



Early Intervention in Special Education and Rehabilitation



Beograd 2016.

Early Intervention in Special Education and Rehabilitation

THEMATIC COLLECTION OF INTERNATIONAL IMPORTANCE

Belgrade, 2016

Early Intervention in Special Education and Rehabilitation
Thematic Collection of International Importance

Publisher

University of Belgrade – Faculty of Special Education and Rehabilitation
Publishing Center of the Faculty

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Processing and printing

Planeta print, Belgrade

Cover design

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Circulation 150

ISBN 978-86-6203-086-3

By decision no. 3/9 from March, 8th 2008. The Teaching and Research Council of the University of Belgrade – Faculty of Special Education and Rehabilitation initiated Edition: Monographs and papers.

By decision no. 3/122 from August, 30th 2016. The Teaching and Research Council of the University of Belgrade – Faculty of Special Education and Rehabilitation has given approval for the printing of Thematic Collection "Early Intervention in Special Education and Rehabilitation".

SECONDARY CONSEQUENCES OF SPECIFIC LANGUAGE DISORDER – BIHEVIORAL PROBLEMS IN EARLY CHILDHOOD^a

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SUMMARY

Children with specific language disorder exhibit a wide range of linguistic and non-linguistic difficulties. Behavioral problems are often frequent companions of specific language impairment. The aim of this study was to determine the presence of autistic features, behavioral problems and behavioral functions in children with specific language impairment.

The sample included 31 respondents, aged between 4 and 6 years. For identifying the presence of autistic features in behavior the Pervasive Developmental Disorder Mental Retardation Scale (PDD-MRS, & career of de Bildt, 2005) was used, and for collecting data about motivation for outbursts in behavior the Motivation Assessment Scale (MAS, Durrand & Crimmins, 1988) was used.

The obtained results show that in ¾ of respondents with specific language impairments there are extreme autistic features in behavior. Behavioral problems occur in over 87% of the sample, and are usually motivated by material and sensory motives. It is also obtained that a greater presence of autistic features indicates more frequent behavioral problems with sensory function.

Key words: function of behavior, speech and language problem, early development

INTRODUCTION

Specific language impairment

Even though there are data that testify that the first simplified descriptions of specific language impairments in literature has been used since 1835, this phrase has been officially used since the beginning of the eighties of the last century (Glumbić, 2010). Specific language impairment stands for a condition characterized by significant disorders of speech and language skills, whose causes can not be found in intellectual functioning, neurological disorders or hearing impairments (Leonard, 2000).

Children with specific language impairment exhibit a wide range of linguistic problems in different spheres, for example, the ability to understand speech (Krstić, Vidović & Vuković, 2011), lexical-semantic abilities (Milošević & Vuković, 2011), syntactic abilities (Павловић & Вуковић, 2014), the area of phonological awareness (Čolić, 2015), verbal memory (Богавац, Јеличић Добријевић & Ракоњац, 2014) and narrative abilities (Араповић, Grobler & Jakubin, 2010; Grobler & Араповић, 2006).

^a This paper is a result of the project, “Social Participation of Persons with Intellectual Disability,” which was financed by the Ministry of Education, Science and Technological Development of the Republic of Serbia (No. 179017).

However, specific language impairments are followed by many other non-linguistic disorders such as motor difficulties (Ullman & Pierpont, 2005), the problems of mental representations (Kamhi et al., 1990; Leonard, 2000), working memory deficit (Montgomery, 2003), and difficulties of perceptual processing of stimulus sequence (Leonard, 2000) (all according to Glumbić, 2010). In an effort to reveal common ground for all linguistic and non-linguistic problems that accompany specific language impairment, the authors usually consider two possible hypotheses. First, *the hypothesis of global deficits*, which represents too generalized assumption that each developmental disorder can be seen in the light of a more general disorder in receiving and processing information. On the other hand, *the hypothesis of procedural deficits*, suggests that abnormal development of brain structures responsible for procedural memory, leads to the development of clinical picture for specific language impairment (Glumbić, 2010).

The authors mostly agree that the specific language impairment in the general population is present in about 6-8% of cases, and that is somewhat more common in boys (Glumbić, 2010; Tomblin, Records, Buckwalter, Zhang, Smith & O'Brien, 1997), however, there are allegations that the prevalence is slightly higher and raises up to 10% (Hartley, Hill & Moore, 2003). To the category of non-accompanying manifestations of specific language disorders includes behavioral, emotional and social problems.

Behavioral problems

Speech and language problems make the communication with the environment difficult and contribute to the development of inappropriate behavioral patterns (Ljubešić, 1993). The severness of speech and language disorders, as well as the type of disorder can pose significant predictors of behavioral manifestations in the field of attention and aggression in children with specific language impairment (Puglisi, Cáceres-Assenço, Nogueira & Befi-Lopes, 2016; Van Daal, Verhoeven & Van Balkom, 2007; van Agt, Verhoeven, van den Brink & de Koning, 2011). Children with specific language disorder more often than their peers exhibit problems in the field of behavior and self-regulation (Fujiki, Brinton & Clarke, 2002; Brownlie et al., 2004; Lindsay & Dockrell, 2000; McCabe, 2005; Puglisi et al., 2016) but also show an increased propensity for emotional expression (Beitchman et al., 2001; Conti-Ramsden & Botting, 2008; Gregl, 2015, Puglisi et al., 2016) and psychiatric problems (Clegg, Hollis, Mawhood & Rutter, 2005; Cohen, Barwick, Horodezky, Vallance & Im, 1998).

According to the perception of parents and educators, children with specific language impairment commonly manifested problems with concentration, attention and impulsivity, while the most common behaviors are: 1. *He/she requires a lot of attention*, 2. *He/she can not concentrate and retain attention*, 3. *This child's feelings can easily be hurt*, 4. *He/she can not stand waiting and wants all right away*, 5. *He/she can not sit still, the child is hyperactive* (Gregl, 2015).

Lindsay et al. (Lindsay, Dockrell & Strand, 2007) suggest that while studying behavioral problems in children with specific language impairment one should take into account two factors – the context in which the problems occur and the time (age) in which they manifest, believing that these two factors may contribute to the variability of results. Accordingly, these aforementioned authors believe that parents report more

intensive problems in the home environment when compared to the reports of teachers in the school context, as well as that in the parent's reports the trend of growth of problems is observed in the period from 8-12 year, while in the teachers' reports the case is reversed (Lindsay et al., 2007).

Analyzing behavioral problems in children with specific language impairment, Redmond & Rice (2002) came to the conclusion that they require constant monitoring because they are volatile over time, so the occurrence of the reappearance of behavioral outbursts can be expected in each new transition (e.g. when starting school, changing schools, etc.), or problems can be changed and transformed (e.g. a child with a high level of social withdrawal may begin with presentation of externalized behavior).

Autistic characteristics

Traditional views on the full diversity of specific language impairments and autistic disorders in the last twenty years have been questioned (Conti-Ramsden, Simkin & Botting, 2006). In addition to that, many findings confirm that autistic disorder is ten times more likely to develop in children who had a diagnosis of specific language impairments in early age (Conti-Ramsden et al., 2006), as well as statements that the boundaries between these two disorders are unclear and that it is necessary to dimensionally overview their relationship (Bishop & Norbury, 2002). Gregl (2015) in his research states that the characteristics of autism occur in 44% of subjects, and that they represent the most dominant clinically significant severities of this disorder and that therefore can be regarded as an integral part of the clinical picture of a specific language disorder. Similar results were obtained by Leyfer and associates (Leyfer, Tager-Flusberg, Dowd, Tomblin & Folstein, 2008), indicating that the autistic traits appear in 41% of their sample of children with specific language impairment.

By analyzing the literature, Durkin & Conti-Ramsden (2010) in which social interactions of children and youth with specific language impairments were studied, they found that these people rarely communicated with their environment, achieved cordial relations to a lesser extent, they were less responsive to the initiative of others, and generally exhibited poor social skills compared to their peers of typical development. Also, Leyfer et al. (2008) found some overlapping symptoms in the social sphere in children with autistic spectrum disorder and children with specific language impairment (e.g., difficulty in expressing social interests, achieving eye contact, spontaneous imitation, etc.). However, these authors believe that social problems in children with specific language disorder may not always be interpreted as autistic features, but as a result of social problems. Overlapping symptoms are rarely observed in only one area of repetitive and stereotyped patterns of behavior (Leyfer et al., 2008).

Aim

The aim of this study is to determine the frequency of the presence of autistic characteristics, behavioral problems and behavioral functions in children with specific language impairment.

METHOD

Sample

The sample of research included 31 respondents, aged between 4 and 6 years. All respondents live in the family homes and attend preschools in the territories, the City of Belgrade.

Table 1 *Sample structure in relation to gender*

	N	%
Male	28	90.3
Female	3	9.7
Total	31	100

Data on the age of the respondents are shown in Table 2.

Table 2 *Structure of the sample related to age*

M	SD	Min	Max
5.16	.735	4	6

All subjects were diagnosed with specific language impairments. Diagnostic data are taken from their personal charts, with prior obtained informed consent of their parents. Eight subjects were of no verbal production, while the remained 23 manifested emphasized difficulties in verbal expression.

Procedure

After gathering the sample, and obtaining informed consent, both by the parents of the respondents, as well as managers of the institutions in which the research was conducted, the assessment was conducted. The survey was performed during the 2015 in pre-school institutions on the territory of the City of Belgrade. The survey used instruments that do not require direct assessment, but are based on information given by other persons who are familiar with subjects. Data were collected from informants who were members of the professional staff in institutions whose beneficiaries were the subjects included by the sample.

Instruments

Determining the presence of the characteristics of autism

To identify the presence of autistic behavioral characteristics the Pervasive Developmental Disorder Mental Retardation Scale, PDD-MRS, & career of de Bildt, 2005 was used. This scale represents the screening and classification instrument, aimed at people aged two to 70 years of age (hereinafter referred to highlight this instrument the acronym PDD-MRS will be used). Scale PDD-MRS includes 12 items that assess the presence of adequate and maladaptive behavior patterns among the respondents. Areas that are subject to the assessment of this instrument are: social interaction, speech and language, stereotyped behavior, obsessive interests, as well as the expression of anxiety

and panic. By typing the characters “+” or “-” the assessor estimates the presence or the absence of a behavior.

For answering the scale PDD-MRS it is necessary to have between 10 and 25 minutes. Position of given pluses and minuses determines the manner of adding value in order to obtain the five raw scores, which are by further, clearly defined computational procedure, converted to PDD-MRS total score. The value of PDD-MRS total score can range from 0 to 19. The Respondent has no pervasive disorder, if the score ranges from 0 to 6; if the value of the score is between 7 and 9, we talk about the suspicion of the presence of pervasive developmental disorders, while the value of 10 to 19 indicates the presence of a pervasive disorder. The psychometric characteristics of this scale have been tested on a sample of 1,230 respondents were operating at different levels of intellectual disability. The high values for sensitivity (92.3%) and the specificity of the scale (92.4%) are obtained. (De Bildt, Sytema, Kraijer & Minderaa, 2005).

Data for the PDD-MRS for the purposes of this study were collected from teachers who knew the respondents at least six months, achieving direct contact with him on a daily basis.

Assessment of motivation

The Motivation Assessment Scale (MAS, Durrand & Crimmins, 1988) is a fast, user friendly, indirect instrument for assessment that assesses motivation in behavior problems. MAS consist of 16 items which describe the situations that can lead to changes in behavior. It is expected from the informant to complete how often (from never to always) there is a change of behavior in different situations. By collecting responses obtained scores suggesting that the dominant feature of behavior.

The resulting value of Cronbach’s alpha coefficient in this study is .908, which according DeVellis’ data (DeVellis, 2003) indicates a high internal consent.

Statistics

The results of the research were analyzed using the statistical package SPSS for Windows, version 20. For data processing the methods of descriptive statistics, T-test, and Pearson correlation coefficient were used.

RESULTS

The presence of autism characteristics in patients with specific language impairment

Table 3 shows the descriptive display the achievements of respondents on a scale PDD-MRS.

Table 3 Average scores on a scale PDD-MRS for the whole sample

Achievements on the	M	SD	Min	Max
PDD-MRS scale	9.29	4.27	1	18

The sample did not include subjects with a clinical diagnosis of autistic disorder development, as well as the diagnosis of pervasive developmental disorders. By applying PDD-MRS scale, 8 patients (25.8%) had no signs of autistic disorder of development, while 6 patients (19.4%) were under on suspicion of the existence of autistic spectrum disorders, and 17 (54.8%) of respondents met the criteria of this scale for the diagnosis of autism spectrum development. The obtained results show that respondents who have speech production also exhibited somewhat lower level of autistic characteristics in behavior (Table 4).

Table 4 *The expression of autistic characteristics in behavior in relation to the existence of the speech production*

Achievements on the PDD-MRS scale		M	SD
	With speech production		8.61
Without speech production		11.13	3.04

The presence of behavioral problems in patients with specific language impairment

Informants reported that 27 (87.09%) of respondents show behavioral problems, while 4 (12.91%) of the respondents never have behavioral outbursts.

The presence of the different forms of motivation for the manifestation of behavioral problems in patients with specific language disorder is presented in Table 5.

Table 5 *The descriptive view of scores on MAS subscale for the whole sample*

MAS	M	SD	Min	Max
Sensory	10.27	5.99	1	24
Escape	9.23	6.12	0	18
Attention	6.04	5.94	0	19
Tangible	12.46	8.12	0	24

Table 6 presents the scores on the subscale of the MAS scale in relation to the existence of speech production. T test for independent samples found that respondents who do not have voice production have significantly more behavioral problems with sensory function.

Table 6 *The descriptive view of MAS subscale scores on the scale in relation to the existence of speech production*

MAS		M	SD	T test
Sensory	With speech production	8.67	5.72	t=2.19, p=.038
	Without speech production	13.88	5.19	
Escape	With speech production	8.72	5.99	t=.62, p=.537
	Without speech production	10.38	6.67	
Attention	With speech production	5.56	5.82	t=.61, p=.545
	Without speech production	7.13	6.46	
Tangible	With speech production	11.61	8.44	t=.78, p=.439
	Without speech production	14.38	7.83	

The relation between the presence of autistic characteristics in behavior and behavioral motivation in subjects with specific language impairment

The link between the presence of autistic characteristics and motivation in behavioral problems has been tested by Pearson correlation coefficient (Table 7).

Table 7 *Correlation of the presence of autistic characteristics and motivation in behavioral problem*

	Sensory	Escape	Attention	Tangible
PDD-MRS	.601**	.223	.535**	.261

**significance on the level of .01

DISCUSSION

The results show that in $\frac{3}{4}$ of respondents with specific language impairment there are extreme autistic characteristics in the behavior, whereby they are present in half of the respondents to the extent that indicate the possibility of the existence of autistic disorder itself, and nonverbal respondents show a greater propensity for expression of these characteristics. Similar data are found in the literature (Gregl, 2015). Based on these findings, we conclude that the majority of our respondents with specific language impairments do not manifest only speech-language impairments, but also behavioral problems (e.g., excessive and obsessive interests, stereotypes, depending on the routines and rituals, hesitant and unpredictable behavior, etc.) and social nature. The allegations of Glumbić (2010) are in accordance with these results, who finds that children with specific language impairment have some difficulty in recognizing the emotions of others, which further complicates the understanding of communicative intention, that they relatively often ignore voice incentives that violate the interpersonal space in the process of interpersonal communication, and that they avoid eye contact as well. Although, according to the traditional understanding of speech and language difficulties, there are common features of autistic disorders and specific disorders of language that, there are also studies showing that individuals with specific language disorders have difficulty functioning in the social sphere (Clegg, Hollis, Mawhood & Rutter, 2005). It is assumed that in order to achieve the many functions of language in social interactions, and that these speech-language difficulties may adversely affect the person's social skills of these. In this way, avoiding eye contact, which is considered a major symptom of autism spectrum disorder, which appears in children with specific language impairment, can be interpreted as the result of a lack of understanding facial expressions, and therefore the child does not direct its attention to the face, because it does not provide him enough quality information (Glumbić, 2010).

Behavioral problems occur in over 87% of the sample. Results of other studies regarding the presence of behavioral problems in children with specific language impairment vary, but generally indicate a high comorbidity, somewhere from 25% to 63% (Baker & Cantwell, 1982), or from 58% to 73% (Cantwell & Baker, 1987).

The results obtained in this study indicate that the most common behavioral incidents are motivated by material motives. Specifically, all respondents often have outbursts of behavior when they are denied to access their favorite toys, activities or food, or when these things are taken from them. Also, respondents most often stop with problematic behavior when the desired object is returned to them. By analyzing the most common behavioral problems in children with specific language impairment of preschool age, McCabe (2005) points out that low tolerance to frustration is often recorder, which can be correlated with the data from our research.

The obtained results show that a greater presence of autism behavioral characteristic also stands for more frequent outbursts in behavior which are financially motivated. Other authors (Balataxe & Simmons, 1988; Beitchman, Nair, Clegg, Ferguson & Patel, 1986; Cantwell & Baker, 1985, all according Ljubešić, 1993) also suggest the frequent association of behavioral and speech-language impairments in early childhood, considering that the relationship between these two phenomena is very complex and that it affects a large number of factors.

Verbal and nonverbal respondent significantly differ in sensory function of undesirable behavior, that is, nonverbal subjects often exhibit behaviors that are motivated by sensory motives. In these people outbursts of behavior occur when they are alone, without the physical presence of other people, and sometimes it seems as if certain behavior gives pleasure to the respondent and that he becomes oblivious to his surroundings during the outage. This finding is not unusual given that Taal et al (Taal, Rietman, Meulen, Schipper & Dejoncker, 2013) suggest that children with specific language impairment exhibit atypical behavior in the auditory sensory (63.8%), tactile (52.6%), the vestibular (51.7%), oral (46%), the visual processing (43.1%). Dunn (2001) points out that precisely the problems in the processing of sensory stimuli can result in outbursts of anger, impulsiveness, hyperactivity and oppositional disorders. We assume that the therapist's successful detection of behavioral functions and planning of adequate sensory diet could contribute to alleviating the problem behavior in children with specific language impairment.

Also, in this study the data obtain suggest that a greater presence of autistic characteristics indicates frequently behavioral problems in sensory function. This finding is not unusual, given that autistic spectrum disorder is often followed by different forms of sensory dysfunction, and as the most common phenomena hypersensitivity to various stimuli, unusually high or low activity level, as well as behavioral problems (Mamić & Fulgosi-Masnjak, 2012) are referred. Also, the survey results show that although children with specific language disorder have problems in the processing of sensory stimuli, these problems are more emphasized in the population of children with autism spectrum disorders, and that to their profiles on a small scale and qualitatively different (van der Linde, Franzsen, Ashton-& Barnard, 2013). So, van der Linde and colleagues (2013) found that children from autistic spectrum have pronounced difficulty in oral and tactile stimuli processing and modulation stimuli that are related to the position and movements of the body.

After the sensory and material motivation, motive of avoidance is on the third place. With this function respondents want to avoid a task or requirements that are placed before them.

The least frequently represented motive of behavior in these patients with specific language impairment is paying attention. These respondents have somewhat less behavioral outbursts because the adults around them draw attention to other children, or they cease pay particular attention to the child.

Having in mind that the respondents in our sample are average age of five, and that the adoption of all most relevant language structures should be completed by this age (Bates, Bretherton & Snyder, 1988, according to Povše-Ivkić, Krstić, Radosavljev, Vidović & Vuksanović, 2002), we can assume that the behavioral incidents occur very frequently as inadequate compensation or completion of a linguistic tool, but are also a result of social incompetence.

CONCLUSION

The results of this research show that children with specific language impairment exhibit behavioral problems at an early age and consequently do not require only treatment of speech and language disorders, but also adequate behavioral assessment and treatment. The high prevalence of behavioral problems among children with specific language impairment requires additional training of professionals, both in terms of diagnosis, as well as in the planning and implementation of treatment (Van Daal et al., 2007). Maggio et al. (Maggio, Grañana, Richaudeau, Torres, Giannotti & Suburo, 2013) suggest that maladjusted behavior can often mask the symptoms of a specific language disorders, and thereby complicate the process of an early detection.

The obtained results also indicate a high prevalence of autism characteristics in the behavior of children with specific language impairment, which further implies that the diagnosis may not be the only criteria for the selection of the intervention, and for children in which the autistic symptomatology and characteristics of speech and language disorders overlap require intensive treatment in the field of non-structural aspects of language, non-verbal communication, the social cognition (Leyfer et al., 2008).

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