Autism spectrum disorder (ASD) is a developmental disorder characterised and diagnosed by behavioural symptoms that mark impairments in social and communication behaviour along with a restricted range of activities and interests. ASD is considered a heterogeneous and complex disorder impacting many areas of development including intellectual, communication, social, emotional, and adaptive (Makrygianni & Reed, 2010). This disorder can present considerable challenges to both the individual and their family across their lifespan.

The Autism Spectrum Disorders (ASD) can often be reliably detected by the age of 3yrs, and in some cases as early as 18 months. Studies suggest that many children eventually may be accurately identified by the age of 1yr or even younger. The appearance of any of the warning signs of ASD is reason to have a child evaluated by the professional specializing in these disorders.

Although autism has probably always been part of the human condition, its discrete identification is relatively recent. In 1943, Leo Kanner, child psychiatrist in the USA, described 11 children who had in common a peculiar pattern of behaviour. “Autism is a neuro behavioral syndrome marked by qualitative impairments of social interaction, communication and restricted repetitive and stereotyped patterns of behavior”.

Paul (2003) studied social communication interventions developed for students with autism at the pre-school /school age & adolescent level. Findings of the study provided programs that would seem to be most appropriate for students with Asperger syndrome.

Banerjee, M. (2006) made an attempt to investigate the effect of speech therapy on the development of communication skills. It was observed that when parental empowerment along with speech therapy was introduced, better improvement in communication skills were noted.

Bellini, S. (2007) examined the effectiveness of school-based social skills interventions for children and adolescents with ASD. The results suggest that social skills intervention have been minimally effective for children with ASD.

Bock (2007) examined the effects of social behavioral learning strategy intervention (SODA) on the social initiation skills of four elementary school students with Asperger syndrome (AS) which was proved to be beneficial for the participants.

Wilson, Brock & Palerm (2010) made an attempt to test a link between attention to social stimuli and facial identity recognition skill in autism spectrum disorder. Results indicated that behavioral data of participants with ASD were impaired on both face and object matching tasks. Eye tracking data revealed that both groups showed a strong bias to orient towards people.

This study was conducted to see the efficacy of behavioural intervention programme for these children in the Indian context.

**Objectives of the Study**

- To study the efficacy of behavioural interventions on a select sample of children with intellectual disability having ASD.

**Method of data collection**

The study was conducted at National Institute of the Mentally Handicapped Manovikas Nagar, Secunderabad. Simple random technique was used. Total 13 children with mild and moderate intellectual disability having ASD was included belonging to local area. Children who were non local and having severe and profound intellectual disability having ASD were excluded from the study. The sample (N-13) included 11 males and 2 females out of which 6 were in the age group of 6-9yrs, 5 were 9yrs-12yrs, and they all belonged to urban area. There were 3 children with Mild Intellectual Disability having Mild Autism, 1 with Mild ID having Moderate Autism,
8 with Moderate ID having Mild Autism and 1 with Moderate ID having Moderate Autism.

The Inclusion Criteria
A child with mild and moderate Intellectual Disability having autism of both sexes in the age range of 6 to 12 years from local area.

The Exclusion Criteria
- Children with other disabilities like learning disability, cerebral palsy, ADHD and other illness.
- With any previous exposure to any intervention program and with severe and profound intellectual disability.

Tools Used
As per objectives of the study tools used for data collection were:
- Personal data sheet
- Developmental screening Test (DST, Dr. J. Bharath Raj (1983))
- Vineland Social Maturity Scale (VSMS, Dr. A. J. Malin (1965))
- Binet Kamat Test Of Intelligence (BKT, Dr. V. V. Kamat (1958))
- Indian Scale For Assessment Of Autism (ISSA, NIMH (2008))

Procedure and Administration
(a) Screening Stage:
- It took about 5 to 6 months to screen sample for the study. The consent of each parent and their convenience to participate in the testing was obtained to include them in the sample.
- The data was collected in General Services Block at National Institute for the Mentally Handicapped, Secunderabad after taking permission from the authorities of the institute. Children who were newly registered cases at general services block at NIMH were identified.
- Simple random technique was used for data collection and a semi structured interview was conducted.
- In the first phase total 500 cases were screened out to identify cases with Intellectual Disability by administering Developmental screening test (DST) and Vineland Social Maturity Scale (VSMS), Binet Kamat Test of Intelligence (BKT). Compiling the scores of DST, VSMS, and BKT the IQ was obtained.
- Each interview with individual lasted for 10-15 mts and children above IQ 70 were ruled out.

(b) Testing Stage:
- In the second phase children below IQ 70 were administered Indian Scale For Assessment Of Autism (ISSA; NIMH, 2008), the interview with individual lasted for 10-15 mts and 35 ID children having ASD were identified consisting 30 males and 5 females, 20 cases belong to Local area and 15 cases belong to Non-local area.
- Total 13 children with mild and moderate ID with ASD were included in the sample belonging to local area.
- Children with Intellectual Disability having ASD who were non local and having severe and profound ID and ASD were excluded from the study. The sample consisted (N=13) of 11 males and 2 females. Out of which 8 were in the age group of 6-9yrs and 5 were 9yrs-12yrs, all belonged to urban area. Among them 3 were taken with Mild ID having Mild autism, 1 with Mild ID having Moderate Autism and 8 with Moderate ID having Mild Autism, 1 with Moderate ID with Moderate Autism.

Ethical issues
Parents were explained about the nature and objective of the present study and their written informed consent was obtained. Confidentiality as assured to all the parents Confidentiality was ensured throughout the study. They were given freedom to drop out of the intervention program at any time.

Interventional Stage
After identifying children with ID having ASD, domains from ISSA were selected and behavioural intervention was carried out by using behavioral techniques like (Restructuring of environment, extinction, scheduling of activities, modeling, response cost, differential reinforcement techniques like differential reinforcement for incompatible behaviour, differential reinforcement for other behaviour, differential reinforcement for alternate behaviour) etc. The intervention was implemented individually with the help of parents, siblings, and family members at general services block at NIMH along with home based training. The intervention was implemented for a period of 3 months carried out in 35 sessions, each session lasted for 35-45 mts.

Results and Discussion
Based on the main objectives of the study, the pre and post test scores were analysed using paired “t” test after the intervention.

Effectiveness of Behavioural intervention as measured on ISSA
1. Indian Scale For Assessment Of Autism (ISSA) consist six domains (a) Domain (D1)- Social Relationship and Reciprocity(SRR) (b).D2- Emotional Responsiveness (ER) (c). D3-Speech - Language and Communication(SLC) (d).D4- Behaviour Patterns(BP) (e).D5-Sensory Aspects(SA) (f).D6- Cognitive Component(CC).

Table 1: The mean and SD Behavioural intervention scores on measures of Indian Scale For Assessment Of Autism (ISSA).

| Domains | Pre, (n=13) | Post, (n=13) | Significance |
|---------|-------------|-------------|--------------|
| Is_d1SRR | 26.62       | 24.62       | 6.86         | P<0.01 |
| Is_d2ER  | 11.92       | 11.62       | 2.303        | P<0.05 |
| Is_d3SLC | 17.85       | 17.15       | 5.196        | P<0.01 |
| Is_d4BP  | 17.23       | 16.00       | 7.407        | P<0.01 |
| Is_d5SA  | 9.08        | 3.345       | 2.309        | P<0.05 |
| Is_d6CC  | 9.54        | 8.31        | 1.316        | 7.407   |
| Is_GT    | 92.23       | 20.313      | 10.159       | P<0.01 |

Figure 1: The behavioural intervention mean scores on Indian Scale For Assessment Of Autism (ISSA)
The mean and SD grand total pre test are 92.23 and 21.378 respectively. The mean and SD grand total post test are 86.46 and 20.313 respectively. The t-value is 10.159, which is highly significant at 0.01 level. An analysis of the results show that highly significant levels are observed in D1 (SRR), D3 (SLC), D4 (BP), and D6 (CC) and significant levels in D2(ER) and D5(SR), therefore it states that behavioural intervention will have positive effect on children having intellectual disability with autism is accepted, hence it is concluded that after behavioural intervention the ISA scores have reduced which indicates positive effect.

Earlier studies support the above results that behavioural interventions have demonstrated success in the treatment of many disorders and not only extended to a broader range of disorder, but also to a primary focus on educating the individual patient (Kaufman & Kaufman 1979; Steinglass 1987). Principles of learning and behaviour modification, building parenting and communication skills, and the development of problems-solving skills produce effectiveness training (Peshawari & Redid et al., 1991).

The study by Chung, Kyong-Mee, et al (2008) reported that the social skills training was effective in improving social communication skills for some children with high functioning autism as also shown in the present study.

The efficacy of behavioural intervention has also been noted by Tamara C. Daily, (2004). He has reported that initial recognition of a symptom, sustained awareness of the child’s behavior are critical for intervention since they serve as a window for more immediate and more effective treatment. In addition Lovaas(1987) reported behavioral interventions improve cognitive communication, adaptive and social skills in young children with autism.

In consonance with the present study Whalen , C & Schreibman (2003) reported behavior modification procedure have produced positive changes while teaching joint attention behaviors of children with autism.

The above studies support the present findings that the effectiveness of behavioural intervention have produced positive effects by using behavioral techniques.

Conclusion

The present study concluded that behavioural intervention program is effective in teaching and enhancing capabilities in social and personal sphere of children having Intellectual Disability having autism.