Differential Diagnosis of Autism and Asperger's Syndrome

Khaled Abd-El Razek Al Najjar*

*Professor of Psychology Faculty of Kindergarten Cairo University

Abstract

Differential diagnosis through systematic observation has been regarded an effective tool to overcome the problems of misdiagnosing and overlapping between autism and Asperger. The author used the systematic observation method (time sampling) in the differential diagnosis of the behavioral characteristics of autistic and Asperger cases between 5-7 years old. The sample consisted of 18 children who were divided into 9 autistic children and 9 Asperger children. The author developed an observation checklist for the behavioral characteristics which contained four dimensions (stereotypic motor responses – social responses – linguistic responses – emotional responses – and the total score). The items of the checklist were chosen according the DSM-IV criteria of diagnosing both autism and Asperger. Results asserted the efficacy of systematic observation through time sampling method in discriminating autistic and Asperger children. The results showed many diagnostic criteria that may be used to differentiate between autistic and Asperger children. ***Conclusion****: caution must be taken in diagnosing autistic and Asperger cases due to the overlapping of these both disabilities. Many behavioral characteristics that may be used to discriminate between these two disabilities had been pointed out.*

***Keywords*:** differential diagnosis, Autistic disorder (AD), Asperger's syndrome (AS)

Introduction

The differential diagnosis between Autistic disorder (AD) and Asperger's syndrome (AS) in most cases is quite difficult since most of the symptoms are clinically undistinguished. They are two conditions within the broad category of the Autism Spectrum Disorders (ASDs) that are often overlapping and characterized by social-communication impairment and over-focused, repetitive interests and behaviors, without any significant learning disabilities or language delay in the case of AS. Individuals suffering from AS/ASD typically show pedantic speech often with monotonous or exaggerated vocal intonation (Klin et al., 2005), poor nonverbal communication (Adel Abdullah Mohammed, Mourad Ali Eissa, 2014) and motor clumsiness. Despite AS and classic autism both belonging to the same category of ASDs, individuals with AS tend to show a distinct pattern of social impairment that seems to be milder than in classic autism (Ghaziuddin,2008), and it has been hypothesized that the differences between AS and classic autism may be both quantitative and qualitative.

Symptoms of Autistic and Asperger's Disorders

The etiologies of the various ASDs are relatively unknown, but what is know is that they have overlapping symptoms as outlined in the diagnostic criteria . More specifically, diagnostic criteria comprising the socialization and repetitive behaviors and restricted interests do mains are exactly the same for AS and AD The same symptoms related to social deficits in AD and AS are also symptomatology associated with a diagnosis of PDD NOS, but are less specified (APA, 2000).

Impairments in Social Interactions.

Both children with AD and children with AspD show impairments in their ability to interact socially with others. Social interaction impairments may be manifested a number of ways and can range from relatively mild to severe in their influence on a child's functioning within the family and school environment. Furthermore, both AspD and AD are

developmental disorders, thus, symptoms and behavioral characteristics change as a child develops (Stone, 1997).

Preschool children with AD may show little interest in others (sometimes referred to as being "aloof"), may exhibit little eye contact, and fail to engage others in a manner typical for their age (e.g., pointing while making eye contact). They are frequently described as being delayed in the development of interactive play with peers (Stone, 1997). As the preschooler with AD grows older, he or she frequently does not establish typical peer relationships. Reduced eye contact as well as reduced use of other nonverbal behaviors generally utilized by normal peers to engage others and regulate social interactions may also continue to be a common behavioral manifestation (Loveland & Tunali-Kotoski, 1997; Mayes & Calhoun, 1999; Volkmar, Carter, Grossman, & Klin, 1997). As the children with AD grow into adolescents and then adults, social interaction difficulties typically continue. Some show increased interest in interacting with others; but, due to poor social skills, have difficulty establishing and maintaining interpersonal relationships. Adolescents and adults with AD frequently have difficulty understanding what others are thinking or feeling and also experience difficulty identifying and understanding the subtle and generally unspoken "rules" of social interactions (Mesibov & Handlan, 1997; Volkmar, Carter, Grossman, & Klin, 1997). As noted previously, the DSM-IV does not differentiate between AD and AspD with regarding to social interaction impairments.

Restricted Interests and Activities

In addition to socialization, AD and AspD also affect behavior and play, which is atypical for age, repetitive, stereotyped, and rigid in nature. Children with AD often engage in unusual and repetitive motor mannerisms such hand-flapping or spinning. In addition, they commonly have difficulty adjusting to changes in their schedule or routine and may engage in severe behavioral outbursts when such changes are implemented or insisted upon. Unusual play patterns include a preoccupation with lining up their toys or playing with a toy in a repetitive and atypical manner (e.g. spinning a toy car repetitively rather than engaging in more typical imaginative play). Parents commonly report that their young children with AD do not engage in imaginative play typical for their age (American Psychiatric Association, 1994; Stone, 1997). As these youngsters grow older, they may concentrate on one topic or interest to the exclusion of all others and exhibit difficulty shifting their attention to other activities. They may be described as "long-winded" as they perseverate on a favorite topic (American Psychiatric Association, 1994; Loveland & Tunali-Kotoski,, 1997; Mayes & Calhoun, 1999). The DSM-IV does not differentiate AD from AspD in this symptom domain.

Impairments in Communication

As with the continuum of manifestations of social impairment present among youngsters with AD and AspD, the communication impairment, necessary for a diagnosis for AD, lies on a continuum from relatively mild to severe (Loveland & Tunali-Kotoski, 1997). One of the most common early symptoms of AD is delayed language development. Some preschoolers with AD remain mute or develop very limited communication skills while other children with AD develop speech, but it is noncommunicative and characterized by pronoun reversals, unusual intonation, echolalia or scripts from movies, television, or family members (American Psychiatric Association, 1994; Loveland & Tunali-Kotoski, 1997; Mayes & Calhoun, 1999).

In still other cases, children's language seems to "catch up" to that of his or her peers. However, even among highly verbal children with AD, communication impairments remain

into adolescence and adulthood (American Psychiatric Association, 1994; Lord & Paul, 1997; Mesibov & Handlan, 1997). These difficulties are exemplified by difficulty initiating or sustaining a conversation. Voice tone and volume may be poorly modulated. In addition, highly verbal adolescents and adults with AD are often excessively concrete and literal in their use of language (Mesibov & Handlan, 1997). As noted previously, according to the DSM-IV, children with AspD have no impairment in their language and communication skills. However, because communication is, by nature, a social act, the distinction between communication and social interaction impairments can be ambiguous.

The distinctions between autism and Asperger's syndrome are in terms of the developmental course, qualitative characteristics of the criteria and in severity, with autism being more severe. Some (Tanguay, Robertson, & Derrick, 1998; Tryon, Mayes, Rhodes, & Waldo, 2006) have argued against the necessity of a separate diagnostic classification for Asperger's, arguing that Asperger's is really a milder form of autism that is poorly handled by the current DSM classification. Others go so far as to say that a DSM–IV (APA, 1994) diagnosis of Asperger's disorder is unlikely (Mayes, Calhoun, & Crites, 2001) or "virtually impossible" (Szatmari, Archer, et al., 1995, p. 1669).

Due to substantial overlap of *DSM– IV* (APA, 1994) criteria in the autism spectrum and lack of uniform acceptance of its differentiating diagnostic criteria, clinicians have been found to utilize the formal criteria plus additional factors when differentiating these disorders (Eisenmajer et al., 1996; Sciutto & Cantwell, 2005). Neuropsychological profile, brain imaging and lateralization studies suggest that there may be differences in brain functioning between AS and AU (Dawson et al., 1995; Rinehart, Bellgrove, et al., 2006; Rinehart, Bradshaw, Brereton, & Tonge, 2002a, 2002b; Rinehart, Bradshaw, Moss, Brereton, & Tonge, 2001; M. Thompson et al., 2009). Many diagnostic mistakes have been reported between Asperger and autism cases. So, it has become a necessity to use the systematic and direct observation through using time sampling method which helps in presenting a psychological profile that has the ability of discriminating and differentiating between Asperger cases and autism cases. The current study tries to answer the following question:

Are there statistically significant differences between the behavioral characteristic of autistic cases and Asperger cases according to the items of the checklist of the behavioral characteristics (prepared by the current researcher) which consisted of the following dimensions (stereotypic motor responses – social responses – language responses – emotional responses – and the total score) ?

Method and Procedures

Sample

The sample of the current study consisted of 18 children who are divided into 9 autistic children and 9 Asperger children. Age range was 5-7 years who are placed in AlAmir AlSaghir (the young king) center for children with special needs and Eshraqa (Shine) center for children with special needs in Alharm district.

Criteria of selection

The researcher reviews the documents of the children to make sure that they are eligible for the current study. The researcher also holds meetings with the supervisors and workers in the two centers to get information about the intervention programs presented to the

children which cannot be stopped or postponed. Thus the researcher specifies a period to collect data from 9-12 daily.

Instruments

Behavioral characteristics observation checklist.

The researcher uses the systematic observation because it is considered the most available technique that observes spontaneous behavior in real situations. Beaty, J, (1994)stated that there are two basic kinds of observation which are:

1- *Event sampling*. In this kind of observation, the observers are waiting for the appearance of a specific behavior
2- *Time sampling.* Observation is done to a specific behavior of an individual or a group. This specific behavior is frequented and easy to be seen and recorded in short periods that is limited by time limit. The researcher sets up observation periods and defines the observed behavior. So the time sampling is useful in determining the number of frequencies of the target behavior in a specific period.

The researcher uses the systematic observation by using time sampling method due to its scientific accuracy and control in the processes of recording responses. This method is also preferred due to the easiness of validation.

Development of the checklist

The steps of the development of the checklist may be summarized as follows:

1- Defining the target behavior

2- The researcher carried out many visits to the centers chosen for carrying out the study. The researcher recorded many observations and notes about behaviors of both autistic and Asperger children. The researcher also attended the procedures of diagnosis and development used in these centers and the instruments used in this process and the responses of these children to the psychological, social, educational and behavioral interventions and programs presented in these centers.

3- The researcher reviewed the instruments and the observation checklist used in evaluating and diagnosing autistic children.

4- The researcher took a behavioral sample through video recordings to a period not less than three hours for each center.

5- The researcher transcribed the video recordings according to the dimensions of the diagnosis of autism and Asperger in the DSM-IV which are stereotypic motor responses – social responses – language responses – emotional responses. The researcher removed the behaviors repeated in more than one dimensions.

6- The researcher defined the operational definition of the behavioral characteristics under examination. These definitions may be summarized as follows:

- Stereotypic motor responses.This involves the responses of the great and small muscles. These responses were 18 responses: permanent seating, swinging, rocks his/her head back , moves his/her fingers, shakes his/her hands, shakes his/her body, screaming without reason, throwing things, wraps things in a similar method, flapping his/her hands, plays repetitively, moves without purpose, irritates if any attempts to prevent him/her of performing stereotypical movements, hits his/her head with his/her

hand, hits his/her head with table, crabs others with fingernails, body permanent movement.

- Social Reponses .This involved the responses that describe the forms of interaction between the child and his peers or others around him (trainers, teachers, professionals) either in solitary, collectively, or cooperatively. The items of social responses are: Communicates visually with others, looks in others' faces for short periods, plays alone, play make-believe or pretend play activities, participates in social activities, accepts hugging and touching from others, cooperates with others, imitates others, show concern for things, aware of others in different situations, shows curiosity, waits for his/her turn, seeks help from others, prefers group situations, perceives others in situations
- Linguistic responses. This involved the responses that reflect all forms of verbal and non verbal communication and the ability to use language in interaction and communicating with others. The items for linguistic responses are: Seems not to hear, shows repetitive sounds, uses gestures, starts communication, very sensitive for high sounds, unable to read, uses face and hands expressions , unable to speak, has the ability of continuing talking , understands simple orders, uses pronouns appropriately , pronounces or speaks with unknown words and sentences , repeats sounds or speech, pronounces one word , pronounces clear sentences, stretches speech.
- Emotional responses. This involved the responses that may be accompanied with emotions that are directed towards self or others. The items for emotional responses are: Hurts himself/herself, irritates for unknown reasons, passive; showing no attention, resists play activities, destroys things, sucks his/her fingers, bites and hits others , has a smiling face , express his emotions, consider others' emotions, laugh or cry without reason, estimates risks , irritates when prevented from some actions.

7-The checklist contains 66 items on five subscales: (a) Stereotypic responses(19 Items), (b) Social responses(15 items), and (c) Linguistic responses(17 items), (d) Emotional responses(15 items).

8-Determining the observation period. The researcher determined a 45 minutes time period that is divided into 9 periods (every period 5 minutes) three times daily. The observation period continued three inconsecutive days according to the time table prepared by the researcher in coordination with the management of both centers.

9 The method of recording the frequency of response. The observers put true √ sign before the response observed (stereotypic, social, linguistic, or emotional responses. The researcher designed an independent form for each child (9 forms for each child). The researcher uses the systematic shared observation. The observers were permitted to participate with the children in the activities.

10- The researcher uses four teachers of special needs (graduates of faculty of kindergarten and attained special diploma of exceptional children. Those teachers were trained for five days on using the checklist. The procedures of the study didn't begin before the correlation coefficient between the observers reached 0.85. The process of recording observations were individually made and in special forms for each child. Internal consistency reliabilities ranged from .96 to .97 for the two scale totals and from .81 to .95 for the subscales.

Results and discussion

There are statistically significant differences between the total score of frequencies of behavioral responses of autistic children and Asperger children in the subscales of the observation checklist of the behavioral characteristics (stereotypic motor responses – social responses – language responses – emotional responses – and the total score) in favor of Asperger children.

Table 1. *The results of the differences between the frequencies of the behavioral responses of autism cases and Asperger cases on the subscales of the observation checklist.*

Subscales	Autistic cases	Asperger cases	Number of items	Freedom scores	Value	Significance level	Direction of Significance
stereotypic motor responses	373.5	367,5	19	1/2	0.08	Not sig.	
Social responses	305	130	15	1/2	3.49	0.01	Asperger cases
Linguistic responses	365.5	264.5	17	1/2	1.37	0.05	Asperger cases
Emotional responses	213.5	251.5	15	1/2	0.14	Not sig.	
Total score	4894.5	3883.5	66	1/2	2.3	0.05	Asperger cases

The results showed that there are statistically significant differences between the total score of frequencies of behavioral responses of autistic children and Asperger children in the dimensions of the observation checklist of the behavioral characteristics (social responses – language responses) and total score in favor of Asperger children. There are no statistically significant differences between the two samples in stereotypic responses and emotional responses. These results refer to the partial validation of the hypothesis.

These results reflect the extent of similarity between these two samples which make a kind of overlap and misdiagnosis between these two samples. These results also shed light upon the extent of differences between these two samples which give us a better view and more effective and exact results.

These results are consistent with the results of the previous studies and the theoretical literature about the differential diagnosis between autistic and Asperger children (Crites, Calhoun, and Mayes. 2001; Klin et al, 2005) which pointed out that there are statistically significant differences between the linguistic and social responses. There are no statistically significant differences between the two groups in both emotional and stereotypic responses.

The researcher considers that agreement is not enough for discriminating between these disabilities which are so similar. This similarity is reflected in results which were so varied in the dimensions of the checklist. These symptoms are differing either in qualitative or quantitative aspects. There were no cases that have been reported to have all symptoms of the disorder. So the researcher suggests that there must be a new diagnosis that depends upon the difference between these two samples within the same subscales.

Table 2. *The results of the differences between the frequencies of stereotypic responses of autism and Asperger cases in the frequencies of the items of the stereotypic responses subscale.*

Items	**Autistic cases**	**Asperger cases**	**Chi square**	**Level of significance**	**Direction**
Seats permanently	218	86	27.6	0.01	Autistic cases
Swinging	108	121	0.8	Not sig.	
Rocks his/her head back and forth	111	98	0.7	Not sig.	
moves his/her fingers	305	288	0.5	Not sig.	
Claps his/her hands	265	273	0.12	Not sig.	
Rolls around him/herself	411	365	2.6	Not sig.	
Shakes his hands	99	121	2.2	Not sig.	
Shakes his/her body	86	70	3.2	Not sig.	
Screaming without reason	94	81	3.4	Not sig.	
Throws things	149	166	3.9	0.05	Asperger
Wraps things in a similar method	312	279	3.8	0.05	Autistic cases
Flaps his/her hands	475	501	2.7	Not sig.	
Plays repetitively	199	217	3.8	0.05	Asperger
Moves without purpose	175	288	7.3	0.01	Asperger
Irritates if any attempts to prevent him/her of performing stereotypical movements	28	98	5.1	0.05	Asperger
Hits his/her head with his/her hand	22	18	1.2	Not sig.	
Hits his/her head with table	19	7	3.9	0.05	Autistic cases
Crabs others with fingernails	8	3	3.1	Not sig.	
Moves body permanently	45	215	26.2	0.01	Asperger

The results indicated that there were no statistically significant differences in some items of the stereotypic dimension between autistic and Asperger cases which are: Swinging, rocks his/her head back and forth, moves his/her fingers, claps his/her hands, rolls around him/herself, shakes his hands, shakes his/her body, screaming without reason, flaps his/her hands, hits his/her head with his/her hand. These items (which related with the stereotypic motor behaviour such as rolling around self or rocking, and resisting any efforts to stop these stereotypic behaviours) didn't have any discriminative value between these two samples.

The results also pointed out that there were statistically significant differences between the two samples in some items of the stereotypic dimension in favor of autistic children: Seats permanently, Wraps things in a similar method, Hits his/her head in table, Hits his/her head in table. This means that these items have discriminative value between the two samples. Some items also were in favour of Asperger children: Throwing things, playing repetitively, moving without purpose, Irritates if any attempts to prevent him/her of performing stereotypical movements, Moving body permanently. These responses can be used in discriminating between autistic and Asperger cases. These results are consistent with the results of (Miller & Ozonoff, 1997); (Klin et al., 2005). These studies have pointed out that there are statistically significant differences between autism and Asperger cases in the stereotypic motor responses dimension. Autistic cases are in essence more severe in symptoms and the factors of developmental deficit. Despite the results revealed no statistically significant differences

between autistic and Asperger cases on the total score of stereotypic motor dimension, the analysis of the items of this dimension revealed some similarities and differences between autistic and Asperger cases.

Table 3. *The results of the differences of the frequencies of social responses of autism and Asperger cases in the frequencies of the items of the social responses subscale.*

Items	**Autistic cases**	**Asperger cases**	**Chi square**	**Level of significance**	**Direction of significance**
Communicates visually with others	6	85	16.2	0.01	Asperger
Looks in others' faces for short periods	18	109	15.4	0.01	Asperger
Plays alone	86	98	2.6	Not sig.	
Play make-believe or pretend play activities	1	5	1.3	Not sig.	
Participates in social activities	23	131	4.6	0.05	Asperger
Accepts hugging and touching from others	6	87	5.3	0.05	Asperger
Cooperates with others	2	66	6.7	0.01	Asperger
Imitates others	14	61	5.8	0.05	Asperger
Show concern for things	9	118	7.2	0.01	Asperger
Aware of others in different situations	4	45	6.5	0.05	Asperger
Shows curiosity	7	154	7.8	0.01	Asperger
Waits for his/her turn	16	193	9.1	0.01	Asperger
Seeks help from others	2	91	8.3	0.01	Asperger
Prefers group situations	19	172	9.4	0.01	Asperger
Perceives others in social situations	29	208	7.6	0.01	Asperger

The results shown above revealed the superiority of Asperger cases in the items of the social responses subscale and the total score of the subscale. The most exciting result is that no items were in favor of autistic cases. These results pointed out that there were statistically significant differences between the two samples on the social responses dimension which asserts that the social responses are considered one of the most basic differences between these two samples. More focus should be given to these social responses in diagnosing both autistic and Asperger cases.

The results revealed that there were no statistically significant differences between autistic and Asperger case on only two items: Playing alone, playing make-believe or pretend play. This may explain that both samples have a great difficulty in playing due to the solitary nature of their playing .their playing is lacking pretending. The rest of the items in this subscale are in favor of Asperger children: Communicates visually with others, looking in others' faces for short periods, participating in social activities, accepting hugging and

touching from others, cooperates with others, imitates others, showing concern for things, aware of others in different situations, shows curiosity, waits for his/her turn, seeks help from others, prefers group situations, perceives others in social situations.

Thus the Asperger child is aware of others in social situations, and prefers being in groups cooperates with others, imitates them, accepts others. The Asperger child seems to be more interested in the social milieu and is interested in others especially his family. The autistic child is lacking these characteristics, as he is not aware of others because he is indulgent in absolute isolation which makes him unable to imitate others or participates with others. These results are consistent also with the results of Crites, Calhoun, and Mayes, (2001); Klin et al, (2005). These studies revealed the presence of statistically significant differences between autistic and Asperger children.

Table 4. *The results of the differences of the frequencies of linguistic responses of autism and Asperger cases in the frequencies of the items of the linguistic responses subscale*

Items	**Autistic cases**	**Asperger cases**	**Chi square**	**Level of significance**	**Direction of significance**
Seems not to hear	92	9	68.1	0.01	Autistic cases
Shows repetitive sounds	111	125	0.82	Not sig.	
Uses gestures	6	68	50.5	0.01	Asperger
Starts communication	0	39	39	0.01	Asperger
Very sensitive for high sounds	119	96	2.46	Not sig.	
Unable to read	45	23	7.1	0.01	Autistic cases
Uses face and hands expressions	7	41	24.1	0.01	Asperger
Unable to speak	18	1	15.1	0.01	Autistic cases
Has the ability of continuing talking	11	89	60.8	0.01	Asperger
Understands simple orders	64	149	33.9	0.01	Asperger
Uses pronouns appropriately	21	30	1.58	Not sig.	
Pronounces or speaks with unknown words and sentences	197	218	1.06	Not sig.	
Requests things.	109	217	35.76	0.01	Asperger
Repeats sounds or speech	141	163	1.58	Not sig.	
Pronounces one word	77	108	5.18	0.05	Asperger
Pronounces clear sentences	31	109	43.44	0.01	Asperger
Stretches speech.	6	94	46.24	0.01	Asperger

These results revealed that there were statistically significant differences between autistic children and Asperger children in the linguistic dimension in favor of Asperger children. The results in the above table showed that there were statistically significant differences in many items of the linguistic responses dimension: using gestures, starting communication, using face and hands expressions, has the ability of continuing talking, understanding simple orders, requests things, Pronouncing one word, Pronouncing clear sentences , stretching speech. These items assert that Asperger children have the ability to use gestures and starting speech, understanding others. These explain that linguistic responses are considered the most important differentiating characteristics between autistic and Asperger children because these responses facilitate the verbal communication and building relationships and social interaction.

The results also revealed that there were statistically significant differences between autistic and Asperger cases in favor autistic children in the following items: Seems not to hear, inability to speak, inability to read. The results showed also that there were no statistically significant differences between these two samples in the following items: Showing repetitive sounds, sensitivity for high sounds, using pronouns appropriately, pronounces or speaks with unknown words and sentences, repeating sounds or speech. These results point out that the language of both samples. These results lead us to accept the hypothesis.

The researcher considers that the essence of differences between the two groups comes out from the period of normal development of the Asperger child compared by the autistic child. This period which estimated 4-6 years before the emergence of symptoms is regarded as the most essential period in the life of children in which they learn and acquire linguistic ability and be more able to enter in social interactions with others. Compared with the autistic child, the Asperger child can answer questions that express his awareness of time, place, persons, and events. These results are consistent with the results of (Volkmar &Klin, 1998) which revealed the presence of statistically significant differences between these two groups in linguistic responses.

Table 5. *The results of the differences of the frequencies of emotional responses of autism and Asperger cases in the frequencies of the items of the emotional responses sunscale.*

items	**Autistic cases**	**Asperger cases**	**Chi square**	**Level of significance**	**Direction of significance**
Hurts himself/herself	23	17	0.09	Not sig.	
irritates for unknown reasons	53	47	0.09	Not sig.	
passive; showing no attention	59	11	32.9	0.01	autistic
resists play activities	23	18	0.6	Not sig.	
Permanently silent	208	37	119.3	0.01	autistic
Doesn't move from his place.	133	27	70.2	0.01	autistic
destroys things	18	11	1.68	Not sig.	
sucks his/her fingers	7	12	1.3	Not sig.	
bites and hits others	27	19	0.32	Not sig.	
has a smiling face	32	117	48.4	0.01	Asperger
express his emotions	4	37	26.5	0.01	Asperger
consider others' emotions	2	121	115.1	0.01	Asperger
laugh or cry without reason	411	389	0.6	Not sig.	
estimates risks	12	19	1.58	Not sig.	
irritates when prevented from some actions	28	98	5.1	0.05	Asperger

The results showed that there were no statistically significant differences between the two groups in the following items of the emotional responses subscale: Hurting self, irritates for unknown reasons, resists play activities, destroying things, sucking his/her fingers, biting and hits others, laughing or crying without reason estimating risks. These results refer to the degree of similarity between these two groups in emotional responses. Both of them is not interested in play and irritates and laugh or cry for unknown or not understood reasons. Both of them also don't estimate risks.

The results also revealed that there were statistically significant differences between these two groups in favor of Asperger children in the following items: has a smiling face, expressing emotions, considering others' emotions, irritates when prevented from some actions. These responses are emotional features of social responses as these responses are

correlated with others. On the other hand, some items were in favor of autistic children. These items are: passivity, silence, not moving. These responses relates to the autistic case. These results are consistent with the results of Wilkinson(2005) which showed differences in the nature of emotional responses of these two groups. Compared with autistic children, the Asperger children are more effective, resilient and interactive

Conclusion

The results revealed that systematic observation could be used in the differential diagnosis between autistic and Asperger children. Systematic observation could be more effective than the reports of fathers and teachers through tests, inventories, or checklists. The results also pointed out many items and characteristics might be used to discriminate autistic and Asperger cases. The author also shed light upon the characteristics of Asperger children and the psychological, educational and intervention services presented to them.

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