RESEARCH ARTICLE

The influence on group games on the relationship between children with disabilities and their healthy siblings: An experimental study

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Abstract

Objective: To investigate the impact of group game activities among children with disabilities and their siblings.
Method: This case-control study was conducted between July and September, 2015, at a rehabilitation centre in Zonguldak province, Turkey. The experimental group comprised children having disabilities, while the control group had healthy siblings and their mothers. The children were directed to play various games with their siblings over a period of four weeks, after which the instruments were administered once again. The groups were compared using Schaeffer Sibling Behaviour Rating Scale-Sibling's Form. SPSS 21 was used to analyse the data.
Results: There were eight children each in the two groups with a mean age of 8.50±2.07 years in the experimental group and 8.37±2.32 years in the control group. A significant difference between the experimental (5.62±2.55) and control group (3.12±0.35) was only found in the sub-scale of physical aggression ($p<0.05$).
Conclusion: The group activities had a positive effect on the children.
Keywords: Children with disabilities, Group activities, Sibling relation. (JPMA 68: 400; 2018)

Introduction

Disability is in most cases a life threatening situation that is not within the control of individuals and families. It is a condition of restriction or not being able to fulfil the roles expected of an individual depending on the age, gender, social and cultural factors.[1]

Deteriorations in family functions may be observed in families with children with a disability and this may also deeply affect the sibling who demonstrates normal development.[2,3] Variables such as family traits, parent-child relations, parents' attitudes towards their special child and expectations from the normal child and characteristics of that child can affect the adaptability to siblings with a disability and emotional/behavioural reactions may appear. Thus, relations between siblings may be affected directly or indirectly.[4-6] These factors that cause changes in siblings' lives may lead to emotional and behavioural difficulties and may stand as problems in their relations.[7-9]

Sibling relations are of significance in a family, the social and emotional environment in which a child grows and develops, not only in terms of the harmony and sociability between children with disabilities and their normally developing siblings but also in terms of the sustainability of family functionality.[9] A child lives his/her first social experiences with the sibling and they are the people with whom the child takes first steps towards socialisation. Socialisation is the period in which the child adapts to social norms and situations.[10,11] As a child can achieve socialisation with his/her sibling, but peers also contribute to this development positively or negatively when the child is an only child.[12,13] The child learns to express feelings and develops conflict-solving skills.[14,15] In the natural game environment, the playing child improves problem-solving skills using the brain capacity. Children without a disability share common interests with a sibling(s) via games and often include the sibling with special needs in the game. For healthy children without a disability, playing with siblings who have a disability and including them in their activities is a need as well.[16-18]

Relations between siblings comprise a system in which various trials and errors are made. It is a system that affects prospective social relations, coping strategies and personality growth.[6,19] Thanks to this relationship between siblings, which will last a lifetime, siblings utilise the strength and ability they obtain in other social relations. While healthy children who have siblings with a disability try to understand why their siblings are different on the one hand, on the other they may think they face more responsibilities compared to other individuals of their age and they may also feel that they receive less attention from their parents.[5,18]

Thus, apart from the difficulties families experience due to having a child with a disability, problematic behaviours occur between children with and without disabilities. For

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this reason, the sustainability of harmony within the family is usually at stake.

The current study was planned to investigate the impact of group games implemented with children with disabilities and their siblings without disabilities on sibling relations and problems.

Subjects and Methods

This empirical, qualitative, case-control study was conducted between July and September, 2015, at a rehabilitation centre in Zonguldak province, Turkey, and comprised children with disabilities in the 5-13 years age group, their siblings without disabilities in the same age group and their parents. Interviews were conducted with the mothers and siblings of disabled children after the implementation of the study protocol. The subjects had to be literate able to speak, understand and communicate in Turkish. The parents had to have a child with disability aged 5-13, and the child had to have a healthy sibling in the same age group. Finally, all of them had to voluntarily agree to participate in the study. At the same time, in selecting the children with disabilities, the children's physical education teacher and the rehabilitation centre's psychologist were asked to submit their opinions. Children with disabilities who had game skills were selected. A paediatric nurse read through the questions in the children's questionnaires and marked their responses.

The data for the study was gathered through the "General Information Form", the Sibling Problems Questionnaire (SPQ), Schaeffer Sibling Behaviour Rating Scale (SSBRS) - "Sibling's Form" and "Maternal Form." The General Information Form comprised 21 questions including information such as the name and surname, gender, order of birth, level of education, degree and type of disability of the child having special needs, the name, surname, age and gender of the normally developing child, his/her order of birth, level of education, the number of children in the family, the parents' level of education and the parents' working status.[4-15] The SSBRS-Sibling's form was only put to children without disabilities.

The SPQ comprised 36 sentences regarding the problems children without disability experience with their siblings having disabilities. The problems in the survey are set out in six dimensions and under each dimension, there are four items.[20] These dimensions contain sub-scales such as concerns about the future of the sibling with a disability, feelings of denial related to the disabled sibling, favouring children with disabilities, the positive reactions of peers, positive reactions of parents, ability to cope with the situation of a sibling's being disabled, perceiving the sibling as a burden, self-doubt, and the responsibility felt about compensating for the shortcomings of the sibling with a disability. Each sentence has "true" and "false" options and the children are required to circle the option that applies to them. Each "true" response is given 1 and each "false" response a 0 score. Some items in the questionnaire are reversely graded. A high score obtained from each section translates as the sibling's not having a problem in that particular dimension. The SPQ's validity-reliability study in Turkey was conducted by Ahmetoglu.[20] The Cronbach Alpha value of the test was calculated to be 0.86. The scale that provided consistent results over time was tested through the method of the test-retest. In this sense, a one-dimensioned attitude scale was formed that consisted of 19 valid and reliable items that would evaluate the problems normally developing siblings experience regarding their disabled sibling.[20]

The SSBRS-Sibling and Maternal form was designed by Schaeffer-Edgerton in 1979, improved upon by McHale et al. in 1986, and adapted into Turkish by Ahmetoglu in 2005.[19-21] The scale is used to evaluate the relationships between children without disability and their siblings with disabilities. The evaluation tool is administered to both siblings and mothers. The original version has 30 items and five sub-scales: (1) being kind, (2) avoidance restraint, (3) synergy being connected, (4) empathy and (5) physical aggressiveness. Responses to items in the scale are graded as; Never-Rarely-Sometimes-Often and Always. In the scoring of the scale; "Never" is graded as 1, "Rarely" as 2, "Sometimes" as 3, "Often" as 4 and "Always" as 5. Some items in the questionnaire are reversely graded as they are worded negatively. In the evaluation of the form, each sub-scale is graded separately. High points scored in each sub-scale indicate a positive outcome from that particular dimension. Both forms of the scale consist of the same items.[19-21]

The Sibling Form words the items in the first person whereas the Maternal Form words the same items in the third person. The responses from both groups therefore are gathered through the same items and subjected to the same method of grading.[19-21]

The selection of subjects into the experimental group and the control group was made by random selection from the children who were able to come to the rehabilitation centre regularly with their siblings. Both groups were administered a pre-test. Following this procedure, group games were implemented with the children with disabilities and their normally developing siblings in the experimental group during physical education classes for an hour in a four-week period at the special education and rehabilitation centre they were attending. Group games with the experimental group were carried out

actively under the supervision of the physical education teacher responsible for teaching the class and a specialised paediatric nurse. At the end of the fourth week, post-interview and post-test evaluations were conducted with both groups. The data was also collected through interviews at the institution the children attended by meeting with the mothers and the healthy siblings separately for about 20-30 minutes.

In-depth face-to-face interviews were carried out with the mothers who agreed to participate in the study and the healthy siblings of the children with disabilities. A voice-recorder was used during the face-to-face interviews which were held with the subjects in a suitable physical environment. The verbal consent of the mothers was obtained after they had been given information about the study and the voice recording. Interviews lasted approximately an hour and were conducted by the paediatric nurse in a room reserved for the interviews. Also administered were the 19-item questionnaire (on age, gender, educational status, type and degree of disability, etc.) and the scales.

In the first week, the rating scales were administered to the families and first evaluations were made. Communications between siblings were not fully achieved and there was little interaction within the group. The meetings therefore continued as a free activity accompanied by music. Thus, the first week was considered a week of introductions. The session started out with small gifts, items such as balloons and clown noses were exchanged between the children and peers disguised as clowns. The children's areas of interest and desires were determined. The form of education that promotes having disabled children being helped out by their peers is a method that has been adopted by educational institutions for special needs. When peers contribute to the teaching process with their support, the level of learning at the institution improves. Children are facilitated with cooperation rather than competition and reap emotional benefits from this.[22] A game-focused early educational programme for children with disabilities makes it easier for the child and family to adapt to social situations, accelerates development and increases cognitive maturity.[23]

The children were asked for their preference of games, after which three game groups were formed and the activities began. Several factors were taken into consideration in forming the game groups. These were factors such as deciding upon common days and hours so that the children could attend the special rehabilitation centre, depending upon the degree of disability, avoiding crowded groups to prevent distractions, positive interaction in physical education classes and the avoidance of physical aggressiveness between children. Both siblings were allowed to play in the same group. Each group continued to play with the same children every week and the physical education teacher, who was an expert in Sherborne Developmental Movement Education,[24] as well as the specialised paediatric nurse, joined the groups in the games. Disabled children need assistance in starting and continuing a game. For this reason, the environment should be organised to allow benefiting as much as possible from stimulants in the setting. The type of disability should be taken into consideration when games are being chosen. Every disabled individual has different skills. Children with mental disabilities need game settings that have been structured by adults (such as games played on a track, balloon and ball games). Their skills at playing with toys are limited. Autistic children do not play imaginary games, they have no representative skills and lack motivation. It has been observed that they only respond to instructions provided to them through educational interventions. Instead of using objects in accordance with their function, they will be satisfied with just turning them around in their hands. Children with Down Syndrome have little ability to play toy-focused games.[23] The games chosen for the activities conducted during the physical education class were therefore chosen in the light of this knowledge and in line with the children's own preferences.

1st week: Ring around the Rosy, Balloon Catching, Drop the Handkerchief

2nd week: Puppet game, Colour-ball game, Track game consisting of mats and rings

3rd week: Tug of War, Scoring Baskets game and Passing the ball through the ring

4th week: Indoor Volleyball, Balloon Catching

Before starting the study, approval was obtained from the Ethics Committee of the Medical Faculty of Bulent Ecevit University. After the necessary permission was obtained from the special education and rehabilitation centre where the study would be conducted, the procedure was explained and the researchers enlisted the cooperation of the school principal and class supervisors. Meanwhile, the children and their parents were informed about the aim and plan of the study and the information forms were signed. The consent of the volunteering participant children and parents were obtained prior to the start of the study.

The mothers were queried according to a semi-structured

form, after which their responses were reviewed to determine the answers pertaining to the purpose of the study. These were later statistically analysed in a comparison with the actual results of the research.

The interviews were transcribed the same day, compared with the observer's notes with any interesting points noted. The transcribed interviews were read again once all the interviews were over. Interview reports were reviewed and appropriate themes were determined for the purpose of the research. Thematic analysis was used in the evaluation of the interviews. Thematic analysis is the most widely used qualitative data evaluation approach. The determined themes were interpreted after being grouped according to the research questions.

SPSS 21 was used to analyse the data. Along with descriptive statistics (frequency, percentage, mean, standard deviation), the Kolmogorov-Smirnov distribution test was also used to examine the normality of the distribution.

To compare quantitative data, the Mann Whitney U test was used in the comparison of parameters between groups in the case of two groups. In the case of more than two groups, the Kruskal Wallis test was utilised for qualitative data comparisons of the parameters. The Mann Whitney U test was used in detecting the group that caused a difference. The Fisher and Pearson chi-square tests were used to examine relations between scales. Results were evaluated at a 95% reliability range and $p<0.05$ significance level.

Results

There were 8 children each in the experimental and control groups. Four (50%) children in the experimental group and 5(62.5%) in the control group were males. The mean age was 8.50±2.07 years in the experimental group and 8.37±2.32 years in the control group. Besides, 4(50%) children in the experimental group were first-borns and 4(50%) children in the control group were last-born. When the type of disability was examined, 3(37.5%) of the children were autistic in the experimental group, whereas, 3(37.5%) in the control group had mental disabilities (Table-1).

No statistically significant differences were found between the control and experimental groups of healthy siblings ($p>0.05$). Besides, 6(75%) of the healthy children in the experimental group were males and 5(62.5%) of the children in the control group were females. The mean age was 11.37±2.38 years in the control group and 8.62±3.06 years in the experimental group (Table-2).

Table-1: Distribution of socio-demographic characteristics of children with disabilities.

Name of variable		Experimental group (n=8)		Control group (n=8)	
		N	%	N	%
Gender	Female	4	50	3	37.5
	Male	4	50	5	62.5
Age	Mean±SS	8.50±2.07		8.37±2.32	
	Age interval	6-12	5-13		
Type of disability	Mental	1	12.5	3	37.5
	Physical	1	12.5	0	0
	sp	1	12.5	1	12.5
	Autistic	3	37.5	2	25.0
	Down	2	25	1	12.5
	Visual	0	0	1	12.5
Status of education	A	4	50.0	0	0
	B	2	25.0	3	37.5
	C	2	25.0	5	62.5
Level of education	Heavy	0	0	2	25.0
	Average	6	75.0	5	62.5
	Light	2	25.0	1	12.5
Birth order	First	4	50.0	1	12.5
	Middle	3	37.5	3	37.5
	Last	1	12.5	4	50.0

1: a, b ve c in distribution of status of education.

a- Attending an inclusion programme at the elementary level and a special education tracking program at the centre.

b- Attending a special lower-class programme and a special education tracking programme at the centre.

c- Only attending a special education programme for mentally and physically challenged children at an educational centre.

Table-2: Distribution of the socio-demographic characteristics of the healthy siblings.

Name of variable		Experimental group		Control group	
		N	%	N	%
Gender	Female	2	25.0	5	62.5
	Male	6	75.0	3	37.5
Age	Mean ±SS	8.62±3.06		11.37±2.38	
	Age interval	7-13	5-13		
Birth order	First	4	50.0	4	50.0
	Middle	2	25.0	4	50.0
	Last	2	25.0	0	
Number of sibling(s)	1	1	12.5	1	12.5
	2	5	62.5	4	50.0
	3	2	25.0	3	37.5
Level of education	Elementary	3	37.5	2	25.0
	Secondary	5	62.5	6	75.0

Table-3: Socio-demographic distribution of parents of children with disabilities.

Name of variable		Experimental group		Control group	
		N	%	N	%
Mother's level of education	Elementary	5	62.5	5	62.5
	Secondary	3	37.5	0	0.0
	High school	0	0.0	3	37.5
	Undergraduate	0	0	0	0
Mother's occupation	Housewife	8	100	8	100
Father's level of education	Elementary	2	25.0	1	12.5
	Secondary	3	37.5	2	25.0
	High school	3	37.5	3	37.5
	Undergraduate	0	0.0	2	25.0
Father's occupation	Unemployed	1	12.5	0	0.0
	Civil servant	1	12.5	2	25.0
	Worker	1	12.5	3	37.5
	Retired	1	12.5	0	0.0
	Self-employed	4	50.0	3	37.5
Level of Income (Turkish Liras)	1000 or under	3	37.5	1	12.5
	1001-2000	3	37.5	4	50.0
	2001-3000	2	25.0	3	37.5

There were no significant differences between the groups in terms of the socio-demographic characteristics of the parents. Of the mothers in both the groups, 5(62.5%) each were elementary school graduates and all the mothers were housewives (Table-3).

When the subjects' scale scores were compared, only the physical aggressiveness dimension of the SSBRS-Sibling Form revealed a statistically significant difference ($p<0.05$) (Table-4). The following statements made by the mothers and healthy siblings in their interviews indicated that the children with disabilities tended to be physically aggressive towards their healthy siblings:

Mother 1: "I have been thinking about this for days. I wish this had been done before so my daughter would not be scared of her sibling."

Mother 5: "Instead of trying to prevent them from harming each other for years"

Sibling 7: "I was so scared that I always thought he would pull my hair or kick me"

The pre-test and post-test scores demonstrated differences in the experimental group only in the SSBRS-Maternal Form's Being Kind subscale and Total Score, whereas they indicated statistically significant differences in the SSBRS-Sibling Form Abstinence-Restraint, Synergy-Being Connected subscales and Total Score ($p<0.05$) (Table-5). The interviews with the mothers and healthy

Table-4: Distribution of scale scores by experimental and control group.

Scale	Scale Scores	Experimental group Mean±ss	Control group Mean±ss	P-value
SPQ	SPQ-pretest	11.37±2.13	11.50±1.77	0.959
	SPQ-post	11.75±2.12	11.75±1.66	0.878
SSBRS-Maternal Form	Being kind-pre-test	30.87±5.40	34.25±8.15	0.328
	Abstinence/Restraint pre-test	12.12±5.74	11.37±3.37	0.878
	Synergy/Being connected pre-test	25.75±4.92	25.25±5.39	0.878
	Empathy-pre-test	20.12±5.24	23.62±1.18	0.505
	Physical Aggressiveness-pre-test	7.12±4.15	4.25±3.53	0.065
	SSBRS pre-test total	96.00±7.21	98.75±7.59	0.328
	Being kind-post-test	32.00±4.95	35.75±5.41	0.195
	Abstinence/Restraint post-test	11.87±5.48	11.50±3.25	0.959
	Synergy/Being connected post-test	26.87±5.91	26.12±5.66	0.574
	Empathy-post-test	20.50±5.07	23.62±1.30	0.442
	Physical Aggressiveness-post-test	7.12±4.15	4.25±3.53	0.065
	SSBRS post-test total	98.37±7.11	101.25±7.94	0.442
SSBRS-Sibling's Form	Being kind-pre-test	37.00±7.50	39.87±3.13	0.721
	Abstinence/Restraint pre-test	7.87±3.44	8.62±2.61	0.328
	Synergy/Being connected pre-test	21.25±3.69	19.75±2.18	0.328
	Empathy-pre-test	21.25±4.49	23.12±2.10	0.645
	Physical Aggressiveness-pre-test	5.62±2.55	3.12±0.35	0.021
	SSBRS pre-test total	93.00±8.50	94.50±7.01	0.878
	Being kind-post-test	37.37±7.24	35.62±7.68	0.574
	Abstinence/Restraint post-test	7.62±2.77	9.87±4.18	0.195
	Synergy/Being connected post test	29.87±5.40	25.12±6.24	0.083
	Empathy-post-test	21.37±4.68	22.87±1.72	1.000
	Physical Aggressiveness-post-test	5.62±2.55	4.12±3.18	0.083
	SSBRS post-test total	101.87±10.69	97.62±8.73	0.279

SPQ: Sibling Problems Questionnaire.
SSBRS: Schaeffer Sibling Behaviour Rating Scale.

Table-5: Distribution of differences between pre-test and post-test in the experimental group.

Scale	Scale Scores	Pre-test Mean±ss	Post-test Mean±ss	P-value
SPQ		11.37±2.13	11.75±2.12	0.317
SSBRS-Maternal Form	Being kind	30.87±5.40	32.00±4.95	0.041
	Abstinence/Restraint	12.12±5.74	11.87±5.48	0.414
	Synergy/Being connected	25.75±4.92	26.87±5.91	0.101
	Empathy	20.12±5.24	20.50±5.07	0.180
	Physical Aggressiveness	7.12±4.15	7.12±4.15	1.000
	SSBRS total	96.00±7.21	98.37±7.11	0.018
SSBRS-Sibling's Form	Being kind	37.00±7.50	37.37±7.24	0.257
	Abstinence/Restraint	7.87±3.44	7.62±2.77	0.012
	Synergy/Being connected	21.25±3.69	29.87±5.40	0.010
	Empathy	21.25±4.49	21.37±4.68	0.785
	Physical Aggressiveness	5.62±2.55	5.62±2.55	1.000
	SSBRS total	93.00±8.50	101.87±10.69	0.011

SPQ: Sibling Problems Questionnaire.
SSBRS: Schaeffer Sibling Behaviour Rating Scale.

Table-6: Distribution of differences between pre-test and post-test in control group.

Scale	Scale Scores	Pre-test Mean±ss	Post-test Mean±ss	P-value
SPQ		11.50±1.77	11.75±1.66	0.317
SSBRS-Maternal Form	Being kind	34.25±8.15	35.75±5.41	1.000
	Abstinence/Restraint	11.37±3.37	11.50±3.25	1.000
	Synergy/Being connected	25.25±5.39	26.12±5.66	0.170
	Empathy	23.62±1.18	23.62±1.30	1.000
	Physical Aggressiveness	4.25±3.53	4.25±3.53	1.000
	SSBRS total	98.75±7.59	101.25±7.94	0.915
SSBRS-Sibling's Form	Being kind	39.87±3.13	35.62±7.68	0.109
	Abstinence/Restraint	8.62±2.61	9.87±4.18	0.012
	Synergy/Being connected	19.75±2.18	25.12±6.24	0.051
	Empathy	23.12±2.10	22.87±1.72	0.593
	Physical Aggressiveness	3.12±0.35	4.12±3.18	0.317
	SSBRS total	94.50±7.01	97.62±8.73	0.483

SPQ: Sibling Problems Questionnaire.
SSBRS: Schaeffer Sibling Behaviour Rating Scale.

siblings included statements that showed a change in attitudes and opinions related to synergy being Connected, pointing to a leaning towards being kind to their disabled siblings. These statements were as follows:

Mother 4: "Now that I have seen my daughter help her sister" and "my son talked about what his sister did for the first time"

Sibling 3: "Don't worry, I'll absolutely teach you that at home"

Sibling 5: "Come on, you can do it. I know you can do it!"

In the control group, the pre-test and post-test results demonstrated statistically significant differences only in the avoidance-Restraint sub-scale ($p<0.05$) (Table-6). The following statements extracted from the interviews show that the siblings avoided each other and practiced restraint towards one another:

Mother 3: "My friends speak about this so enthusiastically that I wish my child consented to come too."

Mother 5: "Will I spend my whole life trying to get them together?"

Mother 7: "…thought there were no problems between my children until"

Sibling 2: "…am so scared of him that I will never be able to play with him ever"

Sibling 6: "I always thought that he could/would never be able to even throw that balloon to me"

Sibling 7: "I was so scared that I always thought he would pull my hair and kick me"

No statistically significant differences were found between the groups in terms of the children's socio-demographic characteristics ($p>0.05$).

Discussion

Socialisation is the period in which a child adapts to social norms and situations. As a child can achieve socialisation with siblings, so can peers also positively or negatively contribute to this development. As a result, the child learns how relationships should be formed and also achieves self-control. The child learns to express feelings and develops conflict-solving skills.[10-15]

For normally developing children, playing games is a serious endeavour that encompasses cognitive, affective and physical activities through which all skills and experiences closely related to these fields combine, mature and develop into adaptive behaviours. This is because a child thinks and gains experience through games.[16,17] In the natural game environment, the playing child improves problem-solving skills using mental capacities. While using these mental capacities the child completes the learning process through social, emotional, mental and physical development.[16,17,25] Children exhibiting healthy development share common interests with siblings via games and include their siblings with special needs in their games. It is important in terms of the development of disabled children that they should be included in activities and playing games with their siblings.[18] It is through participating in daily activities and interacting with peers that children gain new experience and develop a sense of

independence.[16,25,26] In the literature, there is only one pilot study examining the effect of group game activities on sibling relations.[18]

In this study, which aimed to examine the effect of group game activities had on family participations, sibling problems and relations between children with disabilities and their siblings, it was seen that the distribution of the socio-demographic characteristics of the disabled children, their siblings and parents did not differ between the control group and the experimental group ($p>0.05$). Apart from this finding, although significant assessments were observed in the pre-test, post-test evaluation results of the experimental group in the SSBRS Maternal and Sibling Forms, a comparison with the control group shows that a statistically significant difference is observed only in the physical aggressiveness subscale ($p<0.05$). Interview extracts such as, "I've been thinking for days; I wish this had been done before so my daughter wouldn't be so afraid of her sibling..." or a mother's crying out, "Instead of trying to prevent them from harming each other..." are evidence of this. Having a sibling with disability creates constant changes in the lives of healthy children and causes them to face emotional and behavioural difficulties and various other problems.[18-27] A previous study has reported that children without disability exhibiting normal development are unable to show their adaptation or reactions directly or indirectly and therefore tend to avoid their disabled siblings.[18] In Ahmetoglu's study,[21] it was found that healthy children of ages 12-15attending secondary school displayed high scores in the physical aggressiveness subscale with regard to their attitudes toward their siblings with disabilities. In addition, the study of Üstdag and Bumin (2014) revealed that children who did not participate in group game activities continued to have problems with social skills.[17] The results of this study are in line with the current literature.

In the study, according to the SSBRS results that evaluate sibling relations, there were positive changes in the children in the experimental group who had participated in group game activities and statistically significant changes occurred in the comparison of pre-test and post-test SSBRS-Maternal Forms ($p<0.05$). Interview extracts that reflect mothers' feelings such as, "Now that I have seen my daughter help her sister..." and "My son talked about what his sibling did for the first time..." or the words that came from the sister of a disabled child who couldn't throw the ring successfully who said, "Don't worry, I'll definitely teach how to do this at home" reveal positive feedback in terms of the relations between children with disabilities and their healthy siblings.

In Yavuz and Coskun's[28] study, in which researchers investigated healthy children spending leisure time with their siblings with special needs, it is asserted that every day the siblings spent time was spent mostly by playing games. When normal siblings play games with their disabled siblings, this promotes the development of the disabled child as well.[16,24,27,28]

Kaner[29] on the other hand states that healthy children are not affected by their disabled sibling's condition and that they can help in the care of the disabled sibling and act as a playmate. Furthermore, he asserts that these children tend to be more affectionate towards their siblings and are better able to establish empathy. In Kahraman and Karadayi's study,[30] healthy children were asked the question, "What would you advise children who have learned that they have a sibling with disability?" They answered, "They should behave well toward them, be sensitive and help them meet their wants and needs." When it is considered that the point of view of McHale and Harris[21] is that having a sibling with a disability makes the healthy sibling more helpful and more tolerant, it might be expected that the games that the healthy children played with their disabled siblings were instrumental in supporting a kinder and more tolerant attitude toward the disabled child on the part of his/her healthy sibling.

According to the SSBRS results evaluating sibling relations in the experimental group, a statistically significant difference was observed in the Sibling Form pre-test, post-test comparison in the avoidance-restraint, synergy being connected sub-scales and total scores ($p<0.05$). The reactions shown to child with a disability by a normally developing sibling are affected by various changeable factors. The presence in the family of a sibling with a disability creates emotions like anger, disappointment or guilt on some occasions and sometimes leads to concerns about the future of the sibling with the disability. Siblings may feel a sense of pride for contributing to the development and growth of the child with the disability by showing empathy toward individual differences, sensitivity, responsibility and self-sufficiency.[18,25,27] In Ustdag and Bumin's study,[17] it was observed that sibling relations among the children who participated in the group activities changed in a positive manner that the healthy children started supporting their siblings with disabilities and positive feedback was received from parents. In another study, changes were observed in sibling perception according to the synergy-being connected subscale.[21] In the study, siblings who demonstrated low awareness about their siblings with disabilities (sibling 1, sibling 5 and sibling 7) were noted

to support their siblings with disabilities to win a competition by saying, "You can do it, I know you can do it" for the first time. In the first weeks, these siblings were only mildly interested in their activities whereas in the final weeks, they made a special effort to help their siblings with disabilities and started to include them in activities that required teamwork.

In the study, although no statistically significant difference was found in the comparison between the pre-test and post-test SSBRS Maternal Form in the control group ($p>0.05$), a significant difference was observed in the SSBRS Sibling Form in the Avoidance-Restraint score ($p>0.05$). When it is considered that growing up with a sibling with a disability causes changes in many different aspects in siblings' daily lives and this leads to difficulties in psychological adaptation and growth,[30] the observation of the statistically significant differences in the Sibling Form in both the control and experimental groups in the Avoidance-Restraint subscale parallels the literature. In a study which evaluates the sibling relations of mentally disabled children according to sibling and mother perceptions,[21] the Avoidance-Restraint mean scores showed significant differences on the basis of the children's gender, age group, grade in school, and depending upon the academic status of their normally developing siblings, whereas there were no statistically significant differences by order of birth, number of siblings, or type of disability.

Since the approach to disabled children and their families requires more sensitivity, it is done in a rehabilitation centre where there is a specialist in this issue to work with the disabled child and his family and health workers who can intervene if necessary. The rehabilitation centre caters to children and families with a higher level of disability. This has led to the limitation of the number of samples when combined with the inclusion criteria for the study. One of the limitations of this study was its small sample size. However, it has value in respect of examining the long-term evaluation and, to the best of our knowledge, this was the first such report in literature.

Conclusion

As a result of the objective findings obtained from the study and the feedback obtained from the subjective evaluations of the mothers, it was seen that group activities had positive effects on children, and that there were positive changes in the behaviour and perceptions of healthy siblings towards disabled children. In order to change the perception of the disabled children by healthy siblings and to improve sibling relations, sports and activity course hours should be increased in the rehabilitation centres attended by disabled children.

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