

Aggressive behaviour in children with autism

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Abstract The aim of this research was to examine characteristics and predictors of aggressive behaviour in children with autism spectrum disorders (ASD), as well as to determine the presence of aggressive behaviour exhibited by children with ASD. The sample included 43 participants diagnosed with ASD. The instrument used was the *Behaviour Problems Inventory - BPI-01* (Rojahn et al., 2002), aggression subscale. Our findings indicate that the children with ASD from our sample exhibit low rates of aggressive behaviour. Among those participants who do exhibit aggression towards others, the most prevalent forms of aggression were verbal aggression, grabbing and pulling others, cruelty and property destruction. Gender and the type of school the participants attended were not predictors of aggressive behaviours, while aggressive behaviour can be predicted by the child's functionality level, where participants with low functioning ASD exhibit more aggressive behaviours in comparison with participants with high functioning ASD. Also, aggressive behaviour can be predicted by age, where increase in chronological age is negatively correlated with aggression. It is crucial that special educators address the aggressive behaviour exhibited by children with ASD from an early age. Even though it is important to know the topographies of aggression among children with ASD, which were presented in our findings, it is more important to examine the most common functions of aggression, or the reasons why the children with ASD exhibit these behaviours.

Keywords: aggression; autism spectrum disorder; problem behaviour; topography

Agresivno ponašanje u autistične djece

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Sažetak Cilj ovog istraživanja bio je ispitati karakteristike i prediktore agresivnog ponašanja u djece s poremećajima iz autističnog spektra (ASD), kao i utvrditi prisutnost agresivnog ponašanja u djece s ASD-om. Uzorak je uključivao 43 sudionika s dijagnozom ASD-a. Korišteni instrument bio je *Behavior Problems Inventory* – BPI-01 (Rojahn i dr., 2002), subskala agresivnosti. Rezultati istraživanja pokazali su da djeca s ASD-om iz našeg uzorka iskazuju niske stope agresivnog ponašanja. Među sudionicima koji ipak iskazuju agresiju prema drugima, najzastupljeniji oblici agresije bili su verbalna agresija, hvatanje i čupanje drugih, okrutnost i uništavanje imovine. Spol i vrsta škole koju su polaznici pohađali nisu bili prediktori agresivnog ponašanja, dok se agresivno ponašanje može predvidjeti djetetovom funkcionalnom razinom, pri čemu ispitanici s niskofunkcionalnim ASD-om pokazuju više agresivnih ponašanja u usporedbi s ispitanicima s visokofunkcionalnim ASD-om. Također, agresivno ponašanje može se predvidjeti prema dobi, pri čemu je porast kronološke dobi u negativnoj korelaciji s agresivnošću. Ključno je da se defektolozi bave agresivnim ponašanjem koje pokazuju djeca s ASD-om od najranije dobi. Iako je važno poznavati topografije agresije u djece s ASD-om, koje su prikazane u našem istraživanju, važnije je ispitati najčešće funkcije agresije, odnosno razloge zašto se djeca s ASD-om ovako ponašaju.

Ključne riječi: agresija; poremećaji iz autističnog spektra; problematično ponašanje; topografija

1 Introduction

Autism spectrum disorder (ASD) is a neurodevelopmental disorder characterized by impairments in social communication and restricted, repetitive patterns of behaviour, interests or activities (APA, 2013; according to Gajić et al., 2021). Public awareness of ASD has increased in the new millennium because of increased media reports and the rapid spread of knowledge published in professional journals. Professionals specialized in ASD have introduced the terminology to reflect the broader spectrum of clinical characteristics that define it. In addition to being a spectrum disorder, ASD has wide variability in the presence and intensity of symptoms (Plauche Johnson & Myers, 2007).

Children with ASD may have maladaptive behaviours that are particularly impactful and limiting, and include aggression, self-injury and irritability that manifests through severe tantrums. Aggressive behaviours were found to be two or three times more prevalent among children with ASD compared to typically developing children (Bronsard et al., 2010). Research also indicates that rates of aggression may be higher in individuals with ASD compared to other developmental disabilities. This behaviour in children with ASD places them at risk for physical injury while limiting their integration in community and educational activities.

Children with ASD often have aggressive behaviour that has negative effects on family functioning, school and social competence. Aggression is associated with negative outcomes for children with ASD, such as impaired social relationships, placement in a restrictive school or residential settings and increased risk of being victimized (Fitzpatrick et al., 2016). Aggressive and destructive behaviours are the predominant reason for stress in parents of children with ASD. Further, aggressive behaviour increases the risk of the child's physical abuse by caregivers, including parents and other people who live with children with ASD (De Giacomo et al., 2016). Nevertheless, aggression can also contribute to school provider burnout that might cause a lower level of education quality and can also contribute to negative outcomes for caregivers of children with ASD, meaning increased stress levels, financial problems, lack of support services and a negative impact on family life and overall well-being (Fitzpatrick et al., 2016). Researches also suggest that mentioned maladaptive

behaviours among these children causes greater stress to the families than the core features of ASD itself, causing feelings of social isolation and stigmatization (Kirst et al., 2021).

Aggressive behaviour is not the main symptom of ASD and it occurs as a consequence of some other factors. Sociodemographic factors, such as age, gender, parent education, race and ethnicity, seem not to be related to aggressive behaviour (Hill et al., 2014). The most significant predictors of aggression in children with ASD are certain aspects of executive functions, severity of autism, sleep difficulties and parental behaviours (Đorđević et al., 2020). Lower language ability, reduced communication skills, intellectual quotient, attention problems, impairment in social interactions and adaptive functioning also have been implicated as predictors of aggression in this population (DeGiacomo et al., 2016; Hill et al., 2014; Fitzpatrick et al., 2016).

Infants with ASD do not seem to be as aware of language, while children in this spectrum who develop functional communication often display atypical communication styles. It is likely that they have a limited understanding in this field, so in stressful situations they tend to release stress through aggression, while subjects with normal development express stress through cognitive skills, social interactions and verbal and non-verbal communication (Bronsard et al., 2010). Eventually, the frustration of being unable to communicate with others can lead to their behavioural outbursts. This means that deficits in emotion regulation are highly prevalent in children with ASD which may result in anger or anxiety being experienced more intensively and frequently than in typically developing children. These intense emotions can cause different sorts of maladaptive behaviours in social situations while, in addition, social cognition impairments (such as inaccurate interpretations of social intent) can also induce aggression (Kirst et al., 2021).

Since 35-50% children with ASD show comorbid aggression, it is crucial to gain a better understanding of predictors for this behaviour to provide effective prevention and intervention. However, possible causes and correlates in this field are still poorly understood which limits treatment options (Hill et al., 2014; Samson et al., 2015; Kirst et al., 2021). A better understanding of the characteristics and predictors of aggressive behaviour in children with ASD

would prove insight into the pathology of this behaviour for researchers and would, as well, have direct clinical implications for treatment. Obtained results could be used for counselling families of children with ASD, while identifying predictors of aggression could have a positive impact on children's aggressive behavioural symptoms and family overall life. Therefore, the aim of this research was to examine characteristics and predictors of aggressive behaviour in children with ASD, as well as to determine the presence of aggressive behaviour exhibited by children with ASD.

2 Methodology

Sample

The research was conducted during January and February of 2022 on a population of children with ASD. Instruments in a paper form were distributed to special educators that work in schools for educating children with disabilities, as well as to those who work in private practices on the territory of the Republic of Serbia. All special educators were told that the participation in the research is anonymous and voluntary and that they should fill out the questionnaires for children whom they have been working with for at least over six months.

The sample included 43 participants diagnosed with ASD. Sociodemographic characteristics of the sample are presented in Table 1.

Table 1: Sample characteristics (N = 43)

Variable	Category	f	%
Gender	Male	34	79.1
	Female	9	20.9
Age group	0-7	9	20.9
	8-15	19	44.2
	16-25	15	34.9

Functionality level	High functioning ASD	14	32.6
	Low functioning ASD	29	67.4
Type of school	Mainstream school	13	30.2
	School for educating children with special needs	30	69.8

2.1 Instrument

The instrument used was *Behaviour Problems Inventory - BPI-01* (Rojahn et al., 2002). This instrument consists of three subscales, and we used the aggression subscale that originally includes 11 forms of aggressive behaviours. However, we decided to eliminate two of them, because of the similarity with other items when it was translated into the Serbian language. Items that were excluded referred to pinching and kicking others. The subscale measures the frequency of different forms of aggressive behaviours on a Likert type scale (0 = never, 1 = once a month, 2 = weekly, 3 = daily, 4 = several times a day). The authors of the instrument claim that only behaviours exhibited in the past two months should be included. The score is calculated by combining scores on each individual item. The maximum score on this subscale is 36 and if a child scores 18 or higher, this is an indication of severe aggression. The reliability of the used instrument was $\alpha = .92$.

2.2 Statistical analysis

Statistical analysis of the obtained data was performed by using the Statistical Package for the Social Sciences (SPSS) program. Normality of the sample distribution was checked with the Shapiro-Wilk test. The reliability of the used instrument was obtained with Cronbach alpha. In order to determine if the participants exhibited high rates of aggressive behaviour, we used a t-test for a single sample. A Man-Whitney test was performed in order to determine presence of aggressive behaviour among dichotomous categorical variables,

while a KruskalWallis test was performed in order to determine differences in aggressive behaviour among polytonomous categorical variables.

3 Results and discussion

The results of the t-test for a single sample show that the average value on the used instrument ($N = 43$, $M = 12.35$, $SD = 11.92$) in our sample indicates that all participants statistically significantly differ from the theoretical average of 18 points ($t = -3.11$, $df = 42$, $p = .003$), which indicates that they exhibit less aggressive behaviours.

Other research found that prevalence of aggression in children and adolescents with ASD is very high, with parents reporting that 68% of individuals in this population had demonstrated aggression towards a caregiver and 49% towards non-caregivers (Kanne & Mazurek, 2011).

Table 2 present descriptive statistics on individual scale items.

Table 2: Descriptive statistics on individual items (N = 43)

Item	M	SD
Hitting others	1.37	1.60
Pushing others	1.65	1.70
Biting others	.88	1.61
Grabbing and pulling others	1.81	1.74
Scratching others	1.05	1.68
Spitting on others	.70	1.39
Being verbally abusive to others	1.88	1.88
Destroying things	1.51	1.72
Being mean or cruel	1.49	1.75

The most common topographies of aggressive behaviour exhibited by children with ASD from our sample were verbal aggression towards others ($M = 1.88$), cruelty ($M = 1.75$), grabbing and pulling others ($M = 1.74$) and property destruction ($M = 1.72$) (Table 2).

A child may demonstrate one form of aggression or many different forms with variable frequency, intensity and duration. Studies report that higher IQ

level, adaptive behaviour, as well as older age of children with ASD are associated with more sophisticated types of aggressive behaviour. Meanwhile, lower scores on scales measuring IQ, adaptive behaviour and communication are associated with showing more physical aggression (Farmer et al., 2016). Forms of aggressive behaviour may be expressed as mild aggressiveness that involve threatening, rough play or provoked lashing out, definite physical aggression involving hitting or biting, or violence that includes the use of implements (Kanne & Mazurek, 2011). The most prevalent forms of aggressive behaviour in children with ASD are any forms of aggression toward others, aggression toward self and property destruction (Hill et al., 2014; Elkhamisi & Almutery, 2018). Matson & Rivet (2008) obtained the results that 7% of children with ASD engaged in throwing objects at others, 15% engaged in aggression towards others, while 14% of them engaged in property destruction.

Differences in the presence of aggressive behaviour between dichotomous variables (gender, functionality level and school type) are presented in Table 3.

Table 3: Dichotomous categorical variables and presence of aggressive behaviour

	Category	N	Mdn	IQR
Variable				
Gender	Female	9	8.00	15
	Male	34	7.50	23
Functionality level	High functioning ASD	14	2.50	7
	Low functioning ASD	29	12.00	25
Type of school	Mainstream school	13	16.00	27
	School for educating children with special needs	30	7.00	15

The results of the Mann-Whitney test indicate that participants of different genders do not differ in terms of presence of aggressive behaviour ($U = 131.00$, $p = .53$), as well as participants that attend mainstream schools and schools for educating children with special needs ($U = 139.50$, $p = .14$). However, a statistically significant difference was found between participants with different functionality level ($U = 96.50$, $p = .006$), where participants with low functioning ASD exhibited more aggressive behaviours ($Mdn = 12.00$) in comparison with participants with high functioning ASD ($Mdn = 2.50$).

Although aggressive behaviour has constantly been found to be higher among boys than girls throughout childhood, the study findings surprisingly report that aggressive behaviour is equally common among boys and girls when it comes to children with ASD (Farmer et al., 2016; Kanne & Mazurek, 2010). However, the findings of another study (Elkhamisi & Almutery, 2018) exposed that property destruction was observed relatively more in male children with ASD. Like gender, the same study reported that functionality level is not predictive for aggressive behaviour in children with ASD. However, other studies suggest that functionality level is the biggest predictor of aggressive behaviours in children with ASD (Dominick, 2007; Estes, 2007; Farmer, 2016; Hartley, 2008; Lecavalier, 2006). Hartley & colleagues (2008; as cited in Kane & Mazurek, 2010) have confirmed these results, indicating that lower cognitive functioning, lower language skills, as well as lower adaptive skills which are related to functionality level do significantly correlate with aggressive behaviours exhibited by children with ASD.

Further, although school inclusion of children with ASD is generally considered important, if children with ASD exhibit aggressive behaviours it is not always recommended (Paraskevi, 2021) because of the lack of skills of regular teachers when it comes to addressing those maladaptive behaviours (Hasson et al., 2022). Even in school context, pupils with ASD are more likely to engage in problem behaviours that might range from tantrums to self-injury, aggression and property destruction (Koegel et al., 2011).

Differences in the presence of aggressive behaviour between participants of different age are presented in Table 4.

Table 4: Descriptive measures on presence of aggressive behaviour in terms of age group

Age group	N	M	SD	Mdn	IQR
0-7	9	19.11	13.43	20.00	26
8-15	19	14.16	14.16	8.00	26
16-25	15	6.00	6.68	3.00	11

The results of the Kruskal-Wallis test indicate that participants of different age groups statistically significantly differ in terms of aggressive behaviour ($H = 7.59, df = 2, p = .02$). The participants of the oldest age group exhibit the least aggressive behaviours ($M = 6.00$), while participants from the 8-15 age group exhibit more aggressive behaviours ($M = 14.16$) and participants from the youngest age group exhibit the most aggression ($M = 19.11$).

Our results are opposed to a study conducted by Farmer and his associates (Farmer et al., 2016) who found that younger children with ASD exhibited less aggressive behaviours compared to older children with ASD who participated in this study. However, Kanne & Mazurek (2010) found that presence of aggressive behaviours in children with ASD increased with age. Some authors found that there was no difference between children of different age in the presence of aggression (Elkhamisi & Almutery, 2018; Kirst et al., 2021).

4 Conclusion

Our findings indicate that children with ASD from our sample exhibit low rates of aggressive behaviour. Among those participants who did exhibit aggression towards others, the most prevalent forms of aggression were verbal aggression, grabbing and pulling others, cruelty and property destruction. Gender and the type of school the participants attended were not predictors of aggressive behaviours. Aggressive behaviour can be predicted by the child's functionality level, where participants with low functioning ASD exhibit more aggressive behaviours in comparison with participants with high functioning ASD.

Also, aggressive behaviour can be predicted by age, where increase in chronological age is negatively correlated with aggression.

The biggest limitation of our research was the sample size, as well as the fact that the sample was not homogenized, especially when it comes to gender distribution. Therefore, we believe that future researchers should replicate this research on a larger sample of children with ASD that is evenly distributed across all socio-demographic variables.

It is crucial that special educators address the aggressive behaviour exhibited by children with ASD from an early age. Even though it is important to know the topographies of aggression among children with ASD, which were presented in our findings, it is more important to examine the most common functions of aggression, or the reasons why the children with ASD exhibit these behaviours. Therefore, we also recommend implementing the research with the aim of comparing topographies and functions of most commonly exhibited problems behaviours by children with ASD.

Conflict of interest statement

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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