# BRIEF REPORTS

# Speech and Language Disorders in Children with Intellectual Disability in Bosnia and Herzegovina

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## *ABSTRACT*

***Purpose:*** *The goal of this study was to assess the prevalence of speech and language disorders (SLD) in children with intellectual disability.*

***Method:*** *The sample comprised 167 children of both sexes, with mild and moderate intellectual disability of varied etiologies. Data on their language disorders were taken from the educational records in the school files.*

***Results:*** *It was demonstrated that the total prevalence of SLD in this sample was high (71.3%). While there were no statistical differences in the prevalence of SLD in relation to the sex of the child, there were significant differences in relation to the level and etiology of intellectual disability.*

***Conclusion:*** *Given the high prevalence of SLD, it is necessary to provide speech and language therapy to all children with intellectual disability who attend regular schools and special education centres. Speech therapy should begin as soon as they are admitted to preschool and school institutions.*

***Key words:*** *speech and language disorders, children, intellectual disability*

## INTRODUCTION

Speech and language are the means by which people communicate, and share thoughts and ideas. It is a common code shared and understood by the people in a community and which children learn through social interactions (Kumin, 2003). The use of language comprises receiving and sending messages. Receiving and understanding speech messages is called receptive language, and sending speech messages is called expressive language.

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Good language skills are one of the main preconditions for success in the school. The most intensive period of language development in children is between 3-5 years of age, a development that is parallel to the maturation of the brain structures. Typically developing children have mastered the basic components of language by the age of 3 or 4 years (Tager-Flusberg & Sullivan, 1998). Around that time, according to these authors, children with intellectual disability are still at the early stage of learning language and acquire only a few words, such as the names of family members and a couple of objects.

Speech and language disorders are one of the main reasons for referrals to paediatric services, accounting for about 40% of cases (Harel et al,1996).

Language difficulties are prevalent in preschool and school-aged children and constitute one of the most common problems at this age (Dockrell, 2001). Children with intellectual disability have an even higher risk of developing some type of speech and language disorder. Intellectual disability per se has a detrimental effect on language development. Speech and language disorder is one of the main traits which, if not treated early, can have a long-lasting negative effect on the child's development.

Determining the exact prevalence of speech and language disorders can be a very difficult task due to unclear terminology, methodological differences in studies, differing opinions of authors as to what constitutes normal and abnormal language development, etc. There are a couple of taxonomies on speech and language disorders, such as Diagnostic Statistic Manual-IV and International Classification of Diseases-10 criteria. This study presents the classification of speech and language disorders by Allen and Rapin (1980) according to which, speech and language disorders can be classified into three catogories: 1. Mixed receptive/expressive disorders, Verbal Auditory agnosia, Phonologic-syntactic subtype; 2. Higher order processing disorders, Lexical syntactic subtype, Semantic pragmatic subtype; 3. Expressive disorders, Verbal dyspraxia, Phonologic programming subtype. Kaplan and Sadock (1998) noted the prevalence of expressive language to be 3-10% and mixed expressive-receptive disorder to be 1-13%. In children with intellectual disabilities, the prevalence of speech and language disorders is much higher, with estimates being around 55% (Lesser & Hassip, 1986). It is important to note that children with different etiologies of intellectual disabilities have different impairments of speech mechanisms. For example, children with Down syndrome have slower development of prelinguistic vocalisations compared to children with

typical development. Speech pragmatics is not impaired in children with Down syndrome but the impairments in speech pragmatics are one of the main traits in children with Fragile X syndrome and autistic spectrum disorders (Tager-Flusberg & Sullivan, 1998).

There are few studies on the prevalence of speech and language disorders in children with intellectual disability in Bosnia and Herzegovina. This study was conducted to fill the gap. The prevalence rate of speech and language disorders in relation to the sex, level and etiology of intellectual disability were also examined. The focus was on speech and language disorders as a group, and the type and level of SLD were not recorded.

## METHOD

### Participants

The study sample comprised 167 children with intellectual disability (105 boys, 62 girls) from two special education centres in Sarajevo, Bosnia and Herzegovina. The children were between 7-15 years of age (mean age - 11.4, SD-3.9). There were 85 children with mild intellectual disability and 82 children with moderate intellectual disability. In relation to the etiology of intellectual disability, there were 76 children with unknown causes, 35 children with organic brain injury, 34 children with Down syndrome and 22 children with other genetic causes. The sample for this study was the same as the one in a study on the prevalence of epilepsy in children with intellectual disability (Memisevic & Sinanovic, 2009).

### Procedure

The main method of data collection was by the analysis of children's psycho-educational records for the presence of speech and language disorders. SLDs were than independently validated by a speech and language therapist. All SLDs were regarded as a single disorder. Children with severe and profound intellectual disability were not included in this study as all of them have speech and language disorders.

### Statistical Analysis

Frequency of SLD was used in data analysis. Chi-square test was calculated

to determine the difference between the different categories of children. In addition to Chi-square, an odds ratio and Cramer V coefficient were calculated to determine the risk of SLD in different categories and their association. The data were analysed with computer programme SPSS v.13 for Windows.

## RESULTS

The prevalence of speech and language disorders in relation to the sex of the child is shown in Table 1.

**Table 1: The prevalence of Speech and Language Disorders in relation to the child's sex**

| Speech-language Disorders | | | |
|---|---|---|---|
| SEX | Absent | Present | TOTAL |
| Boys % | 32<br>30.5% | 73<br>69.5% | 105 |
| Girls % | 16<br>25.8% | 46<br>74.2% | 62 |
| Total % | 48<br>28.7% | 119<br>71.3% | 167 |

As can be seen from Table 1, the total prevalence of speech and language disorders in the whole sample was 71.3% (119 children). The prevalence in boys was 69.5% and in girls it was 74.2%. Although prevalence of SLD was somewhat higher among girls, that difference was not statistically different according to the Chi-square test ($x^2$=.415, p=.597).

In relation to the level of intellectual disability, children with moderate intellectual disability had a significantly higher prevalence of speech and language disorders as compared to children with mild intellectual disability. This difference was statistically significant ($x^2$=40.337, p<.001). The odds ratio of having a SLD in the group of children with moderate intellectual disability was 15.8 times higher than in the group with mild intellectual disability. The Phi coefficient of association was .49, and was significant at .001 level. The descriptive results are shown in Table 2.

**Table 2: Prevalence of Speech and Language Disorders in relation to the level of intellectual disability**

| Speech-language Disorders | | | |
|---|---|---|---|
| LEVEL OF INTELLECTUAL DISABILITY | Absent | Present | TOTAL |
| Mild ID % | 43<br>50.6% | 42<br>49.4% | 85 |
| Moderate ID % | 5<br>6.1% | 77<br>93.9% | 82 |
| Total % | 48<br>28.7% | 119<br>71.3% | 167 |

The prevalence of speech and language disorders in relation to the etiology of intellectual disability is shown in Table 3.

**Table 3: Prevalence of Speech and Language Disorders in relation to the etiology of intellectual disability**

| Speech-language Disorders | | | |
|---|---|---|---|
| ETIOLOGY ID | Absent | Present | TOTAL |
| Down syndrome % | 3<br>8.8% | 31<br>91.2% | 34 |
| Other genetic cause % | 3<br>13.6% | 19<br>86.4% | 22 |
| Brain injury % | 4<br>11.4% | 31<br>88.6% | 35 |
| Unknown etiology % | 38<br>50.0% | 38<br>50.0% | 76 |
| TOTAL % | 48<br>28.7% | 119<br>71.3% | 167 |

According to the results of Chi-square test, there were statistically significant differences in the prevalence of speech and language disorders between the different etiological categories ($x^2$=30.929, p<.001). Strength of association as

measured by Cramer V coefficient was .43 and was statistically significant at .001 level.

## DISCUSSION

This study assessed the prevalence of speech and language disorders (SLD) in children with intellectual disabilities at two special education centres in Sarajevo, Bosnia and Herzegovina. The results confirmed the previous findings of high prevalence of SLD among such children. Thus, 119 children or 71.3% were found to have some form of SLD. Although there was higher prevalence among girls, there were no statistically significant differences in relation to the child's sex. In relation to the child's level of intellectual functioning, there were significant differences in the prevalence of SLD. Almost all the children with moderate intellectual disability (93.9%) and almost half of the children with mild intellectual disability(49.4%) had some form of SLD. This is an interesting finding because many studies report the prevalence rate of SLD in children with intellectual disability without specifying the level of intellectual functioning in the sample. In relation to the etiology of intellectual disability, highest prevalence of SLD was found in children with Down syndrome (91.2%), followed by children with organic brain injury (88.6%), other genetic causes (86.4%) and unknown etiology (50%). Interpretation of these results needs to be done with caution because of the confounding influence of the level of intellectual disability. Thus, most children with unknown etiology had mild levels of intellectual disability, and most children in the other etiological categories had moderate levels of intellectual disability.

Children with intellectual disabilites are at higher risk of developing some form of speech and language disorder, as compared to typically developing children. Therefore it is necessary for the elementary regular and special schools to employ speech and language therapists to work with these children so as to alleviate their symptoms and improve their speech. There is a positive legislation in Bosnia and Herzegovina with regard to the employment of speech and language therapists in regular schools, but unfortunately only a small number of regular schools have employed them.

Many studies have demonstrated the effectiveness of speech and language therapy in improving the speech and language abilities in children (McIntosh et al, 2007). Speech therapists are responsible for the speech and language assessment of the child and, based on that assessment, they create individual rehabilitation programmes for the correction of speech and language disorders.

Along with speech therapists, it is necessary to include regular teachers as well as parents in the team, in order to successfully implement the speech and language therapeutic programmes. Speech therapists must collaborate with teachers who can provide very valuable information about the child's progress. There are some principles in speech therapy that need to be followed:

1. Therapy should begin as early as possible, preferably in the kindergarten;
2. There should be a multidisciplinary team involved in the education and rehabilitation of the child, consisting of speech therapists, occupational therapists, psychologists, teachers and special education teachers;
3. There should be a regular evaluation of the child's progress in speech and language therapy.

## CONCLUSION

The need for speech therapy for children with intellectual disability is repeatedly emphasised as it can produce very important improvements in the adaptive, social and academic areas. Of course, as is the case with many other treatment modalities, speech and language therapy should start as early as possible, ideally at preschool age, and should continue throughout the child's formal education.

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