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COMMUNICATION FORMS OF PERSONS WITH CEREBRAL PALSY, HEARING IMPAIRMENT AND OTHER ASSOCIATED DIFFICULTIES

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Abstract

Regarding the fact that people with cerebral palsy have hearing problems, in terms of its reduction, and intact hearing is a major predictor of successful development of verbal communication, these persons may have difficulty developing and using verbal forms of communication. The aim of the study is to examine the prevalence communication forms in persons with cerebral palsy, hearing impairment and other associated difficulties. The study was done on a sample of 120 respondents. The total sample of subjects was divided into four subsamples. The results of the study showed that the verbal form of communication is used by 74.17% of persons with cerebral palsy, hearing impairment and other associated difficulties. In majority of persons with cerebral palsy, verbal communication is difficult, despite the fact that they use it as the dominant form of communication. Verbal communication is difficult because 56.60% of these persons have speech difficulties. Persons with cerebral palsy fail to master the verbal form of communication, not only because of speech motor difficulties, but also because of hearing impairment, the direct consequence of which is the inability or limited ability to develop oral-vocal speech and language. Nonverbal form of communication is represented with 21.66%. Of the total percentage of respondents who use nonverbal form of communication, 10.90% of respondents use nonverbal form of communication because they failed to master the verbal form of communication due to hearing impairment, and the remaining 10.76% of respondents failed to master verbal form of communication due to cerebral palsy, meaning paralysis of speech organs. The bilingual form of communication is represented by 4.17%. These persons have mild speech problems caused by mild hearing loss and/or mild damage to the muscles of the speech organs, as a result of cerebral palsy. These persons are not able to develop verbal communication completely. Their verbal communication is limited, so they are forced to use elements of nonverbal communication in their daily communication.

Keywords: verbal form of communication, nonverbal form of communication, bilingual form of communication, cerebral palsy, hearing impairment.

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1. INTRODUCTION

Communication is the interaction of persons in objective and subjective reality, whether it is about getting to familiarize themselves with that reality or exchanging already known communication content (Hasanbegović and Kovačević, 2014). Communication is the process of transmitting and exchanging communication content (Radoman, 2003). The basic task of communication is to increase and facilitate the exchange of communication content between interlocutors, using appropriate available communication channels (Radovančić, 1995).

The standard way of communication between persons is oral-voice speech, which belongs to the verbal system of communication. Persons who for any reason cannot develop a verbal form of communication, develop and use a nonverbal form of communication consisting of sign language and kinetic speech (gestures, facial expressions, pantomimes and handwritten alphabets) (Salkić, Hasanbegović, Švraka 2019).

The elements of verbal communication are: voice, speech, language, reading and writing. Elements of nonverbal communication are: sight, facial expressions, natural hand movements, body movements, gestures, expression with agreed hand and finger signals as well as semiotic signs (Vladisavljević, 1987).

Bilingual form of communication implies the simultaneous use of verbal and nonverbal communication system.

Cerebral palsy is a group of permanent disorders of movement and posture development that cause limitations in the performance of activities, and are a consequence of non-progressive disorders of the immature brain or developing brain (Švraka, 2018). Brain damage can lead to disorders in auditory memory, auditory processing and cognition, which can lead to delayed speech development, abnormal speech production, and altered voice quality (Downey, 2003).

Due to hearing loss, deaf persons are not able to spontaneously learn oral-voice speech and language, but are forced to learn it systematically, according to special methods and procedures, during their educational-rehabilitation process (Hasanbegović, Salkić, Mahmutović, 2009). Given that persons with cerebral palsy have hearing problems in terms of its reduction, and that intact hearing is a major predictor of successful speech and language development, it is clear that they may also have difficulty developing and using verbal communication. In addition to hearing impairment, the difficult development and use of verbal communication is also affected by inadequate innervation of the speech organs, which makes it difficult to move their muscles, and thus the production of speech. From the above it can be clearly seen that some persons with cerebral palsy will not be able to develop and use a verbal form of communication. Due to the impossibility of developing and using a verbal form of communication, these persons will be forced to learn, develop and use a nonverbal form of communication. However, persons with cerebral palsy may also have difficulty in the adequate use of nonverbal communication, primarily kinetic speech. The use of nonverbal communication is hampered by impaired motor skills of the upper limbs, face and mouth due to impaired innervation. Inadequate hand motor skills make it difficult to use gestures that involve macro movements of the hands, including the shoulder joint and micro movements of the hand and fingers. Inadequate facial motility also makes it difficult to use facial expressions, which involve moving the muscle groups of the face and mouth, and makes it difficult to express basic emotions through facial expression. For the same reasons, the use of pantomime, which involves full body speech, and hand alphabets, which require the use of the fingers of the hand, is difficult (Salkić, 2015).

The aim of the study is to examine the prevalence communication forms in persons with cerebral palsy, hearing impairment and other associated difficulties.



2. METHOD

2.1. Sample

The study was conducted on a sample of 120 respondents, persons with cerebral palsy from four cantons of FBiH, within the project of the Cerebral Palsy Associations „Functional capacity of persons with disabilities, the main factor for improving the quality of life of the whole family“. The total sample of respondents was divided into 4 sub-samples of respondents:

- The first sub-sample of respondents (N=40) consisted of persons with cerebral palsy, members of the Association of Persons with Cerebral Palsy of Sarajevo Canton (Canton Sarajevo).
- The second sub-sample of respondents (N=41) consisted of persons with cerebral palsy, members of the Association of Parents of Persons with Cerebral Palsy and Other Disabilities „Dlan“ Zenica, (Zenica-Doboj Canton).
- The third sub-sample of respondents (N=20) consisted of persons with cerebral palsy, members of the Association of Persons with Cerebral Palsy and Dystrophy of the Bosnia-Podrinje Canton - Goražde (Bosnia-Podrinje Canton).
- The fourth sub-sample of respondents (N=19) consisted of persons with cerebral palsy, members of the Association of Persons with Cerebral Palsy and Other Disabilities of Sapna (Tuzla Canton).

2.2. Study instrument

The study is retrospective and analytical-descriptive. The study used the „Questionnaire to Examine Associated Disabilities of Cerebral Palsy, Hearing Impairment and Other Associated Difficulties“. The measuring instrument consisted of 11 questions of nominal, ordinal and interval type. One of the questions of the measuring instrument is: What form of communication do you, or your child, use. The applied variables within the survey question are: verbal form of communication, nonverbal form of communication and bilingual form of communication.

2.3. Statistical data processing

Based on the data obtained from the study, a database was formed. After checking the integrity of the data, a statistical analysis was performed in the software IBM SPSS Statistics v.20.0 for Windows. The data are presented in tabular form using classical descriptive statistics methods. The parametric statistics, analysis of variance (ANOVA) at the level of statistical significance of 0.05 was used to examine the statistical significance of differences between the sub-samples of the respondents.



3. RESULTS AND DISCUSSION

Table 1. Relationship between gender and age

Age	Canton Sarajevo		Zenica-Doboj Canton		Bosnia-Podrinje Canton		Canton Tuzla (Sapna)		Total			Anova (p)
	Pol		Pol		Pol		Pol		M	Ž	N	
	M (%)	Ž (%)	M (%)	Ž (%)	M (%)	Ž (%)	M (%)	Ž (%)	M (%)	Ž (%)	N (%)	
0-15	3 (2.5)	1 (0.83)	15 (12.5)	8 (6.67)	1 (0.83)	3 (2.5)	3 (2.5)	3 (2.5)	22 (18.33)	15 (12.5)	37 (30.83)	0.6181
16-25	3 (2.5)	4 (3.33)	5 (4.17)	5 (4.17)	1 (0.83)	3 (2.5)	2 (1.67)	3 (2.5)	11 (9.17)	15 (12.5)	26 (21.67)	0.8350
26-35	8 (6.67)	4 (3.33)	2 (1.67)	4 (3.33)	4 (3.33)	2 (1.67)	3 (2.5)	1 (0.83)	17 (14.17)	11 (9.16)	28 (23.33)	0.3766
36-45	3 (2.5)	8 (6.67)	2 (1.67)	-	1 (0.83)	1 (0.83)	1 (0.83)	-	7 (5.83)	9 (7.5)	16 (13.33)	0.8505
46-55	2 (1.67)	2 (1.67)	-	-	1 (0.83)	2 (1.67)	1 (0.83)	-	4 (3.33)	4 (3.34)	8 (6.67)	0.8855
56-65	-	2 (1.67)	-	-	1 (0.83)	-	1 (0.83)	-	2 (1.67)	2 (1.67)	4 (3.34)	0.9091
> 65	-	-	-	-	-	-	1 (0.83)	-	1 (0.83)	-	1 (0.83)	0.9335
Total	19 (15.84)	21 (17.5)	24 (20.01)	17 (14.17)	9 (7.48)	11 (9.17)	12 (10)	7 (5.83)	64 (53.33)	56 (46.67)	120 (100)	
	40 (33.34)		41 (34.18)		20 (16.65)		19 (15.83)		120 (100)			
Anova (p)	0.8629		0.7696		0.9404		0.0331					

An insight into the frequency and percentage distribution (Table 1) shows that 64 or 53.33% of respondents are male and 56 or 46.67% female.

Based on the results of the ANOVA test, it can be concluded that, at the set level of statistical significance of 0.05, there is a statistically significant difference in the gender of the Tuzla Canton respondents ($p=0.0331$). For Canton Sarajevo ($p=0.8629$), Zenica-Doboj Canton ($p=0.7696$) and Bosnia-Podrinje Canton ($p=0.9404$), no statistically significant difference was observed in the gender of the respondents.

The largest number of respondents was at age up to 15 years, 37 or 30.83% (22 or 18.33% male and 15 or 12.5% female). The second most frequent are respondents at age group 26-35 years, 28 or 23.33% (17 or 14.17% male and 11 or 9.16% female). The respondents in the age group from 16-25 years are in third place by frequency, 26 or 21.67% (11 or 9.17% male and 15 or 12.5% female). The respondents from 36 to 45 years of age are represented by 16 or 13.33%, (7 or 5.83% male and 9 or 7.5% female), and the respondents aged 46 to 55 with 8 or 6.67% of respondents (4 or 3.33 both sexes). Quite a small number of respondents at age group 56-65 years, 4 or 3.34% (2 or 1.67 male and 2 or 1.67 female). There are the least number of respondents over 65 years of age, 0.83% or 1 male respondent at age of 68 years.

Based on the results of the ANOVA test, it can be concluded that at the set level of statistical significance of 0.05, there is no statistically significant difference in age at all age groups between the sub-samples of the respondents.



Table 2. Representation communication forms by cantons

No.	Variables	Canton Sarajevo		Zenica-Doboj Canton		Bosnia-Podrinje Canton		Canton Tuzla (Sapna)	
		N	%	N	%	N	%	N	%
1.	Verbal form of communication	31	77.50	29	70.73	14	70.00	15	78.95
2.	Nonverbal form of communication	7	17.50	10	24.39	6	30.00	3	15.79
3.	Bilingual form of communication	2	5.00	2	4.88	0	0.00	1	5.26
	Total	40	100	41	100	20	100	19	100

Table 2 shows the distribution of frequencies and percentages communication forms by cantons, subsamples.

Based on the distributions of frequencies and percentages of responses of the respondent's subsamples, it can be stated that the respondents of all four cantons use the verbal form of communication in the largest percentage. A much smaller percentage of respondents use a nonverbal form of communication, and the lowest percentage of respondents use a bilingual form of communication.

The prevalence of verbal communication among respondents from the Sarajevo Canton is 77.50%. Nonverbal form of communication is used by 17.50%, and bilingual by 5% of respondents.

Respondents from the area of Zenica-Doboj Canton mostly use verbal forms of communication, 70.73% of them. Nonverbal form of communication is used by 24.39%, and bilingual 4.88% of respondents.

The prevalence of verbal communication among respondents from the Bosnia-Podrinje Canton is 70.00%. Nonverbal form of communication is used by 30.00% of respondents. There are no respondents who use the bilingual form of communication.

Respondents from the area of Tuzla Canton (Sapna), in the largest percentage use verbal form of communication, 78.95% of them. Nonverbal form of communication is used by 15.79%, and bilingual 5.26% of respondents.

Table 3. Representation of the communication forms in the total sample

No.	Variables	Canton Sarajevo		Zenica-Doboj Canton		Bosnia-Podrinje Canton		Canton Tuzla (Sapna)		Total		Anova (p)
		N	%	N	%	N	%	N	%	N	%	
1.	Verbal form of communication	31	25.83	29	24.17	14	11.67	15	12.5	89	74.17	0.0305
2.	Nonverbal form of communication	7	5.83	10	8.33	6	5.00	3	2.50	26	21.66	0.8037
3.	Bilingual form of communication	2	1.67	2	1.67	0	0.00	1	0.833	5	4.17	0.9049

Table 3 shows the distribution of frequencies and percentages of the communication forms in the total sample of respondents.

Based on the distribution of frequencies and percentages of forms of communication, it can be concluded that in persons with cerebral palsy, hearing impairment and other associated difficulties, the most common form of communication is verbal.



Verbal form of communication is used by 74.17% of respondents in the total sample. Verbal form of communication is mostly used by respondents from Sarajevo Canton, 31 or 25.83% of them. In Zenica-Doboj Canton 29 or 24.17% of respondents use the verbal form of communication. In Tuzla Canton, 15 or 12.5% of respondents use the verbal form of communication, and in Bosnia-Podrinje Canton 15 or 12.50% of respondents use the total sample of respondents.

Based on the results of the ANOVA, it can be concluded that, at the set level of statistical significance of 0.05, there is a statistically significant difference between the cantons for the variable verbal form of communication ($p=0.0305$).

An earlier study (on the same sample of respondents) found that of the associated difficulties of persons with cerebral palsy, the most common are speech difficulties. Out of a total of 120 respondents, 56.60% of persons with cerebral palsy have speech difficulties (Salkić, Švraka, Pašalić et al. 2020).

Comparing these two results, that the verbal form of communication is used by 74.17% of persons with cerebral palsy, hearing impairment and other associated difficulties and that 56.60% of persons with cerebral palsy have speech difficulties, it can be concluded that most persons with cerebral palsy makes verbal communication difficult, despite the fact that they use it as the dominant form of communication. It can also be stated that about 17.57% of persons with cerebral palsy have no difficulty in adopting and using a verbal form of communication. Difficult verbal communication for these persons is a problem in everyday activities, learning processes and social inclusion.

In persons with cerebral palsy, hearing impairment and other associated difficulties, the nonverbal form of communication is represented by 21.66%. This form of communication is mostly used by respondents from Zenica-Doboj Canton, 10 or 8.33% of them. In Sarajevo Canton, nonverbal form of communication is used by 7 or 5.83% of respondents, and in Bosnia-Podrinje Canton by 6 or 5.00% of respondents. Nonverbal form of communication is represented with 2.50% in Tuzla Canton (3 respondents).

Based on the results of the ANOVA, it can be concluded that, at the set level of statistical significance of 0.05, there is no statistically significant difference between the cantons for the variable nonverbal form of communication ($p=0.8037$).

An earlier study (on the same sample of respondents) found that the prevalence of hearing impairment in persons with cerebral palsy is 10.90% (Salkić, Švraka, Pašalić et al., 2020).

Comparing these two research results, that 21.66% of persons with cerebral palsy use nonverbal form of communication and that 10.90% of persons with cerebral palsy have hearing impairment, it can be concluded that 10.90% of respondents use nonverbal form of communication because they failed to master verbal form of communication due to hearing impairment, and the remaining 10.76% of respondents failed to master the verbal form of communication due to cerebral palsy, or motor difficulties of the speech organs.

The bilingual form of communication of persons with cerebral palsy, hearing impairment and other associated difficulties is represented by 4.17%. Bilingual form of communication is mostly used by respondents in Sarajevo Canton and Zenica-Doboj Canton, 2 respondents or 1.67%. In Tuzla Canton, bilingual communication is used by 1 person or 0.83%, and in Bosnia-Podrinje Canton there are no respondents who use bilingual communication.

Based on the results of the ANOVA, it can be concluded that at the set level of statistical significance of 0.05 there is no statistically significant difference between the cantons for the variable bilingual form of communication ($p=0.9049$).



4. CONCLUSION

The most common form of communication of persons with cerebral palsy, hearing impairment and other associated difficulties is the verbal form of communication. The verbal form of communication is used by 74.17% of persons with cerebral palsy, hearing impairment and other associated difficulties. In most persons with cerebral palsy, verbal communication is difficult, despite the fact that they use it as the dominant form of communication. Verbal communication is difficult because 56.60% of these persons have speech difficulties. Persons with cerebral palsy fail to master the verbal form of communication, not only because of speech motor difficulties, but also because of hearing impairment, the direct consequence of which is the inability or limited ability to develop oral-vocal speech and language. There is a statistically significant difference between subsamples in the representation of the verbal form of communication.

In persons with cerebral palsy, hearing impairment and other associated difficulties, the nonverbal form of communication is represented by 21.66%. Of the total percentage of respondents who use nonverbal form of communication, 10.90% of respondents use nonverbal form of communication because they failed to master the verbal form of communication due to hearing impairment, and the remaining 10.76% of respondents failed to master verbal form of communication due to cerebral palsy. difficulty of speech organs. There is no statistically significant difference between subsamples in the representation of the nonverbal form of communication.

The bilingual form of communication in persons with cerebral palsy, hearing impairment and other associated difficulties is represented by 4.17%. These persons have mild speech problems caused by mild hearing loss and/or mild damage to the muscles of the speech organs, as a result of cerebral palsy. These persons are not able to develop verbal communication completely. Their verbal communication is limited, so they are forced to use elements of nonverbal communication in their daily communication. There is no statistically significant difference between subsamples in the representation of the bilingual form of communication.

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