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# THE EFFECT OF PLAY ON SOCIAL AND LINGUISTIC SKILLS OF CHILDREN WITH AUTISM SPECTRUM DISORDER

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## ABSTRACT

Children who are diagnosed with autism usually have similar problems with linguistic and social skills (making eye contact, starting a dialogue or continuing dialogues...) The main aim of this study is to examine the effect of play in social and linguistic skill development of children diagnosed with Autism Spectrum Disorder (ASD). In this study, 28 structured and semi-structured interviews were conducted with 27 parents in Izmir, Turkey (a parent had two autistic children). The Turkish translation of the Autism Behavior Checklist (ABC) (Irmak et al., 2007) was directed to the parents twice in the structured interviews in order to compare and contrast the presence of autism symptoms after the diagnosis (before play, over 6 months ago) and after play (present day). In the semi-structured interviews, open-ended questions prepared by the researchers were directed to the parents to capture and document more detailed information about the play process such as the duration and type of play. All interviews were recorded with permission, documents and dates were collected, and informed consent according to the Declaration of Helsinki was received.

Analysis shows an overall decline or disappearance in nearly all attributes in the ABC. Results of the semi-structured interviews demonstrate that most frequently played games were as follows: Traditional and role play/imitation games (hide and seek, blindman's buff...); make-believe games (house, teaching, hairdressing...) ; athletics (basketball, football...), and educational activities (drawing, card and board games...).

According to the results, play affected the social and linguistic skills of autistic children positively.

## 1. INTRODUCTION

Autism Spectrum Disorder (ASD) is a developmental difference seen in one in every 54 births in the world. (Center for Disease Prevention and Control-USA (CDC)). Although the awareness for ASD increased in the last two decades, it is still not sufficient despite its prevalence. Children diagnosed with ASD are often seen as inadequate by society, even by family and friends, and mostly excluded from social life. However, such an attitude is misguided; early diagnosis brings early intervention and challenges can be minimized with early treatment (Teitelbaum et al. 1998). Play is a child's language, and has a large impact on every child's life; it is not only fun, but also supports various aspects of development. Children can learn to empathize and imitate others while playing. Traditional games are games based on interpersonal communication, physical activity and creativity; and that teach children the culture of the society they live in. Some widely known examples include hide-and-seek and house. Although their content may vary from culture to culture, many common threads run across these games. Much like regularly developing children, autistic children also have a right to play granted by the United Nations (OHCHR Convention on the Rights of the Child). With this right in mind, we examined the concept of play, traditional games and the effects of play on the social and linguistic skills of autistic children in this study.

## 2. AIM

The aim of this study is to examine the effects of play on the development of social and linguistic skills of autistic children, whilst contributing to the awareness of ASD.

### 2.1 Importance of Research

The awareness for ASD is still not sufficient in the world. Many families globally are unaware of the condition, therefore many children with ASD are still perceived as incompetent or inferior. This societal lack of awareness combined with lack of attention from parents may slow down or even regress skill development in autistic children. Despite all the misperceptions of the society, individuals with autism have many abilities that can benefit society like everyone else, therefore the development of social and linguistic skills of autistic children and their adaptation to social life is of great significance to society. In the same vein, this study aims to draw attention not only to ASD, but to the integration of autistic children into social life.

### 3. METHODS

#### 3.1. Research Model

In this study, Creswell's (2016) qualitative method in the phenomenology pattern was utilized.

#### 3.2. Participants

The participant group consisted of 27 parents who had autistic children under the age of 18 and engaged in play with their children after the diagnosis. Parents were selected from a rehabilitation center (5 parents) and from a family counseling center (22 parents) in Izmir, Turkey. Due to the fact that there was one parent with two autistic children, the data of these two children were entered separately; resulting in the data of 28 children in total.

##### 3.2.1. Sociodemographic Attributes of Participants

The sociodemographic data of parents was collected in the structured and semi-structured interviews. ( See tables below for the sociodemographic characteristics of families.)

Table 1: Parent's Age, Parent's Education Level, Income Level of the Family and the Number of Children in the Family

Parent's Age	Frequency
20-30	3
30-40	15
40-50	7
50-60	2
60 or above	0
Parent's Education Level	
Elementary School	9
Middle School	3
High-School	8
University	7
Graduate and above	0
Income Level of the Family (Monthly)	
4.000 Turkish Liras or less	10
4.000-5.000 TL	6
5.000-7.000 TL	6

7.000-10.000 TL	4
10.000 or more	0
No answer	1
<b>Number of Children in the Family</b>	
1	3
2	16
3	5
4 or more	3

Table 2: Sociodemographic Information about the Autistic Child

<b>Child's Age</b>	<b>Frequency</b>
2	0
3	0
4	5
5	2
6	1
7 or above	20
<b>Age at Diagnosis</b>	
2	11
3	11
4	5
5	0

6	0
7 or above	0
No answer	1
<b>Sex of Child</b>	
Male	26
Female	2

Table 3: Parents' Occupations , Marital Status of Parent, Where the Child Plays, The Presence of Another Child with Special Needs in the Family

<b>Mother's Occupation</b>	<b>Frequency</b>
Teacher	1
Doctor	0
Government Employee	2
Worker	2
Housewife	21
Other	1
<b>Father's Occupation</b>	
Teacher	1
Doctor	0
Government Employee	2
Worker	7
Other	17
<b>Marital Status of Parent</b>	
Married	27

Divorced	0
Widow-er	0
<b>Where the Child Plays</b>	
In the neighborhood with their friends	6
At the park inside of the building complex	4
At the closest park	12
At the place where family events are made	4
No answer	1
<b>The Presence of Another Child with Special Needs in the Family</b>	
Yes	1
No	26

### 3.3. Materials & Design

In structured interviews, Autism Behavior Checklist (ABC), which was translated into Turkish by Irmak et al., was utilized. Reliability of this translation was proven and the checklist provides a general understanding of the level of autism in children in previous research (Irmak et al., 2007).

There are a total of 57 questions and 5 sub-branches in the Autism Behavior Checklist. (The sub-branches are "Sensory", "Relating," "Body and object use", "Language skills" and "Social and self-care".) Parents answered these 57 questions as "Yes" if their child showed the symptom, and "No" if they did not; and were asked to complete the same checklist twice. "Before play" meant that parents first completed the list according to the behavior of their children when they were first diagnosed with autism and didn't/couldn't play. "After play" meant taking the current situation of the child into consideration.

Semi-structured interviews were conducted by the research team with parents to further understand the effects of play on the typical symptoms of autism. The open-ended questions were created by the researchers and included inquiries about the duration and types of play and observed differences in children after play. Probing questions were utilized; increasing the validity of the interview.

Also, in order to obtain more detailed information about play, a drama training aimed at parents of autistic children given by a psychological counselor/drama instructor was observed by the research team according to the COVID-19 guidelines.

### 3.4. Procedures & Analysis

Before the research, permission was obtained from Irmak, the translator of Autism Behavior Checklist (ABC), to use the Turkish version of the checklist on the study. All parents were informed about the study and its purpose before the interviews, and gave their informed consent by signing the consent form prepared by researchers. The study was conducted according to the Declaration of Helsinki.

In the structured interviews, the ABC was utilized. Structured and semi-structured interviews were either conducted face-to-face according to the COVID-19 guidelines, or over the phone. In order to eliminate the possibility of incorrect data collection, parents' answers were recorded with a voice recorder with permission. All interviews took an average of 40 minutes per parent.

The statistical significance of the structured responses were evaluated with the help of the Statistical Package for Social Sciences (SPSS) program.

## 4. RESULTS

### 4.1. Structured Interviews

In the structured interviews, the parents were asked to answer to the ABC twice. Data of 28 children, provided by 27 parents, were entered in the table as the situation before and after play.

Table 4: Answers to Autism Behavior Checklist Used in Structured Interviews

Questions	Before Play				After Play				
	Shows the Symptom		Does not Show the Symptom		Shows the Symptom		Does not Show the Symptom		Statistical Significance
	f	%	f	%	f	%	f	%	P
1)Whirls self for long periods of time	12	42,9	16	57,1	0	0	28	100	.001*
2)Learns a simple task but forgets quickly	12	42,9	16	57,1	2	7,1	26	92,9	.008
3)Frequently does not attend to social/environmental stimuli	24	85,7	4	14,3	3	10,7	25	89,3	.000*
4)Does not follow simple commands which are given once (sit down, come here, stand up etc..)	23	82,1	5	17,9	0	0	28	100	.000*
5)Does not use toys appropriately (spins tires etc.)	23	82,1	5	17,9	1	3,6	27	96,4	.000*

6) Poor visual discrimination when learning (fixated on one characteristic such as size, color or position)	20	71,4	5	28,6	5	17,9	23	82,1	.000*
7)Has no social smile	18	64,3	10	35,7	1	3,6	27	96,4	.000*
8)**Has pronoun reversal	12	46,2	14	53,8	8	29,6	20	70,4	.096
9)Insists on keeping certain objects with him/her	17	60,7	11	39,3	3	10,7	25	89,3	.000*
10)Seems not to hear, so that hearing loss is suspected	22	78,6	6	21,4	1	3,6	27	96,4	.000*
11)**Speech is atonal	8	30,8	18	69,2	5	20	20	80	.257
12)Rocks self for long periods of time	9	67,9	19	32,1	1	3,6	27	96,4	.008
13)Does not reach out when reached for	18	64,3	10	35,7	0	0	28	100	.000*
14)Strong reactions to changes in routine/environment	17	60,7	11	39,3	1	3,6	27	96,4	.000*
15)Does not respond to own name when called out among two others	23	82,1	5	17,9	1	3,6	27	96,4	.000*
16)Does a lot of lunging and darting	20	71,4	8	28,6	0	0	28	100	.000*
17)Not responsive to other people's facial expressions/feelings	25	89,3	3	10,7	2	7,1	26	92,9	.000*
18)**Seldom says "yes" or "I"	16	59,3	11	40,7	10	38,5	16	61,5	.166
19)Has "special abilities" in one area of development, which seems to rule out mental retardation	11	39,3	17	60,7	11	39,3	17	60,7	.001*



20)Does not follow simple commands involving prepositions	19	67,9	9	32,1	1	3,6	27	96,4	.000*
21)Sometimes shows no “startle response” to loud noise	16	57,1	12	42,9	1	3,6	27	96,4	.000*
22)Flaps hands	17	60,7	11	39,3	3	10,7	25	89,3	.000*
23)Severe temper tantrums and/or frequent minor tantrums	21	75	7	25	8	28,6	20	71,4	.001*
24)Actively avoids from eye-contact	20	71,4	8	28,6	4	14,4	24	85,7	.000*
25)Resists being touched or held	15	53,6	13	46,4	2	7,1	26	92,9	.001*
26)Sometimes painful stimuli such as bruises, cuts, and injections evoke no reaction	13	46,4	15	53,6	1	3,6	27	96,4	.002*
27)Is stiff and hard to held	12	42,9	16	57,1	2	7,1	26	92,9	.004*
28)Is flaccid when held in arms	9	32,1	19	67,9	0	0	28	100	.005*
29)Gets desired objects by gesturing	20	71,4	8	28,6	11	39,3	17	60,7	.007
30)Walks on toes	8	30,8	18	69,2	2	7,1	26	92,9	.014
31)Hurts others by biting, hitting, kicking, etc...	10	35,7	18	64,3	4	14,4	24	85,7	.034
32)**Repeats phrases over and over	13	46,4	15	53,6	6	22,7	21	77,8	.034
33)Does not imitate other children at play	21	75	7	25	7	25	21	75	.000*

34)Often will not blink when bright light is directed toward eyes	10	35,7	18	64,3	1	3,6	27	96,4	.007
35)Hurts self by banging head, biting hand, etc...	11	39,3	17	60,7	3	10,7	25	89,3	.005*
36)Does not wait for needs to be met	21	75	7	25	7	25	21	75	.000*
37)Cannot point to more than five named objects	20	71,4	8	28,6	3	10,7	25	89,3	.000*
38)Has not developed any friendships	22	78,6	6	21,4	4	14,4	24	85,7	.000*
39)Covers ears to many sounds	18	64,3	10	35,7	6	22,7	21	77,8	.002*
40)Twirls, spins and bangs objects a lot	14	50	14	50	0	0	28	100	.000*
41)Difficulties with toileting	16	57,1	12	42,9	0	0	28	100	.000*
42)Uses 0-5 spontaneous words per day to communicate wants and needs	18	64,3	10	35,7	3	10,7	25	89,3	.000*
43)Often frightened or very anxious	15	53,6	13	46,4	10	35,7	18	64,3	.132
44)Squints, frowns or covers eyes when in the presence of natural light	20	71,4	8	28,6	10	35,7	18	64,3	.004*
45)Does not dress self without frequent help	23	82,1	5	17,9	3	10,7	25	89,3	.000*
46)**Repeats sounds or words over and over	10	35,7	18	64,3	3	10,7	25	89,3	.008
47)"Looks through" people	15	53,6	13	46,4	4	14,4	24	85,7	.012
48)**Echoes questions or statements made by others	10	35,7	18	64,3	7	25	21	75	.257

49)Frequently unaware of surroundings, and may be oblivious to dangerous situations	21	75	7	25	3	10,7	25	89,3	.000*
50)Prefers to manipulate and be occupied with inanimate things	19	67,9	9	32,1	8	28,6	20	71,4	.008
51)Will feel, smell, and/or taste objects in the environment	18	64,3	10	35,7	9	67,9	19	32,1	.003*
52)Frequently has no visual reaction to a “new” person	17	60,7	11	39,3	3	10,7	25	89,3	.000*
53)Gets involved in complicated “rituals” such as lining things up, etc...	16	57,1	12	42,9	3	10,7	25	89,3	.001*
54)Is very destructive	11	39,3	17	60,7	3	10,7	25	89,3	.011
55) <b>A developmental delay was identified at or before 30 months of age</b>	18	64,3	10	35,7	18	64,3	10	35,7	.001*
56)Uses at least 15 but less than 30 spontaneous phrases daily to communicate	15	53,6	13	46,4	8	28,6	20	71,4	.052
57)Stares into space for long periods of time	20	71,4	8	28,6	0	0	28	100	.000*

Parents whose child's language development is not yet sufficient did not answer the questions indicated with two stars in the table (attributes related to speech). Therefore 26 answers were received for the attributes: Has pronoun reversal, Speech is atonal, and 27 answers were received for the question: Seldom says “yes” or “I”.

A comparison between before and after play could not be made in the bolded questions, due to their static natures.

The differences were found to be significant in 40 questions.

## 4.2 Semi-Structured Interviews

All 27 parents played with their children at home and during the pandemic, all but one parent continued to play. 6 of the parents stated that their children could play before they were diagnosed with autism, 21 children could not, according to their parents.

The median age children started to play was 3 (4 children), six children started to play at 4, 4.5 and 6 years old and four of them started when they were 2.5, 5, 7 and 8 years old.

Parents who did not give a specific age stated that their children started playing games gradually after starting the rehabilitation center / family counseling center.

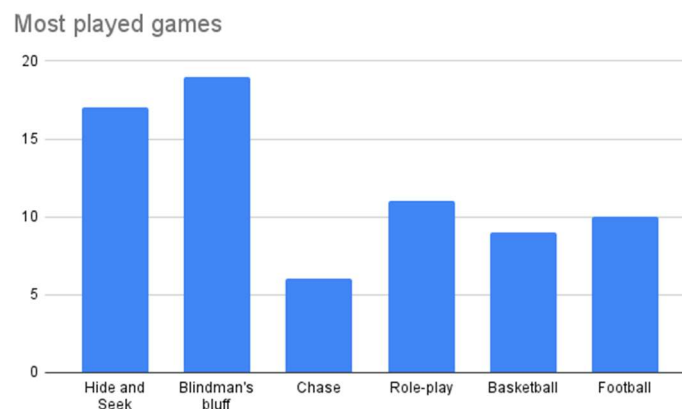
13 parents stated that their children preferred to play with their peers and friends, and 14 parents said that their kids preferred to play alone. While 16 children were included or welcomed when playing with their peers, 4 of them were not, and 7 parents did not answer this question since their children only play games with their parents and family members.

### Most frequently named categories of games were:

- Traditional and role play/imitation games (hide-and-seek, blindman's buff, make-believe games (house, teaching, hairdressing...))
- Athletics (basketball, football...)
- Educational activities (drawing, card games, board games...)

Figure 1: Most

Played Games



## 5. CONCLUSION & DISCUSSION

### According to the results of structured interviews:

The symptoms of autism retreats with play. Specifically, play seems to have a positive role in development of social and self-care skills; development of relationships. It also seems to have less impact on language development, yet still significant.

We observed 82% decline in "Has not developed any friendships" attribute; it went from 78.6% to 14.3% through play. Similarly, one of the crucial symptoms of autism, lack of eye contact, declined around 80%. Whereas before play 71.4% of children could not make eye contact, after play it decreased to only 14.4%. The

struggle of autistic children with theory of mind is well established. Decline of “Not responsive to other people’s facial expressions/ emotions” from 89.3% to 7.1% can be an example to theory of mind development. Among the Language Skills category, 82.2% of the children showed “Does not follow simple commands which are given once (sit down, come here, stand up etc..)” before play. After play, this went down to zero. Among the language skills, this is observed to be the one that develops the most through play.

According to the results of the semi-structured interviews:

-Playing traditional games (and avoiding technology based entertainment) improved the children’s social and linguistic skills.

-Parents generally opted to play games their child liked and created the game according to his or her wishes.

**After play the children can:**

- ☐ Express themselves more comfortably
- ☐ Have decreased anxiety levels and increased self-confidence
- ☐ End "unconscious" or introverted behavior
- ☐ Pay closer attention to family members
- ☐ Show a decrease in the basic symptoms of ASD

**After play the social and linguistic skills of children developed such that they can:**

- ☐ Describe their preferences or wishes
- ☐ Talk more during the day (some children even started singing)
- ☐ Develop friendships
- ☐ Learn to share, wait turns, accept defeat

All results show decline of typical autism symptoms though a combination of play, attention from parents and supportive/inclusive social environment. The development of social and linguistic skills and the decrease in autism symptoms eases the social integration of autistic individuals.

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