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Original Article

The Profile of Functional Emotional Development of Children with Autism Spectrum Disorders from the Perspective of Developmental, Individual Differences(DIR), Relationship-based Approach

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Abstract

Introduction

Proponents of the behavioral model believe that children with autism in access to capabilities in achieving love, empathy, language and creative thinking, have significant fundamental defects. Instead model-based development of individual differences relationship offers a new approach in the etiology and treatment of autism spectrum disorders.

Methods and Materials

This study is a descriptive survey with 40 children 4 to 6 years with ASD who were selected with available sampling of official training centers for autism in Mashhad-Iran, also, 40 normal children were selected as a comparison group. Data were analyzed with spss16 software.

Results

Autistic children at the ability to regulate attention, attraction and interest in human relations; exchange of desires, intentions and thoughts with others, shaping ideas and the ability to think logically, have a lower mean and no significant difference was observed between the two groups ($P<0.05$). There was a significant relationship between the frequency observed in autistic children and normal children at the functional domains of emotional development ($P<0.05$). Also, 57.5% of autistic children were seriously deficient in the above capabilities and none of them were placed in the higher range; while 95% of normal children were in the range of moderate to high.

Conclusion

Autistic children in the early stages of functional emotional development had serious defects and the difference, increased a the higher levels of development. This can be verified the evolution of language development and logical thinking and knowledge of the subject, can be effective in the early detection and treatment of this disorder.

Keywords: Autism, Developmental profile, DIR, Functional-emotional development.

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Introduction

Autism is a lifelong developmental disability that affects how a person communicates with, and relates to, other people. It also affects how they make sense of the world around them. It is a spectrum condition, which means that, while all people with autism share certain difficulties, their condition will affect them in different ways. Some people with autism are able to live relatively independent lives but others may have accompanying learning disabilities and need a lifetime of specialist support. People with autism may also experience over- or under-sensitivity to sounds, touch, tastes, smells, light or colors. It is a spectrum condition, which means that, while all people with autism share certain difficulties, their condition will affect them in different ways. Some people with autism are able to live relatively independent lives but others may have accompanying learning disabilities and need a lifetime of specialist support (1-3).

Studies have shown that autism is three to four times more common among boys than girls. Autism has various symptoms raised from neurobiological malfunction of brain, but three symptoms are more common in autistic persons and so used for diagnose autism. These symptoms are including:

- Difficulties in social interaction (nonverbal communication such as: lack of eye contact, facial expression and age-appropriate peer relationships); - Restricted, repetitive or stereotyped behaviors and activities (inflexible adherence to specific routines, pronounced preoccupation with one or more unusual and restricted interests); - Defects in language development and other communication skills (delays or lack of language acquisition, inability to initiate or maintain a conversation and lack of age appropriate play). Nevertheless, non-specific symptoms such as; abnormal sensory perception skills and experiences, motor awkwardness and insomnia the complexity and diversity of autism symptoms, make difficult to identify the causes it (4-7). Autistic spectrum disorders are complex developmental disorders, associated with the well-known symptoms of social and communication difficulties, self-stimulatory and repetitive behaviors, and narrow or overly-focused interests. These symptoms result from underlying challenges in a child's ability to take in the world through his senses, and to use his body and thoughts to respond to it. When these challenges are significant, they interfere with a child's ability to grow and learn, and may lead to a diagnosis of autism (8).

Autism and related conditions
Children with difficulties in relating and communicating may fall within a broad spectrum of disorders that includes language processing disorders, attention disorders, sensory or regulatory disorders, and what are often labeled as autistic spectrum disorders (ASD), such as pervasive developmental disorder-not otherwise specified (PDD-NOS), Asperger's syndrome, or autism. These disorders often involve a number of different underlying problems, including:

- ✓ Taking in sensations or information: the child may be under or over reactive to the information received through his senses of vision, hearing, touch, smell, taste and body awareness;
- ✓ Processing information: the child may have difficulty understanding or organizing the sensory information he receives;
- ✓ Planning or executing responses: the child may have trouble using his body or his thoughts to respond to the information

he has taken in.
A child may develop unusual or troubling behaviors in response to these difficulties. For example, a child may be so under-reactive to sensation that he spins in circles in an attempt to increase his sensory input; another child, overwhelmed by the confusing information he's receiving about his world, may withdraw, finding security in lining up his cars over and over again. Examples of behaviors parents may observe, by area of difficulty, are:

Relating and emotion

- ✓ A tendency to avoid interaction difficulty paying attention to
- ✓ Or making eye contact with others
- ✓ Repetitive statements, play, or
- ✓ Behaviors
- ✓ Failure to develop pretend play
- ✓ Intense fears about ordinary objects, activities or events

Language/communication

- ✓ Problems following simple directions
- ✓ Echolalia autism, or repeating what has just been said
- ✓ Difficulty making needs and desires known by gestures, words or play

Regulatory and sensory-motor

1. Difficulty dealing with changes in environment
2. Avoidance of hugs or light touch
3. Does not point to show you things
4. Poor coordination
5. Self-stimulatory behaviors: spinning, hand flapping, head banging.

Today, specialists, expressed autism based on the causal model which for the formation of disorder several factors are interact. Greenspan and Wieder after 8 years of depth observation in development of children with autism, provided a model for the etiology and treatment of these children, as a development model based on the relationship with individual differences is known. It is a comprehensive and integrated model of human development explaining typical and atypical development including autism spectrum disorders (9-13).

The DIR model

The DIR model attempts to facilitate understanding of children and their family by identifying, systematizing, and integrating the essential functional developmental capacities. These include the child's (a) functional-emotional developmental level, (b) the child's individual differences in sensory reactivity, processing, and motor planning, and (c) the child's relationships and interactions with caregivers, family members, and others.

The developmental, individual difference, relationship-based (DIR) model is a framework that helps clinicians, parents and educators conduct a comprehensive assessment and develop an intervention program tailored to the unique challenges and strengths of children with ASD and other developmental challenges. The objectives of the DIR model are to build healthy foundations for social, emotional, and intellectual capacities rather than focusing on skills and isolated behaviors.

The DIR teaching method

DIR stands for Developmental, Individual Differences, and Relationship-Based Model. These three elements are paramount to Clear Horizons Academy's approach and program.

Developmental

The DIR model focuses on the developmental levels of each student. Many children with ASD and other learning disabilities have reached some developmental milestones while others are still missing. We seek to build a strong foundation of development, filling in the holes where skills may have been missed along the way.

Individual differents

Our program is not a cookie-cutter approach, but is instead tailored to the individual differences and needs of each child. The DIR method focuses on what each specific child needs to communicate, learn and become engaged in our world. There are no two children exactly alike, and the way they learn needs to be as unique as they are.

Relationship-based

A relationship-based model is imperative for children on the autism spectrum. relationships are the key to nearly everything we do. It's the motivation for our actions and needs to be worked on in order to interact with others.

Floortime, an important element of the DIR method, is a specific technique of both following a child's lead, as well as challenging the child towards greater and greater mastery of social, emotional and intellectual capacities. Floortime gets its name from the playful interactions that often occur on the floor, but it may also include conversations and other activities which are focused on the goal of increasing back-and-forth interaction and communication between child and adult.

DIR is an ideal way to help children with autism because it can include many different components that a child needs to learn at his/her best. It involves a team approach with speech therapy, occupational therapy, educational programs, and other interventions. DIR uses "affect" to fuel learning. Affect is using facial expressions, emotions, interest and intonation (in other words – drama) to help teach concepts. By working play and affect into our teaching, we use a child's strengths to help build skills such as communication, motor planning, problem solving, social skills, imaginative play, understanding emotions, taking turns, following directions, flexibility, and so on. By making learning fun and unique to that child's interests, we capture their attention and show them how great learning can be, while challenging them to move up the developmental ladder to their reach their potential.

The DIR developmental assumptions:

1. Language, intelligence, personality, and social skills are learned through meaningful relationships;
2. Emotions play an important role in integrating all human development aspects;
3. Underlying sensory processes determines how learners interpret and learn from their environment;
4. These children potentially have the capacity for having a warm, empathic and loving relationship;
5. The primary challenge that most children with autism have, is in the communication of their emotions;

6. This difficulty originate from their difficulty in connecting their emotions to their motor system(motor planning and sequencing disorder as a biological challenge);
7. Autistic children can't sequence their actions under the guidance of their emotional intent or their desires. So they can have the desire for closeness but they can't figure out how to translate that into an action plan(pointing or gesturing);
8. Autistic children can learn the fundamentals of relating, communicating, and thinking and we can do far more than just change their surface behaviors;
9. Autistic spectrum disorders are considered as a dynamic process where it's not a fixed disorder that the child either has it or doesn't, but rather there;
10. Are certain challenges (such as the inability for reciprocal affect cutting or the tendency to self-absorb and become withdrawn) to varying degrees;
11. With having therapeutic interventions, there are varying degrees of progress possible depending on the amount of neurological impairment children have. So, the potential of each child should be defined by the child's progress, not by a diagnostic label (9-17) .

Methods and Materials

This study was a descriptive survey. Our research society were children 4 to 6 years with ASD, who were referred to the official training center for autism (Noor Hedayat) in Mashhad-Iran, and among them, 40 children with available sampling, were selected according to the study entry criteria. 40 normal children that were matched with autistic children in sample group were selected as a comparison group; in this way the of three district of the municipality of Mashhad, then in each region, three kindergarten that were matched the level of parental education, socio-economic level of the family and number of children were matched with children with autism, 40 children were selected. The diagnosis was made by a child psychiatrist based on DSM-IV-TR criteria and using autism diagnostic interview-revised (ADIR) and autism diagnostic observation schedule (ADOS).

In this research, childhood autism rating scale was (CARS) used to assess the severity of symptoms in children. CARS is a behavior rating scale intended to help diagnose autism. It was designed to help differentiate children with autism from those with other developmental delays, such as mental retardation. Although there is no gold standard among rating scales in detecting autism, CARS is frequently used as part of the diagnostic process. Development of the CARS began in 1966 with the production of a scale that incorporated the criteria of Leo Kanner (1943) and Creak (1964), and characteristic symptoms of childhood autism. CARS is a diagnostic assessment method that rates children on a scale from one to four for various criteria, ranging from normal to severe, and yields a composite score ranging from non-autistic to mildly autistic, moderately autistic, or severely autistic. The scale is used to observe and subjectively rate fifteen items:

1. Relationship to people;
2. Imitation;
3. Emotional response;
4. Body;
5. Object use;
6. Adaptation to change;
7. Visual response;

8. Listening response;
9. Taste-smell-touch response and use;
10. Fear and nervousness;
11. Verbal communication;
12. Nonverbal communication;
13. Activity level;
14. Level and consistency of intellectual response;
15. General impressions.

CARS can be completed by a clinician or teacher or parent, based on subjective observations of the child's behavior. Each of the fifteen criteria listed above is rated with a 7-point score. Lower scores indicate less severity of Autism. Total CARS score indicates total score of severity about ASD (12-17).

In this study, to investigate the developmental profiles of children; was applied the functional. emotional developmental scale (FEAS). The scale designed by Greenspan in order to evaluate the functional and emotional development of children; It includes 35 components (13).

Functional emotional assessment scale

The functional emotional assessment scale (FEAS) was developed as a criterion-referenced instrument for children ranging in age from 7 months through 4 years of age. It was designed to measure emotional functioning in children with constitutional and maturation-based problems (e.g., regulatory disorders), children with interactional problems leading to a variety of symptoms such as anxiety, impulsivity, depression, etc., and children with pervasive developmental difficulties. This includes children who experience constitutional or developmental maturational problems, such as those with regulatory disorders or pervasive developmental disorder, as well as caregivers and children with relational problems, such as attachment disorders, or children from multi-problem families with a variety of interactional difficulties (e.g., anxiety, depression, impulsivity, etc.). The FEAS provides a systematic assessment of the child and caregiver's functional emotional capacities. For infants and young children, these capacities include the child's ability to organize play interactions with objects and persons, to self-regulate mood and organize attention, to form an attachment with the caregiver, to engage in reciprocal emotional interactions and communications, and to represent feelings and ideas and engage in emotional thinking through play interactions. Caregiver behaviors are evaluated in relation to their capacity to support their child's development in each of these areas. Parents of children are scored the inventory with 6 options based on the Likert scale. In the study of Brayan pour, concurrent validity of the scale with Billy Scale III, in subscles fine and coarse 18% , cognitive 23%, compliance of exchange 25%, expression of exchange 25%, and language 25% is reported and with Billy scale II the subscales of mental, motor and the subscales measure of behavior, is reported respectively 25%, 24% and 38% .The correlation of FEAS with Wechsler intelligence scale for children (WISC) in the subscales of verbal IQ, performance and overall, is reported respectively: 0.53, 0.27 and 0.43 and inter-rater reliability of this scale is obtained 0.90 (14).

In the functional emotional developmental questionnaire Greenspan, people by giving score at each stage of development, placed in one of the following domains (Table.1).

Table.1: Index scores of functional emotional development

Stages	Serious defects	Average	Solid	Excellent
First	0-18	19-28	29-33	34-55
Second	0-38	39-46	47-50	5-65
Third	0-49	50-57	58-61	62-75
Fourth	0-65	66-76	77-83	84-105
Fifth	0-89	90-106	107-116	117-140
Sixth	0-98	99-124	125-136	137-175

In this table, grading criteria, offered in six stages of functional emotional development, that the first to the sixth stage, including:

1) Joint attention and regulation; 2) Uptake in human relations; 3) Signaling and voluntary mutual emotional exchange; 4) The ability to form long chains of con-regulated signaling emotional and social problem solving; 5) Create representations and 6) Bulding the logical bridges between their ideas (14). Children's grades from the questionnaires, the classification is based on four indicators describing them are given below: The first column is (seriously deficient): these children are seriously deficient and should be referred to medical centers for treatment. The second column (average): These people are moderate emotional growth, these children are at risk and may be challenged in the future, therefore, preventive measures should be taken for them. The third column (solid): those who remained in good condition and there is not the particular problems. The fourth column (excellent): These children of emotional growth, are excellent condition (14). The data were collected and after coding, entered into SPSS software version 11.5. Then the data were analyzed with descriptive tests (Mean- the frequency distribution table - chart) and analytical tests (ANOVA – Chi-square test).

Results

According to (Table.2), normal children compared with autistic children, in the emotional development of functional, had higher than average and on the basis of the data (Table.3), this difference could be observed in all stages of growth.

Also, according to the data (Table 4 and 5) and the chi-square test ($X2= 34.22$, $df = 3$, $P<0.001$), among frequency autistic children and normal children, there was a significant difference in emotional development at various domains ($P<0.05$).

Also, 57.5% of autistic children were seriously deficient in functional and emotional development and none of them weren't reached to the stage of excellent the sixth level, while 95% of normal children were in the domain of moderate to high.

The results showed by classifying DIR, 18 children have type I of autism, 20 children have type II and children have autism with type III. Results showed that 5.72% of autistic children, demonstrated the ability to set and respect and none of them have not been seriously deficient in this area, but

45% of these children in the attraction to humans have the seriously deficient (Tables. 4, 5).

Table 2 : Descriptive statistics relating to the emotional development of functional in children

Variables	Statistical Indicators	Number	Mean	Standard deviation	Minimum	Maximum
Functional Emotional **Growth**	Normal	40	127.68	20.97	90	175
	Autistic	40	93.55	22.08	53	135

Table 3: Descriptive statistics relating to the emotional development function in normal and autistic children, of the separation process

Variable of emotional growth	Subjects	Number	Mean	Standard deviation	Minimum	Maximum
The first step	Normal	40	43.97	5.47	32	55
	Autistic	40	36.22	8.63	20	48
The second step	Normal	40	53.90	6.11	38	66
	Autistic	40	43.27	10.25	24	56
The third step	Normal	40	64	7.65	42	76
	Autistic	40	49.30	12.10	27	66
The fourth step	Normal	40	90.52	12.15	66	106
	Autistic	40	64.30	19.91	22	91
The fifth step	Normal	40	111	14.91	80	140
	Autistic	40	82	21.26	46	119
The sixth step	Normal	40	127	20.97	90	175
	Autistic	40	93	22.08	53	135

Table 4: Results of analysis of variance to compare the functional and emotional development of children with autism and normal with separately levels

Stages	df	Mean square	F	P.value
The first level	1	1201.25	22.965	0.000
The second level	1	2257.81	31.688	0.000
The third level	1	4321.80	42.125	0.000
The fourth level	1	13755.01	50.517	0.000
The fifth level	1	16302.05	48.304	0.000
The sixth level	1	23290.31	50.221	0.000

Table 5: Frequency of autistic and normal children observed according to development levels in each of the domains

Levels	Statistical Indicators	Serious defects	Solid (%)	Average (%)	Excelent (%)
The first level	Autistic	0	11(27.5)	7(17.5)	22(55)
	Normal	0	0	2(5)	38(95)
The second level	Autistic	18(45)	3(7.5)	1(2.5)	18(45)
	Normal	1(2.5)	3(7.5)	36(90)	0
The third level	Autistic	20(50)	3(7.5)	8(20)	9(22.5)
	Normal	3(7.5)	4(10)	7(17.5)	26(65)
The fourth level	Autistic	20(50)	5(12.5)	5(12.5)	10(25.5)
	Normal	0	6(15)	6(15)	28(70)
The fifth level	Autistic	23(57.5)	6(15)	10(25)	1(2.5)
	Normal	2(5)	13(32.5)	12(30)	13(32.5)
The sixth level	Autistic	23(57.5)	15(37.5)	2(5)	0
	Normal	2(5)	17(42.5)	9(22.5)	12(30)

As the results (Table.5) shows; emotional development in children with autism and normal function, at all levels of development, there was a significant differences($P<0.05$).

Discusion

The developmental, individual difference, relationship-based (DIR) approach that Greenspan, who has offered it in 1997; healthy development of children as a product of factors integration of biological, psychological and social in passing through the stages of development and access to attention and planning abilities, absorption in human relations, emotional exchange, shared social problem solving, logical thinking and creating representations expressed (9).

Contrary to the belief Kanner, that standing that autistic children are incapable of love and shaping emotional ties (12), Greenspan believed that these children have a sense of love, especially the mother, father and their primary caregivers; however, due to regulatory sensory profile different from normal children, gradually deviates from the path of transformation are and in the formation of language and create representations are seriously impaired. The

findings of this study, is approved the Greenspan's assumptions about the differences between functional and emotional development profile of autism and normal development. Autistic children in this study, showed a moderate rate the ability of regulate attention and interest in human relations, however, the levels of emotional signaling, representation of ideas, shared social problem solving and logical thinking, had seriously deficient. This finding is consistent with the results of Greenspan and Wieder (9).

The DIR model provides a developmental framework for conceptualizing the relationships among the areas of functioning central to autistic spectrum and other non-progressive developmental disorders. In helping to conceptualize various developmental dimensions, it also may facilitate understanding of the assessment and intervention process. The DIR model, however, is not an assessment tool or a discrete intervention. Rather, it helps to systematize many of the traditionally helpful assessments and interventions and to emphasize elements of a comprehensive approach that are often ignored or only dealt with superficially. Early detection of autism spectrum disorders is difficult, unfortunately, the parents of autistic children that's because autism is incurable diseases know and suggest that autistic children lack the ability to communicate, than to receive this diagnosis they fear and in the hope that the child is no disorder, lose valuable time; However, based on the evidence, many months before parents express concern that, from the early days and months, early signs of autism spectrum disorders in children developed and their developmental profiles, as this study shows, has been quite different from normal children. Unlike theories that considered autism is to be the result of defects sustainable, autism DIR approach considers a dynamic process and not a static that if diagnosed early, intervention programs that designed based on learning emotional relationships, fits the profile of a child's developmental and emotional regulation, can extended side paths of development when the main roads are relatively deficient. Therefore, early diagnosis and early intervention, it is necessary chanced the diagnostic criteria for this disorder and rather repetitive behaviors, stereotypes, and self motivation, the ability of the child in the warm and cordial relations, exchanged emotional references and meaningful and creative use of language, is considered the diagnosis of this disorder. So that if the child does not act on these three core competencies accordance with age-appropriate is at risk for autism spectrum disorder and require early intervention (9-25).

Conclusion

The results of this study indicate that autistic children in the early stages of functional emotional development, in comparison with normal children, had serious defects and this difference, increases at higher levels of development. This is confirmed by on the development of logical thinking and language development, because every step is a step to another

level. The results of this study, supports of the model development, individual differences based communication, about autism is a developmental disorder and achieving to communication skills, social communication and thinking and follow the developmental profiles of children with autism spectrum disorder of this transformation process, proves the regardless of cultural and linguistic differences in this sample.

Conflict of interests

The authors have no potential conflict of interest, real or perceived.

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