 5, increasing score indicating increasing severity of the problem. A score of <70 indicates no autism, 70-106 (mild autism), 107-153 (moderate autism), and >153 (severe autism). It takes about 15 to 20 minutes for administration of ISAA. The ISAA was devised with the aim of quantifying the severity of autistic symptoms Patra and Arun (2011). The study was approved by the Institutional Ethical committee.

Procedure

The selected subjects were approached in their respective schools. The formulated interview schedule and the "ISAA Scale" were administered to each subject individually. Their responses were recorded and scoring for the scale was done as per the instructions in the manuals. The results were subjected to find out the severity level of autism among the selected autistic children by using ISAA scale.

Statistical Analysis

The collected data was interpreted and statistically analyzed using SPSS 16.0 version.

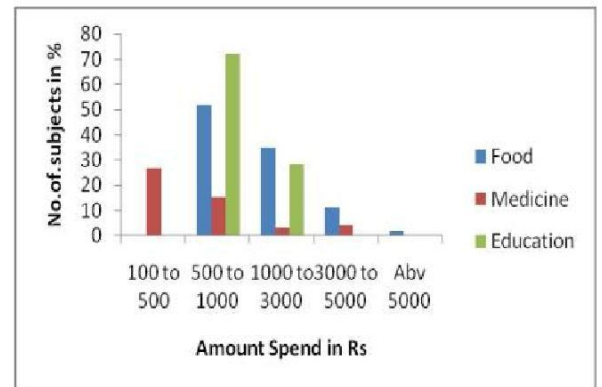
RESULTS

The table-1 indicated that among the selected autistic children 76.5% of the children were belonged to the age group of 5 to 10 yrs whereas 23.5% were in the age group of 10 to 15 yrs. Based on the gender 76.8% were male gender and 23.2 of them were female gender. Based on the religion 80.8% of the autistic children were belonged to Hindu, 15.5% were Muslim and 3.8 were belonged to the Christian religion. 19.8% of the autistic children were belonged to the Joint family whereas 80.2 of them were belonged to Nuclear family. 19 percent of the selected children were belonged to the family size of 2 to 3 members, 69% were in family size of 2 to 5 members and 12% were belonged to the family size of Above 5 members. 7.5% of the parents of selected autistic children were agriculturist, 13% of the occupations of parent were daily wages, 14% of parents were in private sector, 33% of parent's occupation was Business and 32.5% of the parent's occupation was Government job. 95.5% of educational status of selected children's father was literate

Table 1: Demographic Features of the Selected Autistic Subjects

Demographic Features	Criteria	No. of Subjects	Percent (%)
Age	5-10yrs	306	76.5
	10-15yrs	94	23.5
	Total	400	100
Gender	Male	307	76.8
	Female	93	23.2
	Total	400	100
Religion	Hindu	323	80.8
	Muslim	62	15.5
	Christian	15	3.8
	Total	400	100
Family Type	Joint	79	19.8
	Nuclear	321	80.2
	Total	400	100
Family Size	2 to 3	76	19
	3 to 5	276	69
	Above 5	48	12
	Total	400	100
Profession of Parents	Agriculture	30	7.5
	Daily Wages	52	13
	Private Sector	56	14
	Business	132	33
	Government Job	130	32.5
	Total	400	100
Educational status of Father	Literate	380	95
	Illiterate	20	5
	Total	400	100
Educational status of Mother	Literate	52	13
	Illiterate	348	87
	Total	400	100

Figure 1: Monthly Disbursement Pattern of the Selected Autistic Children's Family



whereas 5% were illiterate. 13% of the mother of the selected children's was literate and 87% were illiterate.

The figure-1 showed that 52% of the family of selected children were spend Rs. 500 to 1000 for food, 35% of the family were spend Rs. 1000 to 3000 for their food monthly, 11% of the family spend Rs. 3000 to 5000 for food and 2% of the family spend above Rs. 5000 for food per month. 27% of the family of selected children were spend Rs. 100 to 500 on medicine per month, 15% of the family had spend Rs. 500 to 1000 for medicine, 3% of the family spend Rs. 1000 to 3000 for medicine and 4% of the family spend Rs. 3000 to 5000 for medicine per month. 72% of the families of selected children were spend Rs. 500 to 1000 for education of their children per month and 28% of the families were spend Rs. 1000 to 3000 on education monthly.

The table-2 revealed that 3% of the ages of conception of mother of selected autistic children were 20 to 25 yrs, 52% were belonged to the age of 25 to 30 yrs, 36% were in the age group of 30 to 35 yrs and 9% of the mothers were in above 35 yrs.

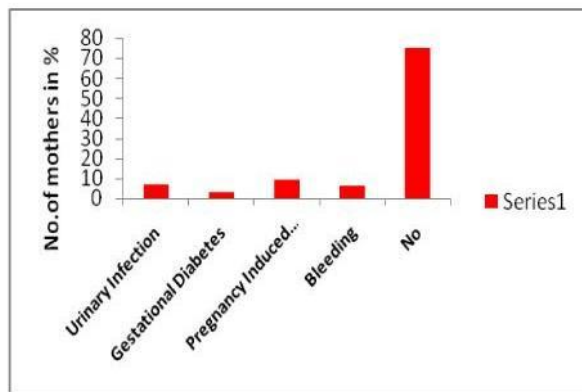
Table-2 -Age of Conception of Mother of the selected Autistic Subjects

Age in Years	No of Subjects	Percent (%)
20 to 25	12	3
25 to 30	208	52
30 to 35	144	36
Above 35	36	9
Total	400	100

Table 3: Birth Order of the Selected Autistic Subjects

Birth Order	No of Subjects	Percent (%)
First Child	268	67
Second Child	132	33
Third Child	0	0
Fourth Child	0	0
Twin Child	0	0
Total	400	100

Figure 2: Complications of Mothers of Selected Autistic Subjects During Pregnancy



The table-3 showed that among the selected autistic children 67% have been the first child whereas 33 % of the selected children were second child. No third, fourth and twin child were observed as autistic children.

Table 4: Percentage of Disability as per ISAA Score

ISAA Score	Percentage (%) of Disability	No. of Samples
<70	-	-
70	40	66
71-88	50	231
89-105	60	24
106-123	70	26
124-140	80	15
141-158	90	38
>158	100	0

The figure-2 indicated that among the mothers of selected autistic children 7% were experienced the condition of urinary infection during pregnancy, 3% were experienced the Gestational diabetes, 9% of the mothers were experienced Pregnancy induced hypertension, 6% were experienced the condition of bleeding during pregnancy and 75% of the mothers of selected autistic children were experienced no complications during the period of pregnancy.

The table-4 revealed that among the selected autistic subjects 78.2% of the subjects were in the mild autism, 10.8% of the subjects were in the condition of moderate autism and 11.0% of the selected subjects were in the condition of severe autism.

Table 5: Correlation Matrix of Severity of Autism with Demographic Features of the Selected Autistic Children

Demographic Features	r values
Age	.01 ^{NS}
Gender	-.08 ^{NS}
Religion	-.02 ^{NS}
Family Type	-.00 ^{NS}
Locality	-.10*
Family Size	-.026 ^{NS}
Age of conception of mother	-.047 ^{NS}
Complications of mother during Pregnancy	-.030 ^{NS}
Birth order	-.13**

Note: *Correlation is significant at the 0.05 level, **Correlation is significant at the 0.01 level, NS – No Significance.

The results for correlation matrix of severity of autism with demographic features were presented in table- 5. The severity of autism was negatively correlated with age, gender, religion, family type, family size, age of conception of mother, complications of mother during pregnancy of the selected Autistic subjects. A high degree negative and significant ($P < 0.05$) correlation was observed between the severity of autism with locality of the selected subjects and severity of autism had negative and significant ($P < 0.01$) correlation with the birth order of selected subjects which can be considered as less negative effect.

DISCUSSION

The present study has proved that among the selected

subjects autism was prevalence more among the male gender compared to female. The study of Klinger and Dawson (1996) supported the present finding and stated that boys consistently display autism more often than girls with the ratio of 3:1. Based on the religion among the selected subjects the autistic condition was occurred more on Hindu subjects compared to Muslim and Christian. The present study was supported by Alli (2011) and revealed that the Hindus were predominant (82.5) than the Muslims (9.5%) and the Christians (8.0%) in autistic condition. In the present study it was proved that among the birth order of selected autistic subjects first child were affected more predominantly by autism rather than second child and third or fourth child were not affected by autism. The present study found that Mild level of Autism was more prevalent among the selected subjects and it was not supported by the study of Suravi and Priti (2011) and stated that majority (46%) of our patients had ISAA scores between 106-123 (Moderate autism) followed by 31% had scores between 89-105 (Mild autism).

CONCLUSION

From the present study it was concluded that by using ISAA scale, severity of autism among the selected subjects were acquired in which result was found as Mild level of Autism was more prevalent among the selected subjects of three different districts and this scale was also useful to know about the quantification of autism and related disability among the selected children.

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