EFFECT OF ABA THERAPY ON AUTISM SPECTRUM DISORDER (ASD) STUDENTS' ACADEMIC ACHIEVEMENT

Bushra Hanif*, Dr. Safdar Rehman Ghazi,
Dr. Gulap Shahzada*****

ABSTARCT

Autism Spectrum Disorder (ASD) is a brain disorder. There are three major domains: social impairment, communication difficulties, repetitive behaviours which are mostly discussed and described. Autism is a big health issue. The main objectives of the study were: to diagnose and assess Autism Spectrum Disorder among students of age 3-15 years and to investigate the individual effect of ABA therapy on ASD students' academic achievement of age 3-15 years. An observational sheet was adapted by criteria given by DSM-5 and criteria exemplar by Laura Carpenter. Urdu version of the observational sheet was also developed. A pre-test and a post- test were developed for children. There was a significance difference between control and ABA groups after therapy. The performance of ABA group was better than the control group.

Keywords: ASD, Autism Spectrum Disorder, ABA Therapy, Academic Achievement

*M.Phil Scholar, Email:bushra_hanif85@yahoo.com

**Assistant Professor, Email:drsrghazi@yahoo.com

***Assistant Professor, Email:gulap_786@yahoo.com

Institute of Education & Research, University of Science & Technology, Bannu, Khyber Pakhtunkhwa, Pakistan

INTRODUCTION

A continuous difficulty in social communication and social interaction is described as Autism spectrum disorder. ASD includes difficulty in using proper language to convey message and in using gestures for social communication. It also includes facing of difficulty in developing, maintaining and understanding of those skills which are necessary for everyday life (American Psychiatric Association, 2013). Leo Kanner, USA, in 1943 described autism as a disorder with specific features. He experimented on 11children (8 boys, 3 girls). They have abnormalities in social behaviour. Kanner (1943) introduced the term early infantile autism when referring to "his" condition, which is now classify under labels such as "autistic disorder", "childhood autism" and "autistic syndrome" (Kanner,1943).

Attention was not given to his paper and the name childhood schizophrenia was given to those children who have these problems (Bender, 1956). Bleuler gave name of autism to imaginary thoughts. This describes a developed mental state which results in abnormality. It also results in isolation from social life and social development (Gallo &Volkmar, 2003).Autism was included in APA's DSM-3, 1980's edition. Revised edition of DSM-3 was published in 1994. The DSM-IV was revised in 2000 (DSM-IV-TR; APA, 2000).

The concept and idea of ASD was changed after the publication of the DSM-5 in 2013 (APA, 2013). A new term ASD was coined instead of PDDs. First, name was given to Autism, Asperger's, disintegrative and PDD disabilities. Second, the symptoms from the DSM-IV-TR social interaction, communication, and restrictive and repetitive behaviours were reduced to social communication and social interaction skills; and restricted, repetitive patterns of behaviour, interests, or activities. Among restricted and repetitive behaviors, for the first time hyper- or hypo-reactivity to sensory input or unusual interests in sensory aspects of the environment was included. Third, the DSM-5 states that criteria can be met currently or by history. The DSM-5 also states that individuals who have a well-established DSM-IV diagnosis of autistic disorder, Asperger's disorder, or PDD-NOS should continue to be given the diagnosis of autism spectrum disorder. Another important point is that the children who fulfill the diagnostic criteria of DSM-IV

must be given diagnosis of ASD. There are some special and important points in DSM-V. These are called "Specifiers". They help in diagnosis of autism. Individuals must be kept in similar groups those who have same symptoms. Common characteristics provide related information. This severity of autism is diagnosis with the help of this system. This system helps to diagnose mental disorders and communication problems. It aids to get knowledge about biological disorders and elements presents in surrounding. Behaviour of child in environment, repeated behaviour and language problems are also diagnosis. This system is responsible for diagnosis of ASD in three levels. It is stated that mental defects is diagnosed alone with the help of this system. The "specifier" of mental disorder can work separately. Similarly, "specifier" checks communication difficulties. They can be use separately and together. Some individuals do not repeat their behaviours but have communication problems. The criteria given in the DSM-5 is the reliable source to the diagnosis of ASD as the practical challenges related with ASD. The DSM-5 provides deep understanding of the problems related to the ASD. It helps to understand different problems related to children with autism. It provides guideline to face challenges associated with autism spectrum disorder. Diagnosis is not possible without understanding of criteria given in DSM-V. This criteria is not used yet(Bruder, Weitzman & Giannotti, 2013).

According to DSM-V, following is the diagnostic criteria.

A. Continuous difficulty to communicate and interact.

B. Repeated attitude and fixed interest.

C. Presence of symptoms should be necessary in child at growing stage.

D. The result of this is impairment in child's behaviour, response to the others people, in daily practices and some other functions.

E. The impairment in behaviour, mental disorder and growth disorders are described by defects. Mental disorders and ASD are related terms (DSM-V, 2013).

Sign and Symptoms of Social Interaction and Communication Skills Impairment

Does not show reaction to name after one year

Lack of eye contact

Mostly play lonely

Does not show interest in sharing with others

Respond when thinks necessary

Does not show facial expression

Keep away from physical contact

Does not ask for help in time of difficulty

Use of gestures is very limited

 Pointing to things is also very limited

Lack of giving response to other person's talk

Irrelevant response to questions

A peculiar person can understand the specific speech (Bruder, Weitzman & Giannotti, 2013).

Signs and symptoms of restricted, repetitive behaviors

Following are the signs of restricted, repetitive behaviors.

Keep objects in a line

Like to play one fix manner

Feels attraction with parts of objects e.g. wheels Minor changes can disturb

Shows preoccupying interests

Adheres to same routine

Move body in circles and flaps hands

Uses same words again and again

Does not feel pain, cold or heat (Bruder, Weitzman & Giannotti, 2013).

Applied Behavioral Analysis Programs

Various intervention are developed to deal with children with autism but Applied Behavioral Analysis is one of the most effective and popular intervention. It is said that ABA is incomplete without the name of Ivar Lovaasand discrete trial format. He provides his study about this method. He conducted his experiments in 1987. The book of Maurice also paved the way for him. He used the term "normal functioning". The fact is that ABA intervention is incomplete without discrete trials and the Lovaas method. There are other methods for intervention which are considered as the part of ABA intervention. All these methods and techniques are based on one principal that is behavioural. Research has proved that base of intervention is behavioural. Behavioural intervention is considered as base not only in ASD but psychology is also comes under it (Corsello, 2005).

Objectives of the Study:

Following were the objectives of the study:

1. To diagnose and assess Autism Spectrum Disorder among students of age 3-15 years.
2. To investigate the individual effect of ABA therapyon ASD students' academic achievement of students of age 3-15 years.

Research Questions:

1. What kinds of different Autism Spectrum Disorder exhibit among students of age 3-15 years
2. What is the significance difference between the individual effects of ABA therapy on ASD students' academic achievement of students of age 3-15 years?

Delimitations of the Study:

The study was delimited to the students of age 3-15 year from STEP TO LEARN Rehabilitation Centre for Special Children of Islamabad city.

RESEARCH METHODOLOGY

Research Design:

Being two-Group experimental in nature, a pretest- posttest equivalent group design was considered to be most appropriate design for implementation of the experiment.

Research Instrument:

An observational sheet was adapted by criteria given by DSM-5 and criteria exemplar by Laura Carpenter, (2013). Urdu version of the observational sheet was also developed. A pre-test and a post- test were developed for children.

Participants of the study:

Total population of the study was all the children with Autism Spectrum Disorder of age, 3-15 years from STEP TO LEARN (Rehabilitation Centre for Special Children) of Islamabad city.Out of total students with autism, 30 students of age 3-15 years were selected randomly for diagnosis on the basis of criteria given by DSM-V and 10

students were selected for treatment on the basis of pre-test scores. The selected students were those students who have high level of autism.

Equalization of Groups:

Pre-test was administered in order to determine that two groups i.e. experimental groups and control group were equal at the time of treatment. This test after reshuffling of questions was administered again on completion of treatment to the groups. The groups on the basis of pre-test were equalized using pre-test and coefficient using Mann Whitney U test. The equalized groups are as under:

Table 1: Pre-test achievement scores between control and ABA groups

Group	N	Mean Rank	Sum of Rank	Mann Whitney U Value	P
Control	5	5.40	27		
ABA	5	5.60	28	12	0.92

Pre-test achievement scores between control and ABA groups shows that the mean ranks of control and ABA groups are 5.40 and 5.60 with sum of rank. The sum of ranks of control and ABA groups is 27 and 28 respectively. Mann Whitney U value between both groups is 12. The value of p (0.92) is greater than 0.05. This shows that there is no significance difference between control and ABA groups before treatment.

Experiment:

Sample students were equally divided into two groups i.e. the experimental group and the control group on the basis of pre-test scores. The researcher hired an expert to teach the experimental groups for the period of eight weeks. There was no treatment of control group while experimental group has gone through treatment by the expert. After the completion of experiment, post-test was administered to all groups. Analysis of the data was undertaken by calculating mean and standard deviation. Thus the comparison between the groups was made in order to determine the effect of the treatment using Mann Whitney U test.

RESULTS AND DICUSSION

Table 2: Descriptive analysis regarding ASD

S.No	Type of ASD	M	S.D
1	Social Relation	2.90	0.94
2	Non Verbal Behaviour	2.70	0.71
3	Developing Relationship	3.87	0.63
4	Repetitive Behaviour	2.62	0.57
5	Inflexible Behaviour	2.58	0.66
6	Intensive Behaviour	3.55	0.93
7	Unusual Interest	2.59	0.97

The mean and S.D of overall ASD regarding social relation are 2.90 and 0.94. Mean and S.D of overall ASD regarding non-verbal behaviour are 2.70 and 0.71.   Mean and S.D of overall ASD regarding developing relationship are 3.87 and 0.63. Mean and S.D of overall ASD regarding repetitive behaviour are 2.62 and 0.57. Mean and S.D of overall ASD regarding inflexible behaviour are 2.58 and 0.66. Mean and S.D of overall ASD regarding intensive behaviour are 3.55 and 0.93. Mean and S.D of overall ASD regarding unusual interest are 2.59 and 0.97.

Table 3: Post-test achievement scores between control and ABA groups

Group	N	Mean Rank	Sum of Rank	Mann Whitney U Value	P
Control	5	3.60	18.00	3.00	0.04
ABA	5	7.40	37.00		

The mean ranks of control and ABA groups are 3.60 and 7.40 with sum of rank. The sum of ranks of control and ABA groups is 18 and 37 respectively. Mann Whitney U value between both groups is 3. The value of p (0.04) is less than 0.05. This shows that there is significance difference between control and ABA groups after treatment. This means that performance of ABA group is better than that of control group.

Doreen Granpeesheh, Jonathan Tarbox, and Dennis R. Dixon published their research article. It was applied behavior analytic interventions for children with autism. This article is about ABA program and how one can treat a child with autism. There is a detail description of problems related to mix program between ABA and psychiatry. They state that there are a number of methods for intervention. These techniques are discrete trial instruction and natural environment training. The foundation of these interventions is on basic principles of learning and motivation. They concluded that applied behaviour analysis programs are scientifically proved programs and can be used for treatment of children with autism (Granpeesheh, Tarbox & Dixon, 2009).

CONCLUSIONS

On the basis of the findings of the study, the following conclusions are hereby drawn:

1. There was no significance difference between control and ABA groups before therapy.
2. There was a significance difference between control and ABA groups after therapy. The performance of ABA group was better than the control group.

RECOMMENDATIONS

Following are some suggestions/recommendation on the basis of findings:

1. Workshops and seminars should be arranged on national as well as provincial level to give awareness about ASD to people.
2. Children with autism should be treated with great care to reduce disruptive behaviour.

3. New techniques and therapies should be introduced to treat students with ASD.
4. Practical implementation of different interventions and therapies is required.
5. Special attention should be given to special schools to provide proper education to these children.
6. Parents and practitioners should be given proper training.
7. There is a need for further research in the field especially in low, middle and high level of ASD.

REFERENCES

American Psychiatric Association. (2000). *American psychiatric association's diagnostic and statistical manual of mental disorders* (4thed.). Washington, DC: American Psychiatric Association.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.

Bender L, G. A. (1956). A study of certain epidemiologic factors in a group of children with childhood schizophrenia.

Bruder, M. B., Weitzman, C. & Giannotti, T. (2013) Connecticut Guidelines for a Clinical Diagnosis of Autism Spectrum Disorder.

Christina M. C. (2005) Early intervention in autism. *Infants & Young Children,* 18(2), 74–85.

Gallo, C. &Volkmar, F. (2003) Diagnosis of autism.*Trends Evidence-BasedNeuropsychiatry*, 5, 23-8.

Granpeesheh, D., Tarbox, J. & Dennis R. D. (2009) Applied behavior analyticinterventions for children with autism. *Annals of Clinical Psychiatry,*21(3), 162-173.

Kanner, L. (1943). Autistic disturbances of affective contact. *Nervous Child*. 2, 217-250.