International Journal of Social Science and Economic Research

ISSN: 2455-8834

Volume: 04, Issue: 05 "May 2019"

IDENTIFYING AUTISM SPECTRUM DISORDER AND ITS RELATION ON ADAPTIVE BEHAVIOR PATTERNS AMONG YOUNG CHILDREN

[1]Mrs. Hemamalini Bharathi C.G, [2]Dr. T. Lavanya

[1]Ph.D., Research Scholar, Dept. of Psychology, University of Madras and Psychologist, Central Prison II, Puzhal, Chennai, India

[2]Associate Professor, Dept. of Psychology, University of Madras, Chennai, India

ABSTRACT

Early Identification of behavioural, social and communication developmental problems among young normal school going children facilitated in providing early intensive interventions to promote cognitive, language and adaptive behavioural skills. In keeping with this aim, objectives of the present study were:(i)To screen for identifying Autism Spectrum Disorder (ASD) among children going to play schools or Kindergarten in Chennai.(ii) To identify the children's level of functioning on their various developmental domains.(iii) To assess the adaptive functions for children identified with Autism Spectrum disorder.(iv) To assess the maladaptive behavior pattern for children identified with Autism Spectrum disorder. The selection of schools were based on Random Sampling Technique using lottery method, and the children were screened followed by assessment based on the teacher's reference for behavioural, social and communication problems. Purposive sampling technique was used. Informed Consent from parents and teachers were obtained. Ex-post facto Research Design using survey method was adopted. The Assessment tools used were Indian Scale for Assessment of Autism (ISAA), and Vineland Adaptive Behaviour Scales(VABS)Results on screening revealed that 7 children out of n=100 (7/50boys and 0/50 girls) were identified with features of ASD. Assessments showed the overall standard score mean for the 7 children was 50 indicating low level of adaptive functioning. Pattern of Adaptive functioning on Domains as well as sub domains of (VABS) were derived. Case Analysis gave a positive sign that the children at younger age when given intensive training based on their need will enhance in adaptive functions and reduce in maladaptive behaviour.

Keywords: Adaptive functions, Autism Spectrum Disorder, Developmental domains, , Maladaptive behavior.

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INTRODUCTION

Early Identification of behavioural, social and communication developmental problems among young children facilitates in giving early intensive interventions for improving cognitive, language and adaptive behavioural skills among children with Autism Spectrum Disorder.(Lovaas,1987;Early Start Denver Model (ESDM),Dawson, Rogers 2010) [(1)] [(2)]. According to DSM5(APA, 2013)[(3)] Persons with Autism Spectrum Disorder(ASD) have (i) Persistent deficits in social communication and social Interaction (ii) Restricted, repetitive patterns of behavior (iii) Begins in early childhood (iv) Impairment in everyday functioning.

Need for the study

The review of literature suggests that early social impairments greatly impact future relationship, employment, independent living, and other mental health issues (e.g., anxiety, depression) (Bellini, 2004; Strain & Scwartz, 2001; Tantam, 2000)[(4)(5)(6)].Hence, there arises Need for early Intervention during this period . "Critical window of opportunity" for children is between 0- 6 years of age because Brain has high degree of plasticity. Providing intensive intervention during these early years leads to a higher degree of independence and overall maximized outcomes. Statistics show that between 25 and 50% of children receiving intensive Early Intervention will move into general education by Kindergarten. Many others will need significantly less service provision in future years. Early Identification of developmental problems in behavioral, motor, daily living, social and communication domains among young children will facilitates in designing and providing early intensive interventions to promote development in the respective domains and sub domains. (Lovaas, 1987; Early Start Denver Model (ESDM) Rogers, Dawson, 2010)[(1)(2)].

There is a scarcity of empirically validated treatments for infants and toddlers fewer than 3yrs with autism spectrum disorders(ASD) in Indian context. There is also a scarcity of routine early screening for ASD symptoms below 6yrs among school children. Thus, there should be an emphasis for identification and intervention to occur early and to focus on the development of social skills in order to build social interactions and relationships. Hence, the present study attempted to screen for Autism Spectrum Disorder among young children going to play schools or Kindergarten and further assess those children identified with ASD for their adaptive functioning and maladaptive behaviors.

MATERIALS AND MEHTOD

Objectives

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1. To screen for identifying Autism Spectrum Disorder(ASD) among children going to play schools or Kindergarten in Chennai.
2. To identify the children's level of functioning on their various developmental domains.
3. To assess the adaptive functions for children identified with Autism Spectrum disorder on the screening test.
4. To assess the maladaptive behavior pattern for children identified with Autism Spectrum disorder on the screening test.

Research design

Ex-post facto Research Design using survey method was adopted.

Sample selection

The selection of Kindergarten and play schools in Chennai was based on random sampling technique using lottery method. The total sample size included for the study was n=100 which includes 50 boys and 50 girls in the age group below 6yrs. However, there was one child who was 6yrs 11months indicated as having developmental problem by the teacher was also included. All the children in Kindergarten or play school selected were screened for Autism Spectrum Disorder (ASD).Children identified with ASD were included for assessment of developmental domains for both adaptive functions and maladaptive behaviour patterns. Purposive sampling technique was used for selection of these children.Informed consent from parents and teachers were obtained.

Data Collection

The Data collection was done using the Assessment tools (i) Indian Scale for Assessment of Autism (NIMH, 2012)[(7)], (ii) Vineland Adaptive Behaviour Scales, Second Edition (Sparrrow, Cicchetti and Balla,2005)[(8)].

Statistical Analysis

Percentage analysis was used for Identification of Autism Spectrum Disorder and its level and also for domain wise interpretation among children going to play school or kindergarten using ISAA Tool.

In order to study adaptive functions and maladaptive behaviours of children identified with Autism Spectrum Disorder the raw scores on the Vineland Adaptive Behaviour Scales II sub domains were converted to normative or derived scores with uniform meaning as instructed in

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the Manual. Six different normative score were available for Vineland Adaptive Behaviour Scales II-Standard scores, v-Scale scores, Percentile ranks, Adaptive levels, Age equivalents and Stanines

Result and Discussion

Assessment for Identification of Autism Spectrum Disorder and its level among children going to play school or kindergarten

Table 1: Descriptive of the sample on Indian Scale for Assessment of Autism Spectrum Disorder (ISAA)

Classification	Total Score Interpretation	Male		Female	
		Frequency n=50	Percentage %	Frequency n=50	Percentage %
No Autism	Below 70	43	86	50	100
Mild Autism	70-106	3	6	0	0
Moderate Autism	107-153	4	8	0	0
Severe Autism	>153	0	0	0	0
	Total	50	100	50	100

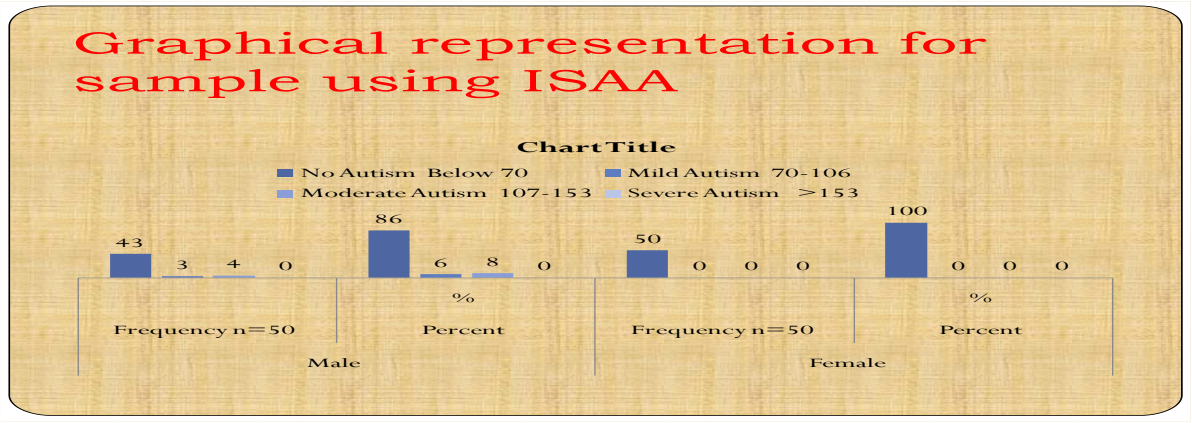

Fig 1: Graphical Representation the presence of Autism Spectrum Disorder among n=50 male and n=50 female participants along with their percentage.

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Table 1 reveals scores obtained using ISAA tool to identify presence of Autism spectrum Disorder among children going to normal play school or Kindergarten.

In the sample, 100 % girls(n=50 female subjects) , scored below 70, hence they have fallen under No Autism Category.

Among the boys, 43 were under No Autism category, 3(6%) of them felt under mild autism category and 4(8%) boys felt under moderate autism category. Hence, in the screening Phase in a sample of n=50 male subjects, 7 boys (14%) were identified for presence of autism spectrum disorder.

Table 2: Descriptive statistics of sample on the domains of ISAA for children without presence of ASD

Score Description	Social relationship and reciprocity		Emotional responsiveness		Speech language and communication		Behaviour patterns		Sensory aspects		Cognitive component	
	N=93	%	N=93	%	N=93	%	N=93	%	N=93	%	N=93	%
Rarely up to 20 % score 1	80	86	78	84	77	83	81	87	84	90	81	87
Sometimes 21-40% Score2	12	13	11	12	13	14	12	13	9	10	10	11
Frequently 41-60% Score3	1	1	3	3	3	3	0	0	0	0	2	2
Mostly 61-80% score 4	0	0	1	1	0	0	0	0	0	0	0	0
Always 81-100% Score 5	0	0	0	0	0	0	0	0	0	0	0	0

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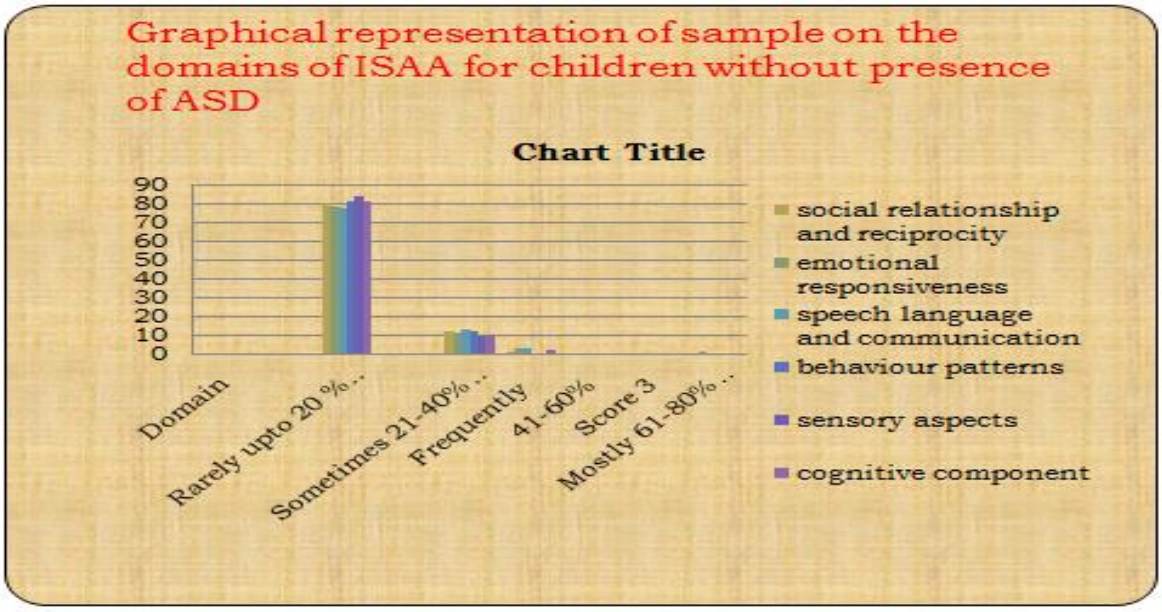

Fig 2: Graphical Representation for score description of the domains of ISAA tool for children (n=93) without presence of ASD

Table 2: Among the 93 Children, the percentage of children whose scores in the domains of ISAA tool (i) social relationship and reciprocity, (ii) emotional responsiveness,(iii) speech language communication, (iv) behavior patterns (v) sensory aspects, (vi) cognitive component respectively were as follows:

(a) In rarely or up to 20% problem were 86%, 84%, 83%, 87%, 90% and 87%

(b) In sometimes or below 40% problems were 13%, 12%, 14%, 13%, 10%, and 11%

(c) In frequently or below 60% presence of characteristics of Autism features were 1%, 3%, 3%, 0%, 0%, and 2%

(d) Only 1% of children had mostly or 80% problem in emotional responsiveness domain and

(e) None of the child showed always or 100% problem in any of the domain.

This indicates presence of problems in the domains rarely.

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Table 3: Descriptive statistics of sample on the domains of ISAA for children with presence of ASD

Score Description	Social relationship and reciprocity		Emotional responsiveness		Speech language and communication		Behaviour patterns		Sensory aspects		Cognitive component	
	N=7	%	N=7	%	N=7	%	N=7	%	N=7	%	N=7	%
Rarely up to 20 % score 1	0	0	14	2	0	0	1	14	0	0	0	0
Sometimes 21-40% Score2	2	28	2	28	2	28	4	57	4	57	2	28
Frequently 41-60% Score3	3	42	0	0	3	42	1	14	3	42	1	14
Mostly 61-80% score 4	1	14	1	14	1	14	1	14	0	0	3	42
Always 81-100% Score 5	1	14	3	42	1	14	0	0	0	0	1	14

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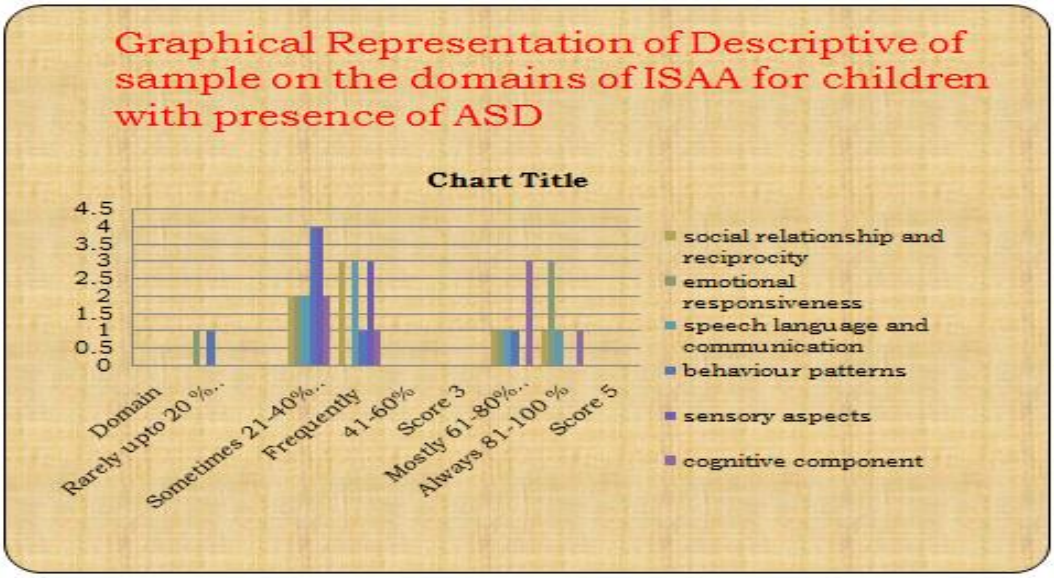

Fig. 3: Graphical Representation for score description of the domains of ISAA tool for children (n=7) with presence of ASD

Table 3:Among the 7 Children, the percentage of children whose scores in the domains of ISAA tool (i) social relationship and reciprocity, (ii) emotional responsiveness,(iii) speech language communication, (iv) behavior patterns (v) sensory aspects, (vi) cognitive component respectively were as follows:

(a) In rarely or up to 20% problem were 0%, 14%, 0%, 14%, 0%, and 0%, ,

(b) In sometimes or below 40% problems were 28%, 26%, 28%, 57%, 57%, and 28%

(c) In frequently or below 60% presence of characteristics of Autism features - 42%, 0%, 42%, 14%, 42%, and 14%

(d) In mostly or below 80% presence of characteristics of Autism features -14%, 14%, 14%, 14%, 0%, and 42%

(e) In always or below 100% presence of characteristics of Autism features - 14%, 42%, 14%, 0%, 0%, 14% respectively. This indicates presence of problems in the domains sometimes and frequently.

Assessment on adaptive functions and maladaptive behaviors for students identified with Autism Spectrum Disorder (n=7).

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There were 7 boys who were identified with Autism Spectrum Disorder in a sample of n=100 (50 boys and 50 girls). They were assessed using Vineland Adaptive Behavior Scales II Survey Interview form for Adaptive functions and Maladaptive behaviours.

The results were as follows:

Table 4: Descriptive of sample(children identified with ASD n=7) on Vineland Adaptive Behaviour Scales II - Six different normative score -Standard scores, v-Scale scores, Percentile ranks, Adaptive levels, Age equivalents and Stanines along with strength and weakness

SUBDOMAIN AND DOMAIN SCORES									STRENGTHS and WEAKNESSS	
Subdomain/ Domain	Raw Score	v-Scale Score Table B. 1	Domain Standard Score Table B. 2	90% Conf. Interval Table C.1/ C.2	%ile Rank Table C. 3	Adaptive Level Table C. 4	Age Equivalent Table C. 5	Stanine Table C. 3	Score Minus Median	Strength or weakness
Receptive	9	5	-	±3		Low	0:10		0	
Expressive	9	4	-	±1		Low	0:5		-1	
Written	3	11	-	±2		Mod .low	2:9		6	S
Communication	21	20	47	±7	<0.1	Low		1	-6	
Personal	19	7	-	±3		Low	1:8		-1	
Domestic	2	9	-	±2		Low	1:2		1	
Community	3	8	-	±2		Low	0:11		0	

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Daily Living Skills	24	24	55	±8	0.1	Low		1	2	
Interpersonal relationships	9	5	-	±2		Low	0:1		-1	
Play and Leisure Time	4	6	-	±2		Low	0:4		0	
Coping Skills	3	8	-	±2		Low	0:7		2	S
Socialization	16	19	51	±7	<0.1	Low		1	-2	
Gross	47	9	-	± 2		Low	1:8		2	S
Fine	13	5	-	± 2		Low	0:10		-2	W
Motor Skills	60	14	54	±8	0.1	Low		1	1	
		Sum	207							
Adaptive Behaviour Composite			50	±4	<1	Low		1		

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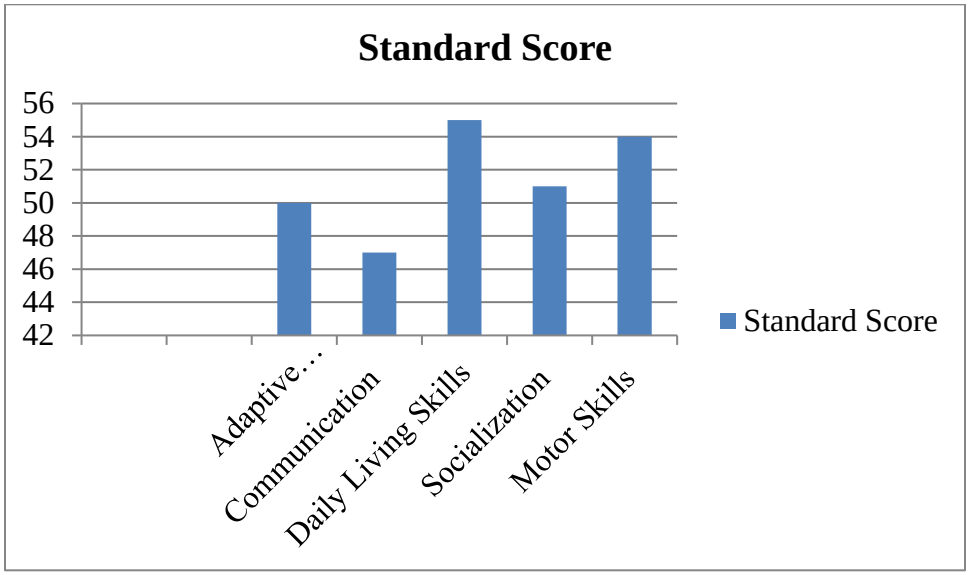

Fig. 4: Graphical Representation for mean domain Standard score (n=7) on Vineland Adaptive Behaviour Scales II

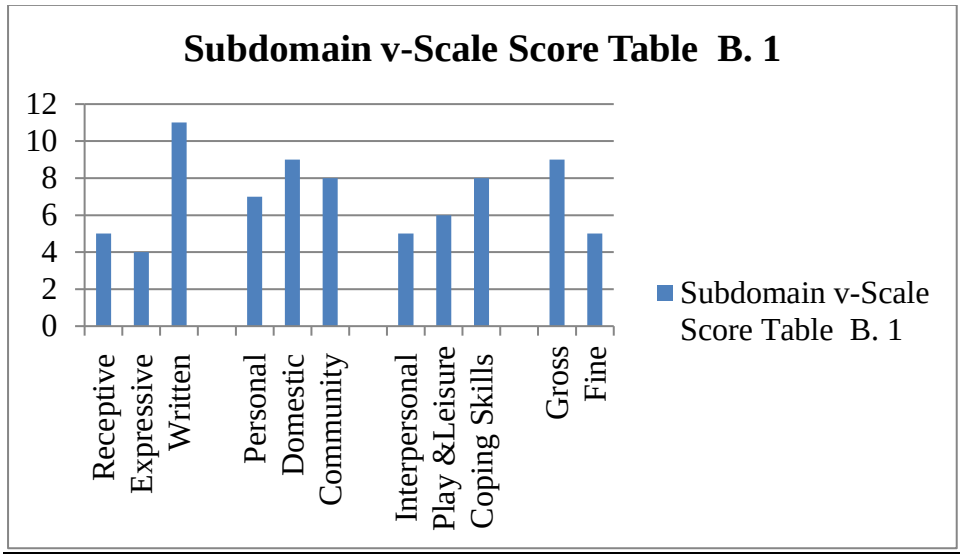

Fig. 5: Graphical Representation for mean subdomain v-scale score (n=7) on Vineland Adaptive Behaviour Scales II

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Table 4: The 7 boys identified with Autism Spectrum Disorder showed Adaptive Behaviour Composite standard score mean of 50 summarized their overall level of adaptive functioning. The 90% confidence level showed that the chances were good(90 percent). The Adaptive Behaviour Composite is within the range of (50±4) 46 to 54. Adaptive Behaviour Composite classified the adaptive functioning as Low.

The Standard scores mean in the adaptive behavior domains, along with the bands of error at 90 percent level of confidence, were as follows: Communication, 47±7 (40-54); Daily Living Skills, 55±8 (47-63); Socialization, 51±7 (44-58); and Motor Skills, 54±8(46-62). mean for the 7children on the four domains - Communication, Daily Living Skills, Socialization and Motor Skills were (47) (55) (51) and (54) respectively. The Communication Domain corresponds to a percentile rank of <0.1 and is at the low adaptive level. The Daily Living Skills, Socialization and Motor Skills scores, which correspond to percentile ranks of 0.1,<0.1 and 0.1 respectively and each were classified in the low adaptive level when compared with other children of same age.

Their v-Scale scores mean in the subdomains, along with the bands of error at 90 percent level of confidence, were as follows: Receptive,5±3(2-8); Expressive,4±1(3-5); Written, 11±2(9-13); Personal, 7±3(4-10); Domestic, 9±2(7-11); Community,8±2(6-10); Interpersonal Relationships, 5±2(3-7); Play and Leisure Time, 6±2(4-8); Coping Skills, 8±2(6-12); Gross Motor Skills, 9± 2(7-11); Fine Motor Skills, 5± 2(3-7).

Their subdomain v-scale scores in the Communication Domain were at low (Receptive and Expressive) and moderately low (Written) adaptive levels, with age equivalents of 0:10, 0:5 and 2:9.

Their subdomain v-scale scores in the Daily Living Skills Domain were at low(Personal, Domestic and Community)adaptive levels, with age equivalents of 1:8, 1:2 and 0:11.

Their subdomain v-scale scores in the Socialization Domain were at the low(Interpersonal Relationships, Play and Leisure Time, Coping Skills)adaptive levels, with age equivalents of 0:1, 0:4 and 0:7.

Their subdomain v-scale scores in the Motor Skills Domain were at the low(gross and fine) adaptive levels, with age equivalents of 1:8 and 0:10.The Stanine Value is 1 for all domains.

Interpretation of the pattern of domain standard scores

The domain standard scores of the seven boys do not suggest a personal strength or weakness in any area because all domain scores were within 10 points of each other(Communication,

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standard score of 47, Daily Living Skills, standard score of 55, Socialization, standard score of 51 and Motor Skills, standard score of 54) Their adaptive functioning in each domain was classified as low. The evaluation of pair wise comparisons provides no new information. All domain comparisons showed no significance

Evaluation of the pattern of subdomain v-scale scores to identify strengths and weaknesses.

When looking at the subdomains within the Communication domain, one sees that the performance of the 7 boys in the Written subdomian (v-scale score of 11) represents a personal strength because it was 6 points higher than median v-scale score of 5. This score was classified as Moderately low, whereas their v-scale score in Receptive and Expressive subdomains were classified as Low.

When looking at the subdomains within the Socialization domain , one sees that the performance of the 7 boys in the Coping Skills subdomian (v-scale score of 8) represents a personal strength because it was 2 points higher than median v-scale score of 6. These scores were classified as low in all subdomains.

When looking at the subdomains within the Motor Skills domain , one sees that the performance of the 7 boys in the Gross Motor Skills subdomian (v-scale score of 9) represents a personal strength because it was 2 points higher than median v-scale score of 7. These scores were classified as low in both subdomains

When looking at the subdomains within the Motor Skills domain , one sees that the performance of the 7 boys in the Fine Motor Skills subdomian (v-scale score of 5) represents a personal weakness because it was -2 points lower than median v-scale score of 7. These scores were classified as low in both subdomains.

Table 5 shows Descriptive of sample (children identified with ASD n=7) on Vineland Adaptive Behaviour Scales II – Pairwise Comparisons for Standard Score

Domain Comparisons	Standard Score	<, > or =	Standard Score	Domains Compared	Standard Score diff.	Stat.Sign. level (.05 or .01) Tab.D.1	Freq. of Diff. (Extreme 16,20,5 or 1%) Tab.D.2
Communication	47	<	55	Daily living Skills	8	N.S	No infrequently occurring

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							diff.
Communication	47	<	51	Socialization	4	N.S	No infrequently occurring diff.
Daily living skills	55	>	51	Socialization	4	N.S	No infrequently occurring diff.
Communication	47	<	54	Motor Skills	7	N.S	No infrequently occurring diff.
Socialization	51	<	54	Motor Skills	3	N.S	No infrequently occurring diff.
Daily living skills	55	>	54	Motor Skills	2	N.S	No infrequently occurring diff.

Table 5 indicated that in the Domain comparison, the standard score difference showed no significance at .05 or .01 level. It also indicated no frequently occurring difference in Frequency of Difference.

Table 6 shows Descriptive of sample(children identified with ASD n=7) on Vineland Adaptive Behaviour Scales II – Pairwise Comparisons for v-Scale Score

Sub Domain Comparisons	**v-Scale Score**	**<, > or =**	**v-Scale Score**	**Sub Domains Compared**	**v-Scale Score diff.**	**Stat.Sign. level (.05 0r .01) Tab.D.3 or Tab. D.5**	**Freq. of Diff. (Extreme 16,20,5 or 1%) Tab.D.4**
Communication							

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Receptive	5	>	4	Expressive	1	-	-
Receptive	5	<	11	Written	6	.05	5%
Expressive	4	<	11	Written	7	.05	5%
Daily living skills							
Personal	7	<	9	Domestic	2	-	16%
Personal	7	<	8	Community	1	-	-
Domestic	9	>	8	Community	1	-	-
Socialization							
Interpersonal Relationships	5	<	6	Play and Leisure Time	1	-	-
Interpersonal Relationships	5	<	8	Coping Skills	3	.05	10%
Play and Leisure Time	6	<	8	Coping Skills	2	-	16%
Motor Skills							
Gross	9	>	5	Fine	4	.05	10%

When evaluating potentially informative comparisons between subdomains belonging to same domains-

The Receptive subdomain and Written subdomain of Communication Domain, the 6 point difference between their Receptive v-scale score of 5 and Written v-scale score of 11 was statistically significant at .05 level and was unusual. The difference falls within extreme 5 percent for their age group in the norm sample.

The Expressive subdomain and Written subdomain of Communication Domain, the 7 point difference between their Expressive v-scale score of 4 and Written v-scale score of 11 was statistically significant at .05 level and was unusual. The difference falls within extreme 5 percent for their age group in the norm sample.

The Personal subdomain and Domestic subdomain of Daily Living Skills Domain, the 2 point difference between their Personal v-scale score of 7 and Domestic v-scale score of 9 was statistically non significant but the difference falls within extreme 16 percent for their age group in the norm sample.

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The Interpersonal Relationships subdomain and Coping Skills subdomain of Socialization Domain, the 3 point difference between their Interpersonal Relationships v-scale score of 5and Coping Skills v-scale score of 8 was statistically significant at .05 level and was unusual. The difference falls within extreme 10 percent for their age group in the norm sample.

The Play and Leisure Time subdomain and Coping Skills subdomain of Socialization Domain, the 2 point difference between their Play and Leisure Time v-scale score of 6 and Coping Skills v-scale score of 8 was statistically non significant but the difference falls within extreme 16 percent for their age group in the norm sample.

The Gross Motor subdomain and Fine Motor subdomain of Motor Skills Domain, the 4 point difference between their Gross Motor v-scale score of 9 and Fine Motor v-scale score of 5 was statistically significant at .05 level and was unusual. The difference falls within extreme 10 percent for their age group in the norm sample.

Table 7 showed Descriptive of sample(children identified with ASD n=7) on Vineland Adaptive Behaviour Scales II – Pairwise Comparisons for v-Scale Score across domains' subdomains

Selected Across Domain Sub Domain comparison	**v-Scale Score**	**<, > or =**	**v-Scale Score**	**Sub Domains Compared**	**v-Scale Score diff.**	**Stat.Sign. level (.05 0r .01) Tab.D.3 or Tab. D.5**	**Freq. of Diff. (Extreme 16,20,5 or 1%) Tab.D.4**
Expressive	4	<	5	Interpersonal Relationships	1	-	-
Expressive	4	<	8	Coping Skills	4	.01	10%
Fine	5	<	11	Written	6	.01	5%
Fine	5	<	9	Domestic	4	.05	10%
Fine	5	<	7	Personal	2	-	-

When evaluating potentially informative comparisons between subdomains belonging to different domains-

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The Expressive subdomain from Communication domain and Coping Skills subdomain from Socialization Domain showed 4 point difference between their Expressive v-scale score of 4 and Coping Skills v-scale score of 8 which was statistically significant at .01 level and was unusual. The difference falls within extreme 10 percent for their age group in the norm sample.

The Fine Motor subdomain from Motor Skills Domain and Written subdomain from Communication Domain, showed 6 point difference between their Fine Motor v-scale score of 5 and Written v-scale score of 11 was statistically significant at .01 level and was unusual. The difference falls within extreme 5percent for their age group in the norm sample.

The Fine Motor subdomain from Motor Skills Domain and Domestic subdomain from Daily Living Skills Domain, showed 4 point difference between their Fine Motor v-scale score of 5 and Domestic v-scale score of 9 which was statistically significant at .05 level and was unusual. The difference falls within extreme 10 percent for their age group in the norm sample.

Table 8: Descriptive statistics of sample (n=7) for Maladaptive Behaviour Subscales and Index of Vineland Maladaptive Behaviour Scales II

Maladaptive Behaviour Subscale Index	**Raw Score Mean(n=7)**	**v-Scale Score**	**90% Conf. Interval**	**Level**
Maladaptive Behaviour Index	**31**	**22**	±2(20-24)	**Clinically Significant**
Internalizing	**14**	**23**	±2(21-25)	**Clinically Significant**
Externalizing	**7**	**18**	±2(16-20)	**Elevated**

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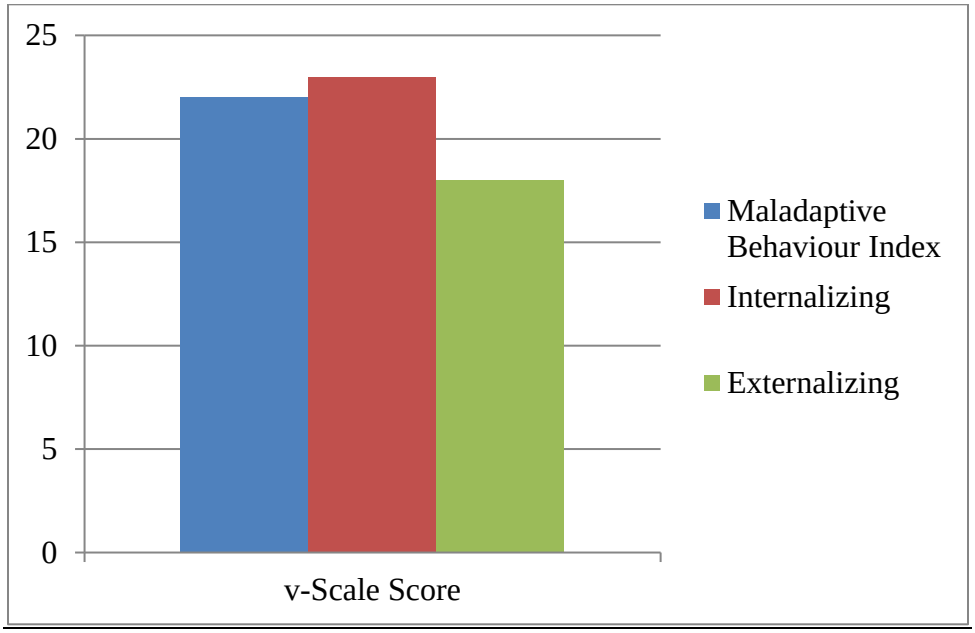

Fig 6 Represents the Maladaptive Behaviour Subscales and Index of Vineland Maladaptive Behaviour Scales II for the children identified with ASD (n=7)

Table 8: Based on the v-Scale scores, Internalizing subscale and Maladaptive Behavior Index mean score for the 7children was 23 and 22 which indicates that the maladaptive behaviors were at the clinically significant level.

A clinically significant level indicates the score is in the extreme 2 percent of individuals of the same age, and additional observation and evaluation is warranted.

Based on the v-Scale scores,

Externalizing subscale score was 18 which has fallen within the elevated level.

An elevated level indicates the individual exhibits more maladaptive behaviours than 84 percent of those the same age in the standardized sample. The test items scored 2 or 1 should be reviewed to determine the need for follow-up evaluations and observations.

Case Analysis of the child with Age: 6yrs 11months

As per teacher's report the Child C of age 6.11yrs is still studying in L.K.G. since 2yrs and that child has improved in fine motor skills and expressive skills and teacher said he took one year to adapt to classroom environment. Last year he was exhibiting tantrums and extreme behaviors

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and the second year his behavior problems also has reduced and child is more attached to the teacher and is able to respond to the teacher's voice. The internalizing and externalizing scores of the child C with age 6.11yrs was within average level (i.e.) similar to maladaptive behaviors of typical children. The possible reason could be the child is in LKG since 2 years under the same teacher and is also under supervised training by special educator outside school.This gives a positive sign that the children within 6yrs when given training in the sub domains and domains based on their need will enhance their adaptive functions and reduce maladaptive behavior patterns.

FINDINGS

Results on screening children going to play school or kindergarten for Autism Spectrum Disorder (ASD) revealed 7 boys out of n=100children (50boys and 50 girls) with mean age 4.3years.

The children(n=93) without presence of ASD showed rarely presence of behaviours in the domains of ISAA.

The children(n=7) with presence of ASD showed frequently presence of behaviours in the domains of ISAA.

The overall adaptive behavior composite using VABS II was in low range for the 7 children identified with ASD.

The results also revealed the Strength (S) in Written Subdomain of Communication domain, Coping Skills Subdomin of Socialization domain and Gross motor sub domain of motor domain.

This was supported by the case study of the child who was in LKG for two years started coping up showing improvements in other domains.

These children showed weakness in fine motor skills which were indicated by difficulties in doing eye hand coordination activities.

The v-Scale scores showed low in expressive and receptive subdomains and moderately low adaptive skills in written subdomain indicating these children though have difficulties in writing yet can be trained for better communication skill development.

The Pairwise Comparison of domain standard scores showed no statistically significant level indicating no frequently occurring difference within domains.

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The Pairwise Comparison of subdomain v-scale scores showed statistical significance at 0.05 level for the following pairs Receptive <Written ,Expressive <Written with 5percent Frequency of Difference .

Interpersonal Relationship<Coping skills and Gross >fine motor skills with 10%Frequency of Difference.

Personal <Domestic and Play Leisure Time <Coping Skills with 16% percent Extreme Frequency of Difference but no statistical difference.

The Pairwise Comparison of v-scale scores across domains' subdomains showed

Expressive <Coping skills at 0.01 level of significance with 10% Frequency of Difference.

Fine motor < Written at 0.01level of significance at 5%Frequency of Difference.

Fine motor <Domestic at 0.05level of significance at 10%frequency of Difference

The Maladaptive Behaviour Index and Internalising Maladaptive Behaviour subscale level of difficulties were clinically significant indicating need for referrals.

The Externalising Behaviour subscale indicated elevated levels which needs follow-ups and observations

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