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Effects of a Special Olympics Unified Sports soccer program on psycho-social attributes of youth with and without intellectual disability

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ABSTRACT

The purpose of the study was to investigate the effects of a Special Olympics (SO) Unified Sports (UNS) soccer program on psycho-social attributes of youth with and without intellectual disabilities (ID). Participants were 76 male youth with ($n = 38$) and without ($n = 38$) ID. Participants with ID were randomly allocated into a SO athletes group ($n = 23$, mean age = 14.5; SD = 1.2 years) and a control group (CG) ($n = 15$, mean age = 14.5; SD = .8 years). Twenty-three randomly selected youth without ID formed the partner group (mean age = 14.1; SD = .9 years) and 15 youth without ID (mean age = 13.8; SD = .5 years) formed the CG. Instruments included the Friendship Activity Scale (FAS) (Siperstein, 1980), the Adjective Checklist (Siperstein, 1980), and the Children Behavior Checklist (Achenbach, 1991). The soccer training program lasted eight weeks, 1.5 h per session, three times per week, in addition to school physical education (PE). The CG did not participate in any sports in addition to PE. The findings showed that the UNS program was effective in decreasing the problem behaviors of youth with ID and increasing their social competence and FAS scores. In addition, the program was found to be effective in improving the attitude of youth without disabilities toward participants with disabilities. In conclusion, the present findings demonstrate the utility of a UNS program for both youth with and without disabilities.

1. Introduction

Persons with Intellectual Disability (ID) are known to have significant limitations in intellectual functioning and in adaptive behavior, which originate before the age of 18 years (Schalock et al., 2010). Wehmeyer and Obremski (2010) emphasize the role of supports in bridging the gap between the capacity of persons with ID and the performance expectations of their social environments. Supports are defined in this regard as "resources and strategies that aim to promote the development, education, interests, and personal well-being of a person and that enhance individual functioning" (Luckasson et al., 2002, p. 151). Inclusive educational experiences better prepare students with disabilities for community living (Steadward, Wheeler, & Watkinson, 2003). What is important is that inclusive education is distinguished by an acceptance of differences between students as ordinary aspects of human development (Florian, 2008). Inclusive educational environments that are modified to enable persons with ID exhibit competence and adaptive behavior are of particular interest (Sherrill, 2004). The current study is aimed at examining the effect of one such supportive program within

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the framework of Special Olympics (SO) programs. SO is an international sports training and competition program open to individuals with ID, eight years of age and older, regardless of their abilities (History of Special Olympics, n.d.). The mission of SO is to provide year-round sports training and competition in a variety of Olympic-type sports for children and adults with ID (Winnick, 2000). The SO offers physical activity in 28 Olympic-type sports (Roswal, 2007). This world organization provides year-round training and athletic competition for 3.2 million athletes in over 150 countries.

Since its establishment, the SO has been sensitive to changes in societal policies and attitudes toward individuals with ID. One such change has been the "inclusion movement," wherein individuals with ID participate in general education classrooms and schools, integrated workplaces, and their local communities. The SO responded by developing the Integrated Sports Program, later named Unified Sports (UNS) program, which has been included within the SO program since 1989 (Siperstein & Hardman, 2001). UNS combines approximately equal numbers of SO athletes and athletes without ID (partners) on sports teams, which meet regularly for training and competition. The guiding criteria for group assembly are age and ability match. The UNS program is intended to provide children with and without ID continuing opportunities to develop physical fitness, demonstrate courage, and experience joy, and to participate in a sharing of gifts, skills and friendship with other SO athletes, partners, and the community (Special Olympics, 2003). According to the 2009 census of SO-Europe, 16,000 youth participate in UNS programs across Europe, of whom 10,000 play soccer (S. Menke, personal communication, October 4, 2010).

Research conducted to discover the psycho-social effect of SO programs started in the 1980s. Wright and Cowden (1986) utilized the Children's Self-Concept Scale developed by Piers and Harris (1964), and found a significant effect of a 10-week SO swim training program on 25 participants with ID. Gibbons and Bushakra (1989) used a pictorial scale for measuring perceived competence in children, and reported significant improvements between pre- and post-test outcomes of participants in a SO one-and-a-half-day track and field meet compared to randomly selected controls. The participant group gained around 30% on peer acceptance and physical competence ($p < .0001$), whereas a slight decrease occurred in the control group. Castagno (1991) reported significant improvement in self-concept scores after participation in a 12-week specific after-school physical education (PE) program that involved children of middle-school age with and without ID. Dykens and Cohen (1996) investigated the demographics and psycho-social attributes of 33 US SO athletes who participated in the Winter World Games (1993), and compared them to non-participants. These authors found that SO athletes had higher self-esteem and social-competence scores than the control group, and that there was an association between these outcomes and the length of time spent in SO programs.

Research on the effect of UNS programs started in the 1990s, and studies found varied outcomes when compared to those of participants in separated (non-inclusive) SO programs. Riggen and Ulrich (1993) reported increases in both social self-perception and basketball skills when athletes with ID participated in a UNS basketballs program. Castagno (2001) reported significant improvement in scores of self-esteem, basketball skills, and the Adjective Control List (ACL) and Friendship Activity Scale (FAS) in participants with and without ID after attending an eight-week UNS basketball program. However, no comparison with separated SO program participants was conducted in this study. Rosegard, Pegg, and Compton (2001) investigated the effect of a 12-week UNS bowling program on maladaptive behaviors among SO athletes. This study utilized the Child Behavior Checklist (CBCL) and found that the training group reported significantly lower internalizing and externalizing scores over time, compared to matched controls not attending a similar program.

Up to this point in time, only the participants with ID were investigated within the studies on the effect of UNS programs. Also, the scope of activities examined was limited to basketball and bowling. Therefore, the purpose of the present study was to examine the effects of participation in a UNS program compared to no participation in extracurricular sports on psycho-social attributes of SO athletes and their nondisabled partners. Specifically, social competence, internalizing, externalizing, and total problem behavior were examined by means of CBCL, and attitude was examined by means of ACL and FAS.

2. Methods

This study was designed as a randomized comparative intervention study across two types of population (with and without ID) who were matched and selected in equal numbers into a training group (TG) and a control group (CG).

2.1. Participants

A special education school and a secondary school from a large urban community in Turkey served as the research sites for this study. SO athletes and their CG were recruited from youth who attended a regional special education school. Inclusion criteria for participation in this study were: (a) age between 12 and 15, (b) male, (c) not specially trained in soccer, and (d) not having a secondary disability such as physical or visual impairment. Exclusion criteria were health problems preventing the youth from participation in sports training. Altogether 38 participants with ID and 38 partners and matched controls without ID were recruited into this study.

One week before the study, simple randomization was employed in the participating special school and the regular school, using a computer generated table of random numbers, by a person without any knowledge about the study or its purpose. Forty-eight youth were initially selected out of 60 students attending 7th and 8th grade in the special school. Half of the participants were allocated into each of the UNS programs as athletes and partners, and the other half as the CG. However, one UNS athlete did not follow the training program after the third week. In addition, four children with ID in the

CG left the study after randomization. Five children with ID in the CG did not complete the post-tests. Therefore, in the final sample 23 youth with ID (mean age = 14.5; SD = 1.2 years) formed the SO athletes group. Fifteen participants with ID (mean age = 14.5; SD = .8) formed the CG.

Forty-eight youth without ID were initially selected out of 200 students attending classes 7th and 8th grade in the regular school, and half of them were allocated into each of the UNS partners and their CG. However, one boy of the partners did not follow the training program after the third week. Six boys in the CG left the study after randomization. Three boys in the CG did not complete the post-tests. Therefore, 23 youth without ID (mean age = 14.1; SD = .9 years) formed partners and 15 youth without disability (mean age = 13.8; SD = .5 years) formed the CG.

SO athletes and partners in the CG trained three times per week for 90 min each time (totaling about 4.5 h per week), and participants in the CG of children with ID did not attend additional sport activity, but the vast majority of them were involved in extra-curricular educational activities offered by community or rehabilitation services for about 3–5 weekly hours.

2.2. Instruments

Three measures previously used in participants with and without ID were utilized in this study.

2.2.1. Child Behavior Checklist (CBCL)

The CBCL and the Teacher's Report Form (TRF) were designed to evaluate areas of competence and problem behaviors of children and youth of the age range 4–18 years (Achenbach, 1991). The CBCL consists of 20 social-competence items and 118 behavior-problem items. The competence scales consist of Activities, Social, and School Scales. A high competence score reflects good competence.

The CBCL includes measurement of the following eight constructs or syndromes: Social Withdrawal, Somatic Complaints, Anxiety/Depression, Social Problems, Thought Problems, Attention Problems, Delinquent Behavior, and Aggressive Behavior. In addition to focusing on a child's behavior as defined by one of the eight syndrome scales, the CBCL also allows the examination of two broad groupings of syndromes: internalizing problems and externalizing problems. Internalizing problems combines the Social Withdrawal, Somatic Complaints, and Anxiety/Depression scales, while externalizing combines the Delinquent Behavior and Aggressive Behavior scales. Items are coded from 0 to 2 and instructions for hand-scoring the instrument are provided in Appendix A of the CBCL Manual (0 = not true, 1 = somewhat true, and 2 = very true) (Achenbach, 1991).

Adaptation of the CBCL was carried out for Turkish children, and validity and reliability tests were done by Erol, Kılıç, Ulusoy, Keçeci, and Şimşek (2001). The Checklist's test–retest reliability coefficient was found to be .78 for total competence, and .84 for total problems. Internal reliability coefficient of the CBCL was .82 for internalizing, .81 for externalizing, and .88 for total problems.

For syndrome scales, *T* scores less than 67 are considered in the normal range, *T* scores ranging from 67 to 70 are considered to be borderline clinical, and *T* scores above 70 are in the clinical range. However, the *T* score can provide a guideline as to whether the child is scoring low or high relative to a normative sample of peers. For total problems, externalizing problems, and internalizing problems, *T* scores less than 60 are considered in the normal range, 60–63 represent borderline scores, and scores greater than 63 are in the clinical range (Achenbach, 1991).

2.2.2. The Friendship Activity Scale (FAS)

The FAS was developed based on theories of social cognition concerning the development of friendship (Siperstein & Bak, 1985), and reflects attitudes toward participating individuals with unique attributions. It has two forms: the original version of the FAS consisted of 17 items and the revised version of 10 items. Participants respond to both versions of the FAS using a four-point scale indicating whether they would (4), probably would (3), probably would not (2), or would not (1) include the child attributed in the listed activity. The Turkish version of the 17-item FAS was developed by Nalbant, Aktop, Özer, and Hutzler (2011) and was found to have acceptable internal consistency reliability (Cronbach's alpha) of .86 and a concurrent validity rate of .51.

In the current study an adaptation of the 17-item FAS carried out for Turkish children by Nalbant et al. (2011) was used. Score range was 17–68, with the high score (68) reflecting a positive attitude, and the low score (17) a negative attitude. Test–retest reliability in this version of the FAS was found to be .89.

2.2.3. Adjective Checklist (ACL)

The ACL is another instrument developed by Siperstein (1980), designed to assess children's attitudes by asking their judgment of the attributes of a new peer (with ID, about whom they are given a short description) (Manetti, Schneider, & Siperstein, 2001). This instrument includes 34 items scored on a dichotomic scale as positive (e.g., "proud", "happy") and negative (e.g., "careless", "ugly") adjectives that are equally represented in the Checklist. The summary score of the ACL is the total of the positive adjectives minus the total of the negative adjectives, plus a constant of 20 (in order to avoid multiplying negative numbers in some statistical procedures). Thus, a summary score above 20 indicates relatively positive impressions, whereas a summary score below 20 indicates negative impressions. The reliability of the original ACL was assessed by calculation of the Cronbach alpha coefficient of reliability (alpha = .81) (Siperstein, 1980). In addition ACL was significantly

correlated to children's behavioral intentions ($r = .49$) as measured by the Activity Preference Scale (also developed by Siperstein, 1980), thus addressing concurrent validity. The Turkish version of ACL was developed by Çiftçi (1997) and was found to have an acceptable internal consistency reliability (Cronbach's alpha) coefficient of .62 and a concurrent validity rate of .53.

2.3. Description of the training program

The sport of soccer was selected for this study because it is one of the most popular sports for both SO athletes and partners in Turkey. The coaches of the training program possessed the necessary experience and qualifications both for teaching children with ID and for coaching the sport of soccer. Participants were provided transportation to the soccer field from their schools and from the soccer field back to their homes. Participants in the training program were divided, with equal numbers of SO athletes and partners, into four teams, each supervised by two coaches. In addition, a head coach directed the whole project. Participants in each group received colored soccer uniforms, shoes, and accessories.

The training program lasted eight weeks, comprising three sessions per week, 90 min each session, as an after-school program. Session content followed the general soccer skill instructional approach (Special Olympics Football Coaching Guide, 2004), and encompassed skill training, soccer rules, sportsmanship, and some team tactics. Sessions started with warm-up exercises, including exercises without the ball such as stretching, coordination, strengthening, and running, as well as exercises with a ball. These exercises and drills lasted 20 min for the first five sessions. The time reserved for warming up was gradually decreased to 10 min as participants improved their skills. After warming up, the participants practiced soccer skills, including control-receiving, dribbling, passing, shooting, tackling, leading and goalkeeping techniques. In addition team tactics and match tactics were introduced, and a soccer tournament was held at the end of the program with parents attending as spectators. All team participants were given first-, second-, third-, and fourth-place medals.

2.4. Procedure

All parents of children participating in the study signed written informed consent forms, and the study was approved by the University Research Ethics Committee. Before the initiation of the UNS program, several meetings were conducted with the parents of the participating children, where verbal and audiovisual information about the content and structure of the UNS program was presented. Age, height, and weight of all participating children were recorded during a preliminary meeting with the group and BMI was calculated.

FAS, ACL, and CBCL were conducted prior to (pre test) and after completion of the eight week program (post test). The pre test data of FAS and ACL were collected before the selection of partners and their CG. Participants did not have any indication of the prospective program when the FAS and ACL were administered.

The questionnaires were administered to the athletes, partners, and teachers in separate groups. Because of some parents' and athletes' insufficiency in reading and writing skills, the questionnaires were administered to them via interview by the researcher. The researcher read the items in the questionnaire and wrote the participant's response on the questionnaire form. This protocol was used in the same way and by the same researcher for all measurements of participants.

2.5. Statistical analysis

All statistical procedures were carried out separately in the groups of student with and without ID. Baseline data were analyzed through the use of a Student t test for independent samples to determine if an initial difference existed between groups. Multiple 2 (Group) $\times$ 2 (Time) repeated analyses of variance for the parent and teacher form of the CBCL, FAS, and ACL were performed to assess differences within and between the groups over time. When statistical differences were observed in the baseline measurement, an analysis of covariance was performed. The covariate used was the baseline value for each participant. All statistical procedures were performed in SPSS Version 10.0; the alpha level was set at .05.

3. Results

The effects of the UNS Program on children's adaptive and problem behavior and behavioral intentions of children toward their peers were determined by comparing pre and post program measurements. Statistical analyses were performed separately in the groups of students with and without ID.

The students with ID group were not different in terms of age ($t_{36} = -.14$, $p = .89$), height ($t_{36} = -.35$, $p = .73$), weight ($t_{36} = .04$, $p = .97$) or BMI ($t_{36} = -.59$, $p = .57$) during the pre-test measurements. The groups of students without ID also showed no significant differences between the partner and control groups in age ($t_{36} = 1.37$, $p = .18$), height ($t_{36} = -.17$, $p = .87$), weight ($t_{36} = -.33$, $p = .75$), or BMI ($t_{36} = .23$, $p = .82$) during the pre-program measurements (Table 1).

Means and standard deviations of the CBCL-parent and teacher form, FAS, and ACL in students with ID are presented in Table 2.

Table 1
Age, height, and weight characteristics of participants.

Variables	Students with ID ($n = 38$)				Students without ID ($n = 38$)			
	SO athletes group ($n = 23$)		Control group ($n = 15$)		Partner group ($n = 23$)		Control group ($n = 15$)	
	M	SD	*M*	SD	*M*	SD	*M*	SD
Age, year	14.5	1.2	14.5	.8	14.1	.9	13.8	.5
Height, cm	158.5	5.7	159.5	10.8	160.8	6.4	161.1	6.2
Weight, kg	54.5	14.6	54.3	11.5	44.8	11.6	45.9	9.7
BMI, kg/m^2	19.7	4.8	20.5	2.4	18.3	3.5	18	2.9

3.1. CBCL parent form of students with ID

In pre test measurements, no significant differences were found in total competence ($t_{36} = .03$, $p = .97$), internalizing ($t_{36} = -.93$, $p = .36$), externalizing ($t_{36} = -.82$, $p = .42$), or total problems ($t_{36} = -.61$, $p = .55$) between control and SO athletes group (Table 2).

Repeated measure analysis of variance result indicated significant effects of time on internalizing ($F_{1,36} = 13.72$, $p < .001$), externalizing ($F_{1,36} = 12.76$, $p = .001$), and total problem ($F_{1,36} = 19.43$, $p < .001$, $\eta^2 = .35$), but not total competence ($F_{1,36} = .01$, $p = .91$). There was a interaction effect in the total competence score ($F_{1,36} = 4.46$, $p = .04$) (Table 3). There were no significant group effects in the CBCL parent form ($p > .05$).

Table 2
Means and standard deviations on Child Behavior Checklist by parents and teachers, Friendship Activity Scale (FAS) and Adjective Checklist (ACL) in students with ID.

	Control group ($n = 15$)				SO athletes group ($n = 23$)			
	Before program		After program		Before program		After program	
	M	SD	*M*	SD	*M*	SD	*M*	SD
Parents								
Competence	36.3	10.3	33.6	8.9	36.4	6.8	39.5	5.8
Internalizing	63.8	9.1	58.0	12.6	61.1	8.4	54.7	10.5
Externalizing	58.1	8.6	50.6	10.5	55.7	9.0	53.0	8.4
Total problems	63.5	6.5	56.7	10.3	62.3	6.2	57.4	7.2
Teacher								
Competence	46.5	3.9	45.6	5.2	46.3	5.4	46.3	2.3
Internalizing	60.7	11.3	53.9	10.3	53.5	4.9	51.3	6.2
Externalizing	56.1	9.5	53.9	9.6	55.7	9.1	53.3	10.1
Total problems	58.9	8.9	55.0	9.7	54.5	6.7	51.2	7.6
FAS	58.9	8.2	57.2	10.9	54.5	14.3	60.2	12.5
ACL	28.3	4.4	25.9	4.6	24.4	5.6	26.3	4.7
Positive	11.7	3.6	8.7	3.5	8.2	4.4	8.9	4.5
Negative	3.4	4.7	2.9	3.6	3.8	2.8	2.7	3.5

Table 3
Multivariate analysis of variance for Child Behavior Checklist parent and teacher form, Friendship Activity Scale and Adjective Checklist in students with ID.

	df	*F* time	η^2	*F* interaction	η^2	*F* group	η^2
Parents							
Competence	1,36	.01	.00	4.47*	.11	1.87	.05
Internalizing	1,36	13.72†	.28	.03	.00	1.03	.03
Externalizing	1,36	12.76†	.26	2.97	.08	.00	.00
Total problems	1,36	19.43†	.35	.56	.02	.02	.00
Teacher							
Competence	1,36	.27	.01	.32	.01	.05	.00
Internalizing	1,35	3.18	.08	5.97*	.15	1.40	.04
Externalizing	1,36	3.56	.09	.01	.00	.03	.00
Total problems	1,36	11.09†	.24	.08	.00	2.80	.07
FAS	1,36	1.80	.05	6.00*	.14	.04	.00
ACL	1,35	22.41†	.39	24.05†	.41	.99	.03
Positive	1,35	18.66†	.35	28.57†	.45	.10	.00
Negative	1,36	3.39	.09	.48	.01	.01	.00

* $p < .05$.
† $p < .01$.

There was a significant difference between the before and after program total competence scores of SO athletes ($F_{1,22} = 4.48$, $p = .04$). After the UNS program, the total competence score of SO athletes increased, however there were no significant differences between the before and after program total competence score of the CG ($p > .05$).

3.2. CBCL teacher form of students with ID

In the pre-test measurement, there was a significant difference between the control and SO athletes groups in internalizing ($t_{36} = -2.72$, $p = .01$) scores. The CG had a higher internalizing score than SO athletes. In total competence ($t_{36} = -.14$, $p = .89$), externalizing ($t_{36} = -.14$, $p = .89$) and total problems ($t_{36} = -1.74$, $p = .09$) scores, the control and SO athletes groups were similar prior to the program (Table 2).

An analysis of covariance was conducted for the internalizing score because of baseline differences before the program, with the analysis revealing a significant interaction effect ($F_{1,35} = 5.97$, $p = .02$). The internalizing score of the CG significantly decreased between pre-test and post-test measurements. The SO athletes' internalizing score also decreased throughout the program, but differences between pre-test and post-test measurements were not significant ($p > .05$).

Repeated measure analysis of variance results revealed significant effects of time on total problems ($F_{1,36} = 11.09$, $p = .002$) but not on the total competence, internalizing, or externalizing ($p > .05$) score. There were no significant group effects ($p > .05$) (Table 3).

3.3. FAS and Adjective Checklist outcomes in students with ID

In the baseline comparison, there were significant differences between the control and SO athletes group in positive adjective ($t_{36} = -2.59$, $p = .01$) and total adjective scores ($t_{36} = -2.29$, $p = .03$). Prior to the program, the CG had higher positive and total adjective scores than the SO athletes group (Table 2). In the FAS, and negative adjective, control and SO athletes groups had similar scores in pre test measurements ($p > .05$).

In the FAS, repeated measure analysis of variance revealed a significant interaction effect ($F_{1,36} = 6.00$, $p = .02$), but no significant time and group effect ($p > .05$). After the UNS program the FAS score of SO athletes increased significantly ($F_{1,22} = 11.04$, $p = .003$). In the CG, there was a decrease in the FAS score, however comparison of pre-test and post-test measurements were not significant ($p > .05$).

An analysis of covariance was conducted for positive and total adjective scores because of baseline differences, with the analysis revealing a significant effect of time and interaction. There were significant differences between pre-test and post-test measurements in positive ($F_{1,35} = 16.29$, $p = .001$, $\eta^2 = .54$) and total adjective scores ($F_{1,35} = 6.40$, $p = .02$) of the CG. Both positive and total adjective scores of the CG decreased throughout the program. In the SO athletes group, there was an increase in positive and total adjective scores but this increase was not significant ($p > .05$).

In negative adjective scores, there were no significant time, interaction, or group effects ($p > .05$) after the UNS.

3.4. BCL parent form outcomes in students without ID

Prior to the study, both the control and partner groups of students without ID did not differ in total competence ($t_{36} = .29$, $p = .77$), internalizing ($t_{36} = -.92$, $p = .36$), externalizing ($t_{36} = -.35$, $p = .73$) or total problems ($t_{36} = -.09$, $p = .94$) scores (Table 4).

Table 4
Means and standard deviations on Child Behavior Checklist by parents and teachers, Friendship Activity Scale (FAS) and Adjective Checklist (ACL) in students without ID.

	Control group ($n = 15$)				Partner group ($n = 23$)			
	Before program		After program		Before program		After program	
	M	SD	*M*	SD	*M*	SD	*M*	SD
Parents								
Competence	41.3	7.9	44.8	6.5	42.0	7.5	41.7	7.1
Internalizing	59.1	6.8	55.1	7.7	56.6	9.2	56.6	9.5
Externalizing	53.0	6.8	53.1	8.1	52.0	8.9	51.7	9.0
Total problems	56.7	6.1	55.3	6.0	56.5	7.9	56.2	8.1
Teacher								
Competence	47.1	4.7	46.1	5.7	47.0	6.1	46.3	5.9
Internalizing	61.3	6.0	59.1	6.2	54.3	10.0	50.3	9.9
Externalizing	58.0	6.5	60.7	13.6	51.1	9.0	50.0	8.4
Total problems	59.6	6.1	61.5	13.0	52.4	10.1	47.7	11.4
FAS	42.3	7.1	42.7	7.7	50.8	7.0	53.3	9.4
ACL	18.0	5.8	16.1	5.5	20.6	6.3	24.2	5.8
Positive	2.7	2.9	2.0	4.6	5.5	4.0	7.7	4.0
Negative	4.7	3.3	5.9	3.2	4.9	3.7	3.5	4.1

Table 5
Multivariate analysis of variance for Child Behavior Checklist parent and teacher form, Friendship Activity Scale and Adjective Checklist in students without ID.

	df	F time	η^2	F interaction	η^2	F group	η^2
Parents							
Competence	1,36	.81	.02	1.20	.03	.54	.02
Internalizing	1,36	1.29	.03	1.34	.04	.05	.00
Externalizing	1,36	.00	.00	.01	.00	.39	.01
Total problems	1,36	.23	.01	.10	.00	.04	.00
Teacher							
Competence	1,36	1.57	.04	.07	.00	.00	.00
Internalizing	1,35	3.59	.09	5.63*	.14	2.90	.08
Externalizing	1,35	3.52	.09	3.53	.09	3.37	.09
Total problems	1,35	.01	.00	.06	.00	4.89*	.12
FAS	1,35	2.71	.07	2.18	.06	2.22	.06
ACL	1,36	.57	.02	6.52*	.15	10.96†	.23
Positive	1,35	24.03†	.41	29.37†	.46	17.99†	.34
Negative	1,36	.02	.00	5.45*	.13	1.10	.03

* $p < .05$.
† $p < .01$.

According to repeated-measure analysis in the CBCL parent form, there were no significant time, interaction, or group effects in total competence, internalizing, externalizing, or total problem scores of student without ID ($p > .05$) (Table 5).

3.5. CBCL teacher form outcomes in students without ID

Baseline comparison of the CBCL teacher form revealed a significant difference between the control and partner groups in internalizing ($t_{36} = -2.44$, $p = .02$), externalizing ($t_{36} = -2.54$, $p = .02$), and total problems ($t_{36} = -2.46$, $p = .02$) scores. There was no significant difference between groups in total competence ($t_{36} = -.10$, $p = .93$).

Repeated-measure analysis covariance was used for the internalizing, externalizing, and total problems scores because of baseline differences. According to the analysis, there were no significant time, interaction, or group effects in total competence or externalizing ($p > .05$). In total problem scores there was only a significant group effect ($F_{1,35} = 4.89$, $p = .03$). The CG had significantly higher scores in total problem scores than the partner group, both in before and after program measurements ($p < .05$). In internalizing scores a significant interaction effect was found ($F_{1,36} = 5.63$, $p = .02$). After the UNS program, the internalizing score of the partner decreased, however there were no significant differences between the before and after program internalizing score of the CG ($p > .05$).

3.6. FAS and Adjective Checklist outcomes in students without ID

Before program measurements, there was a significant difference between the control and partner groups in the FAS ($t_{36} = 3.67$, $p < .001$) and positive adjective scores ($t_{36} = 2.27$, $p = .03$). The partner group had higher FAS and positive adjective scores than the CG. In negative adjective ($t_{36} = .12$, $p = .91$) and total adjective scores ($t_{36} = 1.30$, $p = .20$) there were no significant differences between the control and partner groups prior to the program (Table 2).

Repeated measure analysis of covariance results indicated significant effects of time ($F_{1,35} = 24.03$, $p < .001$, $\eta^2 = .41$), interaction ($F_{1,35} = 29.37$, $p < .001$, $\eta^2 = .46$) and group ($F_{1,35} = 17.99$, $p < .001$, $\eta^2 = .34$) in positive adjective scores, but no significant time, interaction, or group effect in the FAS ($p > .05$). Within the partner group, the difference between the before and after program measurement in the positive adjective score was significant ($F_{1,21} = 27.40$, $p < .001$, $\eta^2 = .57$). Positive adjective scores of partners increased throughout the program. In the CG, there was a decrease in positive adjective scores, but this decrease was not significant ($p > .05$). The partner group had significantly higher scores in positive adjectives than the CG, both in before and after program measurements ($p < .05$).

Repeated measure analysis of variance indicated a significant interaction effect in negative adjective scores ($F_{1,36} = 5.45$, $p = .03$), interaction ($F_{1,36} = 6.52$, $p = .02$), and group effect ($F_{1,36} = 10.96$, $p = .002$) in total adjective scores. Within the partner group, there was a decrease in negative adjectives, but the difference between the pre- and post-program measurement was not significant ($p > .05$). In the CG, there was an increase in negative adjectives, but this increase was not significant ($p > .05$). In total adjective scores, there was a significant increase in the partner group ($F_{1,22} = 5.40$, $p = .03$); in the CG total adjective scores decreased but the difference between the before and after program measurement was not significant ($p > .05$). In total adjective scores, while there was no significant difference between the control and partner groups prior to the study, in the post program measurement the partner group had significantly higher scores than the CG ($t_{36} = 4.30$, $p < .001$).

4. Discussion

The purpose of the present study was to examine the effects of participation in a UNS program compared to no participation in extracurricular sports on psycho-social attributes of youth with ID and their nondisabled peers. Positive

effects were revealed in social competence, problem behavior, and attitude scores. These results are discussed in the following sections under two separate headings, for youth with and without ID. Those with ID include the SO athletes and the CG; those without ID include partners and the CG that did not participate in the UNS program.

4.1. The effects of the UNS program on youth with ID

4.1.1. Social competence

When compared to the CG, one of the most encouraging outcomes of the present study was a significant increase in the social competence scores of SO athletes, which reached a similar level to that of their partners without ID after the UNS soccer program. An increase in the competence score, which is the outcome of one of the two CBCL subscales, reflects increased participation and self-evaluation of personal capacity in the social domain. Based on this outcome it may be suggested that the UNS program has given the youth with ID an opportunity to challenge their social capacities as compared to typically developing children, and thus increase their perception of competence. In a previous study (Dykens & Cohen, 1996) that did not include UNS conditions, the duration of participation in SO activities was the most powerful predictor of social competence. The SO athletes had higher social competence scores and more positive self-perceptions than a control group. In addition, the authors concluded that more support was found linking SO activities to social competence than the remaining behavioral domains. Apparently, SO activities facilitate individuals with ID to practice their social skills, learn the norms of the peer group, and maintain friendships and thus enhance their social competence (Goldstein, Kaczmarek, & English, 2002; Special Olympics Global Collaborating Center, 2006). The UNS program may further contribute to social competence, as observed in a study of Riggen and Ulrich (1993). These authors used a modified version of the Perceived Competence Scale for children (Harter, 1982) in order to compare between adults with ID who participated in UNS and those who took part in conventional SO basketball activities. Although no significant time effects were obtained in their study, Riggen and Ulrich (1993) reported a significant interaction, and suggested that UNS participants possibly gained social self-perception as an outcome of this program, while the participants in the traditional SO basketball program and controls hardly changed. Siperstein and Hardman (2001) emphasized the importance of increasing the social competence of children with ID in order to facilitate their inclusion in the environment in which they play, live, and study, or work. The present study is the first reporting significant time effects in social competence of UNS participants, compared to no effects of controls. Therefore, it can be recommended that UNS programs be considered as an effective intervention method to improve social competence in youth with ID.

4.1.2. Changing problem behavior

Using the CBCL, parents and teachers reported on youth with ID who have participated in an UNS program compared to the CG who did not participate in physical activity. According the CBCL guideline, at the pre-test the mean value of behavioral problems in UNS participants and of the CG were on the borderline in terms of internalizing and total problem scores. The time effect revealed in total problem scores was associated with a reduction in the appearance of borderline behavior problems in both groups. The reduction of behavior problems in the CG may be due to the educational services provided by special education and rehabilitation centers. While UNS participants joined UNS training program three days a week, children in the CG attended an educational program offered by special education and rehabilitation centers two or three days a week. Both programs may have had a similar effect on behavioral problems scores.

Our results revealed a significant decrease in the internalizing scores of UNS participants and externalizing of the CG, and in the total problem scores of both groups, at the post-test. With regard to the reduced internalizing and externalizing scores of UNS participants, these findings can be supported by data reported in a study carried out by Rosegard et al. (2001), who used the CBCL to examine the effects of participating in a 12-week Unified Bowling program on maladaptive behaviors. Their results revealed that the UNS group reported significantly lower internalizing and externalizing scores.

Previous studies that have utilized the CBCL in children with ID have found that these children had significantly higher mean scores on all CBCL scales than children without disability (Dekker, Koot, van der Ende, & Verhulst, 2002; Koskentausta, Iivanainen, & Almqvist, 2004). In a study conducted by Dekker et al. (2002), almost 50% of the children with ID had a total problem score in the deviant range, compared to 18% of children without disability. Although our UNS participants tended to have higher scores in terms of internalizing, externalizing, and total problems than their typically developing partners, this difference was not significant. In the present study, while before the UNS program 74% of the children with ID had a total problem score in the deviant range, after the UNS program the percentage of deviant range of the total problem score significantly decreased to 35% [$X^2(1, N = 23) = 7.11, p = .004$]. Psychiatric disorders have frequently been reported to be more common among children with severe ID (IQ < 50) than among those with mild disability (e.g., Einfeld & Tonge, 1996; Gillberg, Persson, Grufman, & Themner, 1986). Our findings may be explained by the frequency of psychiatric disorders that actually increase with decreasing IQ. Nonetheless, in our study we did not find that the internalizing, externalizing, and the total problem scores were not at the clinical level for SO athletes and partners. This finding confirmed that the SO athletes included in the present study were eligible within the criteria of the UNS program (Roswal, 2007).

4.1.3. Attitudes and behavioral intentions toward social activity

The effects of the UNS Program on participant attitudes were measured by means of ACL and on behavioral intention by means of FAS. A significant increase in FAS scores was measured in UNS participants at post-test without similar

changes in the CG. At the end of the UNS program, SO athletes imparted more intention toward helping behaviors, sharing behaviors, physical proximity, common activities, and intimacy level. Slightly different findings appeared with regard to ACL. While UNS participants retained their scores, they were significantly reduced in the CG at post-test. These findings are particularly important, because Heiman (2000) reported that students with ID in special schools tend to have fewer friends than students with ID within mainstreamed schools, with most of them meeting friends at school only. The students in special education schools responded more passively and felt lonelier than students in the other groups. The UNS program appears to provide an opportunity for youth with ID to find friends and to establish social relationships. This suggestion is supported by findings revealed in the study of Harada and Siperstein (2009), where athletes with ID reported that they participated in SO programs because they were either interested in making new friends or wanted to participate in an activity with friends they already had.

Although many studies have explored the attitudes of typically developing children and youth toward peers with ID, we were able to retrieve only one previous study addressing the attitudes of children with ID toward peers without disabilities (Castagno, 2001). This study supported the findings of the present study, reporting that participants in an UNS basketball program significantly improved their scores on the FAS and ACL at the post-test, following an eight-week intervention period.

4.2. The effects of UNS program on youth without ID

4.2.1. Social competence

No significant time effect was observed with regard to the social competence scores of either partners or of the CG participants. One possible reason for this outcome could be the high social competence scores of the typically developing participants in this study at baseline, potentially causing a ceiling effect.

4.2.2. Problem behavior

According to the CBCL form of youth with ID and their CG, while the participants of the partner group scored similarly to CG in terms of problems scores before the UNS program, a significant decrease was found in their internalizing and total problem scores after the program. We have not found any previous similar results. Nevertheless, based on qualitative analyses of interviews with UNS athletes, partners, coaches, leasers, and parents (Dowling, McConkey, & Hassan, 2009), some indications for this behavioral change may be seen. This study revealed several themes suggesting a common social environment of the sport game, in which the goals, the skills, and training effort, as well as teamwork, were shared. According to the themes revealed, it may be suggested that partners without disability have profited from increased skill and fitness, as well as developing an athletic self-identity. In turn, these outcomes may have decreased the tendency of participants with ID to use inappropriate behaviors to compensate for lacking competencies. If indeed such outcomes are repeated in future studies, UNS programs could be considered not only for the sake of inclusion of participants with ID, but also as a useful intervention tool for the general population in schools and communities. This should be exercised particularly in the higher classes, because as children grow up they increase their empathic sensitivity and ability of perspective-taking, broaden their knowledge of cultural norms, increase their social responsibility and competence, and obtain enhanced moral reasoning capabilities (Piliavin & Charng, 1990).

4.2.3. Attitudes and behavioral intentions

The present study revealed that FAS and ACL significantly increased in partners compared to the maintaining of the pre-test scores in the CG. One of the most common theories for explaining such an effect is the contact theory (Allport, 1954; Tripp, French, & Sherrill, 1995). According to this theory both the frequency and quality of the social contact are essential for improving mutual understanding and acceptance. Positive effects of contact on attitudes of typically developing youth toward peers with ID was also reported by Castagno (2001), who organized a basketball UNS program following the criteria of same age, similar skill level, and an equal participants rate. Another example of creating contact was reported in cooperative activities that emphasized personal skill development, achievement, teamwork, and fun (Siperstein, Glick, & Parker, 2009), or in leisure contexts, in which participants were treated equally and had reciprocal friendships (Devine & Wilhite, 2000). The present study revealed that after attending the UNS program attitudes of partners toward peers with ID improved, but their intentions to play and interact with these peers were not changed. This outcome can be explained using the Theory of Planned Behavior, which presents attitudes as one of the factors contributing to intentions, together with further motivational factors such as norms, personal values, and control beliefs (Ajzen, 2005).

4.3. Limitations

Although the findings of this study demonstrated positive effects, some caution should be exercised when interpreting and attempting to generalize our findings. The study was conducted throughout a period of just eight weeks, as a requirement of the UNS program schedule. It may be expected that during longer periods of the inclusive program more changes would be established.

In addition, it should be noted that the CBCL is not specifically designed to assess problem behaviors in children with ID, and therefore its use might result in under-reporting of behaviors that are typically seen in children with ID (Dekker et al.,

2002). Nevertheless, it was reported that the CBCL is more suited to children with mild ID than to those with moderate, severe, or profound ID (Koskentausta, Iivanainen, & Almqvist, 2004), our study mostly included children with mild ID.

4.4. Conclusion

The purpose of the present study was to examine the effects of participation in a UNS program compared to no participation in extracurricular sports on psycho-social attributes of youth with and without ID. The findings showed that the UNS program was effective in decreasing the problem behaviors of youth with ID and increasing their social competence and FAS (attitudes) scores. In addition, the program was found to be effective in improving the attitude of youth without disabilities toward participants with ID. In conclusion, the present findings demonstrate the utility of a UNS program for both youth with and without disability. Our findings are the first outside the US that positively demonstrate the impact of UNS programs on participants with ID. In addition, this is one of the first studies demonstrating the effect of such programs on participants without disability. These findings may motivate coaches, teachers, school managements, and community sport coordinators to implement UNS in their programs. Further investigations are needed to study the long-term effects of such programs, as well as participants' motor and fitness attributes.

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