Perception of Special Teachers on the Evidence based Intervention Strategies for Children with Autism Spectrum Disorder

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***Abstract*: Autism Spectrum Disorder (ASD) is one of five developmental disorders, it is a complex neurodevelopmental disorder affecting the ability of the person to socialize, communicate along with stereotype behaviours. ASD can affect any person irrespective of the gender, caste, creed or religion. Intervention means doing something, taking action or using a treatment to try to improve a particular condition or a problem. When it comes to ASD, there are many kinds of interventions offered. Depending on the type, they can involve the child, the parent or both.**

They might be one-off events or involve many sessions spread over years. Interventions are based on different theories about what causes ASD. The current study which is a part of the PhD tries to study the perception of special teachers on the current Intervention strategies for children with ASD. The study was conducted by circulating the questionnaire developed to the special teachers (n=40) working for ASD in the country. The participants consisted of special teachers having Diploma, Degree) and Post Graduate degree in the field of ASD (n=40). Descriptive statistics; frequency, percentages, and chi square tests were done using SPSS. The results indicated that teachers accepted the need for evidence based intervention strategies for training children with ASD.

Keywords: Autism Spectrum Disorder, Perception, Intervention strategies.

I.INTRODUCTION

The word Autism comes from the Greek word autos meaning self. Autism spectrum disorder (ASD) is a group of developmental disabilities that can cause significant social, communication and behavioural challenges. (CDC). About 1 in 59 children has been identified with autism spectrum disorder (ASD) according to estimates from CDC's Autism and Developmental Disabilities Monitoring (ADDM) Network, which means in India there are over 18 million people with autism spectrum disorder (AFA).

The historical roots of autism can be traced down during the sixteenth century. During that period some respected people in ancient Russia were considered as the 'holy fools'. These individuals were reported to be eccentric, given to parroting, with stereotypic speech and actions, obsessive interests, and lack of social awareness (RCI). Though official journey of Autism started 74 years back, with Dr. Leo Kanner identifying the characteristics of 11 individuals reported to his clinic. From that year onwards various professionals started working on improving abilities among children with ASD. Cognitive abilities in people with ASD vary between those with average to above average intelligence, to borderline and mild intellectual disability, and others who function within the range of moderate to profound intellectual disability.

Training of an individual using scientifically based intervention strategies is a necessity and more so necessary after the enactment of RPwD Act 2016. Though there are many interventions coming up, for that matter if you search in Google about interventions in Autism, there are many but lack support from the scientific fraternity. In fact, due to the use of non-scientific interventions growth of the effective scientific based interventions for individuals having Autism is getting impeded (Rajesh & Sujatha 2018).

There are many scientifically based intervention strategies which can be very well understood by the following table adapted from Autism Spectrum Disorders- Intervention & Treatments for children and youth, Richard L Simpson 2005, 2008

	Interpersonal Relationship Interventions & Treatments	Skill Based Interventions and Treatments	Cognitive interventions & Treatments	Physiological/ Biological/ Neurological interventions & treatments	Other interventions, treatments & related agents
Scientifically based practice		Applied Behaviour Analysis (ABA) Discreet Trial Teaching (DTT) Pivotal Response teaching (PRT)	Learning experiences: an alternative programme for pre-schoolers and parents (LEAP)		
Promising practice	Play oriented strategies	Assistive technology Augmentative & Alternative communication (AAC) Incidental teaching Joint Action Routines (JARS) Picture exchange Communication system (PECS) Structured Teaching (TEACCH)	Cognitive behavioural modification Cognitive learning strategies Social Decision making strategies Social Stories	Pharmacology Sensory Integration (SI)	
Limited supporting information for practice	Gentle Teaching Option Method (Son Rise Programme) Floor Time Pet/Animal Therapy Relationship Development Intervention (RDI)	Fast ForWord Van Dijk Curricular approach	Cartooning Cognitive scripts Power cards	Auditory Integration Training (AIT) Megavitamin Therapy Scotopic Sensitivity Syndrome (SSS): Irlen Lenses	Art Therapy Candida: Autism Connection Feingold Diet, Herb, Mineral & Other supplements Gluten- Casein Intolerance Mercury Vaccinations and Autism Music Therapy
Not Recommended	Holding Therapy	Facilitated Communication			

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II. REVIEW OF LITERATURE

Reviewing literature is important as it substantiates the current knowledge and findings in relation to the study. Understanding perception of Special teachers with regard to the evidence based interventional strategies for children with ASD is important because effective intervention provided by the teacher in the classroom will improve the abilities of the child with ASD, which will go a long way in empowering them.

Stidham, K. M (2016) did a web based survey of 108 general education teachers with regard to their perception about educating students with ASD in an inclusive classroom, the results of the study revealed that there were no significant relationships between the teacher's perception and teachers training on autism. However, the general teachers felt that further training about the interventional strategies can better their learning in understanding the characteristics of children having ASD.

Strong, J E (2014) analysed data based on field observations and interviews from teachers who completed their professional training in ASD and examined perception of the teachers and relationships between their knowledge and self-acquisition and self-efficacy.

Hansen, K L (2015) evaluated perceived versus actual knowledge of ASD among undergraduate students, interestingly the current study found no significant interaction between self-efficacy, perceived knowledge of ASD, and actual knowledge of ASD.

III. HYPOTHESIS

1. No difference in perception among teachers having diploma, degree and post graduate qualification towards current intervention strategies among children with ASD

2. No difference in perception among male teachers having diploma, degree and post graduate qualification towards current intervention strategies among children with ASD

3. No difference in perception among female teachers having diploma, degree and post graduate qualification towards current intervention strategies among children with ASD

4. No difference in perception among teachers having diploma, degree and post graduate qualification along with years of experience towards current intervention strategies among children with ASD

IV. METHODOLOGY

Descriptive research design was adopted for the study. A Likert scale on assessing the perception of the special teachers on the intervention strategies being used for children with Autism Spectrum Disorder was developed and was validated. A comprehensive review of literature was done to understand the perception of teachers working with children having Autism Spectrum Disorder in special and Normal schools. Furthermore the guidance of the research guide was sought for pooling the items. The scale developed was converted into Google form and was sent to the Special educators /teachers who have completed required qualification in the field of ASD. The data received was coded. **Sample size:** a total of 40 teachers were provided with the scale through convenient sampling method.

Table 2

Qualification	No of teachers
D. Ed SE (ASD)	32
B. Ed SE (ASD)	4
M. Ed SE (ASD)	4
Total	40

RESULTS & DISCUSSION

Hypothesis - No significant difference in perception among teachers having diploma, degree and post graduate qualification towards current intervention strategies among children with ASD

Q.1 Intervention strategies for children with Autism spectrum Disorder (ASD) can be used effectively in individual setting rather than group settings?

Table 3

	Frequency	Percent
Agree	21	52.5
Neutral	2	5
Slightly agree	13	32.5
Slightly disagree	4	10
Total	40	100

Among the total teachers 52.5% agree, 5% are neutral 32.5 % of teachers slightly agreed and 10% of teachers slightly disagree. Majority of the teachers agree with intervention strategies for children with ASD can be used effectively in individual setting

Q.2 Children with ASD will learn effectively in structured setting?

Table 4

	Frequency	Percent
Agree	23	57.5
Disagree	1	2.5
Neutral	2	5
Slightly agree	13	32.5
Slightly disagree	1	2.5
Total	40	100

This table shows 57.5% of teachers agree, 2.5% disagree, neutral 5.0%, slightly agree 32.5% and 2.5% slightly disagree. Majority of the participants agreed that with Children with ASD will learn effectively in structured

setting. Structured teaching is based on TEACCH approach, which is a promising intervention strategy with scientific evidences.

Q.3 Children with ASD will learn better through Visual Schedule!

Table 5

	Frequency	Percent
Agree	28	70.0
Neutral	1	2.5
Slightly agree	11	27.5
Total	40	100.0

This table shows that among total teachers answered, 70% of them agreed, 2.5% are neutral and 27.5% of participants slightly agree, which means that if children with ASD provided with a visual schedule they learn better.

Q.4 ABA as an intervention Strategies is better for children with ASD

Table 6

	Frequency	Percent
Agree	23	57.5
Neutral	4	10.0
Slightly agree	9	22.5
Slightly Disagree	4	10.0
Total	40	100.0

Here total teacher 57.5% agreed, 10% of the teachers are neutral, 22.5% of teachers slightly agree and 10% of teachers slightly disagree. Majority of the teachers agree with the ABA as an intervention Strategies is better for children with ASD. Mary Jane Weiss, Kate Fiske & Suzannah Ferraioli (2008) in their article on Evidence based practices for Autism spectrum disorder highlighted that Applied Behaviour Analysis (ABA) has greater facts supporting the effectiveness of intervention in Autism. They also mentioned that evidence exists for the Lovaas/UCLA comprehensive treatment package, but more scientific evidences are required to support this intervention strategy.

Q.5 Picture exchange communication system (PECS) can help in improving the communication of children with ASD
Table 7

	Frequency	Percent
Agree	35	87.5
Neutral	1	2.5
Slightly agree	2	5.0
Slightly Disagree	2	5.0
Total	40	100.0

87.5% of the teachers agreed, 2% of the teachers are neutral, 5% of teachers slightly agree and 5% of teacher slightly disagrees. Majority of the teachers agrees with the Picture exchange communication system (PECS) can help in improving the communication of children with ASD

Q.6 Discreet Trail Training (DTT) can increase the skills deficit behaviour among children with ASD
Table 8

	Frequency	Percent
Agree	14	35.0
Neutral	8	20.0
Slightly agree	14	35.0
Slightly Disagree	4	10.0
Total	40	100.0

Among total teachers 35% agrees, 20% of the teachers are neutral, 35% of teachers slightly agree and 10% of teachers slightly disagree. Majority of the participants agrees with the Discreet Trail Training (DTT) can increase the skills deficit behaviour among children with ASD, 20 % of the teachers who gave neutral as their response on further enquiry felt that not much information is provided on DTT during their training.

Q.7 Pivotal Response Training (PRT) helps to increase social skills, communication skills, behaviour and learning skills among children with ASD

Table 9

	Frequency	Percent
Agree	16	40.0
Neutral	13	32.5
Slightly agree	10	25.0
Slightly Disagree	1	2.5
Total	40	100.0

40% of the teachers agree, 32% of the teachers are neutral, 25% of teachers slightly agree and 2.5% of teachers slightly disagree. Majority agreed with the Pivotal Response Training (PRT) helps to increase social skills, communication skills, behaviour and learning skills among children with ASD. Pierce, K., & Schreibman, L. (1995) in their study on Effects of peer-implemented pivotal response training in increasing complex social behaviours in children with autism, children with autism maintained prolonged interactions with the peer and initiated play and conversations, along with increased engagement in language and joint attention behaviours.

Q.8 Learning experience and alternate programmes for pre-schoolers and their parents (LEAP) will help increase the social and communication skills of children with ASD

Table 10

	Frequency	Percent
Agree	17	42.5
Neutral	10	25.0
Slightly agree	13	32.5
Total	40	100.0

The results shows that Majority of the teachers agreed with the Learning experience and alternate programmes for pre-schoolers and their parents (LEAP) which will help increase the social and communication skills of children with ASD

Q.9 Augmentative & Alternative Communication (AAC) helps the child with ASD to use communicative skills more effectively

Table 11

	Frequency	Percent
Agree	29	72.5
Disagree	2	5.0
Neutral	3	7.5
Slightly agree	6	15.0
Total	40	100.0

Among total teachers 72.5% of the teacher agrees, 5% of the teachers disagree, 7.5% of teachers are neutral and 15% of the teachers slightly agree. Majority of the teachers agrees with the Augmentative & Alternative Communication (AAC) which helps the child with ASD to use communicative skills more effectively

Q.10 Functional Communication Training (FCT) helps the child with ASD improve communication

Table 12

	Frequency	Percent
Agree	15	37.5
Disagree	4	10.0
Neutral	9	22.5
Slightly agree	9	22.5
Slightly Disagree	3	7.5
Total	40	100.0

Most of the teachers 37.5% agree that Functional Communication Training (FCT) helps the child with ASD improve communication

Q.11 Language acquisition through motor planning (LAMP) a proven therapeutic approach, increase the expressive abilities of children with ASD

	Frequency	Percent
Agree	13	32.5
Disagree	1	2.5
Neutral	13	32.5
Slightly agree	12	30.0
Slightly Disagree	1	2.5
Total	40	100.0

32.5 % of the teachers agree but similar 32.5 % teacher responses were neutral due to insufficient information about the strategy on LAMP.

Q.12 The Comic script conversations helps children with ASD to practice the new vocabulary words

Table 14

	Frequency	Percent
Agree	23	57.5
Neutral	8	20.0
Slightly agree	9	22.5
Total	40	100.0

Majority of the teachers agree with the Comic script conversations that helps children with ASD to practice the new vocabulary words

Q.13 Joint Action routines (JARS) encourages communications skills in children with ASD

Table 15

	Frequency	Percent
Agree	25	62.5
Neutral	9	22.5
Slightly agree	5	12.5
Slightly Disagree	1	2.5
Total	40	100.0

62.5 % of the teachers agree with the Joint Action routines (JARS) which is shown to encourage communications skills in children with ASD

Q.14 Sensory integration therapy (SIT) helps children with ASD to integrate sensory dysfunction

Table 16

	Frequency	Percent
Agree	30	75.0
Neutral	1	2.5
Slightly agree	9	22.5
Total	40	100.0

75% of the teachers agreed that Sensory integration therapy (SIT) helps children with ASD to integrate sensory dysfunction

Q.15 Children with ASD will show improved performance with Co-teaching

Table 17

	Frequency	Percent
Agree	18	45.0
Neutral	9	22.5
Slightly agree	9	22.5
Slightly Disagree	4	10.0
Total	40	100.0

45 % of the teacher agreed with the statement that Children with ASD will show improved performance with Co-teaching.

Q.16 Social stories help children with ASD to improvise social and communication skills

Table 18

	Frequency	Percent
Agree	27	67.5
Disagree	1	2.5
Neutral	2	5.0
Slightly agree	10	25.0
Total	40	100.0

67.5% of the teachers agreed that the Social stories help children with ASD to improvise social and communication skills as studied by Al zyoudi, Mohammed; et.al (2016) wherein they evaluated the effectiveness of using a social story intervention among three students having children between the age range of 7-8 years with autism. The results indicated improvement in social interaction for all children.

Q.17 Floor time play based intervention helps children with ASD to master functional emotional development

Table 19

	Frequency	Percent
Agree	18	45.0
Disagree	1	2.5
Neutral	8	20.0
Slightly agree	13	32.5
Total	40	100.0

The table clearly indicates that majority of the participants agrees with the Floor time play based intervention strategy which helps children with ASD to master functional emotional development

Q.18. Son Rise option methods has been proved to improve social skills, communication skills & cognitive skills

Table 20

	Frequency	Percent
Agree	7	17.5
Disagree	2	5.0
Neutral	16	40.0
Slightly agree	15	37.5
Total	40	100.0

Since there is a limited supporting information for practice related to Son Rise option method most of the teachers did not respond to the question and they gave their responses as neutral.

Q.19 The relationship between parent and child with ASD will improve by Relationship Based Intervention which in turn improves brain function

Table 21

	Frequency	Percent
Agree	10	25.0
Neutral	12	30.0
Slightly agree	14	35.0
Slightly Disagree	4	10.0
Total	40	100.0

Since there is a limited supporting information for practice related to Relationship based intervention most of the teachers responded by slightly agreeing to the question

Q.20 Gentle teaching helps the child with ASD to acquire social competence

Table 22

	Frequency	Percent
Agree	16	40.0
Disagree	4	10.0
Neutral	12	30.0
Slightly agree	4	10.0
Slightly Disagree	4	10.0
Total	40	100.0

Majority of the teachers agreed that Gentle teaching helps the child with ASD to acquire social competence.

Hypothesis 2; No difference in perception among male teachers having diploma, degree and post graduate qualification towards current intervention strategies among children with ASD

Hypothesis 3; No difference in perception among female teachers having diploma, degree and post graduate qualification towards current

intervention strategies among children with ASD
The table mentioned below shows the results with reference to the gender (male and Female)

Table 23 **Chi square Tests**

Gender	Valid		Chi square Tests		
	N	Percent	P value	Df	Chi square value
Q1	40	100.0%	6.113[a]	3	.106
Q2	40	100.0%	.194	4	6.076
Q3	40	100.0%	1.866	2	.393
Q4*	**40**	**100.0%**	**.038**	**3**	**8.423**
Q5	40	100.0%	.160	3	5.170
Q6	40	100.0%	.343	3	3.337
Q7	40	100.0%	.710	3	1.380
Q8	40	100.0%	.080	2	5.060
Q9	40	100.0%	.359	3	3.218
Q10*	**40**	**100.0%**	**.034**	**4**	**10.415**
Q11	40	100.0%	.152	4	.6712
Q12	40	100.0%	.757	2	.556
Q13	40	100.0%	.543	3	2.145
Q14	40	100.0%	.386	2	1.905
Q15	40	100.0%	.259	3	4.021
Q16	40	100.0%	.341	3	3.345
Q17	40	100.0%	.687	3	1.481
Q18	40	100.0%	.407	3	2.900
Q19	40	100.0%	.651	3	1.637
Q20	40	100.0%	.829	4	1.487

The question no. 4 shows the P value as 0.038 which indicates that there is association between male and female teachers. Similarly question no. 10 shows the P value as 0.034, which indicates association between the two variables.
Hypothesis 4- No association in perception among teachers having diploma, degree and post graduate qualification along with years of experience towards evidence based intervention strategies among children with ASD

Chi square Tests

Table 24

Qualification	Valid		Chi square Tests		
	N	Percent	P value	Df	Chi square value
Q1	40	100.0%	.343	6	6.765
Q2	40	100.0%	.450	8	7.837
Q3	40	100.0%	.585	4	2.841
Q4	40	100.0%	.572	6	4.783
Q5	40	100.0%	.964	6	1.429
Q6*	**40**	**100.0%**	**.038**	**6**	**13.321**
Q7	40	100.0%	.755	6	3.415
Q8*	**40**	**100.0%**	**.006**	**4**	**14.604**
Q9	40	100.0%	.429	6	5.948
Q10*	**40**	**100.0%**	**.000**	**8**	**28.111**
Q11	40	100.0%	.865	8	3.910
Q12	40	100.0%	.256	4	5.319
Q13	40	100.0%	.717	6	3.700
Q14*	**40**	**100.0%**	**.041**	**4**	**9.958**
Q15	40	100.0%	.079	6	11.319
Q16	40	100.0%	.271	6	7.579
Q17	40	100.0%	.590	6	4.642
Q18	40	100.0%	.655	6	4.161
Q19	40	100.0%	.761	6	3.372
Q20*	**40**	**100.0%**	**.027**	**8**	**17.266**

In the following table question no. 6 shows the P value as 0.038 which indicates that there is association between qualification of the teachers and Discreet Trail Training (DTT) which the teachers perceive that it can Increase the Skills Deficit Behaviour among Children with ASD Similarly question no. 8, 14 and 20 indicating the P values as 0.006, 0.041, 0.027 respectively indicating association between the two variables.

Chi square Tests

Table 25

Experience	Valid		Chi square Tests		
	N	Percent	P value	Df	Chi square value
Q1	40	100.0%	.415	9	9.241
Q2	40	100.0%	.735	12	8.617
Q3	40	100.0%	.081	6	11.243
Q4	40	100.0%	.578	9	7.567
Q5	40	100.0%	.488	9	8.469
Q6	**40**	**100.0%**	**.042**	**9**	**17.464**
Q7	40	100.0%	.182	9	12.598
Q8	40	100.0%	.130	6	9.885
Q9	40	100.0%	.578	9	7.567
Q10	40	100.0%	.269	12	14.521
Q11	40	100.0%	.291	12	14.152
Q12	40	100.0%	.074	6	11.485
Q13	40	100.0%	.254	9	11.328
Q14	40	100.0%	.654	6	4.169
Q15	40	100.0%	.061	9	16.290
Q16	40	100.0%	.456	9	8.702
Q17	40	100.0%	.155	9	13.168
Q18	40	100.0%	.061	9	16.312
Q19	40	100.0%	.357	9	9.922
Q20	40	100.0%	.070	12	19.841

The question no. 6 shows the P value as 0.042 which indicates that there is association between experience of the teachers and Discreet Trail Training (DTT), the experienced teachers agree that DTT can increase the Skills Deficit Behaviour among Children with ASD indicating association between the two variables.

V. FOCUSSED GROUP DISCUSSION

A group of 5 special teachers working for children with Autism spectrum disorder at the Model school of NIEPMD were discussed with the evidence based intervention strategies used for children with autism spectrum disorder and their views were explored. The participants consisted of 2 female special teachers and 3 male special teachers of which one special teacher was having the qualification of M. Ed Special Education (Autism Spectrum Disorder)

Major points constructed from the focussed group discussion

The teachers opined that children with Autism spectrum disorder learn better with structured teaching which is based on the principle of TEACCH, that involves physical restructuring, providing visual schedules for the activities to be taught. Structured teaching is an approach which helps individual with autism spectrum disorder comprehend the surroundings in which they perform daily activities using by using visual mode, that is considered to be their strongest technique. The teachers felt that though ABA is scientifically based skill based intervention which can be practiced in one to one situations may not be sometimes feasible in a country like ours, where, in a special school there are 4 to 5 children with autism spectrum disorder with different level of autism. The teachers expressed that children with autism spectrum disorder should also regularly attend speech and language therapy session and also sensory integration therapy (SIT)

VI. DISCUSSION

87.5 % of teachers said that Picture exchange Communication system (PECS) is more effective in terms of teaching communication along with a picture of a desired item to child with autism spectrum disorder. PECS has proven scientifically as a promising practice. 75.0% of teacher agreed that sensory integration therapy (SIT) is helpful to tackle sensory related issues in children with autism spectrum disorder, 72.5% of teachers accepted that teaching Augmentative & Alternative communication (AAC) is helpful to improve the communicating skills through alternative modes of communication among children with autism. 70 % of the teachers agreed that teaching Visual schedule will help the children with autism spectrum disorder in improves the schedule patterned life style. 67.5% of the teacher said teaching social stories (SS) is will help the children with ASD in improving social skills

VII. CONCLUSION

Awareness about ASD has gained momentum and due to this there has been proper diagnosis of ASD. As a result of this the Rehabilitation Council of India (RCI) started courses in the field of ASD. The curriculum content was designed incorporating evidence based intervention strategies. This helped in making the teachers understand the need for educating and empowering children with ASD in a more scientific manner. Hendricks (2012) in his study found that special education teachers who work with students with ASD have intermediate levels of knowledge of the disorder and effective instructional practices for students with ASD. Meanwhile many intervention strategies have been added which lacks proper representation from the scientific fraternity. Most of the intervention strategies bear a tagline of the European countries and indigenous strategies are still being worked out.

The results here reveal that most of the teachers qualified in the field of ASD feel the need to have evidence based intervention strategies and that there is association between the scientific practice, promising practice of intervention strategies than to the intervention strategies that have limited supporting information for practice. So basically the research should help the teachers or the special educators to select intervention strategies based on evidences which in turn be implemented by them towards improving the child with ASD ***(Lubas, M, Mitchell, J & Leo,G D (2015).***

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CONFLICT OF INTEREST

There are no conflicts of interest.

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