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## THE COMPARISON OF RESILIENCY LEVELS OF DEAF AND HARD OF HEARING ADOLESCENTS AND THEIR TYPICALLY DEVELOPING PEERS<sup>a</sup>

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### SUMMARY

*Deaf and hard of hearing children lag in communication skills, which may consequently result in a lower level of resilience. Determining resiliency levels in deaf and hard of hearing adolescents in comparison to the typical development of their peers is for this reason set as the objective of this research. The sample included 60 sixth, seventh and eighth grade primary school pupils, aged 12 to 14. The subjects were divided into two groups: Group A (30 deaf and hard of hearing subjects) and Group B (30 subjects with typical development). The Resiliency Scale for Children & Adolescents (RSCA) was used in this research. The results showed that deaf and hard of hearing students perceive their resiliency the same as their typical developing peers. Under conditions where more and more deaf and hard of hearing children are educated with peers of the typical population, the social integration of these children becomes a key concern. Programmes intended to promote the development of resiliency, which are drafted in accordance with the individual characteristics of deaf and hard of hearing children may contribute to their successful inclusion in mainstream education.*

Key words: resiliency, deaf and hard of hearing, adolescents

### INTRODUCTION

One of the most widely accepted and cited definitions of resilience is that it is a positive adaptation despite adverse circumstances or trauma (Luthar, 2003). Differences in defining resistance come from different understandings of this concept, as a trait, process, or outcome. Regardless of different understandings, there are two essential moments for resilience in all definitions - positive adaptation and negative circumstances (Masten et al., 2009, according to Johnson, Cawthon, Fink, Wendel, & Schoffstall, 2018). Differences in understanding resilience were illustrated by the following example cited by a British group of authors (Young, Green, & Rogers, 2008). Namely, with an insight into the literature related to resilience, two members of the team showed two distinct gestures for the same term in the British sign language. One showed a gesture of “protection” with the movement of the hand facing the body and the other one showed a gesture of “resistance” moving the clenched fist away from the body.

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Several protective factors have been identified in the literature that are related to the characteristics of an individual or environment, and Masten and Reed (2002) include IQ, regulation of emotions, inner family agreement and characteristics, school effectiveness and safe environment as protective factors. Werner and Smith (Werner & Smith, 1982, according to Liebenberg, Joubert, & Foucault, 2017) included personality characteristics, cognitive capacity, self-efficacy, and optimism in individual protective factors. In order to develop these traits, the same authors state that a high level of early childhood care, supportive relationships with relatives, teachers, and mentors are required. Summarizing the literature, Polk (1997) identified four qualities that describe resiliency: dispositional (self-confidence, basic security, good physical health, and sense of autonomy); relational (intimate relations, relations with institutions of the social system); situational (taking adequate action concerning the situation, giving an adequate response, ability to solve problems); philosophical (beliefs that promote resilience - positive thinking).

Earlier work in the field of the resilience of deaf and hard of hearing (DHH) (children, adolescents, adults) has considered hearing impairment as a risk factor for developing resilience. More recent literature (Young et al., 2008) states that the medical model of disability has imposed the understanding that deafness is a risk factor, while according to the social model of disability, deafness is not seen as a risk factor but rather that external conditions, such as barriers in communication contribute to risk increase. A study by a group of authors (Radovanović, Radić Šestić, Kovačević, & Dimoski, 2020) confirmed that the degree of hearing impairment is not a factor that significantly affects the resiliency of DHH adolescents. Deaf children face communication problems very early, starting with parents, who are hearing in 90-95% of cases and have no experience with hearing impairment (Mitchell & Karchmer, 2004). While growing up, this barrier extends to more people through peers, teachers, other significant people in the environment, and later to life partners (Johnson et al., 2018; Young et al., 2008). Research findings indicate that DHH adolescents with better communication skills are more accepted by their peers in inclusive schools (Bat-Chava & Deingan, 2001; Scheetz, 2004).

The period of adolescence is a period of accelerated changes in physical, cognitive, emotional, and social development. The nature and extent of these changes will be more difficult to understand for DHH adolescents with poorly developed language and communication skills. During adolescence, many of the earlier developmental processes and outcomes can be reflected later in adulthood. Some authors see the problem of communicating with parents as an early-stage “developmental trauma” unique to the deaf (Anderson, Wolf Craig, Hall, & Ziedonis, 2016). Supportive families, as well as a supportive wider environment, can assist deaf adolescents in this transition period. Parenting schools, early intervention programs aimed, among other things, at developing resiliency, allow many personal and environmental risk factors to reduce and positive outcomes to emerge (Hintermair, 2006; Pollard & Rendon, 1999, according to Radovanović et al., 2020). Although ecological systems theory (Bronfenbrenner, 1986) suggests multiple ways for resilience support, it cannot provide a comprehensive understanding of the extent and nature of the risks that deaf adolescents face. In order to prevent potential negative outcomes, it is necessary to consider the risk factors for

each individual, which originate from personal characteristics, family or environmental conditions (Luft, 2011).

Few studies have dealt with the concept of the resilience of DHH children and adolescents, and some authors primarily examining the relationship between resilience and academic success in different academic settings (Charlson, Bird, & Strong, 1999; Charlson, Stonf, & Gold, 1992). Findings of the research that compared the resilience of the deaf and their hearing peers indicate that emotional and social skills are internal factors that greatly influence academic and social achievement (Zimmerman, 2015).

Bearing in mind the importance of communication skills and the role in building social relations with peers during adolescence in the works above, as well as research findings showing that DHH pupils in regular schools feel lonely (Batten, Oakes, & Alexander, 2014; Charlson, Strong, & Gold, 1992; Van Gurp, 2000, according to Radovanović et al., 2020), this study aimed to determine differences in the level of resiliency of DHH adolescents and their typically developing peers. In addition to differences, we were interested in the extent to which age, gender, academic achievement, parental educational attainment, and the way of communication of DHH pupils affect resilience.

## METHOD

The sample consisted of 60 pupils of the sixth, seventh and eighth grades of elementary school, aged 12-14. The respondents were divided into two groups: group A (30 DHH pupils) and group B (30 typically developing pupils). The age structure of group A consisted of 9 twelve-year-old (30%), 11 thirteen-year-old (36.7%) and 10 fourteen-year-old (33.3%), while the gender structure consisted of 16 (53.3%) boys and 14 (46.7%) girls. The age structure of group B consisted of 8 twelve-year-old (26.7%), 11 thirteen-year-old (36.7%) and 11 fourteen-year-old (36.7%), and the gender structure was 13 (43.3%) boys and 17 (56.7%) girls. The sample was matched by age ( $\chi^2 = 0.106$ ;  $p = 0.948$ ) and gender ( $\chi^2 = 0.601$ ;  $p = 0.303$ ).

*Resiliency Scales for Children & Adolescents* (RSCA) (Prince-Embury, 2007) was used in this study. It consists of three subscales: Sense of Mastery Scale (MAS), which measures optimism, self-efficacy and flexibility, Sense of Relatedness Scale (REL), which measures trust, social support, social comfort and tolerance and Emotional Reactivity (REA), which measures sensitivity, recovery and impairment. The first subscale consists of 20, the second of 24, and the third of 20 statements, to which pupils respond by rounding one of the answers from 0 (never) to 4 (almost always). The Resilience Scale measures the personal resilience of children and adolescents between the ages of 9 and 18. With the increase of the total score, the degree of the resilience of the respondents on the first two subscales increased, while on the third scale, the higher score indicated increased emotional reactivity and vice versa. The internal consistency coefficients of the individual scales are satisfactory and are:  $\alpha = 0.817$  for the MAS scale,  $\alpha = 0.882$  for the REL scale, and  $\alpha = 0.894$  for the REA scale.

The research was conducted in the spring of 2018 in one regular and three schools for DHH children on the territory of the Republic of Serbia. In the regular school, the questionnaire was administered in groups of fifteen children, and in schools for DHH individually.

Quantitative data are expressed in frequencies and percentages. Arithmetic means were used as a central tendency measure which express average scores on the scale and certain subscales. The significance of differences between arithmetic means was examined by t-test and analysis of variance.

## RESULTS AND DISCUSSION

The results of Group A and Group B pupils obtained on the scale, as well as on the individual subscales, are shown in Table 1.

Table 1. Results obtained on the Resiliency Scale with regard to a group of subjects

	Group	M	SD	t	p
MAS	A	50.53	11.79	0.286	0.776
	B	51.30	8.75		
Optimism	A	16.70	4.85	0.761	0.449
	B	17.60	4.29		
Self-efficacy	A	32.77	7.28	0.553	0.582
	B	33.70	5.71		
Flexibility	A	8.00	2.57	0.272	0.286
	B	7.80	3.09		
REL	A	62.83	14.71	0.103	0.918
	B	62.47	12.67		
Trust	A	18.33	4.64	0.241	0.810
	B	18.60	3.90		
Social Support	A	22.57	5.95	0.368	0.714
	B	22.03	5.27		
Social Comfort	A	10.93	2.73	0.955	0.433
	B	10.20	3.20		
Tolerance	A	16.27	4.66	0.634	0.529
	B	17.03	4.71		
REA	A	32.60	13.14	0.564	0.123
	B	26.73	15.80		
Sensitivity	A	12.67	4.48	1.677	0.099
	B	10.60	5.05		
Recovery	A	6.47	3.86	1.875	0.066
	B	4.43	4.52		
Impairment	A	13.47	6.91	0.888	0.378
	B	11.70	8.43		

$p < 0.05$

Based on the results presented in Table 1, it can be concluded that DHH pupils achieved approximately the same scores as their hearing peers on the MAS and REL subscales, only the achievement on the REA subscale is lower than the achievement of hearing pupils, but the results aren't statistically significant.

Observing the results within the MAS scale for individual domains, it can be seen that DHH pupils achieved slightly lower scores in the *Optimism* domain. Since optimism

and positive thinking are more permanent personality traits, it would be advisable to conduct more extensive research on this topic among DHH adolescents, given that some studies have shown that adult deaf people suffer from depression (Kvam, Loeb, & Tambs, 2006; Leigh & Anthony-Tolbert, 2001). Emotions play an important role in daily life: they determine the way in which the influence of social relationships is understood and expressed, the way people behave in difficult situations and how interpersonal conflicts are resolved. Research shows that problems in understanding emotions can be linked to the development of psychopathological symptoms or poor social functioning in life (Eisenberg, Spinrad, & Eggum, 2010). Lower scores of DHH pupils were also recorded in the area of *Self-efficacy*. In adolescence, when there is a decrease in learning motivation, attention should be paid to empowering and assisting adolescents in the positive development of self-efficacy, in order to develop motivation and perseverance in solving problems over time (Radić Šestić & Milanović Dobrota, 2012). According to the same authors, a decrease in motivation can lead to a decrease in academic and self-regulatory self-efficacy, which not only reflects on school success but also has consequences further in life.

The results of the REL scale for individual domains show that there are slightly lower scores of DHH pupils in the domain of *Social Comfort* and *Tolerance*. The greatest differences were obtained within the REA scale in the *Recovery* domain. The results of the REA scale, although not statistically significant, may indicate difficulties in the emotional regulation of DHH pupils, which opens the space for further research. More recent studies indicate that DHH children with different amplification tools exhibit internalized and externalized behavioral disorders (Theunissen et al., 2015). Strong emotional reactivity is associated with behavioral disorders and can lead to pathology (Prince-Embury, 2011). Emotional regulation is a significant factor in resistance incitement (Cicchetti, Ganiban, & Barnett, 1991, according to Prince-Embury, 2011). Language deficits in DHH children are associated with executive functions and may lead to poorer behavior regulation (Corina & Singleton, 2009).

### **Achievement on the Resiliency Scale with regard to age**

There is an increase in resiliency with age, with research results showing that the largest increase is in the *Self-esteem* domain (Frost & McKelvie, 2004). In this study, no statistically significant differences were found concerning age, both at the level of the whole sample and in the subsample of DHH pupils, which can be related to the sample size. The results showed that scores on the MAS and REL scales increase with age, even on the REA scale in DHH pupils. The greatest difference was found in the domain of *Impairment* within the REA scale, where the average score of DHH fourteen-year-olds in this domain was 15.80, while the average score of the typical population was smaller, 11.73. A higher score on the REA scale is associated with a higher risk of behavioral problems (Prince-Embury, 2011), so the results would require further research as these are the sensitive years and the different mechanisms by which children attempt to cope with the various problems this period brings, all in order to take appropriate measures and procedures in time to improve resistance.



Table 2. Scores on the MAS, REL and REA scales with regard to age of pupils

		Group A					
	Age	N	M	SD	F	p	
MAS	12	9	43.56	7.09	2.163	0.135	
	13	11	52.30	14.38			
	14	10	53.55	11.22			
REL	12	9	57.11	10.85	1.712	0.200	
	13	11	59.30	18.23			
	14	10	65.00	13.836			
REA	12	9	29.22	14.12	0.702	0.504	
	13	11	32.45	14.42			
	14	10	36.40	10.83			
		Group B					
MAS	12	8	50.36	8.689	0.253	0.778	
	13	11	51.91	7.440			
	14	11	53.25	9.770			
REL	12	8	60.36	14.236	0.488	0.619	
	13	11	65.27	10.374			
	14	11	68.18	12.85			
REA	12	8	29.63	14.372	0.224	0.801	
	13	11	26.18	16.552			
	14	11	24.64	17.019			

### Achievement on the Resiliency Scale with regard to gender

Table 3. Achievement on the Resiliency Scale with regard to gender

		Group A					
	Gender	N	M	SD	t	p	
MAS	M	16	49.36	13.81	0.277	0.774	
	Ž	14	50.81	10.30			
REL	M	16	59.43	16.90	0.272	0.399	
	Ž	14	64.06	12.70			
REA	M	16	34.94	13.40	0.738	0.348	
	Ž	14	30.36	12.79			
		Group B					
MAS	M	13	51.29	9.39	0.589	0.773	
	Ž	17	52.23	7.75			
REL	M	13	62.94	12.27	0.614	0.824	
	Ž	17	64.00	13.50			
REA	M	13	29.18	16.38	0.921	0.301	
	Ž	17	23.08	14.81			

The results presented in Table 3 confirm that there is no difference in the level of resiliency with regard to gender in both A and B groups, although the results of other studies have shown that girls, in some aspects of social skills-related resiliency, had a higher score than boys (Broderick & Korteland, 2002; Hampel & Petermann, 2005). In this study, the greatest differences were found in the *Flexibility* domain within the MAS

scale, where the mean value for girls was 8.07 and for boys 7.74 and in the *Tolerance* domain within the REL scale, where girls achieved a score of 17.62 and boys 15.74. Research results show that girls at this age are more flexible in using different adjustment strategies (Selman, 1980). The results reported by Cicognani also indicate that girls use a wider range of activities when dealing with everyday stressors than boys (Cicognani, 2011, according to Radić Šestić, Kovačević, & Milanović Dobrota, 2014), and the author emphasizes the importance of self-efficacy and social support in coping with this.

**Achievement on the Resiliency scale with regard to school success**

Table 4. *Achievement on the Resiliency scale with regard to school success*

		Group A				
	school success	N	M	SD	t	p
MAS	very good	12	48.00	13.35	0.523	0.606
	excellent	15	50.42	9.86		
REL	very good	12	57.93	15.25	0.898	0.397
	excellent	15	62.83	13.12		
REA	very good	12	31.67	15.02	0.053	0.958
	excellent	15	31.93	10.96		
		Group B				
					F	p
MAS	good	6	50.18	8.50	0.353	0.706
	very good	11	51.00	9.48		
	excellent	10	54.00	9.55		
REL	good	6	61.50	15.93	0.327	0.725
	very good	11	62.55	11.75		
	excellent	10	66.10	10.89		
REA	good	6	36.33	11.29	2.591	0.096
	very good	11	30.36	17.13		
	excellent	10	19.70	14.24		

Table 4 shows the scores obtained on the Resiliency scale with regard to school success. In the subsample of DHH pupils, there were three pupils with good success, while in the subsample of typically developing pupils there were three of them with sufficient success. Their achievements aren't shown in this table because of the inability to compare it with the other pupils' results. Research results show that school success is significantly associated with personal resiliency both in the typical population and DHH pupils (Prince-Embury, 2011). What's more, some authors state that this is one of the key factors related to resiliency in DHH pupils (see Luft, 2011 for a review). In this study, no statistically significant differences were obtained within the MAS, REL, and REA scales, in any of the subsamples. The greatest differences between the samples were obtained within the REA scale, where the average score of the DHH with excellent success was 31.90, and among pupils of the typical population with the same success, the score was 19.70. This difference is statistically significant as T-test has shown ( $t = 2.427$ ;  $p = 0.023$ ). Based on the results presented in the table, it can be concluded that the level of resiliency increases with school success, which indicates the importance of school success in the level of resiliency.

**Achievement on the Resiliency Scale with regard to the communication model**Table 5. *Achievement on the Resiliency scale with regard to the communication model*

	communication model	N	M	SD	t	p
MAS	gesture	12	51.67	12.70	0.472	0.673
	total	14	49.50	13.08		
REL	gesture	12	63.50	16.56	0.572	0.573
	total	14	59.93	15.26		
REA	gesture	12	35.42	13.28	0.914	0.370
	total	14	30.93	11.78		

Table 5 shows the results of pupils using a predominantly sign language and predominantly total communication model, whereas the results of pupils using a predominantly oral communication model were not considered because there were only four of them. On the MAS and REL scales, pupils who predominantly use the sign communication model achieved higher scores, while on the REA scale, pupils who predominantly use the total communication model performed better. In a study conducted by a group of authors (Johnson et al., 2018), it was found that most mental health professionals working with DHH persons stated that language and communication were protective factors in the development of resistance and trauma. Most parents of DHH children have good hearing. Only a few parents choose to learn sign language and expect their children to use oral speech in communication. Communication problems are most expressed in adolescence because conversations with family members, peers and other significant people in the environment become very important. Communication with parents can become difficult, and often the help of a professional is needed to overcome problems and misunderstandings. Deaf adolescents find it even more difficult to explain the nature of the changes they experience due to their poor language and speech development, and communication barriers leave room for mistrust. Deaf adolescents thus have the additional difficulty of not having an adult in the family to support them and facilitate their journey into adulthood (Luft, 2011).

**CONCLUSION**

The results of this study show that the level of personal resistance of the DHH pupils and of the typical population is approximately the same. A slightly lower level was obtained in the domains of *Optimism* and *Self-efficacy* within the MAS scale, *Social comfort* and *Tolerance* within the REL scale and *Recovery* within the REA scale. A lower level was also found within the REA scale for DHH pupils who achieved excellent school success, which requires further research on a larger sample. Individual factors such as age, gender, school success, as well as the way of communication among DHH pupils didn't prove to be significant factors for the level of resiliency, but these findings must be interpreted with caution given the limited sample size.

These findings open the door for further research as the Resiliency Scale can be used as a triage tool in a school setting to identify children with internalized and externalized behavioral problems in order to detect the problem in a timely manner and create

conditions for its overcoming, with especially designed programs to improve resiliency (Prince-Embury, 2011). Social support, as well as access to material resources, play a significant role in resiliency development (Ungar et al., 2007). It would also be important to examine the role of the social environment in the development of resiliency of the DHH, primarily teacher support, both in schools for the DHH pupils and in inclusive schools. In the current educational settings, where the majority of cochlear implant pupils are enrolled in regular schools, it would be particularly important to assess their level of resiliency, as research indicates that children with cochlear implant have higher levels of confidence (Percy-Smith, Cay-Thomasen, Goodman, Jensen, & Thomsen, 2008).

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