



Rehabilitation in Autism Spectrum Disorder

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Abstract:

By three years of age, and in certain cases as early as eighteen months, it is typically possible to properly diagnose autism spectrum disorders, numerous children may potentially be correctly identified by the age of one year or perhaps younger, according to studies, If a kid exhibits any of the warning indicators of ASD, it is recommended that they be assessed by a specialist who specializes in these conditions.

When their child exhibits strange actions, parents are typically the first to notice. The infant appeared to be "different" in certain instances from birth, showing little interest in others or concentrating for extended periods of time on a single object. Even in youngsters who appear to be developing normally, the early indicators of an ASD might manifest. Something is awry when a talkative, chattering child suddenly stops talking, withdraws, acts abusively toward themselves, or shows no interest in social interactions. Studies have indicated that when parents identify developmental issues, they are typically right, the range of pervasive developmental disorders, sometimes known as autism spectrum diseases, includes Asperger syndrome, a lesser variant it is autistic disorder a severe form.

Keywords: *Autism spectrum disorder, Rehabilitation*

I. INTRODUCTION

The hallmarks of autism spectrum disorder (ASD) include difficulties with communication and social interaction. People with autism spectrum disorders (ASD) may exhibit physical or visual discomfort, verbal and gestural language delay or absence, little responses to auditory stimuli, and challenges adjusting to change, particularly in routine activities. Furthermore, they could exhibit recurrent, constrained, and stereotypical actions (1).

According to Humphrey and Lewis (2008), one of the trickiest and least understood aspects of education is inclusive education for students with ASD. More research on effective teaching strategies and solutions for this community of learners has been demanded, nevertheless (Humphrey & Parkinson, 2006). This study on the integration of ASD kids in inclusive classrooms is what we have chosen to do. We knew nothing about ASD or the population that it affects before beginning our educational investigation. Nevertheless, this feature of inclusion is still not fully investigated in ASD science, with the exception of a few papers (2).

When parents fully understand the nature of their child's issue and the intricacies and issues surrounding diagnosis, therapy, rehabilitation, and medication, a number of complications arise (3). As previously indicated, the majority of these kids with ASD struggle greatly in a variety of domains, such as social relationships and communication. They are therefore required to make use of a rehabilitation service in order to enhance their abilities (4). However, the research suggests that it can be difficult for parents, rehabilitation providers, and children with ASD to receive and use these interventions and medical care (5).

The goal is to find ways to improve rehabilitation services and remove obstacles to their use by analyzing the perspectives and experiences of parents of children with ASD and rehabilitation service providers.

2-Definition of autism spectrum disorder:

A complicated lifelong developmental disability, autism spectrum disorder, or ASD, typically manifests in early childhood and may have an impact on a person's social skills, communication, relationships, and self-regulation (6). Three aspects of development are affected by developmental issues in people with autism: social interaction, communication, and interests and hobbies. Due of these distinctions, these individuals and those in their group have trouble adjusting to familial and social situations. (7).

Individuals diagnosed with autism spectrum disorder experience a mix of developmental challenges related to three domains: interests and activities, communication, and social interaction. These distinctions make it difficult for these individuals and those in their group to adjust to family and social life. (8) ..

According to the previously mentioned definitions, autism is a developmental disorder that typically manifests in the first three years of a child's life. It affects all linguistic, cognitive, and social aspects of a child's life and is characterized by repetitive behaviors. As a result, it can have an impact on a child's ability to learn and communicate with others.

3 -Causes of Autism spectrum disorder:

3-1/Viruses and Vaccination:

According to some study, maternal women's exposure to specific viruses and chemicals—such as thalidomide and valproic acid—has been connected to incidences of ASD. These viruses include measles, mumps, rubella, herpes, syphilis, cytomegalovirus, and toxoplasmosis. But the number of these situations is quite small. (9).

In an effort to comprehend the connection between environmental variables and the aetiology of ASD, studies from the University of California-Davis' Genetics and Environment program have been installed. [The Son-Rise Program for Autism]. According to Richards (2011), Andrew Wakefield conducted an experiment with 12 children in 1998 to prove a link

between vaccinations and autism.(10) ..

3-2/Genetics:

Changes in the genes encoding proteins in the molecular machinery that control the production of synaptic proteins have been connected to autism. It is possible that mutations related to Tuberous Sclerosis (TS) and Fragile X Syndrome cause autism. Unusual mRNA translation leads to increased protein synthesis, which is the root cause of all of these disorders (11). According to the Mayo Clinic (2018), certain genetic mutations seem to be inherited, while others appear to happen on their own. In twin studies, the concordance rate of autism is 60–90% for monozygotic (identical) twins and 0–24% for dizygotic (non-identical) twins. 13 desire relationships—even intimate ones—but lack the know-how to pursue them.(12) .

3-3/Affective Development:

Infants diagnosed with autism typically exhibit less facial expressions, particularly those that are not meant for other people. Studies using retrospective film have shown that toddlers with autism do not smile socially (13) ,revealed that, in comparison to children with average development and those who experienced developmental delays, 20-month-old newborns with autism exhibited deficiencies in social orienting, as demonstrated by shorter periods of staring at others.(14)

3-4/ Sensory Processing, Attention, and Self-Regulation:

The first three years of life are marked by several indications of emotional anguish and/or disturbances, according to phenomenological descriptions provided by autists recollecting their patients' recollections, historical research on the parents of autistic children, and/or clinical data. These include an inability to tolerate social situations, hypersensitivity, avoiding particular food textures, having trouble seeing clearly, not feeling pain, and concentrating on issues related to an object's sensory qualities.(14) .

3-5/Praxis and Imitation:

For autistic children to develop imitative skills, early identification and treatment are essential, documented this 20-month protocol. Older autistic children are less adept at mimicking procedural behavior on objects than are typical developmental delays. According to research by (Stone, et al,1997), a child's capacity for mimicking in other domains—like language and play—is strongly correlated with certain talents. Understanding the social and communication context as well as the sensorimotor needs of the activity are also important for effective imitation. According to a number of studies, younger adolescent adults with autism may internalize motions that are conveyed visually.(14) .

3-6/Communication:

A quarter to a third of children with autism do not appear to be able to talk at all later in life, and about forty percent of autistic children are not able to communicate at all. Speaking may come later in life for other children with autism (15). When alternative nonverbal communication skills are not used to make up for delayed or missing language development, autism is diagnosed. The analysis of sentences involving an absolute degree of eye contact no longer takes eye contact into account, however it may be less in early teenagers with autism.(16).

3-7/Behavior:

Children diagnosed with autism often exhibit stereotyped and repetitive activities, wants, and behaviors. Fixations on certain topics are prevalent, as are fixations on incredibly intricate patterns and rituals that need to be performed again. An individual with autism may find it challenging to adjust to any kind of change, including assuming a new role or carrying out odd activities(17) .

4-Types of autism :

Recently, experts have discussed many forms of autism when discussing autism ,

published an article entitled "Autism spectrum disorder in Children: Types, Causes, Treatment and Prevention" provided researchers and families with different types such as Asperger syndrome, Kanner syndrome, pervasive developmental disorder not otherwise specified (PDD-NOS), childhood disintegrative disorder, Rett syndrome .(18)

4-1 /Asperger syndrome:

Asperger's Syndrome is a developmental disorder marked by activities that are repetitive and stereotypical, limited interests, and issues with reciprocal social relationships that are comparable to those observed in autism. On the other hand, cognitive and language development are excellent, and they are often associated with motor clumsiness. The DSM-5 diagnostic manual has level 1 autism disorder. It's critical to realize that kids with level 1 autism have excellent language skills and high average IQs.(18) .

4-2/Kanner's syndrome :

Another term for Kanner's syndrome is infantile psychosis. This early kind of autism is the most well-known. It usually affects three or four boys for every girl and is seen in all racial groups, in all spheres of life, and regardless of their socioeconomic status and degree of intellect and emotion. Typically, the attack is even more severe in the feminine sex and is accompanied by a severe cognitive and sphere impairment in language. In two thirds of the cases, symptoms start extremely early. The remaining cases start two or three years following what appears to be a typical psychomotor development (19).

4-3 /Childhood disintegrative disorder:

Known by another name, Heller's syndrome, it usually affects young children and babies. At this moment, the child develops normally until the youngster is at least two years old, at which point their behavioral and social skills abruptly deteriorate. This abrupt decline in the child's health is a brief and passing stage .(18) ..

4-4/Rett syndrome:

The only kind of autism spectrum disorder that can be diagnosed and treated medically is a rare genetic illness that primarily affects girls under the age of twelve (16 occurrences in men and 1:9000 in women). They have restricted hand function for routine activities, which is the only common sign of this disease (20).

5-Symptoms:

Signs and symptoms of autism spectrum disorder can often be seen as early as infancy (21), with the American Psychiatric Association (2000) classifying the initial clues into four main groups:

5-1/Socialization:

Early on, it is common to see differences in social interaction in children with autism. Because of this, children diagnosed with ASD may display distinct facial expressions or show little interest in objects from an early age (22). For instance, a child with autism may laugh or grin in the absence of an environmental trigger, or they may not smile when they are petted.

5-2/Sensory Functioning:

ASD in early children is frequently accompanied by sensory abnormalities, atypical sensory responses can occur with any of the five senses: visually, auditory, tactile, olfactory, and/or taste (23). When their names are spoken, some autistic youngsters seem deaf, while others are disturbed by bright light. A predilection for anything in particular, such as a certain kind of food, is common among autistic children. Moreover, unusual sensory preferences may be linked to self-stimulation. Children with autism tend to repeat their self-stimulatory actions. Typical behaviors, like rocking, twisting items, and flapping hands, are displayed by children with autism from a young age (24) .

5-3 /Language:

Young children diagnosed with ASD often communicate through unique behavioral

responses. Roughly 50% of children with autism never acquire expressive language (25), They don't use language to get what they need or to communicate. It is well accepted that these kids struggle with expressive language, although they have superior receptive language. Children may demonstrate their ability to use sounds and words, but they may do it in peculiar ways(26)

5-4/Cognitive Function:

Infancy language, social, and motor development are all correlated with cognitive functioning. Therefore, there is a strong likelihood that a child is also handicapped if they are impaired in at least one of the aforementioned areas.

6-Language Development in Autistic Children

One of the earliest indications of autism is the inability to acquire language. Children diagnosed with autism spectrum disorders typically have deficits in both expressive and comprehensive language skills. While the exact reasons of language development issues in infants with autism remain unknown, many experts speculate that the challenges stem from a range of abnormalities impacting brain development that arise before to, during, or following birth. The way those children develop their language depends on how each person is developing intellectually and socially. Based on available data, the children's language development had three common deficits: early linguistic deficits.(27)

ASD children's language development is also typified by a number of unusual language traits, including echolalia, jargon usage, and variable intonation.(28) .

Repetition and replication of speech by other individuals is known as echolalia, according to Roberts (2014). Three classifications can be applied to it :

Accurate echolalia: in this instance, the autistic child mimics precisely what he hears ..

According to Simon (1975), delayed echolalia is the repeating of a phrase after a pause or passage of time. An example of this would be youngsters who mimic the lyrics of their favorite songs or movies .

The term "modified" or "mitigated" echolalia describes any alteration in echoed emission used for communication; it might be accurate or delayed. For instance, shifting pronouns when repeating: what are you doing ?

According to research, children with autism can use echolalia as a communicative strategy and a language acquisition tool to start or carry on discussions ..

Another aspect of autism-related language development in children is jargon, or the use of meaningless words. It has a specific role in how children on the autistic spectrum acquire and develop language (28). Many children with autism utilize jargon to carry on discussions or communicate their demands (ibid), which is thought to be challenging to translate into a meaningful exchange.

Apart from the aberrant language patterns mentioned before, persons with autism have also been seen to exhibit anomalous production of supra-segmental elements such as accent, rhythm, stress, and intonation .

Autism diagnoses are typically associated with unusual supra-segmental characteristics such as improper speech loudness and flat or sing-song intonation .(28) .

But each person with autism is different; they don't all have the same characteristics. Every person speaks and uses language in a unique way, and they may also use supra-segmental elements in a unique way

Autism spectrum disorders can cause speech, language, and communication difficulties in young children. They are therefore included in the category of kids with speech, language, and communication needs (SLCN). According to APA (2000) speech, language, and communication needs are classified into three primary sections :

Developing speech sounds can be challenging ..

Developing expressive and receptive language can be challenging .

Developing social communication skills can be challenging.

7-Diagnosis:

Autism spectrum condition cannot be diagnosed with a medical test, making diagnosis challenging. Children with autism may occasionally receive a false diagnosis of another condition, such as ADHD, or be told there is nothing wrong with them. In other cases, children who are not autistic are misdiagnosed. Therefore, in order to ensure the evaluation of children, medical professionals should rely on trustworthy techniques like observation and discussing the child in question with parents, doctors, and therapists in order to establish a diagnosis. They look at three key behaviors that typically serve as the disorder's hallmarks.. The first is social interaction, or a child's capacity to communicate with parents and other children. In the second instance, children may struggle with verbal interactions, mostly depending on grunts and pointing to express their demands. Thirdly, doctors observe repeated behaviors and whether a child has a limited range of interests that may exclude them from other children. Monitoring Network for Autism and Developmental Disabilities.(2015) .

It is uncommon for a single physician to determine and establish a diagnosis of autism because the condition is so diverse and has multiple severity levels. Professionals frequently need to collaborate and discuss notes and observations. The Autism Treatment Center of America (ATCA) suggested two stages for medical professionals to accurately diagnose autism (n.d.), These are the following:

First, hearing tests are typically among the first to be finished since vocal communication may be an issue. After hearing tests are finished, cognitive and linguistic tests are administered, as well as a thorough neurological examination.

Typically, neurologists, speech therapists, and psychiatrists are consulted. Following testing, parents should actively participate in discussions with medical professionals regarding the prognosis and jointly determine the best course of action for therapy.

Notwithstanding mounting proof that ASD is a genetically based neurodevelopmental problem , the majority agrees that an accurate diagnosis of ASD cannot be made before the age of two, despite the fact that many parents report sensing a problem before their child turns twelve months old(29).

8-Rehabilitation in Autism Spectrum Disorder:

Another useful strategy to raise the standard of rehabilitation services for kids with ASD is through systematic rehabilitation policies. There are four subcategories under this category: "Determining the structure and trustee of rehabilitation in the country," "expansion of tele rehabilitation services," "establishment of a systematic monitoring system," and "integration of autism rehabilitation policy in the trustee organizations." These subcategories explain the various fields of systematic rehabilitation, which improves the state of autism rehabilitation services countrywide.

Autism is a distinct form of human development from regular human development, characterized by variations in learning, relationships, communication, emotional expression, and behavior patterns, alternative and supportive communication, relationship therapy, desensitization training, massage, language training (resource and understanding), technology-based interventions, therapy based on Theory of Mind Training, and music therapy are among the promising therapies. Included in the category of unknown therapies are sensory integration, facilitated communication techniques, gluten- and casein-free diets, auditory training, and even zootherapies or electroconvulsive therapies.

8-1 /Physiotherapy:

Every child with an autism spectrum diagnosis, or any other associated pervasive developmental disability, has a unique set of challenges and dysfunctions. There is an unquestionable necessity for therapy to be tailored to each patient's unique degree of intensity.

The patient's personality, as well as his present needs and talents, must be considered in the therapy program. The child's development can only be properly stimulated when the used working methods complement and synergize with one another, rather than negating each other. The prevailing patterns in the world's top facilities for autism spectrum treatment determine the generally accepted intricacy of the interventions that specialized institutions do with children on the spectrum

Thus, comprehensive rehabilitation programs should be developed and implemented by institutions that treat widespread illnesses. These programs should be organized in the areas of social care, therapy, vocational and general education, and rehabilitation. Every child requires therapeutic help, but so does his family, which includes grandparents, parents, siblings, and other individuals who interact with the child frequently(29).

The goal of educational activities is to change the child's behavior in order to achieve the desired results from the work of the therapist and students, develop the capacity to follow instructions, and get rid of aggressive, disruptive, and unfavorable behaviors. This impact zone also aims to introduce a general improvement program, consolidate all learned abilities, and assimilate the child with the educational skills and knowledge required for the implementation of compulsory schooling. Communication exchanges serve as the foundation for the small patient's development of independence, his potential to create his own place in society, and your ability to converse with him through alternate means of communication in the event that vocal communication is not possible.

Occupational therapy and social integration via therapeutic interactions with animals and peers both have a role in this. Physiotherapists can work with autistic children in the field of interaction groups based on supportive therapy. The physiotherapy departments use manual therapy, hydrotherapy, therapeutic massage, physical therapy, and ergotherapy in autism spectrum treatment.

8-2/Neurorehabilitation:

Similar to quantitative indicators in terms of the ratio of beta waves to theta, SMR to theta, and quantitative indicators for functional tests, it is a significant kind of individual therapy intended to intensify the level of attentional concentration. Two categories of impact can be distinguished in neurorehabilitation:

magnetostimulation, which involves applying gradually varying magnetic fields to a patient in order to alter the cerebral cortex's bioelectrical activity. This has a particular impact on a number of other bodily and mental processes as well as on phenomena like focussed attention and a sense of calmness.

Biofeedback training, or EEG, is based on a biological feedback system; the patient learns to emit brain waves at the frequency that the therapist places restrictions on in order to get his body into the desired state of activity (relaxation, concentration of attention)(30).

8-3/Sensory integration

The process of stimulating the nervous system to arrange bodily sensations into a coherent whole that can be utilized for intentional action is called sensory integration. Incorrect processing of stimuli by the vestibular, visual, auditory, olfactory, and taste systems is the hallmark of sensory integration disorders. The analyzers are operating as intended. Clinically, they show up as aberrant attention spans, poor motor coordination, delayed speech development, behavioral issues, and heightened or diminished sensitivity to stimuli. With the help of AI therapy, a child's brain is able to process information from all of their senses, recognize, separate, interpret, and integrate it with previously acquired knowledge to create a response in the form of a suitable motor reaction.

There are three phases involved in working with a child who has autism:

employing a projector with liquid colors or themed dials to focus attention on a moving

image.

using point and laser light.

projecting tasks in ultraviolet light(30).

8-4/ Auditory training:

In ASD, auditory hypersensitivity is frequently observed. Auditory integration treatment (AIT) refers to a group of interventions designed to help individuals with ASD overcome differences in auditory sensitivity. In 1982, Berard's AIT approach was initially established in France. Regardless of one's overall hearing capacity, Berard hypothesized that excessive sensitivity or insensitivity to specific sound wave frequencies was linked to a variety of behavioral and learning issues. He also believed that his approach, called AIT, would "re-educate" the hearing process.

8-5/movement therapy:

When children on the autism spectrum have severe psychomotor agitation or excessive muscle tension, relaxation is utilized to calm them down.

The most popular methods of relaxation are :

- relaxation based on light and sound, which involves conducting private lessons on a waterbed in a dimly lit room while music is played on external speakers or mounted within the waterbed (which adds a gentle vibration effect to the experience)

- surface and deep massage, a full-body treatment that releases adhesions in connective tissue, relaxes the muscles, and stimulates the surface and deep feeling,

- hydrotherapeutic massage, which is administered in a bathtub with hydromassage.

- fragrant baths.

- pearl baths.

- aquatherapy—which consists of therapies administered through textiles (wraps, wrapping, massaging, and washing),

- Water therapy: consisting of group exercises in a therapeutic pool with the goals of promoting socialization, cooperation, and instruction in addition to relaxation(30).

8-6/Structured improvement:

It is a collection of tasks that are part of the tightly outlined parameters of their course. They entail creating permanent structures in a child's environment that are: physical (establishing areas for play, eating, moving, and didactic tasks; eliminating disruptive stimuli; no sudden, drastic changes); visual (materials and teaching aids being visible; using clear, unambiguous pictures and symbols; organizing activities and tasks visually, creating a day plan); visually designating areas in the room with symbols and pictograms; structures in the form of fixed rules, rules and a fixed schema, such as a daily schedule.(

8-7/The Relationship Development Intervention

The Relationship Development Intervention (RDI) approach is predicated on parental work with children in the home. It entails giving parents the resources they need to help their kids learn the abilities that comprise dynamic intelligence and boost their drive to work. It focuses on altering the way that autism is characterized by thought

Parent-autistic children's social interactions are improved with Relationship Development Intervention (RDI)(31)

This theme represents the participants' belief that RDI helps kids with autism develop and meet their life objectives. According to participants, RDI supports children's independence, their capacity to deal with uncertainty and change, and the growth of peer and parent-child interactions, all of which help autistic children attain their full potential.

Relationship-focused therapies recognize that parents have a crucial influence in their child's growth (32). The goal of the parent-led RDI program is to repair the parent-child

"Guided Participation Relationship," in which the child is seen as a "apprentice" who needs the guidance of their parents to navigate new problems.(33)

The demands of each family determine how frequently intervention sessions are held, but in each session, the consultants work closely with parents to ensure that the skills are smoothly integrated into their daily lives.(34)

9-Conclusion:

Autism is a neurobiological disorder that is complex. Although people with autism spectrum disorder (ASD) face particular challenges, there is much that can be done to support and improve their lives. The condition will continue to advance and more opportunities will be available to those with ADS through knowledge and understanding, Occupational therapists typically concentrate on individual treatment when working with children who have ASD, but it's also important to focus on family therapy, group sessions, and counseling. A child with ASD may no longer receive OT if their family is experiencing financial difficulties. Occupational therapists place a lot of focus on the sensory domain when diagnosing and treating individuals with ASD, but they also have a duty to support the person's participation in everyday activities.

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