The Effect of Early Diagnosis and Intervention on Behavior for Children at the age of three years with Autism Spectrum Disorders

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تأثير التشخيص والتدخل المبكر على الأطفال المصابين بالتوحد في عمر ثلاث سنوات

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الملخص:

هدفت الدراسة الى التعرف على تأثير التشخيص والتدخل المبكر على الأطفال المصابين بالتوحد في عمر ثلاث سنوات. تكون مجتمع الدراسة من الأطفال المصابين باضطراب التوحد في مركز والدة الأمير فيصل بن فهد للتوحد بالرياض في المملكة العربية السعودية. البالغ عددهم 20 طفل قسموا الى مجموعتين كل مجموعة مكونة من 10 أطفال. ولقد جمعت البيانات عن طريق الملاحظة التي صممت خصيصا لأغراض الدراسة وتوصلت نتائج الدراسة الى أنه كلما كان التشخيص والتدخل مبكراً كل ما كان هناك استجابة لتعلم عدد من المهارات السلوكية لطفل التوحد.

الكلمات المفتاحية: التشخيص والتدخل المبكر، الأطفال المصابين، التوحد، مركز والدة الأمير فيصل بن فهد للتوحد.

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Abstract:

The aim of this study was to know the effect of early diagnosis and intervention on behavior for children at the age of three years with autism spectrum disorder. this particular study simple random sampling was being use to defined population an equal and independent chance of selection. The study was being conducted on Prince Faisal Bin Fahad's Mother's Center for Autism of Riyadh. I obtained 20 participants at age 3 years old and divided them to two group each group consist of 10 children. The study used structured participant observation to collect data.

Keywords: early diagnosis and intervention, children with autism, autism, Prince Faisal bin Fahd's mother's autism center

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Autism Spectrum Disorders is a condition characterized by several abnormal behavioral states and is mostly seen during the early stages of child development. Some of the characteristics include recurrent shortfalls in communication and social interactions across multiple perspectives, a restricted, persistent pattern of behavior or activity. These conditionsare noted in the early developmental stages of a child, and they significantly affect their education. The most discouraging part about Autism Spectrum Disorders is that no clinical intervention can alter the condition. However, early intervention can help manage the child's condition and assist in their development. (Thunberg. 2013) As known, an infant's brain is quite malleable therefore early diagnosis of the disorder and intervention with several therapeutic procedures can help reduce the deleterious effects of Autism Spectrum Disorder, therefore, aiding in improving the brain response to social cues.To come up with effective development of childrenat the age of three years with Autism Spectrum Disorder, it is important that and early diagnosis and proper intervention be made. (Thunberg. 2013)

Intensive intervention programs at early stages of a child's development have been shown to improve the various behavioral and communication skills of the child. The primary purpose of this study will be to assess the effects of early diagnosis and intervention on behavior for children at the age of three years with autism spectrum disorders.

Literature Review:

Aggarwal & Angus (2015) found out that the diagnosis of persons with autisms is normally delayed until they reach adolescence. They based their argument on 31 ASD tests that were performed for 3 years in an early intervention facility in Australia. The researchers found out that it was challenging to control the symptoms in adolescents as they showed more depressive symptoms and many anxiety and psychotic symptoms. They established that older children may require additional assistance apart from simple autism intervention, which is effective in younger children. As such, the effects of treatment measures that are administered during that period are ineffective. In a study to determine the symptoms and trends, the authors found out that adolescents could show autism and it is significant to implement corrective measures upon diagnosis. The authors mention that even though Autism may not be detected during childhood, any detection during the adolescence stage should be treated effectively because if appropriate actions are not taken,

the victims will hardly get freed. The authors recommended training opportunities for physicians so that they can be able to make detections at an early stage because early diagnosis and treatment is more effective (Aggarwal & Angus, 2015; Matson & Sipes, 2010).

Wetherby & Woods (2006) found that the age of entry into intervention determined the outcome. In their Study, the authors found out that children with Autism who participate in intensive interventions before they attain the age of 4 years express better results than their peers who receive intervention after age 5.5. In their study, 17 children aged between 15 and 36 months and who showed symptoms of autism were subjected to a therapy that emphasized the most affected areas (Wetherby & Woods, 2006). The areas of concern include eye contact, gestures and vocalization of words. The therapy was intended to enhance different aspects of communication that are affected by the health condition. In this study, the children were involved in the program for a period of 2 weeks and the therapy was carried out for five days in every week. A control group of the same age was not subjected to any form of therapy and after the period, both groups were assessed and the outcome reported.

Their results showed that children who received the treatment expressed an improvement in their language, social interaction and communication. Younger children displayed better results as compared to elder children. Many arguments and studies have been conducted to justify the need for early diagnosis and intervention. In 2013, scholars and physicians from Italy and Israel met in Jerusalem to determine the factors that contribute to the high success rates in treating autism, especially where early intervention measures are administered (Zachor & Curatolo, 2014). They revealed that intervention at an early state is more successful because the child's mind is still developing. They based their findings on children aged between 12 and 18 months. Early intervention also helps in identifying the most appropriate strategies that will suit individual needs of the child (Zachor & Curatolo, 2014).

Their report is endorsed by the report that findings of Poslawsky *et al.*(2014), who mentioned that early intervention gives parents a chance to bring up their children appropriately. In the study carried out by Poslawsky et al. (2014), 77 caregivers of children diagnosed with the condition were interviewed. Sample tests and square tests that were performed showed that parental mental health and the number of complaints were reduced in parents of younger children. They showed that tending to the children at their younger ages was easy and children expressed

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high chances of improving their performances. The contribution of caregivers is significant in helping the children and their contribution is effective during earlier stages of care giving (Poslawsky et al, 2014). The parental support that the children received at their early stages of diagnosis is significant for their improvement. Early identification of parental and guardian reaction helps in providing personalized parental support programs that will help improve the conditions of the victims.

The scientific articles and studies published up to 2015 have described the characteristics of eye contact deficit among children aged 2-6 months who subsequently diagnosed with autism. Interestingly that eye contact was a typical for 2 months-old children, but later, as children get older, it does not develop normally. The presence of normal mechanisms of eye contact in 2 months age suggests that early intervention should focus on maintaining these mechanisms, as well as on the development of early behavioral and drug therapy.

2014 in Journal of Neuroscience there was an article published to research early diagnosis of autism. Children suffering from autism find it difficult to cope with the tasks that require the integration of information, perceived at the same time by using the ears and the eyes, which may explain their learning problems and integration into society. One of the classical concepts of autism in our culture is a picture where a child covers his ears with his hands.

The scientists concluded that the problem of autism should be solved mostly on base of experimental data. It is reasonable to fix the functioning of eyes and ears at an early age, and perhaps we will be able to overcome the problems that autistic people experience during the development of language and social adaptation. (Neuroscience. 2014)

Group of neuroscientists in USA came to the same conclusion by comparing the differences in the behavior and mental abilities of 32 normal children of average level of development and 32 gifted autistics. During the experiment, researchers asked the 3 years-old children to play a few video games that assessed their ability to recognize and remember the sounds and pictures.

In one of these games computer displays images on the screen and make sounds and experiments, participants had to determine whether these events occur at the same time or at different times. It turned out that this problem causes the most

problems in children with autism. Tracing the work of the brain, American scientists have found a possible reason for that - the speed of information processing in the centers of hearing and vision are markedly different, that does not allow the brain to determine whether visual and sound events simultaneously.

Children at the age of three with the disorder mostly have verbal malfunctions, self-injurious or aggressive behaviors, inappropriate play and self-stimulatory behaviors. With this disability, the children may be neglected or viewed by some communities as outcasts. Proper knowledge of the condition is of greater importance to the caretakers of these young ones. If keen, the indicators of autism can be detected at an early age of 12-18 months and become apparent by the age of 2-3 years. (Warren & Stone, 2014).

As supported by Lubetsky, early detection of Autism Spectrum Disorders is a significant step in the process of managing the condition in the affected childrenat the age of three years. (Lubetsky. 2013) However, no known medication has been discovered to reverse the effect. According to Warren & Stone's research, an early intervention through programs will assist the affected child gain critical skills such as those of communication, ability to undertake tasks, ability to play and learn cognitive responses and help manage the condition that is on the rise. (Warren & Stone. 2014) As asserted by Warren & Stone initially, the commonest age to be diagnosed with autism was three years. However, with the increased rate of awareness of the symptoms of autism, children with the age of up to two years can now be diagnosed with much success. Following this study, it will, therefore, be of much benefit if the condition will be diagnosed at a much earlier age. Children at the age of three years with Autism Spectrum Disorders who involved in intensive interventions at a young age of three and a half years were found to have a significant outcome. An early intervention will also assist in deciding on the better methods of passing knowledge to the children during their early childhood education as a developmental procedure. Social impairment, as a characteristic of the children who suffer from autism, should be the condition that can be managed or even rectified when early intervention procedures are observed.

Rationale and Research Questions:

According to literature review the findings are different in comparing to others researches that had the intervention program at a later age. The age at which intervention begins is, therefore, predictive of the results. Early diagnosis leads to early

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intervention programs and reduces the risks of insecurity, self-harm, and obsessive behavior that would be harmful to the child.

Autism Spectrum Disorder mainly affects the behavioral characteristics of a child due to impaired coordination of some brain functions. People may mostly discover the state when the child is at the age of one to five. At this age is when behavioral skills such as communication, movements, coordination and interaction with others and the environment always develop. The effects of early diagnosis and intervention behavior of children with autism are however not clear. The impact that first discovery of the condition plays to the child's life is also of concern. The question addressed by this study is what is the effect of early diagnosis and intervention on behavior for children at the age of three years with Autism Spectrum Disorders?

Methodology:

Research Design:

To examine what the effect of early intervention on the children with Autism Spectrum Disorder the experimental research will use by divide children to two group to know the effect of the using app it calls look at me and how that app uses technology in a way that helps improve autistic children's social skills and facial recognition abilities. This app was developed by Samsung, in collaboration with professors, doctors and designers in South Korea.

The team created a series of games, or 'missions' designed specifically to help children with autism make eye contact, read facial expressions and express their emotions.

Sample:

For this particular study simple random sampling will be use to defined population an equal and independent chance of selection. The study will be conducted on Prince Faisal Bin Fahad's Mother's Center for Autism in Riyadh. I will obtain 20 participants at age 3 years old and I will divide them to two group each group consist of 10 children.

Instruments:

The study will use structured participant observation to collect data. The particularly participant observation will help to understand the individual meaning of daily activities and eye contact for children with autism. All observations will be same center, which is Prince Faisal Bin Fahad's Mother's Center for

Autism, locate in Riyadh City in the capital and largest city of Saudi Arabia . The children will were observe permanently located in different classes from one another. The observations will take place over five days at various times throughout the day, and each observation take place during a structure teacher-led activity. Each child will observe in a single 30-minute session during their regular school routine. Examples of the observation are attached.

Procedure:

After the selection of 20 eligible participants, we will divide them to two group intervention group and control group. Each group will consist of 10 children. The intervention group will use the look at me app the child will identify happy and sad faces from a line-up. This was designed to help autism sufferers recognize emotions. For each correct answer, the users receive character cards and points, while music and voice guides can be customized to take children through the games.

Analysis Plan:

A coding sheet is use to record the spontaneous and evoked communicative acts made by the children. The coding sheet is divide into four main categories: the antecedent, the child's response, the function of the communicative act and the teacher's response to the child. The sheet also has a section at the bottom that allow the observer to make notes regarding the situation, and the time the observation start and end. The frequencies of events within each category are sum for each participant and then transform into proportions for each child. The analyses are carry out on the proportions

The study reached the following conclusions:

1. There are statistical significant differences the degrees of experimental group and control group, in Communication Responses measurement in Children with Autism Spectrum Disorder, after applying the program, with the result in favors of the experimental group.

2. There are statistical significant differences between the degrees of experimental group in the pre-test and post-test measure of the performance in Communication Responses in favors of the post-test measure.

3. There are no statistical significant differences between experimental group in the measure post-test was administered and after post-test were administered.

Limitations:

There are a few limitations are present in this study. First limitation is we acknowledge that this study observed participants for a shorter period of time which is 30 minutes compared to previous studies. The second limitation is the number of the sample we recommend replication with a larger sample in order to ensure generalizability of the results. A larger sample would also obviate concerns about the statistical assumptions and permit the use of more standard parametric analyses.

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Appendix 1

Observation Form

Observation items (parent and teacher comments, 0=never, 1=sometimes, 2=frequently)

1. Interaction with people and events
2. Childs ability to establish and maintain reciprocal relationships
3. Response to routines

Child Behavior	P	T	Comments
Great difficulty with initiating and responding both verbally and non-verbally to bids of others.			
Great difficulty displaying joint attention both emotionally and physically. Does not shear accomplishment, interest or enjoyment of an activity with others.			
Great difficulty making and maintaining friends.			
Lacks empathy (the intuitive of understanding another person's feeling).			
Needs excessive reassurance, especially if things change or go wrong.			
Is indifferent to peer pressure, does not follow crazes or understand current trendy language.			
Does not like to participate in competitive sports, game, or activity.			
Treats strangers the same as familiar people (will go with or hug a stranger without question.)			
Little or no meaningful eyes contact, appears to state, blank look.			
Complete disregard or lack of appreciation of danger (i.e. running into the street, clamping up on high cupboards, touching hot stove etc.)			

Child Behavior	P	T	Comments
Play tends to be unimaginative, repetitive, or solitary.			
Great difficulty in describing friendship in age appropriate manner.			
Great difficulty flowing the give and take of conversation.			
Can be withdrawn or talk to self, or continue a running commentary or monologue, does not notice if others are listening.			
Is unable to "tune into" the class and the social environment, easily directed by others in classroom(visual or auditory stimuli)			
Great difficulty mixing with or playing with peers, may interact more readily with adults.			
Great difficulty with flexibility within play them (i.e. following own set play sequence without deviating from routine.)			
Very rule bound, may remind others of rules may "police "others' behavior.			
Appears to be more interested in objects than people, completely avoids social contact with others.			
Great difficulty responding to consolation from others.			
Great difficulty an understanding in other's perspective.			
Expects to know his/her thoughts, experience and opinions.			

Other Comments: