

## THE EFFICACY OF INTERVENTION STRATEGIES FOR PARENTS IN MANAGING CHILDREN WITH AUTISM DISORDER

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### ABSTRACT

*This study attempted to ascertain the efficacy of Discrete Trial Teaching and observational learning techniques for parents in managing children with autism disorder. The sample for this study consisted of 20 parents (male and female) purposively selected from Benin City, Edo State. The instrument, titled 'Knowledge of Managing Autism among Parents Questionnaire' (KMAPAQ), containing 25 structured questions, was developed and employed by the researchers. Two hypotheses were tested. Data collected were analyzed using independent t-test. The results showed that there was significant difference between parents' in the experimental and control groups' knowledge of managing autism. The mean score of parents' experimental group was 91.40; greater than 58.70 mean score of the control group. A significant difference did not exist between male and female parents knowledge of managing autism. ( $t_{cal} = 0.585$ ,  $t_{cal} = 0.589$ ;  $p > .05$ ). On the basis of the findings, it was suggested that parents irrespective of sex should be exposed to intervention strategies to manage and support children with autism in order to reduce their challenges.*

**Keywords:** Autism, autistic, Diagnostic Statistical Manual of Mental Disorders, 4<sup>th</sup> ed (DSM IV TR 2000), Discrete Trial Teaching (DTT), Stress, observational learning, intervention.

### INTRODUCTION

Autism is a childhood brain development disorder which affects a child's social interaction, communication and behaviour. It is also a spectrum disorder. In other words, he/she may be a little autistic or very autistic. The symptoms of autism are usually noticed before the child is 3 years old. Most autistic children are normal in appearance but different from typical children because of their disruptive behaviour. Okey-Martins, (2007), gave an estimate of 190,000 children in Nigeria who may not have been diagnosed because of the low level of awareness in Nigeria. A study carried out by the researchers in 2008 agreed with Okey-Martins view that there is a low level of awareness among parents in Nigeria (Audu & Egbochuku, 2010).

The children with autism are usually faced with challenging behaviours caused by the characteristics associated with the disorder. They have difficulties establishing friendship with peers and other people. Autistic children are usually not able to initiate and sustain conversation with others. They are sensitive to touch, smell, sound, taste and sight and have limited interests in other activities. The challenges highlighted no doubt can frustrate parents and care givers in and outside the home, if they are not able to help them develop appropriate behaviours and learn like other children. Intervention strategies such as Discrete Trial Teaching (DTT), one of the

instructional methods of ABA, observational learning, Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH) techniques, among others, have been scientifically proved to manage the symptoms and challenges experienced by children with autism in and outside the home environment. Applied behaviour analysis (ABA) has been scientifically proved to be effective in managing behaviour problems of children with autism. ABA is a structured teaching programme, the teacher or therapist breaks down skills into small tasks and lessons are taught using repeated trials giving prompts when necessary and rewarding correct responses with positive reinforcements (tangible and non-tangible items), (McEachin, Smith & Lomas, 1993). This was one of the techniques used in this study. The second technique is Observational learning, developed by Albert Bandura (1986).

Observational learning is a powerful means of social learning. It is a more natural method of instruction whereby information can be conveyed verbally, auditor ally and through actions, either through live or models. Typical children pay attention and are eager to learn by watching and observing; however, this is difficult to gain because of the attentive nature of autistic children. Bandura identified four key processes or components which govern observational learning, namely: Attention, Retention, Motor Reproduction and Motivation (reinforcement). The aim of observational learning is to train parents to motivate and gain the attention of autistic children before teaching them skills. These two treatments were employed in this study.

## **STATEMENT OF THE PROBLEM**

The level of awareness of autism disorder in Nigeria is low. This could have led to the wrong impression that children with autism are mentally retarded and insane. Spiritual factors and maternal deprivation could also be responsible for this low awareness level in Nigeria. The fear of being stigmatized and discriminated against may have made most parents to hide their children at home. Consequently, autistic children may be at risk of not being diagnosed early or wrongly diagnosed, with some of them ending up on the streets as destitute or insane individuals. Children with autism have difficulties making friends or even bonding with family members. For example, when an autistic child is placed in a social environment, he/she may throw tantrums, cries, fidgets, is inattentive, and disruptive among other challenges.

Autistic children need special attention and care borne by parents alone; the inability of the parents to successfully play this role may frustrate them and deprive the children from developing like other typical children. The difficult task of bringing the children up and managing their challenges may also result in psychological and mental stress of parents (Hastings, Kovshoff, Ward, Espinosa, Brown & Remington, 2005). The research question of this study is, how can parents be prepared effectively to manage their autistic children in and outside the home?

## **HYPOTHESES**

Two hypotheses were formulated to guide this study

Ho<sub>1</sub>: There is no significant difference in parents' knowledge of managing autism in the experimental and control groups at post-test.

Ho<sub>2</sub>: There is no significant difference between male and female parents on their post-test knowledge of managing autism.

## Significance of the Study

This study is aimed at bringing some of the problems and challenges experienced by parents with autistic children into focus. It sensitized the public, especially the policy makers on how to formulate policies that addressed and catered for the special needs of autistic children through governmental and non-governmental agencies. The importance and benefits of parents taking their children for early diagnosis and intervention was fostered. In this study, parents exposed to appropriate intervention resulted in better outcomes in terms of managing problem behaviour of their children and which also reduced the stress of the parents involved.

## METHODOLOGY

Quasi experimental design was used for this study. Purposive sampling technique was used to select 20 teachers who have or had interacted with autistic children in Benin City, Edo State. Stratified sampling technique was then used to assign these parents into the treatment groups. The intervention lasted for 6 weeks of 13 sessions. Structured achievement test instrument developed by the researchers titled “Knowledge of Managing Autism among Parents Questionnaire” (KMAPAQ) was employed for this study. The instrument had two parts; Section A had demographic data on sex, occupation and place of work. Section B had 25 test items which assessed knowledge of the characteristics/symptoms of autism and mastering of the interventions used. The experimental and control groups were given the instrument at the beginning as pre-test, and at the end of the treatment programme, post-test was administered on the groups.

## TREATMENT

Discrete trial teaching (DTT) is one of the methods that use the principles of ABA to teach children with autism. It is a cycle of instruction that is repeated several times unto a skill is mastered. Skills are taught in very short increments called trials. DTT consists of four parts and a fifth part that is optional, namely:

1. Discriminative Stimulus ( $S^D$ ) - Instruction from parents or therapist
2. Prompting stimulus ( $S^P$ )- counsellor/therapist gives verbal or physical prompts or assistance
3. Response (R) - child responds to instruction.
4. Reinforcing stimulus ( $S^R$ ) - reward the child's correct response
5. Inter – Trial Interval (ITI) - break or pause for 2 – 5 seconds.

In DTT, each step of a skill is mastered before new concepts are presented. A very small amount of information is given in DDT method and the child's response is immediately reinforced or given a correction. This is different when compared to the traditional teaching methods, which present large amount of information with no clearly targeted interactive response on the child's part. The aim of DTT intervention technique is to teach parents how to use this strategy to reduce maladaptive behaviours, teach new skills and motivate autistic children to learn.

## Observational Learning

Observational learning is a powerful means of social learning developed by Albert Bandura (1986). It is a more natural method of instruction whereby information can be conveyed verbally, auditorially and through actions, either lives or models. Typical children pay attention

and are eager to learn by watching/observing; but it is difficult to gain the attention of autistic children. Bandura identified four key processes or components which govern observational learning, namely: Attention, Retention, Motor Reproduction and Motivation (reinforcement). The aim of observational learning is to train parents to motivate and gain the attention of autistic children before teaching them skills.

## **Treatment Package for Parents**

### **1<sup>st</sup> Session**

The objective of the session was to introduce the programme to the participants a kind of orientation; and agreed on the days and time of meeting. After this, the pre-test titled “Knowledge of Managing Autism among Parents’ Questionnaire” (KMAPAQ) was given to participants (parents) to fill after, the researchers had established a rapport with them; and explained the importance of the programme and attendance. The instrument was then administered to the parents involved in the study to fill and thereafter collected by the researchers at the end of the 1st session.

### **2<sup>nd</sup> Session**

#### ***Topic: What is Autism?***

In the session, the meaning, types and symptoms/characteristics of autism were explained and discussed with the participants. They were taught that Autism is a brain developmental disorder that affects a child’s social interaction, communication (language as used in social communication) and behaviour (restricted, repetitive and stereotyped pattern of behaviour). The symptoms of autism usually manifest before a child is 3 years old. They were also taught that the core symptoms of autism are deficits in social interaction, communication and behaviour. Others include difficulties with senses, changes in routines, taking turns, tantrums, getting into embarrassing situations etc. Autism affects individuals irrespective of socio economic status, religion or race. Males are four times more likely to have Autism Spectrum Disorder (ASD) than females (World Health Organization, 2008). Questions were answered by the researchers. At the end of the session, assignment/questions were given/asked by the researchers, and they were then given text to read.

### **3<sup>rd</sup> Session**

#### ***Topic: How does autism affect the child?***

In this session, there was revision of previous assignment, and attendance was taken. The researchers discussed the effects of autism on the child such as social interaction, and communication, as they cannot initiate or sustain conversation with others, but are usually visual learners. Autistic children experience challenging behaviours, such as sensitivities to touch, smell, sound, vision, taste etc. They do not understand and establish social relationships. Questions asked, were clarified by the researchers. The researchers then asked questions and gave assignment to the parents.

### **4<sup>th</sup> Session**

#### ***Topic: Reach out to teachers, counsellor, peers, therapist etc.***

Parents were taught to reach out to teachers, counsellor, peers, therapists, etc in order to develop a working relationship with them for the benefit of their autistic children. The various ways of

reaching out include telephone, workshops, home visits, recreational activities, e-mails, monthly meetings etc to create public awareness, acceptance, build trust, identify strengths and weaknesses of their children and support them. Questions asked by participants were clarified by the researchers.

### **5<sup>th</sup> Session**

#### ***Topic: The preparation of the home by parents***

The previous session was revised briefly. The parents were trained to prepare the home to accommodate the characteristics and sensitivities of autistic children. Some of the sensitivities include fluorescent lights, (sight) scented cleaning soap, perfume, disinfectant, (smell), touch, distractions – noise etc. At the end of the session, the researchers asked them some questions on the topic and answered participants' questions.

### **6<sup>th</sup> Session**

#### ***Topic: The behaviour problems of autistic children***

In this session, the objective was to identify challenging behaviours, know the likely causes of the behaviour problems and role-play some of them. The problem behaviours identified include compulsive behaviour, restricted behaviour, poor social interaction, aggression, self-injury or to others. This is because problem behaviours are likely to be caused by poor communication, poor social interaction, tiredness or boredom, illness, sensitivities etc. The participants were guided by the researchers to role-play some of the challenging behaviours of children with autism. The Researchers clarified participants' questions. At the end of the session, the Researchers asked participants questions and gave them assignment.

### **7<sup>th</sup> – 8<sup>th</sup> Sessions**

#### ***Topic: Observational-learning as a strategy of intervention***

In these sessions, attendance was taken and previous session, revised. The investigators then explained observational-learning as a strategy of intervention. Bandura identified four key processes or components which govern observational-learning as follows: Attention, Retention, Motor Reproduction and Motivational processes (reinforcement) (Bandura, 1986). The participants were taught to first gain the attention of the autistic child before teaching him/her any skill. This can be achieved by using what is of interest to the child to motivate him- ask him/her- what do you like to do? Offer him a choice – capture his attention – “Open his window” (mind) before teaching/instructing him to carry out any activity and then reward correct responses with verbal praise, smile, hug, favourite food or any item. They were also guided to role-play the four key processes of observational learning. The participants' questions were clarified by the researchers.

### **9<sup>th</sup> Session**

#### ***Topic: Reinforcement***

Attendance was taken. The previous session's lesson/intervention was revised. The Researchers defined reinforcement as 'any specific event, stimulus or condition that strengthens the tendency for a response to be repeated' (Akinade, 2005). In other words, anything that occurs after behaviour and makes a repetition of that behaviour, is more likely to reoccur in the future. There are two types of reinforcement - positive and negative reinforcement. Positive reinforcement

involves the use of pleasant stimuli to assist clients to improve their performance. The pleasant experiences cause a repetition of the behaviour in the future. Positive reinforcement was recommended for children with autism. Negative reinforcement refers to the withdrawal or non-presentation or reducing or terminating an aversive or obnoxious stimulus from a subject to strengthen the probability of an emission of a desirable behaviour, (Akinade, 2001), for example, removing the child from a noisy environment. It differs from punishment.

They were trained to apply positive or negative reinforcement in the home e.g. positive reinforcement can be delivered to a child who has brushed his teeth, made his bed or done his assignment. Reinforce autistic children with favourite food, toys, praise or allow them to watch their favourite television programme. The researchers asked participants to give examples and role-play them.

### 10<sup>th</sup> – 12<sup>th</sup> Sessions

#### *Topic: Discrete Trial Teaching (DTT) technique as a strategy of intervention for managing autism*

In this session, the participants recalled the activities of the last session. The participants were then trained on how to apply Discrete Trial Teaching Technique (DTT) each part was explained and discussed with examples.

S<sup>D</sup> – is a specific condition or instruction (stimulus) in response to what the parents would like the child to exhibit in a particular behaviour, such as the response to the instruction – ‘take off your uniform or shoes or brush your teeth’.

S<sup>P</sup> - give the child verbal prompts to respond to an instruction or model it when he or she is unable to carry out the activity/task.

R – the child responds to instruction with or without help/assistance.

S<sup>R</sup> – the child is rewarded with praise, hug or tangible items, such as, biscuits, book, pen.

(<sup>ITI</sup>) - there is a pause for 2 – 5 seconds after each task or set is completed before moving to the next activity or trial.

### Trial

Instruction: Brush your teeth, (break it down into parts).

Trial 1: Take your toothbrush

Trial 2: Take your toothpaste

Trial 2: Put some toothpaste on your toothbrush

Trial 4: Brush your teeth

Discriminative Stimulus S <sup>D</sup>	Prompting Stimulus S <sup>P</sup>	Response R	Reinforcing Stimulus S <sup>R</sup>	Inter-Trial Interval <sup>ITI</sup>
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<b>Emike</b> , take your Toothbrush	Give prompts, incorrect response points to the Toothbrush	let us try again Poor - she did not take the toothbrush		
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<b>Emike</b> , take your Toothbrush		<b>Emike</b> takes the toothbrush	Good girl (verbal praise)	Pause/Break
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The researchers led the participants to model and role play the first trial. The 2<sup>nd</sup> – 4<sup>th</sup> trials were discussed and practiced. Questions were entertained from them and clarified.

**Session Thirteen**

*Topic: Conclusion and Post treatment*

**RESULTS**

**Hypothesis One**

H<sub>1</sub>: There is no significant difference in parents’ knowledge of managing autism in the experimental and control groups at post-test.

**Table 1. t-test of independent samples of knowledge of management of autism by parents in control and experimental groups at post-test**

Groups	N	Post test Scores			t	Sig (2-tailed)
		Mean	Std. Dev			
Experimental	10	92.40	3.20		13.179	.001
Control	10	58.70	7.42			

p<.05

Table 1, the column of the post-test column shows a calculated **t** of 13.179, significant at .001 (p <.05). It indicates a significant difference in the knowledge of managing autism by parents in the experimental and control group at post-test. As a result, the null hypothesis which states that “there is no significant difference in parents knowledge of managing autism in the experimental and control groups at post-test was rejected. Consequently, there is significant difference in parents’ knowledge of managing autism in the experimental and control groups at post-test. The mean of parents’ experimental group is 92.40, greater than 58.70 mean of the control group. It is concluded that the treatment was effective in increasing parents’ knowledge of managing autism.

**Hypothesis 2**

H<sub>02</sub>: There is no significant difference between male and female parents on their post treatment knowledge of managing autism.

**Table 2. t-test of independent samples of knowledge of management of autism by male and female parents exposed to treatment at post-test**

Groups	N	Post test Scores			T	Sig (2-tailed)
		Mean	Std. Dev			
Male	5	93.00	3.39		.569	.585
Female	5	91.80	3.27			

p> .05

The post-test column shows a calculated **t** of .585 significant at .589 (p> .05). It indicates no significant difference in their knowledge of managing of autism in the experimental and control groups at post-test. As a result, the null hypothesis which states that ‘there is no significant difference between male and female parents’ knowledge of managing autism in the experimental

and control groups at post-test is accepted or retained. Both means at post-test of the parents' experimental and control groups are male 93.00 and female 91.80 respectively. There was no significant difference between male and female parents knowledge of the managing of autism. It is concluded that treatment can be applied to parents irrespective of sex.

## DISCUSSION

The first hypothesis, asserting no significant difference in parents' knowledge managing of autism in the experimental and control groups at post-test, was rejected. The reason is that there was a significant difference in the knowledge of management of autism on the part of parents on the basis of this finding, thus validating the claim of Lovaas (1987) and Bandura (1977), they claimed that educational intervention can be used in the treatment of autism. For Lovaas, he advocated, that Applied Behaviour Analysis (ABA) produced better outcome in children while Bandura opined that a more natural learning method of instruction facilitates learning. Invariably when parents have training in DTT which is a form of ABA and a more naturalistic method (observational learning); the knowledge can help them to improve on their children's challenges as indicated by the findings in the study.

The result of this study does not only show the efficacy of Discrete Trial Teaching Technique in increasing parents' knowledge of managing autism, but also corroborates previous research findings. Ewen (2003) and Wood (2004) had consistently affirmed that parents trained in the principles of applied behaviour analysis, had their confidence levels increased, stress level decreased and their observed use of appropriate reinforcement behaviour in interacting with their children increased as well. The result of the present study affirms the efficacy of DTT, a form of applied behaviour analysis in the management of autism.

The result of the second hypothesis indicated a non-significant difference in the knowledge of managing of autism by male and female parents. This shows that the intervention is not sex biased; it is effective for both male and female. The result is in agreement with Symon's (2005) study which stated that parents (male or female) not only became proficient in the techniques but were able to go home and train others. Kuhn and Carter (2006), who worked with 170 mothers, found out that those with the most autism knowledge were reported to assume very active roles in promoting their child's development. Barbera (2005), who also worked with mothers, reported that helping mothers to learn behavioural techniques for teaching positive skills that reduce the challenges of autistic children can result in the most direct positive influence on the quality of life of families living with autism.

## CONCLUSION

Educational interventions including behavioural strategies such as discrete trial teaching, observational learning techniques among others are currently the cornerstones of managing autism. These interventions address challenges of social interaction, sensory issues, communication, maladaptive behaviours, in-attention, tantrums, transition and others. Parents that were involved in this study have been empowered with the knowledge of the core symptoms and intervention strategies for managing autism. They also recognize that understanding and motivation can facilitate the interest of autistic children to learn. They were trained to give prompts when necessary and reward the correct responses of children with verbal praise, smile, tickles, sing-song, hug, and actual incentives like favourite food, toys etc.



## RECOMMENDATIONS

1. There is yet no known cure for autism, therefore, parents should take their children for early diagnosis and interventions to remedy specific symptoms which can result in substantial improvement on the quality of their lives.
2. Parents should use caution before adopting any unproven treatment because there are a number of controversial therapies or interventions that are not supported by scientific studies.
3. Parents of autistic children should work with therapists/counsellors to provide psychological and emotional support for them. They can also get support and resources within and outside the country to cushion the effects of autism disorder.

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