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Participation of Children and Youth with Neurodevelopmental Disorders in After-School Activities

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ABSTRACT

The *aim* of this study was to compare the level of participation in social, leisure and recreational activities in a group with intellectual disability, a group with autistic spectrum disorders, and a typically developing group.

Method: The sample included 157 children of both genders, between 7 and 16 years of age ($M=11.03$, $SD=2.59$). The Activities Questionnaire, which consists of: social, leisure, recreational activities, and friendship, was used in the research.

Results: Participants with intellectual disability participated in a significantly larger number of all assessed activities than their peers with autistic spectrum disorders. There were no statistically significant

differences in the frequency of participation in observed activities among the three groups of participants. Participants with intellectual disability were more independent than participants with autistic spectrum disorders in social and leisure activities, and needed less parental support in leisure activities. Participants with intellectual disability and autistic spectrum disorders had friendly relationships mainly with peers with disabilities. The influence of gender was detected in certain activities in all three groups of participants.

Conclusion: Participants with disability participate in social, leisure and recreational activities less than their typically developing peers. The activities in which they participate are mainly stereotypical, highly structured, and take place in the presence of parents.

Key words: social activities; leisure activities; recreational activities; intellectual disability; autistic spectrum disorders

Introduction

Leisure activities are optional and enjoyable activities that people choose, plan, and take part in during their free time [1]. These activities provide an opportunity for gaining new experiences, establishing and maintaining friendly relationships [2], and mastering different practical and social skills [3]. Recreational and leisure activities include: sport-enjoyment activities, games, social leisure activities with friends or peers, cultural, spiritual, creative, and skill-based activities [4].

According to the defined principles of the United Nations, persons with intellectual disabilities must have the right and opportunity to live an active life in the community, which means that education, daily activities, communication, leisure and recreational activities should

be available to them and they should participate in them in accordance with their wishes and age [5].

Participation in social and leisure activities is an important predictor of life quality, wellbeing [6], and satisfaction of persons with intellectual disability [7]. It has a long-term positive effect on physical and mental health of persons, and promotes the development of their personal and social identity [8].

Persons with neurodevelopmental disorders who are physically more active and participate in sport activities, also have a higher level of self-esteem and independence, better mobility and social acceptance, [9] a lower level of stress and frustration, as well as a better perspective for the development of social relationships with peers [10]. Participation in recreational activities improves social skills and experience, and indirectly and positively stimulates the skills of self-determined behaviour of adolescents with intellectual disability [11]. Persons with intellectual disability who have more friends and socialize with them more frequently, and who participate in leisure activities more, feel less lonely and have a better quality of life [12].

Compared to their typically developing peers, children and youth with autistic spectrum disorders and intellectual disability are at higher risk from restrictions in participating in social activities in the community, formal activities, family-enrichment, and recreational activities [13–15]. Studies indicate that the observed differences between children with disabilities and their typically developing peers do not refer only to the level of participation (diversity and frequency), but also to the environmental context and the quality of experience (preferences and satisfaction).

Children with disabilities have a lower level of participation in social, leisure, and recreational activities because they face more barriers than their typically developing peers. Several studies point out the significance of personal restrictions such as: cognitive, physical,

social, and communication deficits [13,14,16–18], lack of motivation, independence, and tendency of these persons to spend their free time in a stereotypical and socially isolated way [19].

The category of environmental factors includes limited resources of formal and informal support [20]. Studies emphasize the lack of resources in providing support and commitment of service providers in the community, which would give persons with intellectual disability equal opportunities to do physical activities and lead a healthy lifestyle like other people without disabilities [21]. Inappropriate organization of the educational system, inadequate availability of sports and cultural institutions, transportation problems, means of obtaining information [22], material and health status of parents, parents' lack of free time [18], ethnic origin and intellectual-cultural family orientation [23], and relationships with peers [18,23] also represent the barriers to greater participation of children with intellectual disability and autistic spectrum disorders in leisure and recreational activities.

Persons with intellectual disability and autistic spectrum disorders have fewer friends than their typically developing peers, [18,24] spend less time with friends after school, and the quality of their friendly relationships seems to be characterized by a lower level of cohesiveness, emotional reciprocity and closeness. Early social deficit and the presence of internalizing and externalizing behavioural disorders are considered to be significant predictors of later friendly relationships [25]. Most teenagers with intellectual disability believe that good friendly relationships depend on the congruence of personal traits and interests, the ability to socialize by participating in a wider range of different activities, stability in relationships, and the degree of closeness. Participants are generally satisfied with friendly relationships with their peers with intellectual disability, which are more stable than friendships with typically developing peers [26].

Children and youth with intellectual disability most frequently take part in social activities and passive recreational activities at home, and somewhat less in Self-Improvement activities. The lowest level of participation has been determined in active physical activities and recreational activities. [16,17,27] On the other hand, authors state that a high level of participation in social activities is more the result of a habit to perform activities in the presence of others, or together with them (family members or therapists), than of real opportunities they are given in the community [17]. Furthermore, data on a higher frequency of participation do not show a higher level of a child's engagement at the same time, but only indicate the opportunities a child has, although there are still doubts about whether support programs sufficiently provide real possibilities and opportunities for including persons with disabilities in this type of activities [27]. Due to functional limitations and dependence on others, children with disabilities usually have a lower intensity of participation in these activities than their typically developing peers. However, that does not mean they are less motivated and less engaged in these activities [28].

According to some studies, there is no difference between children with intellectual disability and autistic spectrum disorders with regard to the level of participation in social, leisure, and recreational activities, or with regard to the type of activities they engage in [24], while findings of recent studies indicate the tendency towards significantly more pronounced social isolation of young adolescents with autistic spectrum disorders compared to their peers with intellectual disability [29]. A common characteristic for both groups of children (autistic spectrum disorders and intellectual disability) is that they more often participate in passive solitary activities at home (video games, playing with cars, Lego bricks, and reading books) compared to their typically developing peers [14,18]. Participation in physical and social activities in children with autistic spectrum disorders is believed to be based on the engagement

of social skills. Thus, deficits in this domain are also significant predictors of limited participation in outdoor physical activities [30].

On the other hand, assessing preferences and satisfaction in these domains indicates that preferences of persons with disabilities are similar to those of typically developing persons. A wish to participate in outdoor social and physical activities is especially pronounced: going to concerts, restaurants, sports activities, a wish to travel and go camping [31]. Priorities depend on participants' age, gender, and type of housing [32].

Due to fewer friends and social rejection, most children and youth with intellectual disability and autistic spectrum disorders participate in organized outdoor activities with parents and family members or peers from their school environment [33].

By reviewing the literature, we have determined that the number of similar studies in the Republic of Serbia is small, and that they generally do not simultaneously include different groups of participants with neurodevelopmental disorders. The aim of this study was to describe and compare the level of participation (diversity and frequency) of children and youth with intellectual disability and autistic spectrum disorders compared to their typically developing peers in social, leisure, and recreational activities, as well as to determine the influence of gender and contextual factors on this life domain. This aim was defined in accordance with our wish to assess the distribution of other authors' results [24] in our environment.

Method

Data collection and participants

The children included in the sample were divided into three groups: typically developing children, children with autistic spectrum disorders and intellectual disability, and children with intellectual disability with no comorbid disorders.

The sample included students with disabilities from four special primary state schools and one special secondary state school in the urban zone of Belgrade. Only students with difficulties in mental development attend the special schools, so students with intellectual disabilities, as well as those with autistic spectrum disorders, did not have the opportunity for social interaction with typically developing students in a school environment.

The group of typically developing participants included students from one regular primary state school and one regular secondary state school. These schools are not part of the inclusive or integrated education system. They are attended only by typically developing students.

The authors distributed copies (n=500) of The Activities Questionnaire to the schools, i.e. school authorities who took them over and passed them to mothers. In addition to every questionnaire, parents also received a cover letter which described the research aim and method, and guaranteed that participants would stay anonymous and that the obtained data would be used solely for scientific purposes. Only mothers of students were asked to answer the questions from the Questionnaire and return the completed questionnaire to teachers within 7 days. Data on the type of disability of students whose parents agreed to participate in the research were obtained from school records.

From the total of 500 distributed questionnaires, 31.4% were returned.

Before the questionnaire was distributed, the number of students with intellectual disability and autistic spectrum disorders was determined in special schools, on the basis of the information obtained from pedagogical-psychological service of each school. In accordance with the obtained data, the total of 244 questionnaires were distributed in these schools. Mothers of

students with intellectual disability received 118 questionnaires, from which 29.66% were filled in correctly and returned. From the distributed 126 questionnaires, mothers of students with autistic spectrum disorders filled in and returned 23.81%.

From the total of 256 questionnaires that were distributed to mothers of typically developing students in regular schools, 35.9% were filled in correctly and returned.

This research included 157 children, of both genders (boys $n=102$, 65%, girls $n=55$, 35%), between 7 and 16 years of age ($M=11.03$ years, $SD=2.59$). It was determined that typically developing participants ($M=10.84$, $SD=2.78$), participants with autism spectrum disorder ($M=11.13$, $SD=2.10$), and participants with intellectual disability ($M=11.46$, $SD=2.44$) did not statistically significantly differ with regard to age $F(2,154)=0.754$, $p=0.472$.

Selection criterion for forming the sample was absence of comorbid neurological, psychiatric, motor and sensory disorders which are not part of the autistic spectrum disorders clinical picture.

The ethical guidelines of the Special Education and Rehabilitation Code of Ethics in Science and Research - Good Scientific Practice, required for the conduct of this type of researches, were followed during the selection of participants.

Instrument

The Activities Questionnaire [24] consisted of four parts. The first part included 11 questions on free time social activities, such as going to the park, playing board games, socializing with friends, etc.

The informant, i.e. a child's mother in our research, answered the questions on the child's behaviour over the past year. It was first determined whether the child participated in the described activity, by choosing one of the two possible answers: yes or no. If the answer was positive, the informant provided information on how frequently the child performed the activity,

by choosing one of the three possible answers: every day, twice a week, or once a month. The next question referred to a person or persons with whom the child carried out the activity. In answering this question, the participant was able to choose more than one possible answer: (1) independently, (2) with parents, (3) with another adult, (4) with a paid assistant, (5) with a volunteer, (6) with a typically developing peer, and (7) with a peer with disabilities. In order to simplify the analysis, we grouped several types of answers. Typically developing peers and peers with disabilities were grouped into *peers* category. Another adult, a paid assistant, and a volunteer were grouped into *other adult* category. After grouping, three categories of answers were analysed: *peers*, *parents*, and *other adults*.

The informant answered the 12 questions on organized recreation in the same way. Four items, which in the original version of The Activities Questionnaire referred to sports activities: hockey, baseball, riding, and ice-skating, were replaced with three items which described sports much more popular with children in the Republic of Serbia: basketball, volleyball, and handball.

Leisure activities domain included 11 questions on free time activities which were not directly related to social interactions: watching TV, reading, playing video games, etc.

All three domains included one open question, i.e. a part in which the informant was able to write in the activities in which a child participated, if the activity had not already been described in some of the questions from the Questionnaire.

The last five questions of The Activities Questionnaire referred to establishing friendly relationships. The questions referred to the number of friendships, time spent with friends, socializing with children with disabilities and typically developing children, and selecting one child as a best friend.

Apart from The Activities Questionnaire, a Demographic Questionnaire was also used in this research. It consisted of questions related to a child's gender and age, parents' level of education, employment, and monthly income.

In order to use the data obtained by The Activities Questionnaire for comparing a larger number of participants, it is advisable to analyse information on the person the child performs the activities with and on the frequency of performing activities with regard to the number of activities a child participates in. In this way we can calculate the percentage in which the child carries out the activities independently, with parents, with another adult, with a paid assistant, with a volunteer, with a typically developing peer, and with a peer with disabilities, compared to the total number of the child's activities. Also, we can determine the percentage in which the child performs the activities every day, twice a week, and once a month.

Results

Preliminary analyses

Table 1 presents demographic data which include employment, household monthly income, and level of education.

Table 1.

A unique score of socioeconomic status was calculated on the basis of data on the level of family income and education of mothers and fathers. One factor analysis of variance determined that there were significant differences in socioeconomic status among the three groups of participants [$F(2,154)=12.097, p=0.000$]. Parents of typically developing children ($M=0.02, SD=0.83$) had a significantly higher Socio-Economic Status compared to parents of children with intellectual disability ($M=-0.56, SD=0.59$) and autistic spectrum disorders ($M=-0.50, SD=0.54$).

There was no significant difference between Socio-Economic Status of parents of children with intellectual disability ($M=-0.56$, $SD=0.59$) and autistic spectrum disorders ($M=-0.50$, $SD=0.54$). Due to differences in the Socio-Economic Status level, this variable was used as a covariate in further analyses.

Social activities

The level of participation in social activities was presented with regard to the average number of activities in which the participants took part (Table 2) and percentage distribution of their participation in different types of social activities (Table 3).

Typically developing participants took part in a significantly larger number of social activities than participants with intellectual disability and autistic spectrum disorders. Compared to participants with autistic spectrum disorders, participants with intellectual disability participated in a larger number of social activities (Table 2).

Table 2.

Table 3 shows the number of participants who participated in a particular social activity, with regard to the total number in the sample. The results are shown as percentages.

Compared to participants with intellectual disability and autistic spectrum disorders, a larger number of typically developing participants took part in all assessed activities. Compared to participants with autistic spectrum disorders, a larger number of participants with intellectual disability participated in nine of the eleven listed social activities. A higher percentage of autistic spectrum disorders participants took part only in *Go to park* and *Go to the mall* activities.

Table 3.

Leisure activities

Typically developing participants took part in a significantly higher percentage of the leisure activities included in this research than participants with intellectual disability and autistic spectrum disorders. Significant differences were determined between participants with intellectual disability and autistic spectrum disorders. Participants with intellectual disability took part in more leisure activities than participants with autistic spectrum disorders (Table 4).

Table 4.

With the exception of *Watch TV/movies*, *Do puzzles*, and *Go for walks activities*, most typically developing participants took part in all other leisure activities. Most participants with intellectual disability participated in all listed leisure activities except in *Do puzzles*. *Do puzzles* is the only activity in which participants with autistic spectrum disorders participated in a larger number than typically developing participants and participants with intellectual disability (Table 5).

Table 5.

Recreational activities

Table 6 presents the average number of recreational activities in which all three groups of participants took part.

Typically developing participants took part in the largest number of recreational activities. They participated in a significantly larger number of recreational activities than participants with intellectual disability and autistic spectrum disorders. Participants with autistic spectrum

disorders participated in a smaller number of recreational activities than participants with intellectual disability.

Table 6.

Typically developing participants took part in all listed recreational activities, more than participants with disabilities except in *Play soccer* and *Swimming lessons*. Most participants with intellectual disability played soccer, while most participants with autistic spectrum disorders went to swimming lessons (Table 7).

Table 7.

Frequency of participation in social, recreational, and leisure activities

There was no significant difference in the frequency of social and leisure activities among the three groups of participants.

There was no significant difference in the number of recreational activities in which participants typically developing and participants with intellectual disability participated every day. Typically developing participants and participants with intellectual disability performed a significantly larger number of recreational activities every day than participants with autistic spectrum disorders.

There was no significant difference among all three groups of participants in the number of participants who performed recreational activities twice a week and once a month (Table 8).

Table 8.

Support in social activities

Typically developing participants took part in most social activities independently, while a significantly smaller number of participants with intellectual disability and autistic spectrum disorders were able to participate independently in social activities included in this research. A significant difference was determined between the participants with intellectual disability and autistic spectrum disorders in favour of the participants with intellectual disability.

There was no significant difference between the percentage of typically developing participants and participants with intellectual disability who participated in social activities with their parents. Compared to typically developing participants and participants with intellectual disability, participants with autistic spectrum disorders took part in a significantly larger number of activities with their parents.

All three groups of participants did not significantly differ in the number of social activities they performed with other adults, including volunteers and professionals who provided support.

Compared to participants with intellectual disability and autistic spectrum disorders, typically developing participants took part in a significantly larger number of social activities with their typically developing peers. There was no significant difference in the number of activities participants with intellectual disability and autistic spectrum disorders performed with their typically developing peers (Table 9).

Support in leisure activities

Typically developing participants performed a significantly larger number of leisure activities independently compared to the number of leisure activities performed independently by participants with intellectual disability and autistic spectrum disorders. Participants with

intellectual disability independently participated in a significantly larger number of leisure activities than participants with autistic spectrum disorders.

Participants with autistic spectrum disorders performed a significantly larger number of leisure activities with parents compared to typically developing participants and participants with intellectual disability. Participants with intellectual disability performed a significantly larger number of activities with parents than typically developing participants.

Typically developing participants performed a significantly larger number of leisure activities with other adults compared to participants with intellectual disability and autistic spectrum disorders. There were no significant differences between participants with intellectual disability and autistic spectrum disorders in the number of activities performed with other adults.

Typically developing participants performed a significantly larger number of activities with peers compared to participants with intellectual disability and autistic spectrum disorders. There were no significant differences between participants with intellectual disability and autistic spectrum disorders in the number of leisure activities performed with typically developing peers (Table 9).

Support in recreational activities

There were no significant differences between typically developing participants and participants with intellectual disability in the number of recreational activities performed independently. No participants with autistic spectrum disorders participated independently in any recreational activity included in this research.

There were no significant differences in the number of recreational activities in which typically developing participants and participants with intellectual disability and autistic spectrum disorders participated with parents and other adults.

A significantly larger number of typically developing participants took part in recreational activities with typically developing peers than participants with intellectual disability and autistic spectrum disorders. There were no significant differences between the number of participants with intellectual disability and autistic spectrum disorders who performed recreational activities (Table 9).

Table 9.

Gender

Significant differences in Social activities by gender were determined in participants with autistic spectrum disorders and typically developing participants for only one item – *Go out for meals*. From the total of 11 children and adolescents with autistic spectrum disorders who went out for meals, a significantly larger number of girls (n=6, 66.7%) participated in this activity compared to boys (n=5, 23.8%), $\chi^2 (1)= 4.919, p=0.027$. From the total of 65 (70.7%) typically developing children who went out for meals, the number of boys (n=47, 79.7%) was significantly higher than the number of girls (n=18, 54.5%), $\chi^2 (1)= 6.291, p=0.012$.

Table 10 and 11 shows only the results related to the leisure and recreational activities in which significant differences were determined between male and female participants.

Table 10.

Table 11.

Friendly relationships

Typically developing participants, participants with intellectual disability, and participants with autistic spectrum disorders significantly differed with regard to the number of established

friendly relationships $F(2, 155)=64.848, p=0.000, \eta^2=0.462$. Typically developing participants ($M=5.19, SD=1.94$) had a significantly larger number of friends than participants with intellectual disability ($M=3.00, SD=1.94$). Furthermore, typically developing participants had a larger number of friends than participants with autistic spectrum disorders ($M=0.80, SD=0.96$). A significant difference in the number of established friendly relationships was also determined between participants with intellectual disability ($M=3.00, SD=1.94$) and participants with autistic spectrum disorders ($M=0.80, SD=0.96$) in favour of participants with intellectual disability.

Significant differences were also determined in the number of hours spent with friends $F(2, 155)=6.334, p=0.002, \eta^2=0.077$. Typically developing participants ($M=5.68, SD=1.77$) spent significantly more hours with friends than participants with autistic spectrum disorders ($M=3.90, SD=3.44$). There were no significant differences between typically developing participants ($M=5.68, SD=1.77$) and participants with intellectual disability ($M=4.82, SD=2.70$) in the time spent with friends.

There was a significant relation between belonging to one of the three groups of participants and answering the question whether the participant had a best friend $\chi^2(2,154)=47.937, p=0.000$. As much as 80% of typically developing participants had a best friend, 20% of participants with intellectual disability were able to single out a person they considered their best friend, while only 7% of participants with autistic spectrum disorders had a best friend (Table 12).

Table 12.

Significant differences among the three groups of participants were determined in the number of typically developing friends $F(2, 155)=31.090, p=0.000, \eta^2=0.292$.

Typically developing participants ($M=6.14$, $SD=1.66$) had a significantly larger number of friends without disabilities than participants with intellectual disability ($M=3.97$, $SD=2.68$), and a significant difference was also determined compared to participants with autistic spectrum disorders ($M=2.53$, $SD=3.30$) in favour of typically developing participants. Participants with intellectual disability ($M=3.97$, $SD=2.68$) had a larger number of typically developing friends than participants with autistic spectrum disorders ($M=2.53$, $SD=3.30$).

The three groups of participants also significantly differed with regard to the number of friends with disabilities $F(2, 155)=11.774$, $p=0.000$, $\eta^2=0.135$.

Typically developing participants ($M=.56$, $SD=1.69$) had a significantly smaller number of friends with disabilities than participants with intellectual disability ($M=2.06$, $SD=3.18$) and participants with autistic spectrum disorders ($M=3.00$, $SD=3.57$). Differences between participants with intellectual disability ($M=2.06$, $SD=3.18$) and autistic spectrum disorders ($M=3.00$, $SD=3.57$) in the number of friends with disabilities were not statistically significant.

Discussion

Our study focused on determining the quality of participation of children and adolescents with and without disabilities in social, leisure, and recreational activities.

Participation in social activities

The results of this study showed that participants without disabilities had a more diverse social life than participants with intellectual disability and autistic spectrum disorders. Out of the given 11 types of social activities, typically developing children and adolescents participated in 8.73 on average, which was significantly more than the average number of activities their peers

with disabilities participated in. This confirms the view that apart from other manifestations, intellectual disability is also characterized by limitations in social development [34]. Atypical behaviour and social relationships of persons with neurodevelopmental disorders are related to the existing socio-cognitive deficit, reduced abilities to self-regulate behaviour and emotions, and deficits in communication abilities [35 – 38]. Social engagement of children and youth with intellectual disability and autistic spectrum disorders is lower compared to typically developing peers, which negatively influences their daily routine dominated by stereotypical and simple behaviour patterns, often atypical for chronological age. Basic social deficits and the influence of social stigma reduce self-respect of persons with disabilities and their motive and wish to establish richer social interactions [39].

In our study, participants with intellectual disability had a richer social life than participants with autistic spectrum disorders. Participants with intellectual disability participated in the average of 5.6 out of the given 11 activities, while participants with autistic spectrum disorders participated in the average of 3.73 activities. Due to co-existence of intellectual disability and a specific deficit in social cognition and social communication, persons with autistic spectrum disorders are more vulnerable in social environment than other persons who are diagnosed only with intellectual disability. Comorbidity increases the risk of social passivity and isolation [40]. Psychosocial problems and tendency towards social withdrawal are also expressed in persons with autistic spectrum disorders despite average or above average intelligence [41].

Data on the percentage of participants' participation in different types of social activities are in accordance with general results stated above. Participants without disabilities took part in a larger number of different social activities than participants from the other two groups. On the other hand, children and young people with intellectual disability participated in different types of social activities more than their peers with autistic spectrum disorders. The only exceptions

were two types of activities (Go to park and Go to the mall/shopping centre) in which participants with autistic spectrum disorders participated more. Identical findings were also reported by other authors [24] who indicated that children with autistic spectrum disorders were more at risk of social exclusion from activities which were typically performed with peers and without participation of adults than children with intellectual disability. This is why we assumed that parents of children with autistic spectrum disorders had to make more effort than parents of other children with disabilities in adapting their family's daily patterns of behaviour to the needs and abilities of their children. It is possible that having more obligations negatively influenced the presence of more stress reported by parents of children with autistic spectrum disorders [42, 43].

Participation in leisure activities

In this study, the level of participation in leisure activities in the diversity domain was related to the level of intellectual functioning and the type of clinical picture of the participants. Typically developing children and youth participated in the average of 7.58 leisure activities out of the given 10, which was significantly more than participants with autistic spectrum disorders ($M=4.20$) and intellectual disability ($M=5.60$). Also, a significant difference was determined between participants with intellectual disability and those with autistic spectrum disorders with regard to the number of activities they took part in. On average, participants with intellectual disability participated in a larger number of activities than participants with autistic spectrum disorders. The analysis of the participants' distribution with regard to the type of leisure activity in which the highest percentage of children participated, singled out household activities (*Watch TV/movies* in participants with intellectual disability, and *Do puzzles* in participants with autistic spectrum disorders) and an activity which both groups of children mostly perform with parents (*Go for walks*). *Do puzzles* was the only activity in which participants with autistic spectrum

disorders participated more than the other two groups (typically developing children and children with intellectual disability). The results of this study were similar to the results of other researchers who also stated that most children and youth with intellectual disability and autistic spectrum disorders participated in a relatively small number of leisure activities and most frequently spent their free time in sedentary activities at home (watching TV, listening to music, doing puzzles, playing computer games) or organized outdoor activities in the presence of parents and other adults (going for a walk, riding a bike) [18,33,44,45]. In our sample, participants with intellectual disability had significantly more diverse and more active free time than participants with autistic spectrum disorders, since they participated in more different social activities. On the basis of these results, we assumed that the determined significant difference resulted from a less pronounced deficit in social communication and an ability to establish interpersonal relations in the group with intellectual disability, since individual social limitations are considered to have a strong predictive value of the level of participation in leisure activities of children and youth with disabilities [18,46]. A higher level of dependence on parents, as well as a smaller number of friends among peers also negatively influence the quality and organization of free time [33,47].

Participation in recreational activities

The results of this study which refer to the level of participation in recreational activities point to the same trend as in social and leisure activities. In general, all three groups of participants had a low level of participation in recreational activities. It seems that a lifestyle in which all children and youth develop habits of a healthy life, which certainly includes a physically active life, is not sufficiently present in our society. Out of the given 12 activities, typically developing participants took part in 2.73 on average, which was significantly more than the average participation of children and youth with intellectual disability ($M=1.60$) and autistic

spectrum disorders ($M=0.47$). Differences between the two groups with disabilities were statistically significant, in favour of participants with intellectual disability. Most (11) recreational activities in the used Questionnaire referred to active physical and sport activities. Although the benefits of physical and sport activities are multiple and clear, unfortunately a lot of studies point to a lower level of participation of children and youth with disabilities in these activities compared to typically developing peers, which has a negative influence primarily on their general health (physical fitness and obesity), and the quality of life [9,24,48,49]. On the other hand, young people with disabilities who do sports have similar experiences as young people without disabilities. A wish for fun and social contacts is a key motive in both groups of young people [50]. However, differences in the level of participation are still present and they were also confirmed in this study. We assume that personal limitations (social deficit, reduced physical fitness and mobility, inadequate independence, fewer friends), as well as a lower socio-economic family status of participants with disabilities, probably contributed to a significantly lower level of participation in recreational activities compared to typically developing participants. Attitudes, life style and the system of values of a family influence the type of activities children participate in and the quality of daily life habits [23,51 – 53]. Most recreational activities take place away from home, they are less spontaneous and more structured, and thus children and youth with more pronounced personal limitations have a greater need for support from parents, peers, or service providers to participate in them. In the absence of peer support, especially of typically developing peers, as well as available programs adapted to the needs of children and youth with disabilities, which is frequent in our society, the level of a child's participation depends mostly on parental support. Unfortunately, parents are not always able to provide necessary support, and the following reasons are stated as significant: inaccessibility of recreational facilities, lack of time, parents' increased fear for their children's safety, not trusting

their competencies to do sports, and concerns about possible negative social reactions of typically developing peers [33].

In the context of the impact of the above stated factors, an interesting finding referring to participants' participation in swimming lessons can also be observed. This type of recreational activity was most frequent in participants with autistic spectrum disorders. In addition to *Play soccer*, participants with intellectual disability also took up swimming most frequently. The obtained result can be related to the fact that support services are mainly oriented toward swimming lessons, while the level of optimal formal support for other types of recreational activities is significantly smaller in the community. Participation in these activities mainly depends on the initiative, possibilities, and preferences of parents and their children.

Frequency of participation in social, leisure and recreational activities

There were no differences in the frequency of participation in social, leisure, and recreational activities among typically developing, intellectual disability, and autistic spectrum disorders groups, except in everyday recreational activities in which participants with autistic spectrum disorders participated significantly less than the other two groups of participants. All three groups of participants generally performed an equal number of activities in the same time intervals. Despite personal and social barriers and the increased need for support, most young people with intellectual disability have defined goals and express a clear wish for a more intensive participation in community activities (social, fun, sport, and recreational) together with friends out of a family environment [54]. On the other hand, in the absence of children's personal initiative, parents take on the role of organizers and control the choice and dynamics of participation of their children in social and leisure activities, and actively engage in the realization of those activities. Parents who teach their children new strategies of behaviour in

social relations and establishing social and friendly relationships with peers, positively stimulate the development of their competencies, but only if they allow sufficient independence and autonomy [55]. Unfortunately, parents of children and adolescents with intellectual disability and autistic spectrum disorders are often not ready to reduce the degree of controlling and structuring their children's time and activities and give them greater autonomy in making decisions and behaving [56]. In this case, the style of upbringing of children with intellectual disability and autistic spectrum disorders which is too authoritative is less the support, and more another obstacle to social inclusion of these children. It is possible that differences in the frequency of participation do not exist because of the observed trend in most typically developing young people in whom interest to participate in recreational and physical activities decreases in their transition to adolescence [57], which is also explained by a change in motives while growing up. Older children choose activities which allow them to have more fun and make more social contacts, while younger children are more interested in participating in "win games" and games through which they gain popularity [58].

Support in participating in social, leisure, and recreational activities

Typically developing participants took part in a significantly larger number of tested activities independently, without support (with the exception of recreational activities) or with peers (in all activities), compared to participants with intellectual disability and autistic spectrum disorders. Parents and other adults were significantly less present during leisure activities of typically developing children and youth than during leisure activities of their peers with intellectual disability and autistic spectrum disorders. Participants with intellectual disability were more independent than participants with autistic spectrum disorders in social and leisure activities, and did not need parental support in leisure activities as much as participants with

autistic spectrum disorders. There was no difference between participants with intellectual disability and autistic spectrum disorders in all other domains. The number of social and recreational activities they performed with support of peers, parents, and other adults was equal in both groups of participants. The obtained result is similar to the results of previous studies which indicate that while participating in social, leisure and recreational activities, typically developing children have a significantly larger number of interpersonal contacts, primarily with friends and acquaintances, than their peers with disabilities [24,59]. A key facilitator of participation of children and youth with disabilities in after-school activities is social support of parents and peers [60], which positively influences the increase of their self-efficacy. In this way, opportunities for better participation in this type of activities are indirectly increased [61]. In children and youth with intellectual disability, cognitive deficit negatively influences participation in the community [62]. The group with autistic spectrum disorders is, due to additional social and communication deficits, probably less independent than their peers with intellectual disability, and more dependent on support of others [29]. This especially refers to leisure activities, which are less structured than recreational and social activities.

Relation between gender and participation in social, leisure, and recreational activities

Gender had a statistically significant influence on the level of participation only in certain types of activities in all three groups of participants. In the typically developing group, gender differences were determined in: leisure activities (*Play video games, Go biking or rollerblading, Do crafts*), social activities (*Go out for meals*), and recreational activities (basketball, soccer, volleyball, handball, and dancing). These differences were partially observed in participants with disabilities. In the group of participants with intellectual disability, girls read more, and boys played computer games more. In the group of participants with autistic spectrum disorders, girls

went out for meals more, while boys went swimming more. The observed differences in the sample of typically developing participants can be explained by the presence of cultural stereotypes in the upbringing of children of different genders. Boys more frequently play video games, go biking, and participate in some group sports (basketball and soccer), while girls more frequently choose hobby, dancing and volleyball. A smaller difference in intensity, and bigger in preferences between boys and girls while growing up, were also confirmed by other studies. Girls participate in social and self-improvement activities more, while boys prefer active physical activities [63,64]. It is possible that the above mentioned gender differences in preferences were not detected in participants with disabilities due to their extremely low level of participation in the activities included in this research, and uneven gender structure of participants in these groups (intellectual disability and autistic spectrum disorders).

Friendships

In this study, mothers of typically developing participants reported that their children had significantly more friends and spent more time with them than participants with disabilities. In the group with neurodevelopmental disorders, children and youth with intellectual disability had more friends than their peers with autistic spectrum disorders. As much as 80% of typically developing participants, 20% of participants with intellectual disability, and only 7% of participants with autistic spectrum disorders had a best friend. A significant difference was also determined in this sample in the choice of friends. Children and young people socialized with similar peers and there was a division with regard to the presence/absence of disability. Participants with intellectual disability and autistic spectrum disorders mainly socialized with peers with disabilities, while the typically developing group had a significantly smaller number of persons with disability as friends. Furthermore, in interpersonal relations during after-school

activities, typically developing participants were directed towards the population without disabilities. Similar results have also been reported in other studies. Most adolescents with autistic spectrum disorders (68%) had no friends because they were not familiar with the concept of friendship, while some participants lacked abilities or wish to establish friendly relationships. Only 12% of participants with autistic spectrum disorders had friends [65]. Adolescents with intellectual disability and autistic spectrum disorders have fewer friends and their friendships are characterized by insufficient closeness and warmth, as well as a lower level of reciprocal relationships, which is especially expressed when a group of friends consists only of peers with disabilities [66]. Key risk factors are social and communication deficits and externalizing and internalizing behavioural disorders [25,67,68]. Externalizing behaviour problems have a direct negative influence on the quality of friendship because they hinder the development of closeness and warmth. Internalizing behaviour problems are negative predictors of establishing close friendly relationships [25] and the level of social motives of a person for getting included in peer relationships [68]. On the other hand, although they may not have behavioural problems, it is possible that persons with intellectual disability and autistic spectrum disorders may seem unacceptable as potential friends only due to cognitive and social deficits, as well as a problem in social communication. In this way, chances of establishing initial contact and communication with peers, especially typically developing, are significantly reduced. Poor and often bad social experience of children and youth with disabilities does not stimulate the development of their pro-social behaviour, and in the absence of social support, it increases the risk of social loneliness and isolation. Most friendly relationships between children and youth with disabilities and their typically developing peers are acquaintances in character [69], and only 10% of typically developing young people reported that they had friends with intellectual disability, while most refused to socialize with them, especially after school, considering them incompetent to be

involved in relationships that had a personal character and a greater degree of closeness [70]. Mixed groups of friends (peers with and without disabilities) are desirable because they have a better internal connection, a higher degree of unity in playing and personal satisfaction of each member. On the other hand, groups of friends consisting only of peers with disabilities may represent a less restrictive environment and provide more opportunities for interaction and improvement of social and pragmatic competence [66].

Conclusion

Typically developing children and youth independently participated in a significantly larger number of different social, leisure, and recreational activities, and had more friends than their peers with disabilities. With regard to the level of participation in all types of the assessed activities, participants with intellectual disability were significantly better than the group with autistic spectrum disorders. They were more independent, had more friends and a smaller need for parental support in leisure activities than the group with autistic spectrum disorders. It is interesting that expected differences were not determined among the compared groups with regard to the frequency of participation in the assessed activities, which can be related to the finding that typically developing participants did most activities with peers and parents, while participants with disabilities relied mainly (intellectual disability) or only (autistic spectrum disorders) on parental support.

Gender had a significant influence on the difference between boys and girls in preferences while choosing favourite activities in all groups of participants. It is possible that fewer gender differences in preferences of participants with disabilities were the result of an extremely small number of activities this population participated in.

Recommendations

Based on the results of this research, we believe we can give the following recommendations. Future studies should focus on the relation among a larger number of variables and preferences of participants in after-school activities, as well as on the quality of experience and satisfaction of participants while participating in these activities.

The obtained results point to the necessity of forming a richer network of support services which would be oriented towards organizing after-school activities of persons with disabilities in the community. A higher frequency of contacts and establishing friendly relationships with typically developing peers, which would be possible through support services, would enable participation of persons with disabilities in leisure, recreational, and social activities which does not solely depend on parental support.

Limitations

The first limitation of this study refers to the final number of data. The decision that only mothers should be informants probably had a negative influence on the final number of collected and validly completed Questionnaires. We excluded fathers as potential informants with regard to the assumption that their experience as parents of children with disabilities differs from mothers' [71]. In order to avoid possible qualitative discrepancy in reporting, which could occur if information was provided for some children by mothers and for some by fathers, we decided that mothers should be informants for the complete sample. We considered that mothers, especially mothers of children with disabilities, were able to provide a larger number of more precise data about their children's daily routine. They are often unemployed and are thus able to spend significantly more time with their children. Apart from that, cultural discourse also imposes the still present traditional gender division of parents' roles. It is also possible that the insistence of

school authorities on indirect contact between researchers and informants had a negative influence on the motivation of mothers and their consent to participate in the research, which ultimately reduced the amount of data we had at the end of the research.

The second limitation of this study refers to the lack of direct interview with children and youth with disabilities about the quality of their friendly relationships with peers with and without disabilities. Therefore, findings of this study which refer to friendship should be taken with reservation, since we cannot know for sure which quality level of that experience would emerge if people with disabilities personally perceived and qualified social relationships with their peers (preferences and satisfaction), which should be included in future studies.

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Table 1. Informants' employment, household monthly income, and level of education

	TD (n = 92)		ASD (n = 30)		ID (n = 35)		
	n	%	n	%	n	%	
Employed	82	89.1	17	56.7	12	34.3	$\chi^2(2)=40.342, p=0.000$
Unemployed	10	10.9	13	43.3	23	65.7	
Works at weekends	35	42.7	10	58.8	3	25.0	$\chi^2(2)=3.319, p=0.190$
Does not work at weekends	47	57.3	7	41.2	9	75.0	
Household monthly income							
Up to 49 000 RSD	45	48.9	19	63.3	27	77.1	$\chi^2(4)=17.962, p=0.001$
From 50 000 to 80 000 RSD	14	15.2	8	26.7	6	17.1	
More than 80 000 RSD	33	35.9	3	10.0	2	5.7	
Mother's level of education							
Elementary school	3	3.3	2	6.7	18	51.4	$\chi^2(6)=52.066, p=0.000$
Secondary school	49	53.3	24	80.0	12	34.3	
College	12	13.0	2	6.7	1	2.9	
University (master and PhD)	28	30.4	2	6.7	4	11.4	
Father's level of education							
Elementary school	2	2.2	2	6.7	12	34.3	$\chi^2(6)=52.066, p=0.000$
Secondary school	51	55.4	24	80.0	19	54.3	
College	7	7.6	1	3.3	2	5.7	
University (Master and PhD)	32	34.8	3	10.0	2	5.7	

RSD: currency code for Serbian Dinar.

*Values significant at the level $p < 0.05$ level are marked in bold.

Table 2. Total number of social activities

	TD	ASD	ID	F	(df)	p^*	<i>Post hoc</i>		
	Mean (SD)	Mean (SD)	Mean (SD)						
Total number of activities	8.73 (1.55)	3.73 (2.00)	5.60 (2.83)	69.451	2	0.000	TD	>	ID
							TD	>	ASD
							ID	>	ASD

TD: typically developing; ASD: autistic spectrum disorders; ID: intellectual disability.

*Values significant at the level $p < 0.05$ level are marked in bold.

Table 3. Distribution of participation in social activities in percentages

		TD	ASD	ID
1.	Go to park	92.4	86.7	82.9
2.	Play games	84.8	6.7	60.0
3.	Birthday parties	97.8	53.3	71.4
4.	Play at friends' homes	89.1	53.3	80.0
5.	Has friends over	94.6	53.3	68.6
6.	Sleepovers	35.9	-	5.7
7.	Talk on the phone	85.9	16.7	51.4
8.	Talk on the computer	76.1	10.0	25.7
9.	Go to the mall (shopping centre)	76.1	53.3	40.0
10.	Go to the movies	69.6	3.3	31.4
11.	Go out for meals	70.7	36.7	42.9

TD: typically developing; ASD: autistic spectrum disorders; ID: intellectual disability.

Table 4. Total number of leisure activities

	TD	ASD	ID	F	(df)	<i>p</i> *	<i>Post hoc</i>		
	Mean (SD)	Mean (SD)	Mean (SD)						
Total number of activities	7.58 (1.38)	4.20 (1.81)	5.60 (1.90)	52.642	2	0.000	TD	>	ID
							TD	>	ASD
							ID	>	ASD

TD: typically developing; ASD: autistic spectrum disorders; ID: intellectual disability.

*Values significant at the level $p < 0.05$ level are marked in bold.

Table 5. Distribution of participation in leisure activities in percentages

	TD	ASD	ID
1. Watch TV/movies	66.7	100.0	97.8
2. Read	13.3	37.1	94.6
3. Play computer games	33.3	45.7	88.0
4. Use the internet	23.3	34.3	90.2
5. Play video games	20.0	31.4	38.0
6. Listen to music	83.3	85.7	93.5
7. Go biking or rollerblading	23.3	60.0	88.0
8. Do crafts	13.3	22.9	29.3
9. Do puzzles	50.0	45.7	47.8
10. Go for walks	93.3	97.1	90.2

TD: typically developing; ASD: autistic spectrum disorders; ID: intellectual disability.

Table 6. Total number of recreational activities

	TD	ASD	ID	F	(df)	p*	<i>Post hoc</i>		
	Mean (SD)	Mean (SD)	Mean (SD)						
Total number of activities	2.73 (1.50)	.47 (.73)	1.60 (1.68)	0.136	2	0.000	TD	>	ID
							TD	>	ASD
							ID	>	ASD

TD: typically developing; ASD: autistic spectrum disorders; ID: intellectual disability.

*Values significant at the level $p < 0.05$ level are marked in bold.

Table 7. Distribution of participation in recreational activities in percentages

	TD	ASD	ID
1. Play basketball	39.1	6.7	17.1
2. Play soccer	47.8	6.7	54.3
3. Play volleyball	27.2	-	8.6
4. Play handball	7.6	-	-
5. Play on other teams	21.7	3.3	8.6
6. Swimming lessons	40.2	20.0	31.4
7. Dancing lessons	14.1	-	8.6
8. Skiing lessons	17.4	-	2.9
9. Gymnastics lessons	2.2	3.3	-
10. Karate lessons	13.0	3.3	11.4
11. Art lessons	19.6	3.3	11.4
12. Music lessons	22.8	-	5.7

TD: typically developing; ASD: autistic spectrum disorders; ID: intellectual disability.

Table 8. Frequency in Social, Leisure and Recreational activities

	TD	ASD	ID	F	(df)	p*	<i>Post hoc</i>		
	Mean (SD)	Mean (SD)	Mean (SD)						
Social activities									
Every day	24.27 (15.52)	29.70 (34.33)	28.91 (26.81)	0.201	2	0.818	TD	=	ID
							TD	=	ASD
							ID	=	ASD
Twice a week	19.37 (16.06)	12.18 (18.36)	18.07 (25.08)	1.558	2	0.214	TD	=	ID
							TD	=	ASD
							ID	=	ASD
Once a month	23.44 (14.22)	19.76 (23.48)	21.11 (24.63)	0.076	2	0.927	TD	=	ID
							TD	=	ASD
							ID	=	ASD
Leisure activities									
Every day	53.05 (20.87)	61.51 (25.52)	56.79 (19.16)	1.095	2	0.337	TD	=	ID
							TD	=	ASD
							ID	=	ASD
Twice a week	15.57 (14.72)	11.42 (18.10)	18.56 (14.77)	1.838	2	0.163	TD	=	ID
							TD	=	ASD
							ID	=	ASD
Once a month	5.37 (8.80)	1.14 (4.41)	3.39 (8.38)	1.817	2	0.166	TD	=	ID
							TD	=	ASD
							ID	=	ASD
Recreational activities									
Every day	19.56 (27.85)	6.67 (21.71)	29.76 (42.17)	4.941	2	0.008	TD	=	ID
							TD	>	ASD
							ID	>	ASD
Twice a week	35.11 (38.37)	13.33 (31.98)	21.62 (37.47)	3.419	1	0.035	TD	=	ID
							TD	=	ASD
							ID	=	ASD
Once a month	6.97 (16.82)	6.67 (25.37)	2.00 (9.01)	1.295	1	0.277	TD	=	ID
							TD	=	ASD
							ID	=	ASD

TD: typically developing; ASD: autistic spectrum disorders; ID: intellectual disability.

*The criterion of statistical significance was based on Bonferroni correction ($p = 0.05/3 = 0.016$), values significant at the level $p < 0.016$ level are marked in bold.

Table 9. Support in Social, Leisure and Recreational activities

	TD	ASD	ID	F	(df)	p*	<i>Post hoc</i>		
	Mean (SD)	Mean (SD)	Mean (SD)						
Social activities									
Independently	31.76 (23.97)	3.14 (8.92)	23.80 (30.67)	23.150	2	0.000	TD > ID TD > ASD ID > ASD		
With parents	44.04 (27.63)	74.51 (36.18)	45.83 (33.27)	15.202	2	0.000	TD = ID TD < ASD ID < ASD		
With other adults	6.20 (11.91)	8.39 (23.90)	8.72 (15.23)	1.366	2	0.258	TD = ID TD = ASD ID = ASD		
With TD peers	44.04 (33.18)	1.85 (8.08)	12.27 (19.54)	26.637	2	0.000	TD > ID TD > ASD ID = ASD		
Leisure activities									
Independently	79.08 (20.92)	34.43 (31.39)	51.15 (28.69)	42.645	2	0.000	TD > ID TD > ASD ID > ASD		
With parents	39.69 (29.62)	56.65 (31.99)	44.09 (31.05)	5.404	2	0.005	TD < ID TD < ASD ID < ASD		
With other adults	3.68 (12.05)	17.28 (27.38)	11.57 (21.39)	8.753	2	0.000	TD > ID TD > ASD ID = ASD		
With TD peers	24.95 (25.95)	1.37 (5.62)	10.08 (18.99)	11.881	2	0.000	TD > ID TD > ASD ID = ASD		
Recreational activities									
Independently	25.94 (36.62)	- (-)	15.05 (31.63)	1.980	1	0.162	TD = ID - - - - - -		
With parents	25.52 (35.92)	26.67 (43.02)	19.29 (33.62)	.301	2	0.741	TD = ID TD = ASD ID = ASD		
With other adults	10.42 (21.74)	15.00 (35.11)	5.71 (20.59)	1.525	2	0.221	TD = ID TD = ASD ID = ASD		
With TD peers	56.85 (40.52)	3.33 (18.26)	22.10 (38.38)	25.034	2	0.000	TD > ID TD > ASD ID = ASD		

TD: typically developing; ASD: autistic spectrum disorders; ID: intellectual disability.

*The criterion of statistical significance was based on Bonferroni correction ($p = 0.05/3 = 0.016$), values significant at the level $p < 0.016$ level are marked in bold.

Table 10. Leisure time with regard to participants' gender

TD	male		female		$\chi^2(1)$	<i>p</i>
	n	%	n	%		
Read	55	93.2	32	97.0	0.632	0.427
Play computer games	54	91.5	27	81.8	1.817	0.178
Play video games	29	49.2	6	18.2	9.159	0.002*
Go biking	49	83.1	32	97.0	4.693	0.030*
Hobby	10	16.9	17	51.5	11.947	0.001*
ASD						
Read	4	19.0	0	0.0	3.110	0.078
Play computer games	8	38.1	2	22.2	0.746	0.388
Play video games	5	23.8	1	11.1	0.692	0.405
Go biking	5	23.8	2	22.2	0.009	0.925
Hobby	2	9.5	2	22.2	0.817	0.366
ID						
Read	5	22.7	8	61.5	5.274	0.022*
Play computer games	13	59.1	3	23.1	4.450	0.035*
Play video games	9	40.9	2	15.4	2.645	0.104
Go biking	12	54.5	9	69.2	0.746	0.388
Hobby	5	22.7	3	23.1	0.001	0.981

TD: typically developing; ASD: autistic spectrum disorders; ID: intellectual disability.

Reference values were given on the basis of Likelihood Ratio coefficient.

*Values significant at the level $p < 0.05$ level are marked in bold.

Table 11. Recreational activities with regard to participants' gender

TD	male		female		$\chi^2(1)$	<i>p</i>
	n	%	n	%		
Play basketball	29	49.2	7	21.2	7.276	0.007*
Play soccer	43	72.9	1	3.0	49.439	0.000*
Play volleyball	6	10.2	19	57.6	23.852	0.000*
Play handball	2	3.4	5	15.2	3.975	0.046*
Swimming lessons	23	39.0	14	42.4	0.104	0.747
Dancing lessons	4	6.8	9	27.3	7.022	0.008*
ASD						
Play basketball	1	4.8	1	11.1	0.376	0.540
Play soccer	2	9.5	0	0.0	1.487	0.223
Swimming lessons	6	28.6	0	0.0	4.897	0.027*
ID						
Play basketball	4	18.2	2	15.4	0.046	0.831
Play soccer	14	63.6	5	38.5	2.098	0.147
Play volleyball	2	9.1	1	7.7	0.021	0.886
Swimming lessons	5	22.7	6	46.2	2.047	0.153
Dancing lessons	1	4.5	2	15.4	1.177	0.278

TD: typically developing; ASD: autistic spectrum disorders; ID: intellectual disability.

Reference values were given on the basis of Likelihood Ratio coefficient.

*Values significant at the level $p < 0.05$ level are marked in bold.

Table 12. Friendly relationships

			TD	ASD	ID	Total
Do they have a best friend?	YES	n	80	7	20	107
		%	74.8	6.5	18.7	100.0
	NO	n	10	23	14	47
		%	21.3	48.9	29.8	100.0

TD: typically developing; ASD: autistic spectrum disorders; ID: intellectual disability.