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RESEARCH PAPER

Differences in patterns of participation in leisure activities in Swedish children with and without disabilities

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Abstract

Purpose: To compare participation in leisure activities between Swedish children with and without disabilities and to examine whether age, gender, presence of disabilities, and mother's educational level influence participation. *Method*: A Swedish version of the Children's Assessment of Participation and Enjoyment was used to study the diversity, intensity, and enjoyment of participation in leisure activities of children aged 6 to 17 years. Fifty-five of the children had disabilities and 337 of the children did not have disabilities. A multiple regression analysis was conducted to explore the impact of age, gender, mother's level of education, and disability on the diversity, intensity, and enjoyment of leisure activities. A *t*-test for independent samples was used to compare the diversity and intensity of participation between children with and without disabilities. *Results*: The multiple regression analysis explained 4–36% of the variance of diversity, intensity, and enjoyment. Children with disabilities participated with higher diversity, but with less intensity, than children without disabilities. Younger children had higher levels of enjoyment. *Conclusions*: Children with disabilities participated in several different activities, but the presence of a disability was associated with lower intensity of participation. The low explanatory value of the investigated variables indicates that the combined effect of several variables needs to be taken into consideration when designing participation interventions.

➤ Implications for Rehabilitation

- Children with disabilities participated in a high number of activities but with a low intensity compared to children without disabilities. Analysis of the children's personal and environmental barriers and facilitators is critical to providing the therapist with ideas about which strategies should be implemented to increase participation. Assessment and intervention may need to focus on methods for supporting the children's autonomy and on creating goals for intervention that focus on activities that are determined by the child based on their interests and desires.
- Age and gender influenced the variance in the diversity and enjoyment outcome and the presence of disability was associated with the intensity outcome.
- Age, gender, parental educational level, and disability only explain a small proportion of the variance in leisure participation patterns. Thus, client-centred and individually tailored interventions are needed that are based on the individual's unique situation.

Keywords

Adolescent, CAPE, children, participation, recreational activities

History

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Introduction

Participation in informal and formal leisure activities supports children in developing functional social skills and helps them to form social networks and friendships. It provides opportunities to learn and develop skills, can provide children with a sense of belonging, and promotes long-term mental and physical health [1–6].

Studies have shown that children with disabilities tend to be engaged in less varied activities and in more quiet recreational activities than children without disabilities [1,2,7–12]. Children with disabilities also participate in social activities less often and tend to carry out more of their leisure activities together with their families [3,7,8,13,14]. Children without disabilities, in contrast, perform more of their leisure activities with friends, and with increased age social activities are often prioritized over other kinds of activities. It is of concern that children with disabilities face restrictions to participation in leisure activities, and the

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patterns of participation and obstacles to inclusion need to be investigated to promote participation in leisure activities by children with disabilities.

A child's participation in leisure activities occurs within a dynamic interaction between the child and the environment. The participation is driven by the child's preferences for activities in combination with maturation and the development of the skills possessed by the child. Participation is also driven by the complexity of the social and environmental context in which the activity takes place [15]. Earlier empirical findings have identified many possible determinants for participation, both on a personal and environmental level. The presence of a disability and the child's age and gender have been shown to be salient personal factors, and the child's pattern of participation in leisure activities changes when the child enters adolescence [16–22]. In Sweden, this transition appears at about 12 years of age and is characterized by a decrease in the diversity and frequency of physical and skill-based activities and an increase in participation in social activities [17,22,23]. Gender differences also arise in the preferences for activities with girls spending more time in social and skill-based activities than boys. Boys, in contrast, tend to prefer physical activities to a higher extent than girls [1,24–27]. For children with disabilities, limitations in function such as mobility problems, pain, and/or social incompetence have been shown to be possible barriers to participation [1,16,17]. On an environmental level, parents' education has been shown to be an indicator of children's participation in many different types of activities [10,16–21] and environmental barriers such as difficulty gaining access to activities, problems with transportation, and lack of resources may affect participation in leisure activities [10,16–21,28]. Knowledge and information of availability as well as accessibility are linked to socioeconomic conditions such as income and level of education. Thus, the educational level of the parents is important for participation in formal activities, and a lower parental educational level is associated with lower levels of participation by the child [1,16,17,29].

Based on the above, previous studies have reported differences between children with and without disabilities in their patterns of participation in leisure activities [7,8,14]. There is, however, a lack of knowledge of how children with and without disabilities in Sweden participate in leisure activities. Thus, it is of interest to investigate whether earlier findings in this area are also valid for Swedish children. The result from a cross-sectional European study of participation in life situations of children with cerebral palsy showed that children from Denmark had consistently higher levels of participation in several domains measured by the assessment of Life habits (Life-H) than children in other European countries [30].

One reason for the positive results mentioned in the European study might be that Scandinavian countries have stronger policies for persons with disabilities and higher levels of social care. These countries might also provide more resources, adaptive technology devices, and transportation to support the participation of children with disabilities. On the other hand, in comparison to children in other Western European countries, Swedish children tend to have more unorganized time outside of formal school-related activities. Such activities demand more self-initiation skills, motivation, and autonomy, and earlier studies have shown that children with disabilities have limitations in perceived autonomy [31–33].

The primary aim of this study was to compare patterns of participation in leisure activities between Swedish children with and without disabilities. A secondary aim was to examine whether the variables of age, gender, presence of disability, and the mother's educational level influence the diversity, intensity, or enjoyment of participation in recreational, physical, social, self-improvement, and skill-based activities.

Method

Participants and procedures

The Swedish culturally adapted version of the Children's Assessment of Participation and Enjoyment (CAPE) was used with 337 children with typical development and was reported in an earlier study [34]. The children with typical development were recruited from six different schools situated in central Sweden. The sample was selected such that it included children from different regions of Sweden (coastal, regions of snowy landscape, rural, and urban areas and different socioeconomic districts). The children were recruited from the first, fourth, sixth, and eighth grade, and the children aged 8–17 years old completed the CAPE questionnaire in the classroom. The youngest children (aged 6–7 years) completed the CAPE questionnaire at home in case they needed the assistance of a parent. Socioeconomic background was determined based on the mother's educational level because a higher educational level is associated with higher socioeconomic status. Demographic data on the participants is found in Table 1.

To recruit children with disabilities, occupational therapists working at 13 different paediatric habilitation centres invited children from their current caseload. The habilitation centres were situated in rural and urban areas in the north, east, and west of central Sweden and represented different socioeconomic districts. One hundred ten children were invited to answer the Swedish version of the CAPE questionnaire. The inclusion criteria were children aged 6 to 17 years with disabilities related to the central nervous system and/or musculoskeletal or neuromuscular problems. Only children without, or with mild, intellectual retardation were included because it was important that all of the participating children understood the questions and could self-report their patterns of participation. Fifty-five children with disabilities agreed to participate in the study and a description of these participants is found in Tables 1 and 2.

The instrument

The CAPE is a 55-item measure of the following five dimensions of participation: (1) Diversity (the number of activities participated in), (2) Intensity (the frequency of participation measured as a function of the number of possible activities), (3) With Whom (with whom the child performs the activity), (4) Where (the location of the activity), and (5) Enjoyment (how much the child enjoys the activity). These five dimensions of participation provide three levels of scoring, including (I) the overall participation score, (II) scores of participation in 15 formal and 40 informal activities, and (III) scores reflecting participation in

Table 1. Demographic information of participants.

	Children without disabilities, *N* (%), 336	Children with disabilities, *N* (%), 55
Age Mean (SD)	12 years (SD 2.0)	11 years (SD 2.7)
Min-max	Range 6–17	Range 6–16
6–9 years	51 (15)	14 (26)
10–12 years	173 (52)	21 (38)
13–17 years	112 (33)	20 (36)
Gender		
Male	164 (51)	29 (53)
Female	173 (49)	26 (47)
Mothers with less than university education	119 (35.3)	19 (34.5)
Mothers with university education	144 (42.7)	20 (36.4)
Children from rural area <20 000	76 (22.6)	15 (27.3)
Children from urban area ≥20 000	261 (77.4)	40 (72.7)

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the following five types of activity: recreational activities, physical activities, social activities, skill-based activities, and self-improvement. In this study only data from the five activity types is reported. An overview of the different domains and scores produced by the CAPE is given in King et al. and Imms [23,35]. The CAPE is appropriate for children and young people with and without disabilities between the ages of 6 and 21 years, and previous work has established the reliability and validity of the CAPE [9,23,34,36,37]. In a previous study, a cultural validation of the CAPE for use in Sweden was implemented. Based on that study, the original format of 55 items was kept, 3 original activities were excluded (''Taking art lessons'', ''Participating in school clubs'', and ''Doing volunteer work''), and 3 new activities were added (''Going to a café/restaurant'', ''Outdoor play'', and ''Doing individual sport in a club''). Furthermore, some of the items were adjusted by providing more examples. This cultural validation of the CAPE made the content more relevant to children living in Sweden [34].

Ethical considerations

The Regional Committee for Medical Research Ethics in Uppsala approved this study (Reference No. 2008/394). Participation was voluntary and all of the participating children and families received written information concerning the aim of the study when invited to take part. All participants were anonymous to the authors.

Data analysis

The analyses were based on the sum of the diversity scores, the mean of the intensity scores, and the scores of enjoyment for each of the five activity types (recreational, physical, social, skill-based, and self-improvement) of the Swedish CAPE. The diversity scores were the sum of the number of activities the child performed in each activity type. The intensity scores ranged from 1 to 7 (1 = once in the past 4 months, 2 = twice in the past 4 months, 3 = once a month, 4 = two or three times a month, 5 = once a week, 6 = two or three times a week, 7 = once a day or more). As recommended in the CAPE manual, the sum of the intensity scores was divided by the total number of items in each activity type. For example, if a child took music lessons once a week, the intensity score for this was 5, and if a child was swimming twice a week, the intensity score for this was 6. The intensity score for skill-based activities would then be calculated by: $(5+6)/9 = 1.2$ (where 9 is the total number of skill-based activities in the activity type). Thus, the intensity score is a measure of the relative frequency, and the intensity score of 1.2 does not mean that skill-based activities were performed only once per month. Rather it indicates the average amount of time a child spends participating in skill-based activities. A higher intensity score indicates a greater amount of time spent in each activity type. The enjoyment score ranged from 1 to 5 (1 = not at all, 5 = love it) and was calculated by dividing the summed score by the number of performed activities of the activity type [23].

Because there were missing data for the father's education level, only data for the mother's education level was used and this was aggregated into ''university level of education'' or ''less than university education'' based on the mother's occupation. The occupation was transformed to an educational level by using a database from the Statistics Sweden.

The *t*-test for independent samples was calculated to compare the diversity, intensity, and enjoyment of participation in the five activity types between children with and without disabilities. The level of statistical significance was set to $p < 0.05$. The effect size is based on eta squared and interpreted as a small ($p = 0.01$), moderate ($p = 0.06$), or large effect ($p = 0.14$; Cohen, 1988). Multiple linear regression analyses were conducted to measure how well the independent variables of age, gender, mother's level of education, and disabilities could explain the diversity, intensity, and enjoyment in the five activity types and to determine which of the independent variables contributed most significantly to participation in the five activity types. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity and homoscedasticity.

A chi-square test for independence (with Yates' continuity correction) was conducted to analyse if differences in distribution of gender and mother's educational level existed between children with and without disabilities. An independent samples *t*-test was used to compare the age of children with and without disabilities.

Statistical analyses were performed using the SPSS for Windows software program (version 19.0, SPSS Inc., Chicago, IL).

Table 2. Clinical condition/diagnosis of the children with disabilities.

Diagnostic category	Clinical condition	*N* (%)
Central Nervous System	Cerebral palsy	24 (43.6)
	Spina bifida, spinal cord, or related	8 (14.5)
	Motor delay	1 (1.8)
	Other CNS	2 (3.6)
	Neuromuscular	5 (9.1)
Musculoskeletal	Skeletal	8 (14.5)
	Other musculoskeletal	2 (3.6)
Other		4 (7.3)
Missing		1 (1.8)

Results

In total 337 children without disabilities and 55 children with disabilities aged 6–17 years completed the CAPE questionnaire. No significant differences were found between children with and without disabilities regarding gender, χ^2 (1, $n = 292$) = 0.03, $p = 0.68$, phi = −0.03, or the level of mother's education, χ^2 (1, $n = 303$) = 0.03, $p = 0.69$, phi = 0.03. There was also no difference in age between the children with disabilities (11.2 ± 2.5 years) and children without disabilities (11.6 ± 2.7 years; t (389) = 1.14, $p = 0.26$, 95% CI: −0.30 to 1.14).

The comparison of diversity and intensity scores of activities in the CAPE for children with and without disabilities revealed significant differences between the groups in the *diversity* (the number of activities performed) of recreational, social, skill-based, and self-improvement activities. In skill-based and recreational activities the effect sizes indicated moderate differences, but in social and self-improvement activities the magnitude of the differences was small.

There was no significant difference in the physical activity type for children with and without disabilities. Overall, children with disabilities had a more diverse pattern of participation in these activity types than children without disabilities (Table 3).

Regarding *intensity scores* (the relative frequency of performance), there were significant differences in social, physical, skill-based, and self-improvement activities between the groups. The magnitude of the differences was moderate except for the intensity in social activities where there was a large difference. Children without disabilities participated more intensely in these activities than children with disabilities. There was no significant difference in intensity scores between the groups for recreational activities (Table 3).

For the level of *enjoyment*, only recreational and self-improvement activities were perceived differently between the groups. Children with disabilities had slightly higher scores of enjoyment in these activities than

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Table 3. CAPE diversity, intensity, and enjoyment scores in five activity types for children with and without disabilities.

Dimension (activity type)	Children with disabilities, $N = 55$	Children without disabilities, $N = 337$	t	Mean differences	95% CI	η^2	p
Diversity (number of items)		*Mean (SD)*					
Recreational (13)	9.62 (2.9)	8.16 (2.8)	3.53	1.46	0.64, 2.27	**0.031**	**0.000**
Social (11)	9.47 (1.4)	8.82 (1.8)	2.56	0.64	0.15, 1.15	**0.016**	**0.011**
Physical (13)	5.78 (2.8)	5.51 (2.6)	0.71	0.27	−0.49, 1.03	0.001	0.480
Skill-based (9)	3.45 (1.7)	2.39 (1.7)	4.22	1.07	0.57, 1.57	**0.044**	**0.000**
Self-improvement (9)	5.47 (1.6)	4.94 (1.8)	2.01	0.53	0.01, 1.04	**0.010**	**0.046**
Intensity (score range 1–7)							
Recreational (13)	4.96 (0.82)	4.83 (0.83)	1.09	0.13	−0.11, −0.37	0.003	0.275
Social (11)	3.91 (0.59)	4.52 (0.76)	−6.88	−0.62	−0.79, −0.44	**0.106**	**0.000**
Physical (13)	3.70 (1.0)	4.43 (1.0)	−4.88	−0.72	−1.01, −43	**0.057**	**0.000**
Skill-based (9)	3.94 (0.80)	4.43 (1.3)	−3.64	−0.48	−0.75, −0.22	**0.035**	**0.000**
Self-improvement (9)	4.72 (0.72)	5.19 (0.84)	−3.94	−0.47	−0.71, −0.24	**0.037**	**0.000**
Enjoyment							
Recreational (13)	3.92 (0.54)	3.64 (0.67)	−3.48	−0.33	−0.51, −0.14	**0.030**	**0.001**
Social (11)	3.44 (0.44)	3.32(0.60)	−1.43	−0.12	−0.29, −0.04	0.005	0.152
Physical (13)	2.92 (0.90)	2.68 (1.01)	−1.67	−0.25	−0.54, 0.04	0.007	0.096
Skill-based (9)	3.32 (1.00)	2.92 (2.15)	−1.35	−0.41	−1.00, 0.18	0.005	0.177
Self-improvement (9)	2.38 (.68)	2.07 (0.91)	−2.45	−0.31	−0.57, −0.06	**0.015**	**0.015**

The Boldface values only indicate that the significance, $*p = 0.05$ which is less then 0.05.

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children without disabilities (Table 3). Although statistically significant, the effects were small and this indicates that the observed differences should be interpreted with caution.

Variables influencing the *diversity* scores

Overall, the standard multiple regression analyses showed that the independent variables of age, gender, the mother's educational level, and disabilities could explain 4.4% to 36.0% of the variance in diversity. Detailed results are presented in Table 4.

In *recreational activities*, disability, age, and gender explained 36.0% of the variance. Age was the main predictor that significantly contributed to recreational diversity and uniquely explained 31% of the variance followed by disability (2.2%) and gender (1.8%). This means that younger children, girls, and children with disabilities participated in the highest number of recreational activities.

The independent variables explained only 4.4% of the variance in *social activities*. Presence of disability (1.8%) and mothers' education (2.2%) contributed significantly to the model. Children with disabilities and children with mothers with a university education participated in more diverse social activities.

In *physical activities*, the independent variables could explain 8.7% of the variance in diversity and gender (3.8%), mother's educational level (3.8%), and age (1.3%) contributed significantly to the variance. Boys, children with university educated mothers, and younger children participated in the most physical activities.

Age, gender, and disabilities explained 10.9% of the variance in *skill-based activities*. Disability (4.2%) contributed most significantly to the variance in skill-based diversity followed by gender (3.8%) and age (2.6%). Children with disabilities, younger children, and girls participated in more diverse skill-based activities.

Finally, the independent variables explained 11.6% of the variance in *self-improvement activities* with gender (10%) explaining most of the variance. Girls participated in a larger number of self-improvement activities.

Variables influencing the *intensity* scores

The standard multiple regression analyses showed that the independent variables could explain 4.4–16.2% of the variance for intensity outcome scores. Detailed results are presented in Table 5.

In *recreational activities*, the independent variables explained 8.7% of the variance in intensity. Age (7.3%) was significantly associated with intensity in recreational activities, i.e. younger children participated with the highest intensity in these activities. Concerning *social activities*, the independent variables had an association with the outcome score of 16.2%. Age (8.1%) and disabilities (6.8%) explained most of the variance. Adolescents and children without disabilities performed social activities with the highest intensity. In *self-improvement activities*, the independent variable presence of disability (2.9%) was significantly associated with the intensity outcome and explained 4.4% of the variance, i.e. children without disabilities performed self-improvement activities with the highest intensity. In *physical activities*, 11.0% of the variance was accounted for by the independent variables. Disabilities (6.3%) and gender (4.9%) contributed significantly to the variance. Children without disabilities and boys participated in physical activities with the highest intensity. Finally, the independent variables were not associated with intensity in *skill-based activities* ($R^2 = 2.9$).

Variables influencing the *enjoyment* scores

The independent variables explained between 5.2% and 16.3% of the variance in enjoyment. Detailed results are presented in Table 6.

Age (4.0%), gender (2.9%), and disabilities (2.7%) explained 11.0% of the variance in enjoyment in *recreational activities*. Younger children, girls, and children with disabilities had the highest scores of enjoyment in these activities. Age (8.0%), gender (6.3%), and disability (1.3%) could also explain 16.3% of the variance of enjoyment in *self-improvement activities*. Gender (2.1%) and mother's level of education (1.4%) were significantly associated with enjoyment *in physical activities*. Boys and children who had a mother with a university education enjoyed physical activities the most. In *social activities*, age (1.3%) and gender (4.8%) were significantly associated with the enjoyment outcome. Younger children and girls enjoyed social activities most. There was no significant effect for age, gender, the level of mother's education, or the presence of disabilities on enjoyment in *skill-based activities* ($R^2 = 1.6$).

Discussion

Even though differences were relatively small, the results of this study indicate that children with disabilities participated in a

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Table 4. Standard multiple regression with the CAPE *diversity* outcome score as the dependent variable and age, gender, mother's educational level, and disability as the independent variables.

Variable	β	B (*SE*)	95% CI for B
Recreational diversity			
Age	−0.556**	−0.637 (0.053)	−0.741, −0.531
Gender	−0.133**	−0.765 (0.267)	−1.292, −0.239
Disabilities	0.148**	1.226 (0.386)	0.467, 1.985
Educational level	0.005		−0.502, 0.556
R^2	36.0**		
F	41.778		
Dif	4/297		
Social diversity			
Age	−0.027		−0.097, 0.059
Gender	−0.109		−0.773, 0.009
Disabilities	0.134*	0.675 (0.287)	0.111, 1.239
Educational level	0.123*	0.432 (0.200)	0.039, −0.825
R^2	4.4**		
F	3.409		
Dif	4/297		
Physical diversity			
Age	−0.114*	−0.120 (0.059)	−0.235, −0.005
Gender	0.196**	1.041 (0.294)	0.463, 1.620
Disabilities	0.030		−0.606, 1.063
Educational level	0.195**	1.037 (296)	0.455−1.618
R^2	8.7**		
F	7.092		
Dif	4/297		
Skill-based diversity			
Age	−0.161**	−0.113 (0.039)	−0.190, −0.037
Gender	−0.195**	−0.692 (0.194)	−1.074, −0.309
Disabilities	0.207**	1.054 (0.280)	0.503, 1.606
Educational level	0.032		−0.270, 0.498
R^2	10.9**		
F	9.118		
Dif	4/297		
Self-improve diversity			
Age	−0.069		−0.128, −0.028
Gender	−0.316**	−1.151 (0.199)	−1.542, −0.760
Disabilities	0.107		−0.005, 1.122
Educational level	0.021		−0.318, 0.468
R^2	11.6**		
F	9.750		
Dif	4/297		

*$p \leq 0.05$, ** $p \leq 0.01$
β = Standardized Coefficients (each value of the independent variables have been converted to the same scale so they can be compared).
B = Unstandardized Coefficients.

Table 5. Standard multiple regression with the CAPE *intensity* outcome score as the dependent variable and age, gender, mother's educational level, and disability as the independent variables.

Variable	β	B (*SE*)	95% CI for B
Recreational intensity			
Age	−0.271**	−0.090(0.018)	−0.126, −0.053
Gender	0.083		−0.043, 0.320
Disabilities	0.035		−0.177, 0.347
Educational level	−0.056		−0.276, 0.088
R^2	8.7**		
F	7.118		
Dif	4/297		
Social intensity			
Age	0.285**	0.087 (0.016)	0.055, 0.119
Gender	−0.068		−0.265, 0.056
Disabilities	−0.261**	−0.579 (0.118)	−0.811, −0.347
Educational level	−0.033		−0.212, 0.111
R^2	16.2**		
F	14.392		
Dif	4/297		
Physical intensity			
Age	−0.038		−0.060, 0.029
Gender	0.221**	0.453 (0.114)	0.230, 0.677
Disabilities	−0.252**	−0.742 (0.164)	−1.064, −0.420
Educational level	0.009		−0.205, 0.244
R^2	11.0**		
F	8.915		
Dif	4/294		
Skill-based intensity			
Age	0.072		−0.023, 0.093
Gender	−0.032		−0.370, 0.214
Disabilities	−0.136*		−0.906, −0.063
Educational level	−0.063		−0.450, 0.137
R^2	2.9 ($p = 0.095$)		
F	1.997		
Dif	4/274		
Self-improve intensity			
Age	0.106		−0.002, 0.076
Gender	0.043		−0.121, 0.273
Disabilities	−0.170**	−0.431 (0.144)	−0.714, −0.147
Educational level	−0.030		−0.250, 0.145
R^2	4.4**		
F	3.421		
Dif	4/296		

*$p \leq 0.05$, ** $p \leq 0.01$
β = Standardized Coefficients (each value of the independent variables have been converted to the same scale so they can be compared).
B = Unstandardized Coefficients.

larger variety of activities than children without disabilities but with less intensity. These findings correspond with those of other studies [2,7,9,15]. The lower intensity, specifically in social and physical activities, of children with disabilities can have several causes. It is known that children and youths with disabilities rate their autonomy lower than children without disabilities and these children might be less likely to initiate participation in these types of activities on their own [31]. A higher intensity, especially for older children, probably requires that activities are self-initiated and that the child is autonomously motivated to participate in the activity. In addition, children with disabilities might participate with a lower intensity than children without disabilities because of personal functional limitations or environmental barriers that make them dependent on others for participation. A high intensity of participation in leisure activities does not, however, necessarily mean a higher level of engagement. Rather, it indicates how often a child has the opportunity to be involved in the activity, and a child with a lower intensity in leisure activities could be more motivated and actually more engaged than a child who participates more frequently. Furthermore, we cannot say that a higher intensity of leisure activity participation is better than a lower intensity. Children's preference for frequently attending certain activities may stem from many other factors. In this study, age and gender predicted intensity of participation in leisure activities, specifically in recreational, social, and physical activities, indicating that factors other than disability are influential as well. This finding is in line with what has been observed in previous studies [2,7,8,10,16,19]. Personal interests as well as availability and accessibility of activities are probably salient factors for how often a child participates in different leisure activities, but these were not measured in this study.

As opposed to the activity patterns seen in children without disabilities, children with disabilities tend to participate less in activities that are unorganized and informal than in organized, formal activities [32]. This may be because they are more dependent on others, which may steer the selecting of activities. Skill-based, self-improvement, and physical activities are often structured and involve adults as instructors and thus require less

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Table 6. Standard multiple regression with the *enjoyment* outcome score as the dependent variable and age, gender, mother's educational level, and disability as the independent variables.

Variable	β	B (Std. Error)	95% CI for B
Recreational enjoyment			
Age	−0.202**	−0.053 (0.014)	−0.081, −0.025
Gender	−0.171**	−0.225 (0.72)	−0.367, −083
Disabilities	0.164**	0.310 (0.104)	0.106, 0.515
Educational level	−0.077		−0.245, 0.040
R^2	11.0**		
F	9.143		
Dif	4/297		
Social enjoyment			
Age	−114*	−0.026 (0.013)	−0.052, −0.001
Gender	−0.218**	−0.254 (065)	−0.382, −0.126
Disabilities	0.071		−0.066, 0.303
Educational level	−0.038		−0.173, 0.084
R^2	6.9**		
F	5.500		
Dif	4/297		
Physical enjoyment			
Age	−0.110		−0.088, 0.001
Gender	0.144*	0.286 (0.114)	0.063, 0.510
Disabilities	0.079		−0.097, 0.548
Educational level	0.119*	238 (0.114)	0.014, −0.463
R^2	5.2**		
F	3.992		
Dif	4/291		
Skill-based enjoyment			
Age	−0.011		−0.104, 0.087
Gender	−0.104		−0.899, 0.060
Disabilities	0.074		−0.261, 1.121
Educational level	0.004		−0.467, 0.496
R^2	6.8 ($p = 0.353$)		
F	1.109		
Dif	4/271		
Self-improve enjoyment			
Age	−0.286**	−0.100 (0.019)	−0.137, −0.063
Gender	−0.251**	−0.443 (0.094)	−0.628, −0.258
Disabilities	0.116*	0.295 (0.135)	0.028, 0.561
Educational level	0.049		−0.099, 0.272
R^2	16.3**		
F	9.143		
Dif	4/297		

*$p \leq 0.05$, ** $p \leq 0.01$.
β = Standardized Coefficients (each value of the independent variables have been converted to the same scale so they can be compared).
B = Unstandardized Coefficients.

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autonomy. Social activities that are less structured and involve only peers often demand more autonomy and self-initiation. However, if children with disabilities do not participate in less structured activities, such as social activities, for reasons other than lack of motivation, they probably would enjoy these activities as much as children without disabilities do. The enjoyment score in the CAPE is intended to reflect the child's level of motivation to participate in the activity, and the intensity score reflects actual attendance. Few differences were seen regarding levels of enjoyment between children with and without disabilities. In recreational and in self-improvement activities small to moderate differences were found between the groups indicating that children with disabilities enjoyed these activities more than children without disabilities. These results are in line with Majnemer et al. [2] and Heah et al. [38]. A comparison of the intensity (attendance) and enjoyment scores between the groups indicated, however, that in social activities the discrepancy between enjoyment scores and intensity scores was higher for children with disabilities compared to children without disabilities. Children with disabilities seemed to enjoy social activities just as much as children without disabilities but participated with less intensity.

A previous study reported that adolescents with cerebral palsy are worried about their limited opportunities to interact with people other than family and about a lack of having a friend [39]. Greater mobility and competence in sports and communication seems to influence the child's ability to be engaged in activities with friends [13]. The family characteristics are also associated with the social participation of children with disabilities. A higher level of parental education is related to increased participation and may reflect the parents' knowledge of and ability to access different leisure activities as well as their ability to provide the financial resources necessary for participation [13,40]. Results from this study showed that children with a parent with a university education participated in more social and physical activities, but the contribution of this variable was quite small. Interventions focusing on how children with disabilities can be supported in self-initiating social activities are urgently needed.

This study has shown that the diversity, intensity, and enjoyment of participation are related to different factors for

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different activity types. The personal variables of gender and age were the strongest variables influencing the diversity and enjoyment outcomes. The presence of a disability was related to the *intensity* of physical, social, and self-improvement activities. For physical activities, research has shown that barriers to activity are related both to the child's functional limitations and social competencies, as well as to other factors such as high costs, lack of nearby facilities, the attitudes of others, the availability of social support, family preferences, and socio-demographics [1,4,7,19,21,41,42]. In this study, the intensity of social and self-improvement activities were probably also related to these factors, although they were not included in this study. It is notable that even though children with disabilities participated with less intensity in self-improvement activities they tended to enjoy these activities more than children without disabilities. Physical restrictions often require adaptations of the environment and children thus become more dependent on others. Factors intrinsic to the child with disabilities, such as feelings of being less competent than their non-disabled peers, can also have implications for their participation and may result in social isolation [7].

In this study, the impact of age, gender, mother's educational level, and presence of disability only partly explained the level of participation. These findings are in accordance with previous studies that also showed low predictive power of child and environmental variables on the level of participation. [19,26,27]. In a seminal article by Sameroff et al. [43], it is suggested that it may be the combined impact of several factors rather than single factors that have the largest influence on most child participation outcome. Thus, the influence of other salient personal and family factors and how they combine with the factors investigated in this study must be further investigated to increase the knowledge necessary to create successful participation interventions. The support systems also vary, not only between but also within countries and between communities. Longitudinal studies of participation in leisure activities are essential to increase the knowledge of changes over time in children's preferences for activities, the intensity of participation in an activity, and with whom the children perform activities. Studies focusing on participation in leisure activities of a more unstructured character, such as social activities, by children with disabilities are needed.

Furthermore, there is a complete lack of knowledge of the level of intensity in leisure activities that is optimal for children with disabilities. For a disabled child, coping with and managing a day in school (with the need for concentration, transportation, communication, etc.) could result in reduced capacity or energy for participation in leisure activities compared to children without disabilities. To gain a deeper understanding and knowledge of the multidimensional concept of participation, it is essential to listen to children's own experiences of participation as well as the obstacles and facilitators for inclusion that they identify. More research with designs based on qualitative methodology, such as interviews with children and observations of children's leisure time, might be essential to illuminate the essence of the concept of participation in leisure activities.

One limitation of this study may be the relatively small sample and the non-random selection of children with disabilities that may have influenced the results. The therapists who recruited these children might have sent the questionnaire primarily to children who they knew were active in leisure activities. Thus, the responders may not be truly representative of the population of children with disabilities. Furthermore, the response rate among children with disabilities was only 50%, and it is possible that the families who responded were more active in leisure activities than families that chose not to respond.

Conclusions

Children's participation in leisure activities seems to occur in somewhat different patterns depending on disability, gender, age, and mother's educational level. Children with disabilities participate in a higher number of different activities, but less frequently, than their non-disabled peers. Younger children, girls, and children with disabilities frequently participate in more recreational activities and also seemed to enjoy these activities more, while older children without disabilities participate more frequently in social activities. The level of enjoyment in social activities was, however, equally high independent of disability. The conclusion is, therefore, that children with a disability would like to attend more often, but for some reason they do not. The results highlight the importance of intervention studies as well as clinical interventions that emphasize the unique patterns of children's participation in leisure activities.

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