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## Enhancing Social Skills Development in Children with Autism Spectrum Disorder: An Evaluation of the "power of Camp Inclusion" Program

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## Research Article

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# Enhancing Social Skills Development in Children with Autism Spectrum Disorder: An Evaluation of the “Power of Camp Inclusion” Program

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**Abstract:** This study investigates the effectiveness of the “Power of Camp Inclusion” program in enhancing social skills among children with autism spectrum disorder (ASD) in an integrated educational environment of a camp. Caregivers, who received pedagogical training on disability issues, evaluated the program. The study involved 22 individuals with ASD, aged 7–25 years (mean age: 14.82), and 22 companions, aged 20–56 years (mean age: 25.27). Caregivers received *in vivo* training on social skills to support their role in the program. The Autism Social Skills Profile (ASSP) was used to assess social skills, including Social Reciprocity, Social Participation, and Harmful Social Behaviors, as well as the overall index of social skills. In addition to ASSP, all participants underwent semi-structured interviews. Statistical analysis examined demographic data, internal consistency of variables, their correlation, and *t*-test analyses of a sample and paired observations. The results indicated that the implementation of the “Power of Camp Inclusion” program had positive effects on the development of social reciprocity, social participation, overall index of social skills, and reduction of harmful social behaviors among children with ASD. The findings of this study highlight the importance of educational programs that support the development of social skills for children with ASD

and emphasize the need for such programs to be integrated into modern educational policies.

**Keywords:** autism spectrum disorder, social skills, integrated education, camp, pedagogical training, “Power of Camp Inclusion”, ASSP questionnaire, semi-structured interview, harmful social behaviors, social reciprocity, social participation

## 1 Introduction

Autism spectrum disorder (ASD), classified as a neurodevelopmental disorder by the Diagnostic and Statistical Manual (DSM-5, 2013), is characterized by pervasive developmental challenges. The hallmark features encompass communication and language delays, alongside restricted, stereotyped behavioral patterns (American Psychiatric Association, 2013; Christopher & Shakila, 2015). Research has consistently shown that individuals with ASD face significant challenges in social functioning, including difficulties in social skills, social competence, and peer relationships (Knott, Dunlop, & Mackay, 2006). These challenges are further exacerbated by negative first impressions and reduced intentions for social interaction from neurotypical peers (Sasson et al., 2017). Stress also plays a significant role in the social functioning of adults with ASD, with higher stress levels being associated with poorer social functioning (Bishop-Fitzpatrick, Mazefsky, Minshew, & Eack, 2015). From the perspective of individuals with ASD, the most common social challenges include a sense of isolation, difficulty in initiating social interactions, and a desire for greater intimacy (Müller, Schuler, & Yates, 2008). Additionally, individuals with ASD often exhibit variations in adaptive skills, cognitive functioning, language proficiency, and emotion regulation and may manifest problematic behaviors, highlighting the multifaceted nature of the disorder (Smith & White, 2020; Theodoratou et al., 2023).

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## 1.1 Addressing Unique Needs

Addressing the unique needs of individuals with ASD necessitates immediate, intensive, and tailored interventions, both in individual and in group settings (Guivarch *et al.*, 2017). Recent studies have emphasized the importance of targeted interventions to support individuals with ASD in achieving appropriate developmental milestones and building interpersonal relationships, especially with their peers (Guivarch *et al.*, 2017). Educational programs play a pivotal role in promoting inclusion, fostering positive attitudes, and enhancing participant satisfaction (Kurniawati, De Boer, Minnaert, & Mangunsong, 2017; Townsend & Hassall, 2007). As part of the United Nations Sustainable Development Goal Four, these programs provide avenues for new experiences, contributing to individuals' skills development and societal integration.

## 1.2 Extracurricular Educational Initiatives

Extracurricular educational initiatives, particularly those fostering inclusion, emerge as crucial contributors to cognitive and social development among children (Kirschman, Roberts, Shadlow, & Pelley, 2010). This features the increasing need for collaborative educational programs both within and beyond traditional school environments (Eshach, 2007). Sports and leisure camp programs emerge as dynamic interventions, offering enjoyment for all children (Randel *et al.*, 2015; Smith, 2015; Zachor *et al.*, 2017). These programs, proven to enhance social interaction, emotional stimulation, and peer socialization, present valuable opportunities for children with special needs (Maich, Hall, van Rhijn, & Quinlan, 2015). Peer-mediated therapies and fully inclusive summer camps, emphasizing relationship-building and physical activity, hold promise but require further exploration (Brookman *et al.*, 2003; McConnell, 2002).

## 1.3 Camp Setting and Caregiver Role

A camp setting, with its open outdoor spaces and overnight stays, offers a conducive environment for individuals with special needs (Giangreco & Doyle, 2007). Carefully selected and trained camp personnel, including executives, caretakers, and team leaders, play a crucial role in ensuring program success. The importance of caregivers, often overlooked in camp programs, becomes apparent, particularly

in integrated educational settings (Katsarou, Nikolaou, & Stamatis, 2023). Individuals with ASD may present varying degrees of adaptive functioning, cognitive abilities, and language proficiency. Understanding their emotional regulation and addressing problematic behaviors requires a tailored approach. The existing literature on caregivers' roles in social skills development within camp programs is limited, with a notable research gap (Gillard, Witt, & Watts, 2010; Hassan *et al.*, 2018; Queluz, Barham, & Prette, 2019). Hassan *et al.* (2018) and Queluz *et al.* (2019) highlight the potential benefits of training caregivers in social skills, with Queluz *et al.* specifically focusing on caregivers of older adults and Hassan on those of children with ASD. Gillard *et al.* (2010) emphasize the influence of camp staff on the outcomes of campers, suggesting that staff members play a crucial role in social skills development within camp programs. A previous study emphasizes the need for information and support for informal caregivers, who can also significantly impact children's social-emotional development. These studies collectively accentuate the importance of further research into the specific role of caregivers in social skills development within camp programs. The subsequent sections will focus on the methodology, findings, and implications of the study.

## 1.4 Overview of the Study's Objectives and Hypotheses

This study's goals are to evaluate the effects of a fully inclusive sports and recreation program on the social interaction abilities of children with ASD and to assess the efficacy of peer-mediated therapies in this environment. The study aims to advance knowledge of the perks of extracurricular educational initiatives that foster inclusion and accommodating attitudes toward people with ASD. Furthermore, the study will assess how the camp program has affected the children's social interaction, emotional stimulation, quality of life, teamwork, and peer socialization. The importance of caregivers in the implementation of inclusive education for children with disability will also be examined in the study, as will their role in helping children with ASD adjust to a curriculum that places a strong emphasis on building relationships and engaging in physical activity. The overall goal of the study is to identify best practices for developing collaborative educational programs both inside and outside of the classroom, as well as to offer insights into how fully inclusive summer camps can support the social development of children with ASD.

Based on the stated objectives of the study, which focus on evaluating the impact of a fully inclusive sports and leisure camp program on the social interaction skills of children with ASD and assessing the effectiveness of peer-mediated therapies in this setting, the researchers have formulated four hypotheses to test various aspects of social interaction among the children with ASD who participate in the program. The hypotheses are based on previous research and consultation with experts in the field and were designed to test the impact of the program on specific factors related to social interaction and overall social skills development. The study is centered around four primary hypotheses, each addressing a specific aspect of social development in children with ASD participating in the “Power of Camp Inclusion” program:

1. *Social reciprocity factor*: The first hypothesis posits that the program will have a positive effect on the development of the social reciprocity factor in children with ASD. This implies an enhancement of their ability to initiate and respond to social interactions.
2. *Social participation factor*: Building on the first hypothesis, the second hypothesis anticipates a positive effect on the development of the social participation factor. The program aims to assist children with ASD in engaging in social activities and becoming more involved in group settings.
3. *Reduction of harmful social behaviors*: The third hypothesis suggests a positive impact on reducing harmful social behaviors in children with ASD. The program is designed to decrease negative social behaviors such as aggression and withdrawal.
4. *Overall index of social skills*: Lastly, the fourth hypothesis proposes a positive effect on the development of the overall index of social skills. The overarching goal is to comprehensively enhance the social skills of children with ASD participating in the program.

In addition to evaluating the impact of the program on these specific factors, the study aims to assess the effectiveness of peer-mediated therapies in this setting. The research will comprehensively evaluate changes in the children’s social interaction, emotional stimulation, quality of life, collaboration, and peer socialization following participation in the camp program. Furthermore, the study explores the role of caregivers in helping children with ASD adjust to a program emphasizing relationship-building and physical activity. It focuses on the significance of caregivers in implementing inclusive education for children with special needs. The study’s overall goals include identifying best practices for developing collaborative educational programs both inside and outside the classroom and providing

knowledge about how fully inclusive summer camps can support the social development of children with ASD.

## 2 Materials and Methods

### 2.1 Participants

At a private camp, the survey was carried out between August 13 and August 23, 2021. Twenty-two children with ASD, aged 7–25 (mean = 14.82 years old), and 22 specialized caregivers, aged 20–56 (mean = 25.27 years old) and pedagogically trained on special needs issues, were selected as a convenience sample. Undergraduate and graduate students with a range of educational backgrounds made up the program’s caregivers. The selection for the program was based on the caregivers’ participation applications, an assessment of their curriculum vitae, and the certification of the children with ASD by differential diagnosis, diagnosis and support for special educational needs centre (KEDDY), a state-level organization that certifies special needs nationally (Table 1).

### 2.2 Instruments

#### 2.2.1 Autism Social Skills Profile (ASSP) Questionnaire

Bellini and Hopf in 2007, translated the ASSP questionnaire which was adapted into Greek by Papaefstathiou (2014) (Table 2). This questionnaire is a useful tool for developing and evaluating social skill interventions because it aids in program design and evaluation. It takes about 10–15 min to complete the questionnaire, which can be completed by a parent, teacher, or any expert in adaptive physical education. High scores correspond to positive social behaviors. Responses are scored on a 4-point Likert scale ranging from “never” to “very often” (never = 0, sometimes = 1, often = 2, very often = 3). The study by Bellini and Hopf (2007) found that the ASSP questionnaire has excellent psychometric properties, including internal consistency, test reliability, and simultaneous validity. Forty-nine items make up the questionnaire, which is divided into three distinct subscales. There are 26 of them pertaining to Social Reciprocity, or the active maintenance of social interactions. In addition, 14 questions concentrate on Social Participation/Avoidance, which includes interpersonal abilities related to commitment or withdrawal. Nine questions address detrimental social behaviors, which are unsociable behaviors that frequently result in unfavorable peer interactions.

**Table 1:** Participants' characteristics

Participants	Number
Children with ASD	22
Age range of children with ASD	7–25
Mean age of children with ASD	14.82
Specialized caregivers	22
Age range of specialized caregivers	20–56
Mean age of specialized caregivers	25.27
Caregivers' educational background	Undergraduate and graduate students with a range of educational backgrounds
Selection criteria for caregivers	Participation applications, assessment of curriculum vitae, and certification of children with ASD by KEDDY, a state-level organization that certifies special needs nationally
Sampling method	Convenience sampling
Time of survey	August 13 to August 23, 2021

### 2.2.2 Semi-Structured Interviews

A qualitative evaluation was carried out to determine the program's impact on the social skills of campers with ASD on August 23, 2021, the day the camp program came to an end. The 22 caregivers who took part in the program were asked a series of semi-structured questions to achieve this (Table 2). The interview questions were prepared in advance but could have been changed as needed to promote more honest communication with the respondents. In addition to cooperative learning in the cognitive, emotional, and motor domains, the questions were primarily focused on social-communication abilities. Participants were urged to give honest answers and were reassured that their responses would be kept confidential. The research process was closely monitored by both the researcher and the project coordinator.

### 2.3 Procedure

Caretakers underwent a comprehensive orientation regarding the “Power of Camp Inclusion” program to enhance awareness through diverse channels. First, as a precursor to the program, caregivers engaged in a structured distance education module. This module provided them with foundational knowledge, focusing on the principles and objectives of the inclusion program. Caregivers accessed this educational content remotely, ensuring flexibility and accessibility.

Second, critical information and data pertinent to individuals with ASD were disseminated through personal files. These files served as centralized repositories, allowing caregivers to gain insights into the unique needs and characteristics of each participant. This personalized approach facilitated a deeper understanding of the campers, enabling caregivers to tailor their support accordingly.

**Table 2:** Methods used in the study

Methods	Participants	Instruments
Survey	Twenty-two children with ASD (aged 7–25) Twenty-two specialized caregivers	ASSP questionnaire (Adapted into Greek by Papaefstathiou, 2014) <ul style="list-style-type: none"> <li>Forty-nine items divided into three subscales</li> <li>Social Reciprocity (26 items)</li> <li>Social Participation/Avoidance (14 items)</li> <li>Detrimental Social Behaviors (9 items)</li> <li>Responses scored on a 4-point Likert scale</li> <li>High scores correspond to positive social behaviors</li> </ul>
Semi-structured interviews	Twenty-two specialized caregivers	<b>Interviews</b> <ul style="list-style-type: none"> <li>Conducted on the last day of the camp program (August 23, 2021)</li> <li>Questions focused on social-communication abilities</li> <li>Participants were urged to give honest answers and reassured that their responses would be confidential</li> <li>Qualitative evaluation to determine program impact on social skills of campers with ASD</li> </ul>

The daily social skills instruction, a pivotal component of the program, encompassed various interactive elements. Caregivers actively participated in questionnaire sessions, engaged in concept analysis, tackled problem-solving exercises, and focused on the nuanced understanding of abstract social concepts. Language learning sessions were integrated, and children were grouped based on their language proficiency to optimize engagement and communication. Encouraging teamwork, self-esteem, and a myriad of learning opportunities, caregivers collaborated in pairs or small groups, drawing inspiration from the program “Social Skills Interventions: Getting to the Core of Autism” by Foden and Anderson (2011).

To facilitate ongoing communication and feedback, daily group discussions involving caregivers were conducted. These sessions provided updates on the program’s analysis and evaluation, fostering a collaborative environment for continuous improvement. On specific evaluation milestones, caregivers completed the ASSP questionnaire using Google Forms on the first and tenth days of the program. Subsequent to questionnaire completion, individualized meetings with the research team were scheduled, ensuring a comprehensive review of the campers’ progress. To gauge the overall success of the program, the primary researcher conducted semi-structured interviews with the 22 participating caregivers on August 23. This qualitative assessment explored the caregivers’ perspectives on the program’s efficacy and their observations of its impact on the campers.

Notably, efforts were made to inform and engage campers without special needs. The camp staff received detailed explanations of the program’s objectives, and their involvement was sought and authorized. Parents of all campers were informed about the specialized intervention program, including the coexistence of their children with ASD. Prior consent was obtained from parents through both the camp administration and online platforms. Campers with special educational needs were strategically grouped into homogeneous age cohorts and accommodated in designated lodgings overseen by experienced executives serving as team leaders.

Awareness among campers without disability was actively promoted through direct communication, informational sessions, and the creation of an inclusive environment where understanding and collaboration were encouraged.

## 2.4 The “Power of Camp Inclusion” Program

The educational initiative “Power of Camp Inclusion” aims to encourage the inclusion of children with ASD in the

general educational setting. The program has been used for 6 years in a summer camp setting, with a focus on coordinating with the camp’s guiding principles and goals. Its main objective is to promote harmonious coexistence, mutual acceptance, and the fulfillment of all children’s motor, educational, social, and emotional needs. The program aims to encourage group learning, independent living, socialization, and the formation of enduring friendships and memories through a variety of activities. The program was held at a private summer camp in Halkidiki, Greece, with facilities that were fully accessible and catered to the requirements of all children. The camp featured 14 camper cabins, a modern kitchen, disability-accessible restrooms, and showers, two swimming pools with special requirements, areas for creating art, performing in plays, painting, and ceramics, an amphitheater for events, football courts, canoe, physiotherapy, a well-equipped doctor’s office, and a convalescent home with a doctor and nurse on duty 24 h a day.

Depending on their needs and level of ASD, campers with ASD were accommodated either independently or with campers without disability during the program. The campers were also divided into age groups, with children under the age of 11 living with children of their own age and children between the ages of 11 and 16 living with children their own age. Sports, leisure, environmental, and cultural activities were all part of the daily schedule, and any necessary individual or group adjustments were made as needed. Activities were planned that included reading fairy tales, watching movies, and playing pedagogical games on the topic of diversity to further increase awareness among campers without special needs. Older campers with special needs took part in activities designed to increase their autonomy and pre-professional skills, such as cooking exercises and acting as assistant mayors in charge of maintaining the cleanliness of the houses. Three phases make up the program. Planning and organization are done in the first stage, along with choosing the caregivers who will be instrumental in integrating children with special needs. The structured program, which is the second stage, consists of a variety of activities that allow children with and without special needs to coexist and communicate with one another. To strengthen and improve the program, evaluation and feedback processes are carried out in the final phase.

The “Power of Camp Inclusion” program stands out as a promising educational initiative dedicated to fostering the inclusion of children with special needs within a summer camp environment. Designed to cater to the diverse needs of all participants, the program utilizes a variety of activities to promote understanding, peaceful coexistence,

and the fulfillment of children’s motor, educational, social, and emotional needs. As outlined in Table 3, the program strategically implements a comprehensive framework for inclusive education. This approach emphasizes accessibility and individualized support, creating an environment that proves advantageous to all children involved in the camp experience.

Table 3 outlines the distinct phases of the “Power of Camp Inclusion” program, detailing the preparatory steps, the implementation of the program, and the subsequent evaluation and feedback processes. Each phase is accompanied by specific activities (Appendix A) undertaken to ensure the successful execution of the inclusive summer camp for children with ASD. The organizational structure, staffing considerations, and key elements of the camp’s daily activities (Appendix B) are presented to provide a comprehensive overview of the program’s structure and objectives.

**2.4.1 Phase 1 – Preparation and Planning**

Before implementing the program, the camp organizers designed the organizational chart and program for the camp (Appendix B). They also worked on shaping the camp’s operation, such as deciding on accommodation options, activities, and staffing requirements. Additionally, they went through a rigorous selection process to hire executives, escorts, and educational staff that were trained in working with children with special needs. The training materials and methods for staff were enriched during this phase, and the selection process for participating campers with special needs was also conducted.

**2.4.2 Phase 2 – Program Implementation**

During the implementation phase, campers with special needs were accommodated based on their needs and degree of disability. They either stayed in independent cottages designed for special needs campers only, or in inclusion cottages with campers without disability. Children up to the age of 11 were housed with children of the same age, while children aged 11–16 were grouped with children in the same age range. The camp organizers also arranged diversity-themed activities to raise awareness among non-special needs campers, which included reading fairy tales, showing films, and organizing educational games (Appendix C).

The escorts were given *in vivo* training in social skills to help them deal with various situations that could arise

**Table 3:** The “Power of Camp Inclusion” program implementation

Phase	Design the organizational chart and program of the camp	Select executives, escorts, and educational staff	Enrich training material and methods for staff	Screen and select campers with special needs
Phase 1 – Preparation and Planning	During the camp, campers with special needs were accommodated based on their individual needs, such as their degree of disability and prior camping experience. They had the option to stay in independent accommodations (cottages for campers with special needs only) or in accommodations without special needs (‘inclusion cottages’). Throughout the program, campers could move from the independent cottages to the inclusion cottages, and vice versa, based on their best interests	The children were divided into two age groups for their accommodations. Children up to the age of 11 were grouped with peers of the same age, while those aged 11–16 were grouped with peers within the same age range. Additionally, to promote diversity and awareness among non-special needs campers, various activities were organized, such as reading fairy tales, showing films, and playing educational games	To enhance their social skills, escorts received in-person training that involved problem-solving exercises, analysis of complex social concepts, language acquisition, grouping of children based on their language proficiency, and collaborative work in pairs or small groups. The training provided multiple and diverse learning opportunities and included sessions on self-esteem and debriefing on the program, which involved group discussions to analyze and evaluate the day’s activities	The daily program of the camp featured a wide range of activities such as sports, entertainment, environmental and cultural activities, in which all campers participated with personalized adaptations, whether individual or in groups
Phase 2 – Program Implementation	Evaluation and feedback processes	The escorts conducted evaluations to assess the individual progress of campers with special needs throughout the program	Regular communication was maintained with parents to report on the progress of their child and any difficulties encountered during the camp integration	Contacting the participants and confirming their enrollment in the program
Phase 3 – Evaluation and Feedback				



during the camp. The training included problem-solving practices, analysis of abstract social concepts, language learning, grouping of children by language level, working in pairs or small groups, providing multiple and varied learning opportunities, and promoting self-esteem. The program also included daily sports, entertainment, environmental and cultural activities, which were adapted to accommodate individual and group needs.

### 2.4.3 Phase 3 – Evaluation and Feedback

After the program ended, the escorts evaluated the individual progress of campers with special needs. They communicated with parents and provided progress reports, along with highlighting any difficulties their child might have encountered during the camp integration. The organizers also contacted the companions and confirmed their participation in the program. The feedback gathered during this phase was then used to improve the program for future camps.

To evaluate the effectiveness of the program, a statistical analysis was conducted on the data collected during the camp. Before and after the program’s implementation, campers with special needs’ progress and outcomes were compared to see if there were any notable differences. The statistical analysis also looked at the impact of different factors such as age, type of accommodation, and type of activities on the progress and outcomes of campers with special needs. The statistical analysis’s findings and their implications for the program’s effectiveness are presented in the section that follows.

## 2.5 Statistical Analysis

For each of the three ASSP subscales, descriptive statistics, including the mean and standard deviation, were calculated. To evaluate the questionnaire’s reliability, Cronbach’s  $\alpha$  was used. The mean values of the questionnaire dimensions and the overall mean value were compared to the response scale mean of 1.5 using an independent  $t$ -test to see if there was a significant difference. The effect of the intervention on the social skills of children with ASD was also assessed using a paired  $t$ -test, both for each component of the questionnaire and all together. The effect size was calculated using Cohen’s  $d$  index. The Statistical Package for Social Sciences version 27.0 was used for all statistical analyses, and statistical significance was defined as  $p < 0.05$  (Norusis, 2012).

## 3 Results

For each of the three subscales, Cronbach’s  $\alpha$  was used to evaluate the ASSP questionnaire’s internal consistency and reliability. With 14 components, the Social Reciprocity subscale produced an alpha coefficient of  $\alpha = 0.932$ , indicating a high degree of internal consistency. Similar to the Social Participation/Avoidance subscale, which has 26 components, the alpha coefficient was  $\alpha = 0.843$ , indicating a high level of internal consistency. The alpha coefficient for the nine-item Detrimental Social Behaviors subscale was  $\alpha = 0.709$ . Overall, these findings show that the ASSP questionnaire is a valid method for assessing ASD students’ social skills.

### 3.1 The ASSP Questionnaire on Social Skills in Students with ASD

The present study investigated the social skills of students with ASD using the ASSP questionnaire. Descriptive statistics, including mean and standard deviation, were employed to provide a more comprehensive understanding of the observations made in the questionnaire, as displayed in Table 4. The results indicated that Social Reciprocity and Social Participation/Avoidance increased in their mean and standard deviation from the first to the second measurement, whereas Harmful Social Behaviors decreased. Additionally, the mean and standard deviation of Social Skills demonstrated an increase. All results were statistically significant ( $p < 0.001$ ). An independent  $t$ -test was performed to compare the mean values of the questionnaire dimensions and the total mean value to the mean of the response scale (1.5). Cohen’s  $d$  index was used to measure effect size, with a value of 0.2 indicating a small effect, 0.5 medium, and 0.8 or greater indicating a large effect. The results indicated that the mean values were significantly different from the scale mean, with the mean value of Social Reciprocity, Social Acceptance/Avoidance, Detrimental Social Behaviors, and overall Social Skills being statistically low, reaching very close to moderate, but still significant ( $p < 0.001$ ). To investigate the effect of the intervention on the social skills of children with ASD, paired observation  $t$ -tests were performed, both for each dimension of the questionnaire and for the entire questionnaire. Cohen’s  $d$  index was again used to estimate effect size. The results (as displayed in Table 5) revealed a statistically significant improvement in all dimensions of the ASSP questionnaire and in its entirety ( $p < 0.001$ ).

**Table 4:** Mean and standard deviation, Cohen's *d* of three subscales

Dimensions	First measure mean (ST)	Second measure mean (ST)	Cronbach's $\alpha$
Social Reciprocity	1.00 (0.433)*	1.26 (0.560)*	0.932*
Social Participation/Avoidance	1.35 (0.340)*	1.59 (0.470)*	0.843*
Detrimental Social Behaviors	1.69 (0.425)*	0.914 (0.383)*	0.709*
Social Skills	1.22 (0.330)*	1.29 (0.417)*	0.930*

\* $p < 0.001$ .

**Table 5:** Comparison of ASSS values before and after the intervention: descriptive statistics and analysis *t*-test for ASSP

Dimensions	First measure mean (ST)	Second measure mean (ST)	Cohen's <i>d</i> first measure
Social Reciprocity	1.00 (0.433)*	1.26 (0.560)*	2.31
Social Participation/Avoidance	1.35 (0.340)*	1.59 (0.470)*	3.97
Detrimental Social Behaviors	1.69 (0.425)*	0.914 (0.383)*	3.97
Social Skills	1.22 (0.330)*	1.29 (0.417)*	3.72

\* $p < 0.001$ .

The third dimension of Detrimental Social Behaviors showed the greatest improvement, based on Cohen's *d* values.

Table 4 presents data from the first and second measurements (pre and post) of the ASSP questionnaire, as well as Cohen's *d* effect size and Cronbach's  $\alpha$  reliability coefficient. The first column shows the four dimensions of the questionnaire, namely Social Reciprocity, Social Participation/Avoidance, Detrimental Social Behaviors, and Social Skills. The second and third columns present the mean and standard deviation of each dimension in the first measurement, respectively. The fourth and fifth columns show the mean and standard deviation of each dimension in the second measurement, respectively. The last column indicates the Cronbach's  $\alpha$  reliability coefficient for each dimension of the questionnaire. The results showed an increase in the mean values of Social Reciprocity, Social Participation/Avoidance, and Social Skills from the first to the second measurement. In contrast, there was a decrease in the mean value of Detrimental Social Behaviors. The effect size of the intervention was small to moderate for all dimensions, as indicated by Cohen's *d* values. The Cronbach's  $\alpha$  reliability coefficients were high for all dimensions, indicating good internal consistency of the questionnaire. Overall, these results suggest that the intervention had a positive effect on the social skills of students with ASD.

Table 5 displays the mean and standard deviation (ST) of four dimensions of the ASSP questionnaire in the first and second measures, as well as the Cohen's *d* effect size. The results show an increase in mean values for Social Reciprocity and Social Participation/Avoidance, and a decrease for Detrimental Social Behaviors. The mean value of Social

Skills also increased. All results were statistically significant with  $p < 0.001$ . The Cohen's *d* effect size values were all below 0.2, indicating a small effect. However, the effect sizes for Social Reciprocity, Social Acceptance/Avoidance, and Detrimental Social Behaviors were close to moderate, indicating a substantial improvement in these dimensions. These findings suggest that the intervention had a positive impact on the social skills of students with ASD.

In addition to the quantitative data analysis, the present study also employed semi-structured interviews to gain deeper insights into the experiences and perceptions of the participants regarding the social skills intervention program for children with ASD. In the following section, the methodology and results of the semi-structured interviews will be discussed.

### 3.2 Semi-Structured Interviews

A semi-structured interview was conducted to assess the efficacy of the educational program for children with ASD and to pinpoint areas that needed improvement after a particular camp period. Twenty-two program participants who cared for children with ASD participated in the study. To assess the program's success in fostering opportunities for integration, respect for emotions, collaborative learning, social interaction, fear management, self-control behavior, maximizing participation with variations, and opportunities for self-guidance and independence, nine questions were included in the structured questionnaire used during the interview.

The interview questions were designed to gauge how well the program promoted integration, respect for emotions, cooperative learning, social interaction, fear management, self-control behavior, participation with variety, and opportunities for self-direction and independence (Table 6). The program, according to the study, gave the children a chance to practice teamwork, develop social skills, face fears, practice self-control, and partake in challenging activities that catered to their abilities. Additionally, the program created a setting in which children with and without special needs could interact and show respect for one another’s needs and feelings. The program was successful in promoting the social, emotional, and behavioral development of children with developmental special needs, according to the study’s overall findings.

In the first question, “Did the other children in the house/camp have the opportunity to understand the right of your children to camp? Give examples,” the caregivers reported that the other children in the camp were given opportunities to understand the right of the children with ASD to camp. During individual games, the other children helped in the realization of the sport, and in case of distraction from a group game, the children invited the child with ASD to either a different type of game or to a variation of the same game, with the help of the attendant and the person in charge of the activity. One of the escorts stated, “When E. had difficulty moving and avoiding the ball during the ‘apples’ game, the other girls created a wall of protection around him so that the ball would not touch him.” Another escort added, “During the ‘apples’ game, the girls gave their ‘lives’ to the 5th and suggested that I do the same, so that he could continue playing with us.” The children were reminded that they are all part of a team and that it is important to help anyone who needs it, so that the child with ASD feels comfortable and accepted.

In the second question, “Were opportunities created for you to develop feelings of respect for your children’s feelings from the rest of the children in the house/camp? Give examples.”, the caregivers reported that opportunities were created for the other children to develop feelings of respect for the children with ASD. In a theatrical play, the children played a game with emotions that involved expressing emotions and sharing them with the other group. The children were encouraged to interact with each other, and respect was created between the children with ASD and those without special needs. One of the caregivers stated, “There was respect from the other children towards L. A typical example was their interaction in the pool/sea. While in the beginning the children were intolerant when L. took the ball from them, with time and frequent friction, they realized he was doing it to get their attention and play with it. I noticed that they started to help him with things and show tolerance for some of his strange behaviors, compared to the beginning, and to play with him”. The children without special needs were taught to respect the feelings and needs of the children with ASD, which helped to create a more inclusive environment.

In the third question, “Were opportunities for collaborative learning created? Give examples.”, the caregivers emphasized the importance of teamwork promoted by the camp program. They shared examples of how the children collaborated in various activities, such as dancing, painting, and swimming. One attendant further explained, “In the dining room, we all pitched in to set the table and clean up after meals. Additionally, every morning, each child had a specific task to clean and disinfect our living area. Overall, the focus was on cooperation and harmonious coexistence among the children. The executives and attendants also worked to create suitable conditions and adjust the activities so that all the children could participate.”

**Table 6:** Interview questions

Questions	
1	Did the other children in the house/camp have the opportunity to understand the right of your children to camp? Give examples
2	Were opportunities created for you to develop feelings of respect for your children’s feelings from the rest of the children in the house/camp? Give examples
3	Were opportunities for collaborative learning created? Give examples
4	Were opportunities developed for social interaction and social acceptance? Give examples
5	Were opportunities for training created through adventures with the goal of overcoming fears, worries, or building trust and other social attitudes in the group?
6	Were opportunities created for your children to work on the same skill at the same time but at their own level of difficulty? Give examples
7	Did the program help your children develop self-regulated behavior? Give examples
8	Were there opportunities for your children to fully participate, put in effort, explore, and try new things? Can you give some examples?
9	Were opportunities created for self-guidance and independence in practice? Give examples

In the fourth question, “Were opportunities developed for social interaction and social acceptance? Give examples.”, the caregivers described how the children interacted with each other throughout the day. They noted that opportunities for socialization arose naturally in the collaborative environment of the camp, where everything from meals to activities was done together. One escort recalled, “Every day, we shared the same area with other groups of children, and gradually, we started to interact, play, and chat with them.”

In the fifth question, “Were opportunities for training created through adventures with the ultimate goal of overcoming fears, worries, or building trust and other social attitudes in the group?”, the caregivers responded that various opportunities were created through activities, particularly extreme sports. The camping experience encouraged the development of social behavior in children with ASD. One caregiver noted that “during daily activities, A. tried things he was not used to, although he was hesitant at first. He painted my hand and paper with a brush, worked with plasticine, and even jumped on a trampoline. He also tried Flying Fox right after the girls encouraged him.” Some activities, such as extreme sports, challenged the children to confront their fears, and through discussion and trust in the team, they managed to overcome them.

In the sixth question, “Were opportunities created for your children to work on the same skill at the same time but at their own level of difficulty? Give examples.”, the caregivers emphasized the importance of creating a cooperative and learning environment. “The children were introduced to sports such as volleyball, basketball, and football, learning simple techniques in a smaller and adapted space.” Another caregiver confirmed that “the new activities worked well because the children with ASD discovered new things that they kept looking for.” Examples of such activities include trampoline, music, swimming, and basketball.

In the seventh question, “Did the camp program provide opportunities for your children to practice self-control of their behavior? Can you provide examples?”, the caregivers noted that the camp program provided opportunities for the children with ASD to improve their self-control. Through social interaction with other children and the program’s activities, the children learned to manage their emotions and behaviors. One escort reported that “Living with other people and for so many days, sometimes, made us tense and nervous. However, instead of reacting by hitting the one who is bothering us, there were moments when we recognized that we have nerves and tried to manage and restrain ourselves.” Another escort observed a significant improvement in a child’s behavior, saying “I saw quite a difference in L. regarding his behavior for self-control.

At first, he was very intense, reactive, and manipulative. You could not easily persuade him to follow you. He kept wanting to leave and ran to the gate. Over time, he reduced it a lot, he started to acclimatize to the space, he was calmer and more receptive, there was more interaction and participation in the games with the other children.”

In response to the eighth question, “Were there opportunities for your children to fully participate, put in effort, explore, and try new things? Can you give some examples?”, the caregivers reported that the children with ASD enjoyed trying new things and participating in the camp’s various activities, including extreme sports, exploration of the campsite, and the Paralympic day. Despite initial dissatisfaction with some sports, the children eventually participated and made new friendships with both special needs and non-special needs children. One escort described how they encouraged a child to participate in activities: “In every activity, I tried to get her to participate, either with guidance (verbal), or with physical guidance (hand in hand), or with the help of the other children who took her with them, and there was always verbal support (well done), and tapping after the completion of the effort, whether successful or not.”

To the last question, “Were opportunities created for self-guidance and independence in practice? Give examples.”, the caregivers emphasized that promoting self-guidance and independence was a primary objective for children with ASD in the camp program, particularly in terms of self-care and social adjustment. One caregiver shared, “She (referring to the child with ASD) showed a great improvement in approaching other children without being overwhelmed, as well as performing regular routines like dressing and hygiene independently. Moreover, during activities such as basketball and apples, I encouraged her to decide how to move on her own by imitating other children, and I did not hold her hand to run together, allowing her to practice self-guidance and independence.”

Children with ASD could participate in a variety of activities that encouraged ongoing engagement and socialization thanks to the camp program’s accommodating environment. The children were exposed to new activities like trampoline, boccia, and flying fox, giving them unique experiences. The camp’s carefully thought-out educational program, along with help from the counselors and other staff members, allowed the children to interact socially, make new friends, and work together on projects. The children had the chance to discover the outdoors and venture outside of their immediate surroundings. The children had incredible memories that they will always treasure.

Generally, the interview questions were made to evaluate development areas. The objectives of the questions

were to evaluate how effectively the program supported opportunities for self-direction and independence, as well as integration, respect for emotions, cooperative learning, social interaction, fear management, and self-control behavior. These topics were selected because they are crucial for children’s social, emotional, and behavioral growth. The program was effective in promoting development areas. The program was effective in promoting the social, emotional, and behavioral development of children with developmental special needs, according to the study’s overall findings. The program specifically gave the children an opportunity to work as a team, grow as social beings, face fears, practice self-control, and take part in challenging activities that catered to their abilities. The initiative promoted diversity in the workplace. Children with and without special needs could interact and show respect for one another’s needs and feelings thanks to the program’s creation of a supportive environment. This is significant because it fosters inclusivity and a sense of community, which can have advantageous effects on the social, emotional, and behavioral development of children.

## 4 Discussion

The purpose of this study was to assess the “Power of Camp Inclusion” program’s efficacy in enhancing the social skills of campers with ASD in a camp setting, as perceived by caregivers. The study focused on various aspects of social interaction, including opportunities for social interaction during the program, active maintenance of social interactions, participation in or avoidance of activities, non-socially acceptable behaviors, and opportunities for social interaction. To evaluate the program’s impact on the growth of social reciprocity, social participation, the overall index of social skills, and a decrease in harmful social behaviors, the study drew upon findings from a related study that assessed a school-based social cognitive intervention for children with autism in Hong Kong (Cheung, Brown, Yu, & Siu, 2021). The school-based intervention involved teaching 74 children and adolescents a visually scaffolded, theory-of-mind-based social skills program. Through a mixed-methods approach, the children’s social competence was assessed at pre-test and post-test. Compared to a waitlist control group, those in the intervention group showed significantly greater gains in theory-of-mind and social skill measures. Moreover, focus groups and interviews were conducted to explore parents’ views and the generalization of children’s social skills across settings. The findings indicated improvement in children’s social participation in home, community, and school settings.

The positive outcomes observed in the school-based social cognitive intervention for children with autism offer promising evidence for the efficacy of a similar approach in the camp setting. The “Power of Camp Inclusion” program aligns with the principles of the school-based intervention, focusing on the development of social reciprocity and social-cognitive abilities in children with ASD. The study findings support the notion that to effectively develop social skills in students with ASD, careful consideration of social-cognitive abilities, setting appropriate goals, and establishing peer relationships as the primary setting for social development are crucial (Cheung et al., 2021; Eisenberg & Harris, 1984).

The caregivers were questioned during the semi-structured interviews to determine whether the children had opportunities for social interaction and social acceptance, as well as to provide examples. As everything at camp is done collaboratively, from meals to activities, they reported that the children interacted with each other throughout the day and that opportunities for social interaction were created constantly and most of the time effortlessly. The children with ASD eventually began to interact, play, and chat with other groups of children in the same area, which allowed the caregivers to maintain as much distance as possible. One caregiver even mentioned that there were other groups of children in the same area as the ASD children. This conclusion is supported by Kouthouris and Alexandris (2005) as well as Flynn, Ricker, Dolezal, Kunin, and Mellins (2019), who stressed that attending camp can have a positive impact on participants’ social reciprocity, as well as positively stimulate their emotions, improve their quality of life, and foster better cooperation and peer socialization.

The second objective of the “Power of Camp Inclusion” program was to have a positive impact on how the children with ASD develop their capacity for social participation. The averages of the social participation abilities increased after weighing, indicating that the program had a favorable impact on this factor. The World Health Organization defines disability as having restrictions on one’s ability to engage in activities and participate in society. Significant social disadvantage and exclusion (Adeniyi & Omigbodun, 2016; Kosma, Ellis, Cardinal, Bauer, & McCubbin, 2009), social avoidance in social situations (Goldsmith & Kelley, 2018; Kampert & Goreczny, 2007; Kemp & Carter, 2002), lower levels of acceptance by peers and teachers (Buyse, Verschueren, Doumen, Van Damme, & Maes, 2008; Eisenhower, Baker, & Blacher, 2007; Rose, Kelley, & Raxter, 2021), and more severe intellectual disability have all been linked to greater social skill deficits (Dagnan, 2007). It is important to remember that social avoidance can result from the

interaction between the environment and the person, rather than just being an endogenous human problem.

Physical education for children with ASD is cited as a promising intervention strategy for the development of social skills in the National Standards Report of the National Autism Center (2009). In the semi-structured interview, the camp program's emphasis on teamwork was highlighted by the caregivers. For instance, the children engaged in all the activities together, including dancing, drawing, swimming, and other games. One staff member even said, "After we finished our meals, we all helped set the table and clean up. Every morning, each child also took on a specific cleaning duty to sanitize our small home. The children's peaceful coexistence and cooperation was the focus of every activity." According to Jacobson and Xu (2004), the conditions necessary for effective social and observational learning for children with special needs, such as those with ASD, are attention, participation, reproduction, and motivation. Sports participation satisfies many of a child's needs, especially social ones, and aids in identity development and emotional understanding (Guivarch *et al.*, 2017).

The third hypothesis stated that the program would positively impact reducing harmful social behaviors among children with ASD who participate in it. The study results demonstrated that this hypothesis was supported, as the program had a positive effect on reducing harmful social behaviors after the means were weighted. People with ASD often face challenges related to difficulties in understanding the behavior of others. This includes an inability to interpret and react to social and emotional cues, such as eye contact and facial expressions (Sowa & Meulenbroek, 2012). Moreover, children with ASD often experience anxiety, which can have a detrimental impact on their social adjustment and interactions with others, as highlighted by research conducted by Ileri, White, and Mbwanyo (2019). However, Bandura's theory suggests that negative behaviors should be disregarded, and positive behaviors should be learned through positive feedback, observation, and role-playing, as noted by Dekker *et al.* (2019). Several studies have shown that problem behaviors are associated with deficits in social communication in children with ASD, and participation in a physical fitness activity course can improve their communication and interaction skills, as evidenced by research conducted by Brookman *et al.* (2003), and Chu and Pan (2012).

These behavioral issues result in negative experiences for children with ASD when participating in physical activities (McPartland, Law, & Dawson, 2016; Sansi, Nalbant, & Ozer, 2021). Despite their desire to participate in recreational activities and games with their peers, children with

ASD struggle to do so effectively due to deficits in communication and social interaction, which may lead to harmful social behaviors (Guivarch *et al.*, 2017; Konukman, Yılmaz, Yanardağ, & Yu, 2017). In fact, according to the caregivers who were interviewed, the camp program not only provided opportunities for children with ASD to engage in social interaction with other children, but also contributed to an improvement in their self-control and behavior. One caregiver remarked, "Living with other people for so many days, sometimes, created tension and nerves for us. However, instead of reacting criminally to the weight of what bothers us, there were also moments when we recognized that we had nerves and tried to manage it and restrain ourselves." Another caregiver also noted the positive changes in one child's behavior, saying, "I saw quite a difference in L. regarding his behavior for self-control. At first, he was very intense, reactive, and manipulative. You couldn't easily convince him to follow you. He kept wanting to leave and ran to the gate. Over time, he reduced it quite a bit, he started to acclimatize to the space, he was calmer and more receptive, there was more interaction and participation in games with the other children."

The fourth hypothesis stated that the implementation of the program would positively impact the overall index of social skills of children with ASD who participated in it. The results indicated that the program did have a positive effect on the overall index of social skills, as evidenced by the improvement in the average score. Previous research by Tomasello (2019) focused on the social development of children and highlighted its structural and cumulative nature. Based on Piaget's developmental cognitive theory, they demonstrated that children's cognitive patterns reflect their social skills. Tomasello (2019) proposed that the ontogenetic process by which a child understands how their psychological views of themselves align with those of others is a critical aspect of interpersonal schema development as a function of developmental levels.

The benefits of the camp program in developing social skills can be maximized when tailored outdoor activities are provided, as reported by caregivers in the semi-structured interview. This finding is consistent with the study of Zachor *et al.* (2017), which investigated the effect of an outdoor activity program on the social skills of children with ASD and found significant improvement. Caregivers in our study reported that the camp program allowed children to socialize, make new friends, learn about nature, engage in cooperative activities with others, and experience a new environment with the help and cooperation of camp officials. The designed educational program of the camp played a crucial role in achieving these outcomes. Effective planning, motivation, active participation, a good

attitude, and strong willpower were found to be crucial elements in the camp program’s success. The study’s findings demonstrate how a camp setting can enhance social skills while putting an emphasis on enjoyable activities. Dewey’s social psychology theory posed important questions about how children develop and placed emphasis on the connection between basic human traits and their various expressions in various social contexts or environments. He believed that education should create environments that foster development and social change. Development is a process through which the organism improves its capacity to interact with its environment, in accordance with Dewey’s theoretical framework (Pearce, 2013).

Program evaluation in educational extracurricular settings, like summer camps, has been shown to be an important component of children’s cognitive and social development in the past (Alexandrou, 2020; Corbett et al., 2014; Kirschman et al., 2010). All children need social skills as a foundation, and peer relationships in a variety of social contexts, including schools, communities, and summer camps, are crucial to fostering friendships, interpersonal skills, and empathy (Panel, 2007). In their evaluation of the “Camps on TRACKS” program, which had many similarities to the “The Power of Camp Integration” program, Maich et al. (2015) provided additional support for these research findings. Their findings illustrated the advantages of inclusion camp programs that helped campers with ASD significantly improve their social skills. In Greece, Papaioannou, Evaggelinou, Barkoukis, and Block (2013) completed the first and only study on the inclusion of children with special needs in the educational camp environment as they examined the “Paralympic Day at School” program in a summer camp context. The results of the study revealed that participation in the program strengthened the positive attitudes of non-special needs children towards inclusion and integration of special needs children in general summer camps.

The children showed a keen interest in the camp program, and this was made possible through the collaboration of all the executives and attendants. The attendants’ training in social skills, coupled with the factors that were examined, helped them gain a deeper understanding of the importance of social skills and how to fill out and interpret the questionnaires correctly. Caregivers play a critical role in helping children with special needs acclimatize to the new environment, interact, socialize, and explore their unique characters without any limitations. Research by Gaskell (2007) indicates that attendants who participate in camp programs are motivated, experience increased self-

esteem, and acquire skills that improve their performance. Attendants should possess knowledge of pedagogy, psychology, and special education to effectively support the children. They are not only active during lessons or activities but are also present for the children whenever needed. Thus, caregivers are crucial in promoting socialization (Katsarou et al., 2023). In this study, attendants were trained in social skills and evaluated based on their interactions with the children under their care. The study also sought the attendants’ feedback on the program’s effectiveness, as they are the primary observers of both the children and the program. The study’s findings were very encouraging, highlighting the need for the implementation of similar camp programs to improve the social skills of children with ASD.

## 5 Conclusions

In conclusion, the implementation of the “Power of Camp Inclusion” program yielded promising results, showcasing significant improvements in the social skills of children with ASD over a 10-day period. Notably, substantial enhancements were observed in social reciprocity, social participation/avoidance, and a noteworthy reduction in harmful social behaviors. This impact allowed children with ASD to actively engage with their peers, fostering a sense of inclusion and group participation.

The study’s evaluation, conducted through semi-structured interviews with caregivers, revealed positive feedback on the program’s efficacy. The program’s primary goal of encouraging peer interactions was realized as it facilitated collaborative learning, accommodated skill variations, and promoted inclusive participation tailored to each child’s abilities. Caregivers reported improvements in the children’s behavior control, recognition and response to fellow campers’ feelings, and facing fears through activities such as extreme sports. The exercises in the program provided opportunities for self-direction and independent choice, contributing to the overall enhancement of social skills.

While this study highlights the significant impact of the “Power of Camp Inclusion” program on social skills, it acknowledges the need for further research on a broader sample to draw conclusive conclusions. The lack of comparable initiatives in international literature highlights the program’s innovative approach, opening new avenues for research in extracurricular learning environments focused on enhancing social skills.

Future research endeavors could concentrate on developing innovative programs across various summer camps and extracurricular activities tailored to the unique needs and abilities of children with autism. A comparative study assessing the effectiveness of the educational program in both school and out-of-school settings could provide valuable insights into the program's adaptability. Additionally, exploring the social skills assessment form completed by parents and interdisciplinary teams may unveil specific areas for improvement and guide the refinement of social skills programs.

In summary, the study on the “Power of Camp Inclusion” demonstrates a promising methodology for enhancing social skills in children with ASD. By integrating collaborative learning and accommodating diverse skill sets, the program empowers children to participate according to their abilities and fosters meaningful social interactions. The findings feature the powerful potential of a ten-day intervention program in reducing delinquent behaviors and promoting active participation within a group. This study emphasizes the critical need for creating and evaluating educational programs to improve social skills in children with ASD and advocates for the development of innovative programs in diverse extracurricular settings, ultimately enhancing the social experiences and well-being of children with autism.

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## Disability awareness program: One-day schedule

**Morning (10:00–13:15)**

Group 1 Human rights (lecture, discussion)

Group 2 Information about Paralympic and Special Olympic games (videos, photographs, discussion)

Group 3 Boccia (information, basic rules, practice)

Group 4 Classification (lecture, video)

Group 5 Sitting Volleyball (information, basic rules, practice)

Group 6 Bocce

Group 7 Accessibility games

Group 8 Swimming

Group 9 Wheelchair Basketball

Group 10 Drawing

**Afternoon (17:00–20:15)**

Group 1 Bocce (information, basic rules, practice)

Group 2 Accessibility games (special design course included accessibility and not accessibility pathways)

Group 3 Swimming (experience as a Paralympic and special Olympic athlete)

Group 4 Wheelchair Basketball (basic rules, practice)

Group 5 Drawing (Paralympic and special Olympic games, athlete, equipment)

Group 6 Human rights

Group 7 Information about Paralympic and special Olympic games

Group 8 Boccia

Group 9 Classification

Group 10 Sitting Volleyball

# Appendix C

## Photos





