THE INFLUENCE OF VOICE AND SPEECH DISORDERS ON THE QUALITY OF LIFE OF SCHOOL-AGE CHILDREN

Abstract: Quality of life is a construction used to measure an individual’s perspective on their well-being. In modern research, voice and speech disorders have been recognized as indicators of impaired quality of life in children. The aim of this research is to analyze the characteristics of quality of life in children with voice and speech disorders and children of typical development of younger school age. The research assessed the social, emotional and functional aspects of children’s quality of life. The research is anonymous, done on a sample of parents of children of younger school age. The examined sample included 100 parents of children of I (53%) and II (47%) grades of primary school. Respondents were divided into two groups, the experimental group (children who go to a speech therapist due to voice and speech pathology ($M = 1.55$, $SD = 0.44$)) and the control group (children of typical development ($M = 0.57$, $SD = 0.47$)). The Pediatric Voice Handicap Index - pVHI was used to assess the quality of life in children. One-factor multivariate ANOVA was used in statistical data processing. The results of this study show that children with voice and speech disorders have impaired quality of life compared to children of typical development ($p < 0.05$). The social and functional use of speech is worse in children with voice and speech disorders, and the emotional discomfort associated with voice and speech in these children far exceeds the emotional discomfort in children of typical development. As we stated in our work, many studies have shown that voice and speech disorders impair the physical and mental health of children. Due to all the above, the assessment of the quality of life in children with voice and speech disorders is especially important for psychologists and speech therapists during adolescence, so that they can identify problems in a timely manner and take the necessary support measures.

Key words: voice disorders, speech disorders, quality of life, children.

Introduction

Development is a continuous process of change through which the functional performance of children changes under the influence of various indicators. These changes include the acquisition and development of skills in a number of areas (cognition, language, motor skills, behavior) (Bisegli, Polis, Santos, & Vicentin, 2007; Colver, 2009). One of the most important indicators of

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children's development is quality of life, which is a combination of objective and subjective aspects of well-being, happiness and satisfaction (Colver, 2009).

The World Health Organization (WHO) has defined quality of life as the ability to self-perceive an individual’s position in the context of the culture and value system in which he or she lives, in relation to his or her goals, standards, and concerns (WHO, 1995). The measure of quality of life has become a major ally in the analysis of the success of therapeutic interventions and health care services. In addition, quality of life is an important indicator of the state of physical and psychosocial functioning of a person with a chronic illness or disability. Limitation in the physical and psychosocial functioning of a person affects not only a person with a certain condition but also all members of his family (Warner-Czyz, Loy, Tobey, Nakonezny, & Roland, 2011).

The family is the first social nucleus in which the child finds himself, and it has a key role in the development and improvement of the child's health through the daily care it provides (Motta & Luz, 2003). The family also offers physical, mental and emotional care to the children, as well as the necessary support during further development. By providing the child with security, love, understanding, parents provide the conditions for starting a positive process of his development, offering him a certain quality of life. The family is a social force that influences the development of personality and behavior of children. Family relationships enable individuals to create concepts and achieve integrity of thought. Through the exchange between family members, the child builds his maturity. Depending on its functionality, the family environment can encourage the child's mental and speech-language development (Oliveira, Simionato, Negrelli, & Marcon, 2004).

Speech is the primary canary of human social interactions, and speaking is considered to be the most complex skill people perform. Although most children adopt speech unconsciously and with little difficulty, some children struggle with the development of speech ability and require more intensive or permanent treatment (Waring & Knight, 2013). The biological vulnerability of children with speech disorders may be exacerbated by psychosocial environmental risk factors (Santos, 2006). In such cases, the child is exposed to multiple risks, with a negative impact on the quality of life.

Emotional intelligence is an important indicator of successful socialization and self-control of children's behavior. By awakening the awareness of differences in speech in relation to peers, children with speech disorders become more vulnerable over time, perceiving themselves as different from their environment. As a result, behavioral problems occur, which can be of the internalizing or externalizing type. Internalizing behavioral disorders caused by impaired social use of speech are characterized by anxiety and withdrawal. On the other hand, externalizing behaviors are characterized by impulsiveness and antisocial reaction. These problems were observed in 22 to 37% of school-age children (Espírito Santo, Portuguez, & Nunes, 2009).

Mutual cooperation of speech therapists and psychologists in working with the family of children with voice and speech disorders is necessary. It should be the responsibility of the psychologist to identify the factors that impair the quality of life in children with voice and speech disorders and to intervene in all aspects related to the well-being of the child and the family in everyday situations. In this way, the psychologist can improve their quality of life, strengthen self-esteem, awaken a sense of security and belonging in society. On the other hand, a speech therapist can find an appropriate treatment to correct voice and speech disorders and thus further improve a person's quality of life (Santos, 2006).
The goal

The aim of this research is to analyze the characteristics of quality of life in children with voice and speech disorders and children of typical development of younger school age.

Hypotheses in the research:
H1. Children with voice and speech disorders will have significantly lower results on the instrument for measuring the quality of life compared to the respondents in the control group.
H2. Children with voice and speech disorders will show poorer social use of speech compared to the control group.
H3. Children with voice and speech disorders will show emotional discomfort due to their speech in relation to the respondents in the control group.
H4. Children with voice and speech disorders will show poorer functional use of speech compared to the control group.

Method

Sample
The research is anonymous, done on a volunteer sample of parents of children of younger school age. The examined sample included 100 parents of children of I (53%) and II (47%) grades of primary school. The sample consists of children of both sexes, boys (58%) and girls (42%). Respondents were divided into two groups, the experimental group (50%) of children who go to a speech therapist due to voice and speech pathology and the control group (50%) of children with typical development. All children from our sample are monolingual, and their mother tongue is Serbian. This information is available on the basis of pedagogical documentation in the school.

Test procedure
The Pediatric voice handicap index - pVHI - was used to assess the quality of life. This scale was filled in by the children's parents. The parents were explained that they could cancel the research at any time. The research is of non-experimental type.

Instrument
Although it includes subjective aspects, quality of life can be measured using scales specifically for this purpose, using instruments such as Questionnaire on the quality of life of infants and young children (Schiarti, Hoube, Lisonkova, Klassen, & Lee, 2007), Quality of Life Questionnaire (Rautava, Hakkinen, Korvenranta, et al., 2009) and Revised questionnaire on children's quality of life (Stahlmann, Rapp, Herting, & Thyen, 2009).

In this study, the Pediatric Voice Handicap Index - pVHI (Zur, Cotton, Kelchner, Baker, Weinrich, & Lee, 2007) was used to assess the quality of life of children. The test consists of 25 claims and is intended to assess the quality of life in children with voice and speech disorders. These statements are often used to describe the impact of voice and speech disorders on children's quality of life. This scale was filled in by the child's parent by analyzing various aspects of their child's behavior in relation to the stated attitude. For each statement, on the presented Likert-type scale, the parent transcribes a certain numerical value. The claims on the scale were classified into three domains: functional, physical and emotional domains, which enabled the social, emotional and functional aspects of children's quality of life to be assessed in this study.

Statistical data processing
In order to process the data, we used descriptive and inferential statistical analysis. Data processing was performed using a statistical package data processing in the social sciences SPSS (SPSS, version 21.0). The results are shown in a table.
Research results

Differences in quality of life between children with voice and speech disorders and children with typical development

Table 1 shows the descriptive characteristics in quality of life between children with voice and speech disorders and children of typical development. Differences in quality of life between these two groups of respondents are shown in Table 2.

Table 1. Descriptive measures of children with voice and speech disorders and children of typical development

<table>
<thead>
<tr>
<th>Groups of respondents</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>SE_M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children with speech disorders</td>
<td>50</td>
<td>1.55</td>
<td>0.448</td>
<td>0.063</td>
</tr>
<tr>
<td>Children of typical development</td>
<td>50</td>
<td>0.58</td>
<td>0.479</td>
<td>0.068</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>1.07</td>
<td>0.674</td>
<td>0.067</td>
</tr>
</tbody>
</table>

Table 2. Difference in quality of life in relation to the group of respondents

<table>
<thead>
<tr>
<th>Relation</th>
<th>r_cχ²</th>
<th>df</th>
<th>M</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>sum scor x group</td>
<td>23.926</td>
<td>1</td>
<td>23.92</td>
<td>111.314</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Statistically significant differences (p < 0.05) in the quality of life between children with voice and speech disorders and children of typical development [F (1, 98) = 111.314, p = 0.000] were obtained by applying one-factor multivariate ANOVA. Analyzing the arithmetic mean of these two groups of respondents from Table 1, we conclude that children with voice and speech disorders (M = 1.55, SD = 0.44) have impaired quality of life compared to children of typical development (M = 0.57, SD = 0.47). From this we conclude that there are differences in quality of life between these two groups of respondents, i.e., that children with speech disorders have impaired quality of life compared to children of typical development. The first hypothesis was accepted.

Differences in the social use of speech in children with voice and speech disorders and children of typical development

Table 3 shows the descriptive characteristics of the social use of speech in children with voice and speech disorders and children of typical development. Differences in the social use of speech between these two groups of respondents are shown in Table 4.

Table 3. Descriptive measures of social use of the voice in children

<table>
<thead>
<tr>
<th>Groups of respondents</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>SE_M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children with speech disorders</td>
<td>50</td>
<td>1.62</td>
<td>0.531</td>
<td>0.079</td>
</tr>
<tr>
<td>Children of typical development</td>
<td>50</td>
<td>0.59</td>
<td>0.546</td>
<td>0.077</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>1.11</td>
<td>0.755</td>
<td>0.075</td>
</tr>
</tbody>
</table>

Table 4. Difference in social use of voice in relation to the group of respondents

<table>
<thead>
<tr>
<th>Relation</th>
<th>r_cχ²</th>
<th>df</th>
<th>M</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>sum scor x group</td>
<td>26.380</td>
<td>1</td>
<td>26.38</td>
<td>86.061</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Using one-factor multivariate ANOVA, we obtained statistically significant differences (p < 0.05) in the social use of speech between children with voice and speech disorders and children of typical development [F (1, 98) = 86.061, p = 0.000]. Analyzing the arithmetic mean, we came to the conclusion that children with voice and speech disorders (M = 1.62, SD = 0.53) have poorer social
use of voice compared to children of typical development \((M = 0.59, SD = 0.54)\). From this we conclude that there are differences in the social use of speech in children with speech disorders in relation to children of typical development, i.e., that speech disorders have an effect or impact on the social dimension of children's quality of life. The second hypothesis is accepted.

**Differences in the frequency of emotional discomfort due to speech in children with voice and speech disorders and children with typical development**

Table 5 shows the descriptive characteristics of emotional discomfort due to speech in children with voice and speech disorders and children of typical development. Differences in emotional discomfort due to speech between these two groups of respondents are shown in Table 6.

**Table 5. Descriptive measures of emotional discomfort in children**

<table>
<thead>
<tr>
<th>Groups of respondents</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children with speech disorders</td>
<td>50</td>
<td>1.4940</td>
<td>0.63046</td>
<td>0.12869</td>
</tr>
<tr>
<td>Children of typical development</td>
<td>50</td>
<td>0.4457</td>
<td>0.43315</td>
<td>0.08663</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>0.9592</td>
<td>0.75142</td>
<td>0.10735</td>
</tr>
</tbody>
</table>

**Table 6. The difference in the frequency of emotional discomfort due to speech in relation to the group of respondents**

<table>
<thead>
<tr>
<th>Relation</th>
<th>(r_{\chi^2})</th>
<th>df</th>
<th>M</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>sum scor x group</td>
<td>13.457</td>
<td>1</td>
<td>13.457</td>
<td>46.354</td>
<td>.000</td>
</tr>
</tbody>
</table>

\(r_{\chi^2}\) - value of the given statistic, df - number of degrees of freedom, M - average, F - statistic, p - significance level

Using one-factor multivariate ANOVA, we obtained statistically significant differences \((p < 0.05)\) in emotional discomfort between children with voice and speech disorders and children with typical development \([F (1, 98) = 46.354, p = 0.000]\). Analyzing the arithmetic mean between the two groups of respondents, we came to the conclusion that children with voice and speech disorders \((M = 1.49, SD = 0.63)\) experience emotional discomfort due to their speech in relation to children of typical development \((M = 0.44, SD = 0.43)\). From this we conclude that there are differences in emotional discomfort in children with voice and speech disorders compared to children of typical development, i.e., that speech disorders have an effect on the emotional dimension of children's quality of life. The third hypothesis is accepted.

**Differences in the functional use of speech in children with voice and speech disorders and children of typical development**

Table 7 shows the descriptive characteristics of the functional use of speech in children with voice and speech disorders and children of typical development. Differences in the functional use of speech between these two groups of respondents are shown in Table 8.

**Table 7. Descriptive measures of functional voice use in children**

<table>
<thead>
<tr>
<th>Groups of respondents</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children with speech disorders</td>
<td>50</td>
<td>1.5229</td>
<td>0.60238</td>
<td>0.08519</td>
</tr>
<tr>
<td>Children of typical development</td>
<td>50</td>
<td>0.6057</td>
<td>0.07421</td>
<td>0.07421</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>1.0643</td>
<td>0.07268</td>
<td>0.07268</td>
</tr>
</tbody>
</table>

**Table 8. Difference in functional use of voice in relation to the group of respondents**

<table>
<thead>
<tr>
<th>Relation</th>
<th>(r_{\chi^2})</th>
<th>df</th>
<th>M</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>sum scor x group</td>
<td>21.029</td>
<td>1</td>
<td>21.029</td>
<td>65.899</td>
<td>.000</td>
</tr>
</tbody>
</table>

\(r_{\chi^2}\) - value of the given statistic, df - number of degrees of freedom, M - average, F - statistic, p - significance level
Using one-factor multivariate ANOVA, we obtained statistically significant differences (p <0.05) in the functional use of speech between children with voice and speech disorders and children with typical development \[ F (1, 98) = 65.899, p = 0.000 \]. Analyzing the arithmetic mean, we came to the conclusion that children with voice and speech disorders (M = 1.52, SD = 0.60) have poorer functional use of speech compared to children with typical development (M = 0.60, SD = 0.07). From this we conclude that there are differences in the functional use of speech in children with voice and speech disorders in relation to children of typical development, ie that voice and speech disorders have an effect or influence on the functional dimension of children's quality of life. The fourth hypothesis is accepted.

**Discussion**

The paper analyzes the characteristics of quality of life in children with voice and speech disorders and children of typical development of younger school age and the potential effect of voice and speech disorders on the social, emotional and functional aspects of children's quality of life.

Comparing the quality of life of children with voice and speech disorders and children with typical development, it was determined that there are differences in quality of life between these two groups of respondents, ie that children with voice and speech disorders have impaired quality of life compared to children with typical development. The obtained results are in line with the results of some authors (Schiariti, Hoube, Lisonkova, Klassen, & Lee, 2007; Stahlmann, Rapp, Herting, & Thyen, 2009; Rautava et al., 2009) who point out significantly worse assessments of quality of life in children with voice and speech disorders in preschool and school age. They also point out that the presence of congenital malformations (cleft lip and palate, protrusion, progeny, various syndromes) in school-age children significantly worsens their quality of life due to visible anomalies in the orofacial region (Rautava et al., 2009).

When it comes to the social use of speech in children with voice and speech disorders and children of typical development, the results show that there are differences between these two groups of respondents, ie that voice and speech disorders affect the social dimension of children's quality of life. These findings are consistent with previous research (Schmidhauser, Caflisch, Rousson, Bucher, Largo, & Latal, 2006; Johnson, Hennessy, Smith, Trikic, Wolke, & Marlow, 2009) which show that children with voice and speech disorders have poorer social skills. relationships and lack of support from friends and family members. The analysis of speech behavior in a child shows social concern and avoidance of speech situations due to dissatisfaction with speech as the dominant form of behavior (Gomersall, Spencer, Basaris, et al., 2015). Other studies comparing the social behavior of subgroups of children (with speech disorders and children with typical development) show that children with speech disorders are more prone to behavioral problems. The results of these studies impose the need for further research on the causes, prevalence and prevention of behavioral problems in samples of children with speech disorders (Johnson, Hennessy, Smith, Trikic, Wolke, & Marlow, 2009).

Comparing the differences in emotional discomfort in children with voice and speech disorders and children with typical development, the results show that there are differences in emotional discomfort between these two groups of respondents, ie that speech disorders have an effect on the emotional dimension of quality of life of children with voice and speech disorders. The results confirm the results of some authors (Markham, Van Laar, Gibbard, & Dean, 2009; Johnson, Beitchman & Brownlie, 2010) who point out that negative thoughts and reactions to voice and speech disorders appear in childhood when a child begins to notice their speech differences. and continue throughout life. A child's speech is accompanied by a devastating sense of frustration, anger, guilt, and humiliation (Bloodstein & Ratner, 2008). Research shows that the social environment perceives children with voice and speech disorders as cautious, nervous, tense,
sensitive, indecisive, introverted and insecure (Feeny, Desha, Ziviani, & Nicholson, 2012; Rocha, Yaruss, & Rato, 2019). This experience of the child's personality can lead to anxiety, low self-esteem and self-esteem of the child (Coalson, Byrd, & Rives, 2016).

When it comes to the functional use of speech in children with speech disorders and children with typical development, the results show that there are differences between these two groups of respondents, i.e., that speech disorders have an impact on the functional dimension of children's quality of life. These findings are consistent with previous research (Arkkila, Rasanen, Roine, Sintonen, Saar, & Vilkman, 2011; Bretherton, Prior, Bavin, Cini, Eadie, & Reilly, 2014) which points out that voice and speech disorders limit personal, educational and social activities. children.

Conclusion

The research was conducted in order to determine differences in the quality of life in children with voice and speech disorders and children of typical development of younger school age and the potential effect of voice and speech disorders on social, emotional and functional aspects of children's quality of life.

This study of the quality of life of children with voice and speech disorders in school-age children shows that voice and speech disorders can significantly impair the quality of life of children. Accordingly, it is recommended to devise strategies to provide support to children with voice and speech disorders as early as possible in order to reduce the long-term effects on their quality of life.

In recent years, interest in the quality of life of children with voice and speech disorders has increased significantly, but little is known about the ways in which children with voice and speech disorders face potentially unfavorable experiences. Therefore, it is important to understand the lived experiences of children, positive and negative, in different contexts, in order to prevent negative consequences on the quality of life in adulthood through timely interventions.

Thank-you note

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Uticaj poremećaja glasa i govora na kvalitet života dece školskog uzrasta

Apstrakt: Kvalitet života je jedna konstrukcija pomoću koje se meri perspektiva pojedinca o njihovom blagostanju. U savremenim istraživanjima poremećaji glasa i govora su prepoznati kao indikatori narušavanja kvaliteta života kod dece. Cilj ovog istraživanja je analiza karakteristika kvaliteta života kod dece sa poremećajima glasa i govora i dece tipičnog razvoja. U istraživanju su procenjeni socijalni, emocionalni i funkcionalni aspekti kvaliteta života dece. Istraživanje je anonimno, urađeno na uzorku roditelja dece mladog školskog uzrasta. U istraživanju su procenjeni izazovi za život i rad odraslih osoba sa poremećajima glasa i govora i dece tipičnog razvoja. Rezultati ovog istraživanja pokazuju da dece sa poremećajima glasa i govora imaju narušen kvalitet života u odnosu na decu tipičnog razvoja. Kvalitet života i emocionalna elastičnost su izrazite i važne za decu i roditelje. Da se načini kako učenici i roditelji rade da koriste kvalitet života dece sa poremećajima glasa i govora.

Ključne reči: poremećaji glasa, poremećaji govora, kvalitet života, deca.

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Ivana Ilić Savić, assistant at the University of Belgrade, Faculty of Special Education and Rehabilitation, on the study program Speech Therapy. She is engaged in the implementation of exercises at undergraduate and master's academic studies in the narrower scientific field of "Speech Disorders". She was engaged as a member of the Organizing Committee at the National Scientific Meetings "Special Education and Rehabilitation in the Conditions of the COVID-19 Pandemic" and "Education and Rehabilitation of Adults with Developmental Disabilities and Behavioral Problems". He is a member of the Fund for Young Talents of the Republic of Serbia. She has published several scientific and professional works.

Mirjana Petrović Lazić, full professor at the University of Belgrade, Faculty of Special Education and Rehabilitation, on the study program Speech Therapy. The areas of interest in which she made the greatest contribution are "Voice and Speech Disorders". He is a participant in a number of scientific conferences of national and international importance and several national professional and scientific projects. He is a member of numerous domestic and international professional and scientific associations. She trained professionally in the USA and Great Britain. She published 16 monographs in Serbian, English and Greek.