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# **RESEARCH IN EDUCATION AND REHABILITATION**

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<b>SEPSIS MONITORING IN NEONATAL INTENSIVE CARE UNIT</b> MONITORING SEPSE U NEONATALNOJ INTENZIVNOJ JEDINICI <b>Devleta Hadžić, Hajriz Alihodžić, Amina Saračević, Dženana Softić, Delila Softić</b>	<b>1</b>
<b>THE EFFECT OF CULTURAL FACTORS ON THE SCOPE/VOLUME AND STRUCTURE OF THE VOCABULARY OF DEAF AND HARD-OF-HEARING STUDENTS</b> UTICAJ KULTUROLOŠKIH FAKTORA NA OBIM RJEČNIKA GLUHIH I NAGLUHIH UČENIKA <b>Alma Huremović, Almedina Omerović</b>	<b>9</b>
<b>SOCIO-PEDAGOGICAL ASPECTS OF CYBERBULLYING IN HIGH SCHOOL STUDENTS</b> SOCIOPEDAGOŠKI SPEKTI CYBER NASILJA KOD UČENIKA SREDNJIH ŠKOLA <b>Edin Muftić, Ranko Kovačević, Adela Jahić, Edina Kuduzović, Melisa Muminović-Vildić</b>	<b>30</b>
<b>SIMPLE METHODS FOR DETERMINING FOOT DEFORMITY</b> JEDNOSTAVNE METODE ZA PROCJENU DEFORMITETA STOPALA <b>Nermin Nurković, Amira Baždarević-Rašidagić, Hana Hadžibulić-Nurković, Faris Rašidagić</b>	<b>51</b>
<b>JUVENILE DELINQUENCY AND POVERTY REDUCTION POLICY</b> MALOLJETNIČKO PRESTUPNIŠTVO I POLITIKA REDUKCIJE SIROMAŠTVA <b>Ljubinka Lazić</b>	<b>60</b>
<b>INSTRUCTIONS FOR AUTHORS</b> UPUTSTVA ZA AUTORE	

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## **P R E D G O V O R**

Poštovani čitaoci, autori, saradnici,

Zadovoljstvo nam je predstaviti novo izdanje časopisa *Defektologija* sa izmjenjenim nazivom – Istraživanja u edukaciji i rehabilitaciji. Razvoj defektološke nauke, teorije i prakse, ali suštinska promjena društvenog viđenja invalidnosti, rezultirali su, pored ostalog, izmjenom naziva *defektologija* u naziv *edukacijsko-rehabilitacijska znanost*. Samim tim, javila se potreba da se časopis *Defektologija*, koji je u kontinuitetu izlazio pune 23 godine, terminološki uskladi sa nazivom znanosti čije teorijske i praktične rezultate istražuje, prikazuje i unapređuje. Nadamo se da ćete u časopisu naći korisne i interesantne teme iz područja edukacijsko rehabilitacijske znanosti, ali i iz srodnih disciplina, a naša misija je da stvorimo prostor za dinamičan i progresivan istraživački dijalog.

Zahvaljujemo se svima koji su nas pratili u dosadašnjem znanstvenom putovanju, ali i svima onima koji će nam se pridružiti u budućnosti.

Uredništvo

## **F O R E W O R D**

Dear readers, authors, associates,

It is our pleasure to introduce you a new edition of the journal *Defectology* with the changed name - *Research in Education and Rehabilitation*. The development of defectology as science, theory and practice, but also, a fundamental change in the social vision of disability, resulted in, among other things, the change of the name *defectology* into the name *education and rehabilitation science*. Consequently, the need for the journal "*Defectology*", which has been continuing for 23 years to come, has been terminologically aligned with the name of science, whose theoretical and practical results are investigated, displayed and promoted. We hope that you will find useful and interesting reading from the wide field of education and rehabilitation science, but also from related disciplines, and our mission is to create a place for dynamic and progressive research dialogue.

We thank all those who have followed us in the current scientific journey, but also to all those who will join us in the future.

Editorial

**SEPSIS MONITORING IN NEONATAL INTENSIVE CARE UNIT****MONITORING SEPSE U NEONATALNOJ INTENZIVNOJ JEDINICI****Devleta Hadžić<sup>1</sup>, Hajriz Alihodžić<sup>2</sup>, Amina Saračević<sup>1</sup>, Dženana Softić<sup>1</sup>, Delila Softić<sup>1</sup>**<sup>1</sup>Klinika za dječije bolesti, Univerzitetski klinički centar Tuzla<sup>2</sup>Služba hitne medicine Doma zdravlja Tuzla**Original Scientific Article**

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**ABSTRACT**

The aim of the study was to identify differences in the representation of individual externalized and internalized behaviours with regard to the gender of the respondents. The sample of respondents in this study consists of 450 primary school students (both genders). The survey was conducted in the first semester of 2017/18. The Achenbach System of Empirically Based Assessment (ASEBA Youth Self-Report - YRS; Achenbach, 2007) was used for the purposes of this study. The instrument measures adaptive functioning and competencies and maladaptive functioning, that is, behavioural, emotional and social problems between the ages of 11 and 18. T-test and descriptive statistics methods were used in the data processing. It was observed that externalized problems were statistically significantly more prevalent in male ( $t = 233$ ;  $p < 0.001$ ) and internalized problems are more prevalent in female respondents ( $t = p < 0.001$ ). In addition, boys had statistically significantly higher scores on the Social problems and Rules-violating behaviours sub-scales. Girls had statistically significantly higher scores on the Anxiety / Depression, Somatic problems, and Thinking problems sub-scales. Through interpretation of the obtained results, it can be concluded that the considered psycho-social characteristics of students (gender) significantly contributes to the phenomenology of internalized and externalized behaviours, which suggests the possibility and justification of creating different interventions aimed at preventing risky behaviours of different groups of children and young people.

**Key words:** Internalized and externalized problems, primary school, risky behaviours, prevention.

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## **MATERIAL AND METHODS**

### **Sample of participant**

A retrospective cohort study, which included all consecutive neonates with a positive blood culture, from those treated in Neonatal intensive care unit (NICU) of Pediatric clinic Tuzla (capacity 22 beds, level III) over one-year period (January 1 - December 31, 2019). All neonates with proven microbial isolates from blood culture were designated as the test group, which was compared with the sample of neonates treated at the same time in the NICU without positive blood culture. The study was approved by Ethics Committee of the Institution.

### **Method of conducting research**

Clinical and demographic data were obtained from medical records and electronic database of patients treated in NICU, which included gender, gestational age, birth weight, perinatal risk factors for neonatal sepsis, clinical presentation, laboratory findings, applied therapy and outcome.

### **Measuring instruments**

During admission, clinical status of neonates was scored by SNAP-PE (Score for Neonatal Acute Physiology - Perinatal Extension) i CRIB II (Clinical Risk Index for Babies) score (Dorling et al., 2005). Especially we analyzed predisposing factors for health care-associated infections (presence of central venous catheter, length of mechanical ventilation, parenteral nutrition, applied therapy and length of hospitalization). From laboratory findings we particularly analyzed potential markers of infection, including C-reactive protein (CRP), Complete blood cell (CBC) counts, the highest and lowest value for white blood cell (WBC) count, absolute neutrophil count (ANC), immature to total neutrophil ratio (I/T ratio), platelet count, and coagulation status. Early onset neonatal sepsis (EOS) was defined as infection that develops in first 72 hours of life, and late onset neonatal sepsis (LOS) was defined as infection that develops after 72 hours of life.

### **Data processing methods**

For statistical analysis were used standard methods of descriptive statistics (central tendency measures, dispersion measures). Parametric and non- parametric significance tests ( $X^2$ -test, Student's t- test) as well as linear correlation method were used to test the significance of differences between the samples. Statistical hypotheses were tested at a significance level of  $\alpha = 0.05$ , i.e. The difference between the samples is considered significant if  $p < 0.05$ . We used Systat Software, Systat Inc, Evanston, IL, USA for statistical processing of data.

## RESULTS AND DISCUSSION

During the one-year period (2019), 345 neonates were treated in NICU, and their basic clinical and demographic characteristics are shown in Table 1.

Table 1. NICU admitted patients characteristics (n = 345)

Characteristics	n	%
Neonates (0-28 day of life)	345	100.0
Preterm (<37GW)	190	55.0
late preterm (34-36GW)	155	45.0
very preterm <32GW)	64	18.5
extremely preterm (<28GW)	21	6.1
low birth weight (<2500g)	104	30.1
very low birth weight (<1500g)	43	12.5
extremely low birth weight (<1000g)	14	4.1
Mechanical ventilation within NICU stay	150	43.5
Surgery within NICU stay	16	4.6
Clinically suspected sepsis	144	41.7
Confirmed sepsis on blood cultures	93	26.9
Gram positive isolates from blood culture	52	15.0
Gram negative isolates from blood culture	21	6.0
Fungal isolates from blood culture	20	5.8
MRP isolates from blood culture	8	2.31
NICU: neonatal intensive care unit; GW: gestational weeks; MRP: multidrug resistance pathogen		

Of total 345 treated neonates, clinically suspected sepsis were found in 144 neonates (41.7%). Sepsis confirmed on blood culture was found in 93 neonates (26.9%), evenly found in both genders. Suspected neonatal sepsis is a common indication for admission to the NICU, and from recent published studies we can conclude that regardless of constant progress in treatment of critically ill neonates, globally, sepsis is still one of the major causes of morbidity and mortality in neonates. It causes about 25% of all neonatal deaths, and mortality due to sepsis has increased by approximately 13.7% each year over the past 2 decades (Ozkan et al., 2014). The incidence of blood culture-proven sepsis in our NICU currently is 12 per 1000 live births, which is comparable to other reports and NICU results. Blood culture is the gold standard for the confirmation of sepsis. In advance centres, blood culture is positive in 80% of genuine sepsis. The prevalence of culture proven neonatal sepsis is different in various studies, from 10% to 50%, which depends on criteria and sampling technique, as well as from quality of health care and hospital services in various countries (Ozkan et al., 2014). The diversity of the etiology of sepsis varies from region to region and changes over time even in the same place. This is attributed to differences in quality of life, predisposing factors for infection, and usage of antibiotics (Behmadi et al., 2016). In our study gram positive pathogens dominated, followed by gram negative pathogens and fungi. Among the causative agents were also multidrug-resistant pathogens. Our results showed that early onset sepsis was more prevalent than late onset sepsis (60% vs. 40%), which is in agreement with some reports (Behmadi et al., 2016), but different from some others (Afonso and Blot, 2017).

There were no gender differences neither in total nor in sepsis sample, although, other studies have preferred male, even to be reported the male gender as a risk factor for neonatal sepsis (Roy et al., 2014).

The risk factors for neonatal sepsis have been extensively studied (Garcia et al., 2015; Verstraete et al., 2015), and results of this study are shown in Table 2.

Table-2: Perinatal risk factors in the two observed groups

Parameter	Sepsis group		Non-sepsis group		p
	Mean	SD	Mean	SD	
GA (weeks)	32.56	3.78	36.65	3.24	<b>&lt;0.001</b>
BW (grams)	1852.84	746.23	2841.72	805.61	<b>&lt;0.001</b>
AS 1 <sup>st</sup> minute	5.9	2.1	6.9	2.3	<b>0.0042</b>
AS 5 <sup>th</sup> minute	6.91	1.32	7.73	1.61	<b>0.0017</b>
PRM (hours)	5.05	4.16	4.17	11.38	0.5121
GA- gestational age; BW-birth weight; AS 1 <sup>st</sup> min- Apgar score in the first minute; AS 5 <sup>th</sup> minute-Apgar score in the fifth minute; PRM- premature rupture of membranes					

Multiply, the neonates are at risk of infection, and as is known, sources may originate from maternal disease, infections, interventions during pregnancy and/or childbirth, or postnatally, and come again out of the hospital, or even from the community (Shane et al., 2017). Gestational immaturity and low birth weight in our study were confirmed as the most significant risk factors for onset of neonatal sepsis. In our study maternal risk factors showed significance, especially for first birth and in vitro fertilization, that were significantly more frequent in the sepsis group compared to the total sample, but without statistical significance. Laboratory parameters used to evaluate neonatal sepsis include infectious markers from known sepsis scoring systems, like a complete blood cell count, C-reactive protein, leukocyte count, platelet count, and others (Levit et al., 2014). Laboratory findings in neonates with sepsis in our study were leukopenia, thrombocytopenia and coagulation disorders, significantly more of the total sample (Table 3). There are different reports on the utility of laboratory parameters in the assessment of neonatal sepsis, and certainly, it is a significant tool in all sepsis scoring systems (Shane et al., 2017).

Table-3: Clinical and laboratory data of neonatal sepsis and non-sepsis cases

Parameter	Sepsis group		Non-sepsis group		p
	Mean	SD	Mean	SD	
CRP (mg/l)	49.51	70.13	21.62	40.04	<b>0.0004</b>
Htc	0.52	0.16	0.51	0.14	0.5753
Leukocytes	9.13	3.72	14.11	8.43	<b>0.0001</b>
neutrophils	0.32	0.14	0.41	0.18	<b>0.0025</b>
ANC	3250.0	2240.18	6056.70	4551.28	<b>&lt;0.001</b>
ITR	0.07	0.06	0.08	0.09	0.7834
platelets	110.66	97.57	223.27	116.60	<b>&lt;0.001</b>
albumin	26.42	4.63	27.57	4.21	0.1021
Treatment (days)	38.19	23.14	12.40	6.93	<b>&lt;0.001</b>
CRIB II	5.95	4.31	3.94	4.07	<b>0.0029</b>
SNAPPE II	36.80	20.07	23.51	24.99	<b>0.0008</b>

CRP- C reactive protein; Htc- hematocrit; ANC- Absolute neutrophil count; CRIB II- Clinical Risk Index for Babies scoring system ; SNAPEPE II- Score for Neonatal Acute Physiology-Perinatal Extension.

The clinical manifestations range from subclinical to severe manifestations. The timing of exposure, neonatal immune status, and causative agent virulence influence the clinical expression of neonatal sepsis (Raymond et al., 2017). Neonatal disease severity scoring systems showed significantly higher values in neonates with sepsis in relation to the non sepsis group (Table 3). Severe clinical presentation of neonates with proven sepsis via positive blood culture, was demonstrated by the necessarily applied supportive therapy (Table 4).

Table-3: Clinical implications and outcome in the two observed groups

Variables	Sepsis group (n=93)	Non-sepsis group (n=252)	p-value
Early onset of sepsis (<72h)	56(60.2)		<b>0.0032</b>
Late onset of sepsis (>72 h): n (%)	37(39.8)		<b>0.0032</b>
Respiratory distress syndrome	72(77.3)	92 (36.5)	<b>&lt;0.001</b>
Pneumonia n(%)	32(34.4)	75(29.8)	0.4125
Severe intracranial hemorrhage	6(6.5)	2(0.8)	0.0019
Initial acute renal failure	12(12.9)	16(6.3)	0.0459
Intravenous immunoglobulins n(%)	27(29.0)	2(0.8)	<b>&lt;0.001</b>
Mechanical ventilation n(%)	78 (83.9)	72 (28.6)	<b>&lt;0.001</b>
Parenteral nutrition n(%)	91 (97.8)	63 (25.0)	<b>&lt;0.001</b>
Inotropes n(%)	57(61.3)	75(29.7)	<b>&lt;0.001</b>
NICU stay in days (mean±SD)	20.7± 10.8	12,40±6,93	<b>&lt;0.001</b>
<b>Outcome</b>			
Survivors n(%)	86 (92.5)	241(95.6)	0.2514
Non-survivors n(%)	7 (7.5)	11(4.3)	0.2514
SD- standard deviation; NICU-Neonatal intensive care unit			

The length of intensive treatment was significantly longer in the sepsis group ( $20.7 \pm 10.8$  days) compared to the total sample ( $12.40 \pm 6.93$  days). The available evidence suggests a higher incidence and mortality rate of late-onset sepsis in premature and very low birth weight neonates, but pathogen distribution and risk exposure for pathogens are similar for all neonates admitted to the NICU (Hsu et al., 2015).

Because treatment has not produced satisfactory results, modern medicine is increasingly promoting the prevention, education, responsibility and permanent control of hospital infections (Weiss et al., 2020). Inevitably, intensive treatment, which in critically ill neonates involves invasive procedures, such as central venous catheters, mechanical ventilation, surgical interventions, in addition to parenteral nutrition and prolonged hospitalization, these are all proven risk of infection (Garcia et al., 2015), which was also the case in our study. These are the so-called specific points of attention, given that most health-associated infections in intensive care units are associated with the use of therapeutic devices (Verstraete et al., 2015). These include ventilator associated pneumonia, catheter related infections in the bloodstream, surgical wound infections, and urinary tract infections.

Recommendations for the proper use of all appliances and medical materials (probes, catheters, suction of secretions, maintenance of venous catheters, etc.), as well as monitoring and preventing the spread of infection, are mandatory (Levy et al., 2018).

Careful monitoring of infection in our NICU has a tradition of over 15 years with carefully monitoring of microbial isolates from patients, but at the same time we following and monitoring cultures from staff and all surfaces and apparatus in the NICU (Table 5). Monitoring cultures from equipment and personnel are also necessary in an attempt to achieve the best possible infection control in a very challenging environment of a neonatal and pediatric intensive care unit.

Table 4. Sepsis monitoring in NICU

<b>Year</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Number of treated patients	462	485	500
Number treated neonates	332	342	345
Number of treated pediatric patients	130	143	155
Number of microbiological samples	935	1060	958
Microbiological samples in neonates	829	958	851
Microbiological samples in pediatric patients	106	102	107
Number of positive isolates	201	230	213
Number of positive isolates in neonates	159	194	160
Number of positive isolates in pediatric patients	42	36	53
Sampling of staff and equipment	138	108	160
Positive isolates from staff and equipment	22	8	10

These facts are very important for the evaluation of the spread of infection, the identification of the prevalent local agents, and the identification of the resistance of the agents to antibiotics, which is an important determinant of initial and causal treatment.

Prescribed hand hygiene, by itself, can significantly improve results (Rhodes et al., 2017). Responsible management of infection involves a careful and correct approach to controlling source of infection, activities to reduce spread of infections, and additional attention to infection prevention protocols. These are conditions for successful treatment, but also obligation to maintain prescribed standards.

## CONCLUSION

Sepsis is still one of the major causes of morbidity and mortality in neonates. In our NICU affects about a quarter of treated patients with a mortality rate of about 7.5%. The incidence of blood culture-proven sepsis in our NICU currently is 12 per 1000 live births, with more prevalent early onset sepsis than late onset sepsis (60% vs. 40%) and with no gender differences. Etiologically gram positive pathogens dominated, followed by gram negative pathogens and fungi, with also some multidrug-resistant pathogens. Gestational immaturity and low birth weight were confirmed as the most significant risk factors, and also confirmed that neonatal sepsis has a risky clinical course and outcome. It endangers life, complicates treatment, prolongs NICU stay, increases costs and mortality. Recovery of these neonates depends on timely clinical suspicion, adequate treatment and supervision, so outcomes may be improved by preventative strategies, earlier and accurate diagnosis, which requires monitoring of local epidemiological data. Antimicrobial susceptibility is also important, and emphasis is on prevention through promotion of infection control including effective hospital infection control programs, local antimicrobial stewardship program and surveillance of antibiotic resistance and (nosocomial) infections.

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# THE EFFECT OF CULTURAL FACTORS ON THE SCOPE/VOLUME AND STRUCTURE OF THE VOCABULARY OF DEAF AND HARD-OF-HEARING STUDENTS

## UTICAJ KULTUROLOŠKIH FAKTORA NA OBIM RJEČNIKA GLUHIH I NAGLUHIH UČENIKA

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### ABSTRACT

The main aim and objective of the research is to determine whether cultural factors, such as: socioeconomic status, level of education of parents, auditory status of parents and conditions of education, influence the vocabulary of deaf and hard-of-hearing students. The sample consisted of 65 hearing-impaired children of elementary school age (grades 3rd to 8th). In accordance with the objectives, hypotheses, sample and analyzed variables, the following was applied in the statistical processing of the collected data: the method of descriptive statistics, variance analysis, discriminant analysis, and regression analysis. Based on the conducted research, we have determined that the socioeconomic status, auditory status of parents, level of education of parents and conditions of education are significant cultural factors for the scope/volume and structure of the vocabulary of the hearing-impaired students.

**Keywords:** cultural factors, socioeconomic status, level of education, auditory status, conditions of education, vocabulary, hearing impairment

### SAŽETAK

Glavni cilj istraživanja je utvrditi da li kulturološki faktori, kao što su: socioekonomski status, nivo obrazovanja roditelja, slušni status roditelja i uvjeti školovanja, utiču na obim rječnika gluhih i nagluhih učenika. Uzorak se sastojao od 65 djece oštećena sluha osnovnoškolske dobi (od 3. do 8. razreda). U skladu sa ciljevima, hipotezama, uzorkom i analiziranim varijablama, u statističkoj obradi prikupljenih podataka primjenjene su: metoda deskriptivne statistike, analiza varijance, diskriminativna analiza, te regresijska analiza. Na osnovu provedenog istraživanja, utvrdili smo da su socioekonomski status, slušni status roditelja, nivo obrazovanja roditelja i uvjeti obrazovanja značajni kulturološki faktori obima i strukture rječnika ispitanika oštećena sluha.

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**Ključne riječi:** kulturološki faktori, socioekonomski status, nivo obrazovanja, slušni status, uvjeti školovanja, rječnik, oštećenje sluha

## INTRODUCTION

The nature of language is one of the most mysterious questions ever asked. No cultural phenomenon is so significant, but no other area offers fewer facts about its own origin than language (Zerzan, 2004). A necessary precondition for language acquisition is adequate (stimulating) communication. Understanding the meaning of isolated words is an initial element of understanding speech communication of hearing-impaired people. Being able to recognize and understand the meaning of a word means being able to associate the word with a particular object, action or property or the relationship between them. It is necessary to examine the development of vocabulary in certain time intervals and in relation to all those factors that can affect its development, since the vocabulary is the most unstable part of the language, subject to the largest and relatively rapid changes and influences (Kovačević, 2005). The level of vocabulary acquisition is one of the indicators of language skills in hearing-impaired children, although its role is very often underestimated and neglected (Zimmerman, 1997; O'Dell, 1997). The words themselves may not be very useful in communication between the hearing population and the deaf, but if words or phrases are based on the context of the conversation and the situation, they can significantly contribute to understanding (Huremović et. al., 2011). Therefore, the vocabulary is the basis for understanding what a child means by what it says and how it understands what it hears (Clark, 1985, according to Kovačević, 2000). Problems in language development are associated with socioeconomic factors and environmental deprivation, although they are not always independent of other factors, such as family or genetic factors (Reed, 2005). According to Stančić and Ljubešić (1994), socioeconomic status is not in itself a dynamic factor, but higher status gives a child more opportunities to enrich his experience. The largest lag is observed in vocabulary richness (Chall and Jacobs, 2003). Children who come from families with lower socioeconomic status tend to have a less enriched vocabulary, less experience with complicated syntax, and less general knowledge, which are skills that are key to quality comprehension from third grade onwards (Torgesen, 2004). Freeman et al. (2002) emphasize the importance of involving parents themselves in all segments of support for hearing-impaired children. Deaf and hard-of-hearing children will be able to communicate better with their family members and peers, as well as achieve greater academic achievement if their parents have been involved in the early support systems (Adams, 1990; Ogden, 1995). The auditory status of parents of a hearing-impaired child is one of the most important cultural factors (Avdić, 2015). Most deaf children grow up in a non-hearing-impaired (hearing) environment. About 90% of deaf children were born in a family with both hearing parents, 7% have one deaf parent, and only 3% have both deaf parents (Ivasović, 2002). If a deaf child is born to non-hearing-impaired (hearing) parents, the learning and use of sign language will not begin until hearing impairment is detected. Consequently, there is an initial delay in language acquisition, and the child is denied of incidental learning. Deaf children of non-hearing-impaired (hearing) parents usually learn oral-vocal language as their first language. If the hearing parents choose sign language, it is not adopted in the same way as deaf children of deaf parents. Their way of emitting and receiving sign language is different than that of deaf

parents. Non-hearing-impaired (hearing) adults usually use oral-vocal language in addition to sign language.

Such language, which follows the sentence structure of oral-voice language, is called sign language. Furth (1973, according to Pribanić 1998) states that a deaf child of non-hearing-impaired (hearing) parents has difficulty acquiring oral-vocal language because it learns it too late, in an inappropriate modality, in an unnatural way and from the wrong person. In many life situations the deaf child of non-hearing-impaired (hearing) parents will remain in ignorance and uncertainty. In contrast, deaf children of deaf parents spontaneously communicate with their parents. They accept their child spontaneously, are more relaxed in interactions, and their communication is richer because they intuitively know how to communicate with their child. They also intuitively know how to attract a child's attention, unlike non-hearing-impaired (hearing) parents who do not immediately notice the impairment, which is why even early communication is not adapted to the child. Erting (1990) concludes that deaf mothers, because of their experience in communication, adapt the show of sign language to the child, so it is much slower and simpler. They repeat one sign several times, so that the child can fully perceive it, while paying attention to facial expression. They "reward" the child's communication with positive facial emotions, and encourage it to continue communication. On the other hand, non-hearing-impaired (hearing) mothers, due to inexperience and insecurity, are more influenced by the advice of experts, while neglecting their intuition. They spend much less time interacting with the child, which leaves consequences on the child's linguistic, cognitive, social and emotional development (Pribanić, 2001). Numerous studies suggest a link between a positive family environment and many aspects of language acquisition (Zevenbergen and Whitehurst, 2003). Parental involvement in the educational process has a positive effect on the academic achievements of deaf children, as well as on language and socio-emotional development (Calderon and Greenberg, 1993; Calderon, Greenburg and Kusche, 1991). Moeller (2000) and Calderon (2000) observed better results in language achievement in children whose parents were involved in educational programs. A number of studies point to the importance of parental involvement in the education and rehabilitation process itself, creating a positive, stimulating environment for child development (Ezell, Justice and Parsons 2000; Wilcox and Corwin, 1990; Powers and Sackiewicz, 1998; Crain-Thoreson and Dale, 1999; Zevenbergen and Whitehurst, 2003; Hargrave and Senechal, 2000; Huebner, 2000; Valdez-Menchaca and Whitehurst, 1992; de Temple and Snow, 2003; Chow and McBride-Chang, 2003; Van der Lam and Timmerman, 1995; Lonigan and Whitehurst, 1998; Huremović and Sulejmanović, 2011). Michael (2003) examined the impact of family circumstances and behaviors on a child's vocabulary range and language skills in general. He found that language skills positively correlated with the level of education of parents and the number of family members. This is supported by research by Bennett (2001), who claims that a child's receptive vocabulary depends on the mother's vocabulary, mother's level of education, socioeconomic status, and the father's position / role in the family. Pan et. al. (2004) point out that these factors have a greater impact if the child lives in a rural than in an urban environment. Deaf children of deaf parents are significantly more intelligent not only than deaf children of non-hearing-impaired (hearing) parents but also than non-hearing-impaired (hearing) peers (Sisco and Anderson, 1980).

Psycholinguistic research has shown that deaf children of deaf parents adopt sign language following the same stages of development as non-hearing-impaired (hearing) children, only in a different modality (Prinz and Prinz, 1979; Marschark, 1993). Bailey et al. (1998), emphasize the importance of the method and form of education in the development of the vocabulary of a child with hearing impairment. Hearing-impaired children educated in homogeneous educational conditions achieved the worst results, compared to non-hearing-impaired (hearing) children or hearing-impaired children who are educated in heterogeneous educational conditions. Interestingly, hearing-impaired children educated in heterogeneous educational conditions achieved, on average, slightly higher scores than their non-hearing-impaired (hearing) peers in the same grades. Markides (1982, according to Pribanić, 1998), also examined whether the method of teaching a language affects the scope of vocabulary. He found that deaf people educated by the oral method achieve the same results as non-hearing-impaired (hearing) people, and that significantly worse results are achieved by the deaf people educated by the manual method. Similar data were obtained by Albertini (2002). Frisch and Pisoni (1998) conclude that better results on the Passive Vocabulary Test are achieved by hearing-impaired respondents who have a cochlear implant (CI) implanted, who were subjected to, as the authors themselves call, a “total communication program,” compared to those respondents who were subjected to an “oral communication program”. Kovačević (2005) points out, that children who have acquired a larger number of manual signs show a tendency to acquire the concepts of spoken vocabulary faster. Mokej (according to Radoman, 1996), also points to a high positive correlation between the number of gestures and the number of words in the oral vocabulary.

The main aim and objective of the research is to determine whether cultural factors, such as: socioeconomic status, level of education of parents, auditory status of parents, and conditions of education, influence the vocabulary of deaf and hard-of-hearing students. In accordance with the defined aim of the research, at the beginning of the research a hypothesis was set:

H<sub>1</sub> – Socioeconomic status, level of education of parents, auditory status of parents and conditions of education are significant predictors of the scope/volume of vocabulary of deaf and hard-of-hearing children.

## **RESEARCH METHODS**

### **Sample of respondents**

The research sample consisted of 65 respondents with hearing impairment, elementary school age. The diagnosed additional difficulties of the respondents were the eliminatory control feature of the respondents. Respondents were classified into several groups according to the following criteria: socioeconomic status, level of education of parents, auditory status of parents, and conditions of education. According to the "socioeconomic status" criteria, respondents were classified into two groups: The first group consisted of 26 respondents of unfavorable socioeconomic status, and the second group consisted of 39 respondents of favorable socioeconomic status. According to the „level of education of parents“ criteria,

respondents were classified into three groups: The first group consisted of 24 respondents whose parents have lower levels of education. The second group consisted of 39 respondents whose parents have high-school education, and the third group consisted of 2 respondents whose parents are highly educated (university degree). According to the „auditory status of parents“ criteria, respondents were classified into two groups: The first group consisted of 45 respondents whose parents are non-hearing-impaired, and the second group consisted of 20 respondents whose parents are hearing impaired. According to the „conditions of education“ criteria, respondents were classified into two groups: The first group consisted of 7 respondents who were educated in heterogeneous educational conditions, and the second group consisted of 58 respondents who were educated in homogeneous educational conditions.

### **Measuring instrument**

To assess the scope/volume of the vocabulary, we used the Diagnostic Material for Oral Speech Examination - Vocabulary Development Examination Area (Bjelica and Posokhova, 2001). Data such as socioeconomic status, level of education of parents, auditory status of parents, and conditions of education were taken from the Anamnestic data of the respondents.

### **Method of conducting research**

The data collection procedure was preceded by preparation, a "Research Notice" was sent to institutions where hearing-impaired children are educated, which contained information about the research itself, the research aim, method of conducting the research, and conditions necessary for conducting the research. Data collection was conducted individually. During the research examination, hearing-impaired respondents were equipped with individual hearing aids. The method of conducting the research examination was adapted to the respondents, taking into account the very nature of the impairment. Instructions for performing tasks and explanations were given orally and using sign language. The Anamnestic data is also included in the profiles of the respondents, which contains information collected through interviews or analysis of documentation.

### **Data processing methods**

In accordance with the general aims, hypotheses, the structure of the sample of respondents and the analyzed variables, appropriate statistical procedures were applied in the statistical processing of the collected data. We used the method of descriptive statistics, i.e. the calculation of basic statistics: mean values, standard deviations, variances, standard errors, and minimum and maximum values; to examine variations between groups and within groups. Examination of the significance of variations was performed using the method of analysis of variance and discriminant analysis.

## RESULTS AND DISCUSSION

A large number of hearing-impaired children, during hearing and speech rehabilitation and education, are still separated from their own family and placed in a foster care in the place of education. Given that these are preschool and school children and we know that these are the most sensitive years for the overall development of the child, we were interested in the extent to which social and economic factors affect the scope and structure of vocabulary in hearing-impaired children. According to the results of descriptive statistics, respondents with a more favorable socioeconomic status achieve better average results on all variables of the Vocabulary Development Examination Test (Table 1). This is supported by the results obtained by both Chall and Jacobs (2003, and Bennet, 2001). Pan et al. (2004), among other things, point out that the socioeconomic factor as a predictor has a greater impact if the child lives in a rural than in an urban environment. Reed (2005) points out, that problems in language development are related to socioeconomic factors and environmental deprivation, although they are not always independent of other factors, such as family or genetic factors. Stančić and Ljubešić (1994) emphasize that socioeconomic status is not in itself a dynamic factor, but higher status gives the child more opportunities to enrich its own experience.

Table 1. Descriptive statistics on the Vocabulary Development Examination Test in relation to socioeconomic status

		<b>Maximum</b>	<b>Minimum</b>	<b>Arithmetic mean</b>	<b>Standard deviation</b>	<b>N</b>
Unfavorable status	Nouns	199,00	6,00	74,69	52,51	26
	Adjectives	91,00	1,00	41,34	30,81	26
	Verbs	36,00	,00	10,15	10,48	26
	Adverbs	30,00	,00	9,2308	8,99	26
	Prepositions	12,00	2,00	5,19	3,60	26
	Pronouns	15,00	3,00	6,30	3,83	26
	Total	146,92			104,14	26
Favorable status	Nouns	221,00	20,00	134,92	51,89	39
	Adjectives	102,00	5,00	72,05	19,35	39
	Verbs	36,00	,00	20,54	11,33	39
	Adverbs	31,00	2,00	18,32	7,98	39
	Prepositions	12,00	2,00	7,79	3,91	39
	Pronouns	15,00	3,00	9,46	4,62	39
	Total	263,10			92,17	39

In order to examine the significance of differences in the arithmetic means of groups of respondents, classified according to socioeconomic status in relation to the results achieved on the the Vocabulary Development Examination Test, the method of variance analysis was applied. Based on the results of the analysis (Table 2), we can conclude that there is a statistically significant difference in the scope/volume of vocabulary of all word classes in the respondents in relation to the socioeconomic status of the respondents. This is supported by the results obtained by Navighurst (1971, according to Korać, 1986), who points out that socioeconomic status allows for a better and more accurate prediction of child speech performance than any other individual impact. The same author emphasizes that the impact of socioeconomic status gradually increases from 6 months to 6 years of a persons age, and that its impact gradually decreases from 6 to 25 years of a persons age. The influence of the socioeconomic factor starts increasing again in the age of 25. Such changes are most likely caused by richer social experiences with the onset of education. Thus, the child has more opportunities to create and initiate interactive relationships with the environment, which is reflected in the quantum of knowledge, which is again realized through educational achievement, and even through the scope/volume of vocabulary.

Table 2. Variance analysis on the Vocabulary Development Examination Test in relation to socioeconomic status

Source of Variance		Sum of Squares	df	Center of Square	F	sig.
Nouns	Between groups	56592,83	1	56592,83	20,81	,000
	Within groups	171274,30	63	2718,64		
	Total	227867,13	64			
Adjectives	Between groups	14707,75	1	14707,75	24,40	,000
	Within groups	37969,78	63	602,69		
	Total	52677,53	64			
Verbs	Between groups	1682,30	1	1682,30	13,89	,000
	Within groups	7627,07	63	121,06		
	Total	9309,38	64			
Adverbs	Between groups	1285,29	1	1285,29	18,22	,000
	Within groups	4442,92	63	70,52		
	Total	5728,21	64			

Prepositions	Between groups	105,66	1	105,66	7,34	,009
	Within groups	906,39	63	14,38		
	Total	1012,06	64			
Pronouns	Between groups	155,16	1	155,16	8,29	,005
	Within groups	1179,23	63	18,71		
	Total	1334,40	64			
Total	Between groups	210563,70	1	210563,70	22,33	,000
	Within groups	594025,43	63	9428,97		
	Total	804589,13	64			

The results of the regression analysis (Table 3) indicate that there is a correlation between the respondents' vocabulary development in relation to the socioeconomic status. The value of the correlation coefficient (0.572) indicates a moderate degree of correlation. Approximate results are obtained by Fraser, and later by Mollenkopf. They point out that the correlation coefficient is 0.44 and 0.31, respectively (according to Korać, 1986). The coefficient of determination (0.375) indicates that the socioeconomic status with 37.50% determines the development of the respondents' vocabulary, and the rest is the influence of other factors. We found that socioeconomic status as a predictor is significant in the model, given that test value  $F(4,701)$  is higher than critical values for this degree of freedom (where numerator is 6, and denominator is 58), at both significance levels (at significance level of 5% - it is 2.25, and at significance level of 1% - it is 3.12).

Table 3. Regression analysis on the Vocabulary Development Examination Test in relation to socioeconomic status

<b>R</b>	<b>R<sup>2</sup></b>	<b>Corrected R<sup>2</sup></b>	<b>Standard Error of the Estimate</b>	<b>F</b>	<b>df1</b>	<b>df2</b>	<b>sig. F</b>
0,572	0,327	,258	,42540	4,701	6	58	0,001

When talking about the influence of the parental factor, especially the "level of education of parents", it is usually considered that parents with higher education have a greater amount of information related to disability, and are more willing to seek (and know where to look) different forms of support for their child's educational and rehabilitation needs. Usually, a higher level of education is associated with a higher socioeconomic status, and these types of support are more accessible to these parents.

According to the results of descriptive statistics (Table 4), the best average results on all vocabulary variables were achieved by respondents whose parents have a university degree, then respondents whose parents have a high-school education, while the worst average results on all vocabulary variables were achieved by respondents whose parents have lower levels of education.

Table 4. Descriptive statistics on the Vocabulary Development Examination Test in relation to the level of education of parents

		Arithmetic Mean	Standard Deviation	Minimum	Maximum
Lower levels of education	Nouns	79,38	43,05	6,00	153,00
	Adjectives	45,17	27,47	1,00	88,00
	Verbs	11,75	11,22	,00	34,00
	Adverbs	10,67	8,25	,00	28,00
	Prepositions	5,13	3,64	2,00	11,00
	Pronouns	6,25	3,86	3,00	13,00
	Total	158,33	88,63		
High-school education	Nouns	125,44	59,75	7,00	221,00
	Adjectives	67,03	26,02	2,00	100,00
	Verbs	18,44	11,72	1,00	36,00
	Adverbs	16,51	9,33	,00	30,00
	Prepositions	7,69	3,89	2,00	12,00
	Pronouns	9,31	4,58	3,00	15,00
	Total	244,44	110,00		
University degree	Nouns	203,50	17,68	191,00	216,00
	Adjectives	93,50	12,02	85,00	102,00
	Verbs	32,00	5,66	28,00	36,00
	Adverbs	27,00	5,66	23,00	31,00
	Prepositions	8,00	5,66	4,00	12,00
	Pronouns	10,00	7,07	5,00	15,00
	Total	374,00	53,74		

In order to examine the significance of differences in the arithmetic means of groups of respondents, classified according to the level of education of parents, the method of variance analysis was applied (Table 5). Based on the results of the analysis, we can conclude that there is a statistically significant difference in the scope/volume of vocabulary of all word classes in relation to the level of education of the respondents' parents.

Table 5. Variance analysis of the vocabulary development in relation to the level of education of parents

Source of Variance		Sum of Squares	df	Center of Square	F	sig.
Nouns	Between groups	49241,42	2	24620,71	8,54	,001
	Within groups	178625,71	62	2881,06		
	Total	227867,13	64			
Adjectives	Between groups	9446,73	2	4723,36	6,774	,002
	Within groups	43230,80	62	697,27		
	Total	52677,53	64			
Verbs	Between groups	1167,29	2	583,64	4,44	,016
	Within groups	8142,09	62	131,32		
	Total	9309,38	64			
Adverbs	Between groups	821,13	2	410,56	5,187	,008
	Within groups	4907,07	62	79,14		
	Total	5728,21	64			
Prepositions	Between groups	101,12	2	50,56	3,442	,038
	Within groups	910,93	62	14,69		
	Total	1012,06	64			
Pronouns	Between groups	145,59	2	72,79	3,797	,028
	Within groups	1188,80	62	19,17		
	Total	1334,40	64			
Total	Between groups	161248,21	2	80624,10	7,770	,001
	Within groups	643340,92	62	10376,46		
	Total					

According to the results of the regression analysis (Table 6), the value of the correlation coefficient (0.496) indicates a moderate degree of correlation between the results of the respondents and the level of education of parents. Similar results are obtained by Fraser, and later by Adžibaba-Gajanović (according to Korać, 1986). They point out that the correlation coefficient between the results of the respondents and the level of education of parents is 0.49 and 0.36, respectively. The coefficient of determination (0.246) indicates that the level of education of parents of the respondents with 24.60% determines the development of the vocabulary of the respondents, and the rest is the influence of other factors.

We found that the level of education of the respondents' parents as a predictor is significant in the model, given that the test value  $F(3,160)$  is higher than critical values for this degree of freedom (where the numerator is 6, and the denominator is 58), at both significance levels (at significance level of 5% - it is 2.25, and at significance level of 1% - it is 3.12).

Table 6. Regression analysis on the Vocabulary Development Examination Test in relation to the level of education of parents

<b>R</b>	<b>R<sup>2</sup></b>	<b>Corrected R<sup>2</sup></b>	<b>Standard Error of the Estimate</b>	<b>F</b>	<b>df1</b>	<b>df2</b>	<b>sig. F</b>
,496	,246	,168	,49099	3,160	6	58	,009

Regarding the „auditory status of parents“, it is to be expected that deaf parents are much more sensitive to the communication needs of their deaf children, and that their communication is more extended and plentiful because they intuitively know how to communicate and how to attract the child's attention, in contrast to non-hearing-impaired (hearing) parents who do not notice the impairment, which is why even early communication is not adapted to the child. Our results suggest that the auditory status of parents is one of the more significant factors influencing the language skills of deaf children. According to the results of descriptive statistics (Table 7), respondents with hearing impairment, whose parents also have hearing impairment, achieve better average results on all vocabulary variables, compared to respondents whose parents are non-hearing-impaired.

Table 7. Descriptive statistics on the Vocabulary Development Examination Test in relation to the auditory status of parents

		Arithmetic Mean	Standard Deviation	Minimum	Maximum
Non-hearing-impaired (hearing)	Nouns	106,58	64,22	6,00	221,00
	Adjectives	56,60	31,35	1,00	102,00
	Verbs	15,00	12,84	,00	36,00
	Adverbs	13,31	10,05	,00	31,00
	Prepositions	6,22	4,28	2,00	12,00
	Pronouns	7,71	4,96	3,00	15,00
	Total	205,44	121,53		
Hearing impaired	Nouns	120,40	47,98	10,00	209,00
	Adjectives	66,90	20,47	3,00	91,00
	Verbs	19,50	9,68	2,00	36,00
	Adverbs	17,75	7,29	,00	30,00
	Prepositions	7,95	2,95	2,00	12,00
	Pronouns	9,30	3,39	3,00	15,00
	Total	241,80	84,74		
Total	Nouns	110,83	59,67	6,00	221,00
	Adjectives	59,77	28,69	1,00	102,00

	Verbs	16,38	12,06	,00	36,00
	Adverbs	14,68	9,46	, 00	31,00
	Prepositions	6,75	3,98	2,00	12, 00
	Pronouns	8,20	4,57	3, 00	15,00
	Total	216,63	112,12		

In order to examine the significance of differences in the arithmetic means of groups of respondents, classified according to the auditory status of parents in relation to the results achieved on the Vocabulary Development Examination Test, the method of variance analysis was applied. According to the results shown in Table 8, there is no statistically significant difference in the scope/volume of vocabulary of all word classes in relation to the auditory status of parents.

Table 8. Variance analysis of the vocabulary development in relation to the auditory status of parents

Source of Variance		Sum of Squares	df	Center of Square	F	Sig.
Nouns	Between groups	2645,36	1	2645,36	,740	,393
	Within groups	225221,77	63	3574,94		
	Total	227867,13	64			
Adjectives	Between groups	1468,93	1	1468,93	1,807	,184
	Within groups	51208,60	63	812,83		
	Total	52677,53	64			
Verbs	Between groups	280,38	1	280,38	1,956	,167
	Within groups	9029,00	63	143,31		
	Total	9309,38	64			
Adverbs	Between groups	272,82	1	272,82	3,151	,081
	Within groups	5455,39	63	86,59		
	Total	5728,21	64			
Prepositions	Between groups	41,33	1	41,33	2,683	,106
	Within groups	970,72	63	15,40		
	Total	1012,06	64			
Pronouns	Between groups	34,95	1	34,956	1,695	,198
	Within groups	1299,44	63	20,62		
	Total	1334,40	64			
Total	Between groups	18300,82	1	18300,82	1,466	,230
	Within groups	786288,31	63	12480,76		
	Total	804589,13	64			

A more favorable position in the discriminatory space is achieved by respondents whose parents are also hearing impaired, as opposed to respondents with non-hearing-impaired (hearing) parents (Table 9).

Table 9. Centroids of groups on the Vocabulary Development Examination Test in relation to the auditory status of parents

	<b>Function</b>
Non-hearing-impaired (hearing)	-,353
Hearing impaired	,794

We explain these results by the fact that hearing-impaired children, whose parents are also hearing-impaired, possess all the experiences, knowledge and language abilities that non-hearing-impaired (hearing) children possess, because from birth they could communicate directly with their parents in their natural language - sign language. However, the experiences, cognitions and language abilities we mentioned are within the framework of another language modality - sign language. However, many studies suggest that hearing-impaired children, who have adopted sign language before adopting spoken language, have greater achievement by valuing the language skills of spoken language. Mokey (according to Radoman, 1996) indicates a high positive correlation between the number of gestures and the number of words in the oral vocabulary. Kovačević (2005) points out, that children who have learned a larger number of manual signs show a tendency to acquire the concepts of oral vocabulary faster. The value of the correlation coefficient (0.474) indicates a moderate degree of correlation between the results of the respondents and the auditory status of parents of the respondents. The coefficient of determination (0.224) indicates that the auditory status of the respondents' parents with 22.40% determines the development of the respondents' vocabulary, and the rest is the influence of other factors. The auditory status of the respondents' parents as a predictor is significant in the regression model, given that the test value  $F(2,797)$  is higher than the critical values (at significance level of 5% - it is 2.24), for the degree of freedom where the numerator is 6, and denominator is 58 (Table 10).

Table 10. Regression analysis on the Vocabulary Development Examination Test in relation to the auditory status of the parents

<b>R</b>	<b>R<sup>2</sup></b>	<b>Corrected R<sup>2</sup></b>	<b>Standard Error of the Estimate</b>	<b>F</b>	<b>df1</b>	<b>df2</b>	<b>sig. F</b>
,474	,224	,144	,43030	2,797	6	58	,019

When it comes to the "conditions of education" criteria, according to the results of descriptive statistics (Table 11), hearing-impaired respondents who were educated in heterogeneous educational conditions achieved better average results in all vocabulary areas/variables compared to respondents who were educated in homogeneous educational conditions. The reasons for such results can be twofold. The first reason is the remnants of hearing. Namely, the hearing-impaired respondents are mostly placed in regular educational conditions due to better hearing remnants. So, they have an advantage at the start. The second reason is that respondents who are educated in heterogeneous educational conditions are more exposed, conditionally speaking, to proper speech stimuli. They are forced to use oral speech in order to communicate with their classmates as well as with the teacher. Hearing-impaired students who are educated in homogeneous educational conditions are more familiar with the use of sign language, which is especially reflected in the scope/volume of prepositions, pronouns and adverbs; and these are the word classes that are least learned by direct teaching in the form of meaning explanation, and are more learned by direct use.

Table 11. Descriptive statistics on the Vocabulary Development Examination Test in relation to conditions of education

		Arithmetic Mean	Standard Deviation	Minimum	Maximum
Heterogeneous educational conditions	Nouns	152,28	47,89	64,00	202,00
	Adjectives	79,71	19,18	44,00	96,00
	Verbs	22,57	10,92	5,00	35,00
	Adverbs	22,14	6,28	10,00	29,00
	Prepositions	10,28	2,87	4,00	12,00
	Pronouns	12,42	3,59	5,00	15,00
	Total	299,57	85,69		
Homogeneous educational conditions	Nouns	105,82	59,32	6,00	221,00
	Adjectives	57,36	28,82	1,00	102,00
	Verbs	15,63	12,06	,00	36,00
	Adverbs	13,77	9,41	,00	31,00
	Prepositions	6,32	3,89	2,00	12,00
	Pronouns	7,68	4,42	3,00	15,00
	Total	206,62	111,33		
Total	Nouns	110,83	59,66	6,00	221,00

	Adjectives	59,76	28,68	1,00	102,00
	Verbs	16,38	12,06	,00	36,00
	Adverbs	14,67	9,46	,00	31,00
	Prepositions	6,75	3,97	2,00	12,00
	Pronouns	8,20	4,56	3,00	15,00
	Total	216,63	112,12		

In order to examine the significance of the differences in the arithmetic means of the groups of respondents, classified according to the conditions of education in relation to the results achieved on the Vocabulary Development Examination Test, the method of variance analysis was applied. Given the results of the analysis (Table 12), we conclude that there is no statistically significant difference in the scope/volume of vocabulary (nouns, adjectives and verbs) in hearing-impaired respondents in relation to the conditions of education of the respondent.

Table 12. Variance analysis of the vocabulary development in relation to the conditions of education

Source of Variance		Sum of Squares	df	Centre of Square	F	sig.
Nouns	Between groups	13481,43	1	13481,43	3,962	,051
	Within groups	214385,70	63	3402,94		
	Total	227867,13	64			
Adjectives	Between groups	3120,71	1	3120,71	3,967	,051
	Within groups	49556,82	63	786,61		
	Total	52677,53	64			
Verbs	Between groups	300,27	1	300,27	2,100	,152
	Within groups	9009,11	63	143,00		
	Total	9309,38	64			
Adverbs	Between groups	437,27	1	437,27	5,207	,026
	Within groups	5290,94	63	83,98		
	Total	5728,21	64			
Prepositions	Between groups	97,85	1	97,85	6,744	,012
	Within groups	914,20	63	14,51		

	Total	1012,06	64			
Pronouns	Between groups	140,27	1	140,27	7,400	,008
	Within groups	1194,12	63	18,95		
	Total	1334,40	64			
Total	Between groups	53965,76	1	53965,76	4,529	,037
	Within groups	750623,36	63	11914,65		
	Total	804589,13	64			

In order to determine the difference factors, the discriminant analysis was applied. The discriminant analysis produced one statistically significant discriminant function (Table 13).

Table 13. Significance of Wilks' lambda on the Vocabulary Development Examination Test in relation to the conditions of education

	Wilks' lambda	$\chi^2$	df	sig.
1	,825	11,562	6	,042

According to the coefficients of the canonical discriminant function (Table 14), vocabulary variables "pronouns", "prepositions", and "verbs" have the largest discriminant share.

Table 14. Standardized coefficients of the canonical discriminant function on the Vocabulary Development Examination Test in relation to the conditions of education

	Function
Nouns	-,478
Adjectives	,640
Verbs	-1,202
Adverbs	,687
Prepositions	-5,046
Pronouns	6,108

The vocabularies of "prepositions", "pronouns", and "adverbs" have high correlations with the discriminant function, although other variables also have moderate correlations with the discriminant function (Table 15). These are the same areas that we have found to be particularly problematic when it comes to vocabulary adoption in conditions of hearing impairment. Children who are educated in heterogeneous educational conditions are more exposed to these word classes than children who are educated in homogeneous educational conditions. In order to communicate with their non-hearing-impaired (hearing) peers, convey information, or more successfully manipulate received information, hearing-impaired children must master all word classes. However, hearing-impaired children who are educated in homogeneous educational conditions, when living or being together, when wanting to convey

some information, use sign language when communicating with each other. Also, a teacher, who works with children who are educated in homogeneous educational conditions, uses sign language to fully convey information to a child with hearing impairment. This is reflected in the scope/volume of vocabulary of certain word classes, because they are fixed in the active vocabulary by utilization. Teaching these words alone during rehabilitation procedures is not enough.

Table 15. Structure of the matrix on the Vocabulary Development Examination Test in relation to the conditions of education

	<b>Funtion</b>
Pronouns	,743
Prepositions	,710
Adverbs	,624
Adjectives	,544
Nouns	,544
Verbs	,396

A more favorable position in the discriminant space is achieved by respondents who are educated in heterogeneous educational conditions, as opposed to those respondents who are educated in homogeneous educational conditions (Table 16). Similar data are obtained by Albertini (2002).

Table 16. Centroids of groups on the Vocabulary Development Examination Test in relation to the conditions of education

	<b>Function</b>
Heterogeneous educational conditions	1,306
Homogeneous educational conditions	-,158

According to the results of the regression analysis (Table 17), the correlation between the vocabulary development and the conditions of education of the respondents is of a moderate degree, given the value of the correlation coefficient (0.496). The coefficient of determination (0.175) indicates that the conditions of education of the respondents with 17.50% determine the vocabulary development of the respondents, and the rest is the influence of other factors. The conditions of education of the respondents did not prove to be significant as predictors, given that the test value  $F(2,050)$  is less than the critical values (at significance level of 5% - it is 2.25) for the degree of freedom where the numerator is 6, and the denominator is 58, at both significance levels.

Table 17. Regression analysis on the Vocabulary Development Examination Test in relation to the conditions of education

<b>R</b>	<b>R<sup>2</sup></b>	<b>Corrected R<sup>2</sup></b>	<b>Standard Error of the Estimate</b>	<b>F</b>	<b>df1</b>	<b>df2</b>	<b>sig. F</b>
,418	,175	,090	,29807	2,050	6	58	,073

## CONCLUSIONS

- By analyzing the scope/volume and structure in relation to the "socioeconomic status", we found that there is a statistically significant difference in the scope/volume of vocabulary of all word classes in relation to the socioeconomic status of the respondents. Socioeconomic status as a predictor had the greatest impact on the scope/volume of respondents' vocabularies of "adjectives", "nouns", and "adverbs".
- The "level of education of parents" affects the scope/volume and structure of the respondents' vocabulary. This influence is particularly pronounced in the vocabulary area of "nouns", and "adjectives", which have shown high correlations with the discriminant function.
- The "auditory status of parents" affects the scope/volume and structure of the respondents' vocabulary. Respondents with hearing impairment whose parents are also hearing impaired achieve better average scores on all vocabulary variables, compared to respondents whose parents are non-hearing-impaired (hearing).
- The "conditions of education" of hearing-impaired respondents affect the scope/volume and structure of the respondents' vocabulary. Respondents who are educated in heterogeneous educational conditions will have a larger vocabulary scope/volume of "adverbs", "prepositions", and "pronouns", as compared to respondents who are educated in homogeneous educational conditions.
- The following proved to be significant cultural factors on the scope/volume and structure of the vocabulary: socioeconomic status, auditory status of parents, level of education of parents and conditions of education.

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## **SOCIO-PEDAGOGICAL ASPECTS OF CYBERBULLYING IN HIGH SCHOOL STUDENTS**

### **SOCIOPEDAGOŠKI SPEKTI CYBER NASILJA KOD UČENIKA SREDNJIH ŠKOLA**

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#### **ABSTRACT**

Excessive and uncontrolled use of the internet while neglecting other agents and aspects of socialization with the lack of awareness of the risks of this use, negatively affects the proper psychosocial development of young people, it can also negatively affect the strengthening of their competencies and general alienation. The aim of this research within the project of the Federal Ministry of Education and Science, significant for the Federation of Bosnia and Herzegovina, which was realized in 2019 in the Tuzla Canton, Central Bosnia Canton and Sarajevo Canton, was to investigate and establish the frequency and risks of improper and uncontrolled Internet use and their connection with certain forms of disorders in behaviour. The research was conducted on a sample of 333 high school students in these cantons, both genders, aged from 15 to 19. The results showed that 92.2% of students have access to the internet and that they use it every day mainly for the purpose of chatting and entertainment. Students are generally not sufficiently familiar with the dangers and risks of the internet. 8.7% of students experienced cyberbullying, which resulted in various manifestations of stress reactions. 1/3 of the respondents are not sufficiently aware and responsible when communicating/chatting and in the same proportion neglect their regular obligations due to uncontrolled use of the internet. The results of our research are significant in terms of providing a more detailed insight into the researched issues and facilitating the provision of recommendations and guidelines for improved solutions, as well as for possible further research.

**Key words:** students, high school, internet, behavioural problems.

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## SAŽETAK

Prekomjerno i nekontrolisano korištenje interneta uz istovremeno zanemarivanje ostalih agenasa i aspekata socijalizacije uz, po pravilu nedostatak svjesnosti rizika ovakvog načina korištenja se može negativno odraziti na pravilan psihosocijalni razvoj mlade osobe, jačanju i osnaživanju njenih kompetencija kao i jedne opšte alijenacije. Cilj ovog istraživanja u sklopu projekta Federalnog ministarstva obrazovanja i nauke od značaja za FBiH koje je realizirano tokom 2019. godine na području Tuzlanskog, Srednjobosanskog i Kantona Sarajevo je bio istražiti i ustanoviti učestalost i rizike nepravilnog i nekontroliranog korištenja interneta i njihovu povezanost sa pojedinim oblicima poremećaja u ponašanju. Istraživanje je realizirano na uzorku od 333 učenika srednjih škola navedenih kantona oba spola, uzrasta od 15-19 godina. Rezultati su pokazali da 92,2% učenika ima pristup internetu i da svakodnevno koristi isti uglavnom u svrhu dopisivanja i zabave. Učenici uglavnom nisu dovoljno upoznati sa opasnostima i rizicima na internetu. 8,7 % učenika je doživjelo cyber nasilje što za posljedicu ima različite manifestacije stresnih reakcija. 1/3 ispitanika nije dovoljno svjesno i odgovorno prilikom komunikacije a u istom omjeru zapostavlja svoje redovne obaveze zbog nekontrolisanog korištenja interneta. Rezultati našeg istraživanja su značajni u smislu omogućavanja detaljnijeg uvida u istraživanu problematiku i olakšavanja davanja preporuka i smjernica za poboljšana rješenja, kao i za eventualna daljnja istraživanja.

**Glavne riječi:** učenici, srednja škola, internet, problemi u ponašanju.

## INTRODUCTION

Knowledge of the current situation when it comes to problematic behaviour of adolescents on the internet surfaces includes empirical research that includes several segments or knowledge about the presence, frequency and purpose of internet usage, advantages and disadvantages/dangers of electronic media, frequency of experiencing and committing cyberbullying, intensity of the stress reactions and responses to cyberbullying, the involvement of parents in the child's use of the internet, as well as the habits of using the internet with reference to the presence and frequency of unethical behaviour on the internet. Problems of behaviour on the internet surfaces are a problem of the modern age, it can be said that the use of the internet nowadays is inevitable and useful, but with respect to certain rules and norms of behaviour. The situation is further complicated when it comes to adolescents due to the rebellious period they are going through and insufficient knowledge, so in this research, high school students were interviewed. The Internet is a global network connected by a network of computers or other electronic devices, characterized by top speed in the flow of information and accessible to almost everyone. Internet bullying or cyberbullying is any communication activity via the internet by which an individual is humiliated and threatened or harassed in some other way, and the constant goal of those bullies is to harass, humiliate, harm either in the form of text or video messages, photographs, calls or embarrassing comments. (Pandžić, Karić, Bijedić, 2016). According to Valkenburg and Peter (2011), the answer to the question about the reasons for the prevalence of communication via the internet refers to a greater possibility of control during self-presentation and self-disclosure in relation to "face-to-face" communication. This is made possible by: anonymity, asynchrony and

accessibility. With the development of new communication technologies, as Ciboci (2014) points out, a new form of violence/bullying has appeared, and that is the so-called cyberbullying or electronic bullying. Ciboci (2014) states that today's children and young people can be called the digital generation because they grow up with new media and the development of technology, especially "Smart phones" has enabled younger generations to use the internet no matter where they are and what they do. Smith and co-workers (2008) define cyberbullying as aggressive, deliberate behaviour toward individuals or groups over the internet that recurs toward individuals who cannot easily defend themselves, and emphasizes that the rise in online bullying/violence is also determined by the increase in internet users. According to Bedić and Filipović (2014), bullying/violence on the internet ("cyberbullying", "online" bullying/violence, digital bullying/violence) implies any communication activity with "cyber" technology that can be considered harmful to an individual, but also to the common good. Electronic bullying/violence, cyberbullying, virtual bullying/violence, internet bullying/violence - these are just some of the names for the increasingly common form of bullying/violence among children and young people. (Ciboci, 2014) Hodak - Kodžoman, Velki and Cakić (2013) explain cyberbullying as virtual violence to which victims are exposed via the internet and mobile phones. Cyberbullying is carried out through electronic media such as e-mail, social networks, forums and the like.

### **Specifics of cyberbullying**

Unlike cyberbullying, as pointed out by Bilić, Buljan - Flander and Rafajac (2014), classic bullying/violence takes place in a certain physical place, for students most often at school, with easy identification and punishment of the perpetrator, and the victim can respond and ask for protection. Electronic peer bullying/violence is a modern form of peer bullying/violence that is realized through the means of mass communication by students, primarily via the internet and mobile phones, in order to humiliate, discredit, belittle and in other ways harm others. According to Miladinović, Petričević (2013) main specifics of cyberbullying are stated as: the possibility in terms of anonymity of the perpetrator - the anonymity of the perpetrator is usually guaranteed, i.e. it is very difficult to reveal the identity of the perpetrator, as a result of which the perpetrator most often intensifies bullying/violent activities; content of bullying/violence - bullying/violence is emphasized by sending threatening, insulting, humiliating, degrading, derogatory and similar negative messages, comments, photos and videos; forms of manifestation of violent content - the most common forms of manifestation of electronic peer bullying/violence are insults, harassment, gossip and slander, false representation, illicit communication, deception, exclusion, persecution, sexual harassment, assault and the like; rapid spread of content - due to the higher speed of spreading compromising content, it is certain that the speed of harm to the victim is proportionally higher, which is why this form of violence can be considered much more dangerous than the classic form of peer bullying/violence; availability of violent content to a large number of people; constancy and continuity of the manifestation of bullying/violence and the environment within which the bullying/violence is realized and the like.

## Forms of cyberbullying

According to Đuraković, Šincek, Tomašić - Humer (2014), cyberbullying can be manifested through various forms of internet communication, such as the use of unpleasant expressions, insults and jokes, presenting false names, stalking and the like. One of the most common forms of cyberbullying, according to Ciboca (2014) are hate groups on social networks, especially when it comes to children and young people, there is more and more abuse among peers on social networks. The ten forms of cyberbullying according to Ciboca, Osmancevic and Preselj (2015) are as follows: "Catfishing" which refers to the creation of fake profiles through which the bully leads another person or victim to a love affair via the internet; "Cyberstalking" means frequent threats and harm to someone's privacy; "Flaming" means deliberately sending aggressive, offensive and inappropriate messages with the aim of inciting online quarrels and violence; "Malware" refers to malware that can damage your computer; "Spam" refers to unsolicited e-mail, most often in the form of advertisements and fake advertisements, and can be dangerous if it contains a virus that can harm the computer by opening the e-mail message; "Phishing" means fraud that causes a user to reveal a username and password and enter it on a counterfeit website; "Grooming" is a form of cyberbullying that involves luring children because of sexual needs; "Sexting" refers to sending inappropriate sexual messages and photos to other people via mobile phones or the internet; "Trolling" is the deliberate spread of sarcastic comments made to a random person with the aim of provoking conflict; and "happy slapping" means that a group attacks an individual, records the violence with a mobile phone or camera, and later publishes the recording on the internet.

## Consequences of cyberbullying

The consequences of cyberbullying are numerous. Patchin and Hinduja (2010) point out, that victims of cyberbullying lose their sense of self-esteem and often become depressed. Machmutow et al. (2012) have shown that experiencing cyberbullying is a longitudinal predictor of higher levels of depressive symptoms in victims. Aoyama and Talbert (2010) argue that cyberbullying leaves significantly greater consequences, compared to traditional peer bullying/violence. The victim of cyberbullying, as reported by Strabić and Tokić-Milaković (2016), and explained by Heirman and Walrave (2008), is often insecure and stressed because it is difficult to find out who the perpetrator is, in the context of whether it is one person or more people as well as whether the person(s) is(are) known to the victim or not. In the context of consequences, Menesini and Spiel (2012) state that experiencing cyberbullying is associated with higher perceived levels of stress. Cyberbullying can be a very frightening experience for the victim because the identity of the perpetrator of the bullying/violence can remain unknown and the bullying/violence can happen anywhere and at any time. (Bilić et al., 2012, according to Velka and Kuterovac - Jagodić, 2016) Von Marées and Petermann (2012) point out, that victims of cyberbullying experience more emotional problems, and complain more of psychosomatic disorders such as headaches and abdominal pain, and have more difficulty sleeping. Based on the results of research conducted by Patchin and Hindu (2006), results have been found that suggest that victims of cyberbullying experience frustration and anger, as well as feelings of hopelessness, reticence, and low self-

esteem. The results of other research show similar findings, i.e. that in a victim of cyberbullying, the consequences can occur in the form of strong negative emotions, including fear and helplessness, feelings of threat and loneliness, as well as a decrease in self-esteem (Baumann, 2010; Boulton et al., 2010; Spears et al., 2009, according to Von Marées, Petermann, 2012). The inability of victims to escape cyberbullying and the inability to control acts of bullying/violence according to Dooley, Pyzalski, and Cross (2009) can result in feelings of helplessness on the part of the victim. According to Breguet (2007), cyberbullying causes emotional pain, and its victims often feel lonely, insecure and humiliated. Experiencing cyberbullying negatively affects the ability to perform tasks, relationships with others, leads to mental health difficulties and / or feelings of emotional or physical insecurity. (Faucher, Jackson, Cassidy, 2014)

### **Subject, aims and hypotheses of the research**

The subject of the research is aimed at understanding the risk of exposure to internet content and the connection with behavioural problems in high school students.

Aim of the research:

Research and identify the frequency and risks of improper and uncontrolled use of the internet surfaces and their connection with certain forms of behavioural disorders

Sub-aims of the research

1. Research and identify the frequency and risks of improper and uncontrolled use of the internet;
2. Investigate and identify to what extent and in what way improper and uncontrolled use of the internet is related to internalized and externalized modalities of behavioural disorders;
3. Based on the results of the obtained research, create and implement purposeful, planned and targeted educational workshops for students

### **Hypothesis:**

It is assumed that students who use and browse the internet surfaces incorrectly and uncontrollably have a higher risk of manifesting cyberbullying and internalized and externalized modalities of behavioural disorders.

## **MATERIAL AND METHODS**

### **Research sample and measuring instrument**

The research was conducted on a sample of 333 students in the Sarajevo Canton, Central Bosnia Canton and Tuzla Canton; students aged 15-19 years, both genders. The schools included in the research are: PI High School (mixed) Gračanica, PI High School (mixed) of Economics and Chemistry Lukavac, Technical High School Travnik, Medical School Travnik as well as two schools in the Sarajevo Canton. A total of 450 students were planned to be surveyed, but in the end, 333 students were available due to problems with irregular classes

due to the strike of teachers during the research period. Before starting the survey, students were given detailed instructions. Instructions for completing the questionnaire were an integral part of the questionnaire. The importance and purpose of the survey was emphasized, as well as adherence to the principles of anonymity and honesty when filling it out. During the survey, the survey conductor was available to the respondent in case of elimination of possible difficulties. The time allotted for the survey was one school hour (45 minutes). For the purposes of this research, a modified battery of questionnaires for students, a set of questions from the Instrument CAB (Clinical assessment of behaviour) and BRP (Behaviour Rating Profile) were used. An example of previous research is the research conducted by UNICEF within the program for the prevention of cyberbullying "Break the chain!" (Pregrad et al., 2010). The questionnaire consists of 13 sets of questions and for the purposes of the research seven sets of questions were used, which are also presented by the following variables: Variables related to general data on high school students, i.e. name and place of high school, gender, school achievement and behaviour at the end of the previous school year; variables related to the availability, frequency, and purpose of internet use. The presence of internet use is related to two questions with two answer options (yes and no). One question with six categories of answers refers to the frequency of internet usage. The purpose internet usage is a set of variables that consists of 11 statements with four answer options on the Likert Scale. The answer options are: never, rarely, sometimes, and often. Variables related to students' attitudes about the advantages and dangers of using electronic media: This set of variables consists of 20 statements with five answer options. The answer options are: "I don't agree at all, I mostly don't agree, I don't agree nor disagree, I mostly agree and I completely agree". Variables related to the presence and frequency of experiencing and committing cyberbullying: This set of variables consists of two questions with four answer options. The answer options are: never, occasionally, often, and very often. Variables related to the intensity of stress reactions to cyberbullying as well as ways of reacting to the mentioned bullying: This set of variables is contained through 9 possible stress reactions through three answer options (no reaction, little / mild reaction and strong reaction). Variables related to students' attitudes about cyberbullying: This set of questions consists of 5 statements with 5 answer options from "don't agree at all to completely agree". Variables related to internet usage habits as well as the presence and frequency of unethical online behaviour by high school students: The set of questions related to internet usage habits consists of 10 questions with 5 answer options. The categories of answers are: never, rarely, sometimes, often and always. The set of unethical behaviour questions consists of five questions with identical answer categories as in the previous set.

### **Statistical data processing**

The statistical program SPSS 22.0 was used for statistical processing of collected data. The level of significance when testing the set hypotheses is  $p < 0.05$ . Data analysis consists of the following: frequency analysis and testing of set hypotheses through tests/surveys to compare differences for independent samples.

## RESULTS AND DISCUSSION

After analyzing the structure of respondents - high school students, the issues related to the availability or use of electronic media were analyzed.

**Table 1.** Distribution of answer frequencies on the possession of a mobile phone with the possibility/availability of internet access

Possession of a mobile phone with the possibility/availability of internet access	Total students	
	N	%
yes	328	98,5
no	5	1,5
<b>Total students</b>	333	100,0

In the sample of 333 high school students, only 5 (1.5%) students do not have a mobile phone with internet access, and 328 (98.5%) high school students have a mobile phone with internet access.

**Table 2.** Distribution of answer frequencies on the possession of a computer at home with the possibility/availability of internet access

Possession of a computer at home with the possibility/availability of internet access	Total students	
	N	%
yes	307	92,2
no	26	7,8
<b>Total students</b>	333	100,0

In a sample of 333 high school students, 307 (92.2%) students have a computer at home with internet access/availability, while 26 (7.8%) students don't have a computer at home with internet access/availability. The frequency of internet usage by high school students is analyzed below.

**Table 3.** Distribution of answer frequencies on the frequency of internet usage

Frequency of internet usage	Total students	
	N	%
every day/ daily	323	97,0
several times a week	6	1,8
once a week	2	0,6
once a month	1	0,3
once in two to three months	0	0,0
never	1	0,3
<b>Total students</b>	333	100,0

Out of a total of 333 surveyed high school students, 323 (97.0%) students use the internet every day/ daily, 6 (1.8%) students use the internet several times a week, 2 (0.6%) students use the internet once a week, and 1 (0.3%) student uses the internet only once a month or never.

**Table 4.** Distribution of answer frequencies on the purpose of internet usage

No.	Purpose of internet usage	Answer options (%)			
		never	rarely	sometimes	often
1.	I'm looking for entertainment. (music, movies, games, etc.)	0,6	0,6	21,3	77,5
2.	I chat with friends.	0,3	3,0	7,2	89,5
3.	I visit specialized social networking sites. (Facebook, MySpace, etc.)	5,1	10,8	30,9	53,2
4.	I play various online games.	21,0	32,4	24,9	21,6
5.	I surf websites and look for interesting content.	5,7	20,7	39,9	33,6
6.	I am looking for content that can help me write an assignment, paper or book report.	4,2	9,6	37,8	48,3
7.	I am looking for additional literature related to school and school assignments.	11,7	28,5	36,9	22,8
8.	I visit forums and various chat sites. (so-called "chat rooms")	63,4	21,9	9,9	4,8
9.	I visit sites with adult content.	60,4	13,8	10,8	15,0
10.	I visit and read other people's blogs.	52,0	25,2	17,1	5,7
11.	I write my own blog.	90,1	5,1	3,3	1,5

When asked about the purpose of using the internet, high school students answered as follows: 300 (90.1%) high school students never write their own blog; 298 (89.5%) high school students often chat with friends; 258 (77.5%) high school students often look for entertainment (music, movies, games, etc.); 211 (63.4%) high school students never visit forums and various chat rooms; 201 (60.4%) high school student never visits sites with adult content; 177 (53.2%) high school students often visit specialized social networking sites (Facebook, MySpace, etc.); 173 (52.0%) high school students never visit or read other people's blogs; 161 (48.3%) high school students often look for content that can help them write homework, papers or book reports; 133 (39.9%) high school students sometimes surf websites and look for interesting content; 123 (36.9%) high school students sometimes look for additional literature related to school and school assignments and 108 (32.4%) high school students rarely play various online games. In the following, the scale of attitudes about the advantages and dangers of using electronic media is analyzed, i.e. the scale of attitudes about modern technologies, which we have divided into two tables.

**Table 5.** Distribution of answer frequencies on the advantages when using electronic media (modern technologies)

No.	Advantages when using electronic media (modern technologies)	Answer options (%)				
		I don't agree at all	I mostly don't agree	I don't agree nor disagree	I mostly agree	I completely agree
2.	Despite all the dangers, I believe that children should be taught to use the internet.	9,3	9,6	27,6	32,4	21,0
4.	Computers make learning easier.	4,8	3,9	15,9	32,7	42,6
6.	Modern technologies have invaluablely improved people's lives.	3,9	7,5	26,4	32,7	29,4
8.	The internet helps me to be informed.	2,7	2,4	7,2	36,6	51,1
10.	Browsing the internet is fun.	2,4	3,9	20,4	37,5	35,7
12.	I can meet new people online.	3,6	1,2	16,5	34,2	44,4
14.	The computer and mobile phone have significantly accelerated and made it easier for employees to do their job.	2,1	2,7	15,0	32,7	47,4
16.	I consider internet usage to be a combination of the pleasant with the useful.	0,9	3,6	31,5	41,4	22,5
18.	I am thrilled that it is so easy to communicate with anyone in the world via the internet.	2,4	4,2	16,8	26,4	50,2
20.	It would be difficult for me to live without modern technologies.	6,9	6,6	25,2	16,4	34,8

When asked about the advantages of using electronic media (modern technologies), high school students answered as follows: 170 (51.1%) high school students completely agree that the internet helps them to be informed; 167 (50.2%) high school students are completely thrilled that it is so easy to communicate with anyone in the world via the Internet; 158 (47.4%) high school students completely agree that the computer and mobile phone have significantly accelerated and facilitated the work of employees; 148 (44.4%) high school students completely agree that they can meet new people online; 142 (42.6%) high school

students completely agree that computers make learning easier; 138 (41.4%) high school students mostly agree that internet usage is a combination of the pleasant and useful; 125 (37.5%) high school students mostly agree that browsing the internet is fun; 116 (34.8%) high school students completely agree that it would be difficult for them to live without modern technologies; 109 (32.7%) high school students mostly agree that modern technologies have invaluablely improved people's lives and 108 (32.4%) high school students mostly agree that despite all the dangers, children should be taught to use the internet. If the affirmative answers of high school students are singled out, i.e. the distribution of answer frequencies that high school students mostly or completely agree with certain statements which present advantages when using electronic media (modern technologies), then the findings are as follows: 292 (87.7%) students think that the Internet helps them to be informed; 267 (80.1%) students claim that the computer and mobile phone have significantly accelerated and facilitated the work of employees; 262 (78.6%) students are of the opinion that they can meet new people on the internet; 255 (76.6%) students said they were thrilled that it was so easy to communicate with anyone in the world via the internet; 251 (75.3%) students are of the opinion that computers make learning easier; 244 (73.2%) students claim that browsing the internet is fun; 213 (63.9%) students believe that internet usage is a combination of the pleasant and useful; 207 (62.1%) students agree that modern technologies have invaluablely improved people's lives, 204 (61.2%) students are of the opinion that it would be difficult for them to live without modern technologies and 178 (53.4%) students mostly or completely agree that despite all the dangers, children should be taught to use the internet

**Table 6.** Distribution of answer frequencies to dangers/harmful content when using electronic media (modern technologies)

No.	Dangers/harmful content when using electronic media (modern technologies)	Answer options (%)				
		I don't agree at all	I mostly don't agree	I don't agree nor disagree	I mostly agree	I completely agree
1.	With the use of modern technologies, vocabulary/language is gradually impoverished.	12,9	14,7	30,6	30,9	10,8
3.	With the development of modern technologies, social interaction between people is decreasing.	3,9	9,6	23,1	37,5	25,8
5.	There is more dangerous/harmful content than useful content on the internet.	11,4	18,0	39,3	17,4	13,8
7.	The mobile phone should only be used for emergency calls.	51,7	25,5	11,4	5,7	5,7
9.	I rarely use a computer in my spare time.	27,0	17,7	15,9	25,2	14,1
11.	The Internet leads to excessive isolation of children and adults because they spend too much time online.	5,4	7,5	22,5	27,6	36,9
13.	The development of modern technologies leads to the alienation and collapse of society.	10,5	11,7	37,8	19,2	20,7
15.	Due to aggressive content video games, nowadays, more and more people have problems with curbing aggression and anger.	9,9	8,4	23,4	23,4	34,8
17.	Frequent use of personal computers makes people	16,2	15,3	33,9	18,0	16,5

	"less" intelligent.					
19.	The Internet is a global evil.	31,2	20,7	32,7	8,1	7,2

When asked about the dangers of using electronic media (modern technologies), high school students answered as follows: 172 (51.7%) high school students do not agree at all that mobile phones should be used only for emergency calls; 131 (39.3%) high school students don't agree nor disagree on whether there is more dangerous/harmful content than useful content on the internet; 126 (37.8%) high school students don't agree nor disagree whether the development of modern technologies leads to alienation and the collapse of society; 125 (37.5%) high school students mostly agree that the development of modern technologies reduces social interaction between people; 123 (36.9%) high school students completely agree that the internet leads to excessive isolation of children and adults because they spend too much time online; 116 (34.8%) high school students completely agree that due to aggressive content video games, nowadays, more and more people have problems with curbing aggression and anger; 113 (33.9%) high school students don't agree nor disagree on whether frequent use of personal computers makes people "less" intelligent; 109 (32.7%) high school students don't agree nor disagree on whether the internet is a global evil; 103 (30.9%) high school students mostly agree that the use of modern technologies gradually leads to the impoverishment of vocabulary/language and 90 (27.0%) high school students completely disagree that they rarely use a computer in their free/spare time. If the affirmative answers of high school students are singled out, i.e. the distribution of answer frequencies that high school students mostly or completely agree with certain statements that present dangers/harms when using electronic media (modern technologies) then the findings are as follows: 215 (64.5%) students believe that the internet leads to excessive isolation of children and adults because they spend too much time online; 211 (63.3%) students claim that the development of modern technologies reduces social interaction between people; 194 (58.2%) students are of the opinion that due to aggressive content video games, nowadays, more and more people have problems with curbing aggression and anger; 139 (41.7%) students stated that the use of modern technologies gradually leads to the impoverishment of vocabulary/language; 133 (39.9%) students agree that the development of modern technologies leads to the alienation and collapse of society; 131 (39.3%) students are of the opinion that they rarely use a computer in their free/spare time; 115 (34.5%) students claim that frequent use of personal computers makes people "less" intelligent; 104 (31.2%) students mostly or completely agree that there is more dangerous/harmful content than useful content on the internet; only 51 (15.3%) students believe that the internet is a global evil, i.e. 173 (51.9%) students completely or mostly disagree that the Internet is a global evil and only 38 (11.4%) students are of the opinion that the mobile phone should be used only for emergency calls, while 257 (77.2%) students completely or mostly disagree with the statement about emergency call phone usage. The issues related to cyberbullying are analyzed below.

**Table 7.** Distribution of answer frequencies on the presence and frequency of suffering or experiencing cyberbullying

Frequency of suffering or experiencing cyberbullying	Total students	
	N	%
never	304	91,3
occasionally (1 to 3 times in the last few months)	25	7,5
often (2 to 3 times a month)	1	0,3
very often (every week)	3	0,9
<b>Total students</b>	333	100,0

In the context of experiencing or suffering from cyberbullying, 304 (91.3%) high school students have never been exposed to cyberbullying, while the remaining 29 (8.7%) students have experienced cyberbullying, and when it comes to the frequency of the mentioned cyberbullying, in 25 (7.5%) students it is occasionally present, i.e. one to three times in the last few months, in 3 (0.9%) students it is present very often, i.e. they suffer or experience cyberbullying every week and 1 (0.3%) student often (two to three times a month) experiences cyberbullying.

**Table 8.** Distribution of answer frequencies on the presence and frequency of doing cyberbullying

Frequency of doing cyberbullying	Total students	
	N	%
never	310	93,1
occasionally (1 to 3 times in the last few months)	16	4,8
often (2 to 3 times a month)	2	0,6
very often (every week)	5	1,5
<b>Total students</b>	333	100,0

In the context of doing/committing cyberbullying, 310 (93.1%) students claim that they have never committed cyberbullying, while cyberbullying was committed by 23 (6.9%) students, with 16 (4.8%) students occasionally or one to three times in the last few months committing cyberbullying, 5 (1.5%) students stated that they do cyberbullying every week or very often and 2 (0.6%) students often or two to three times a month.

**Table 9.** Distribution of answer frequencies on stress reactions to cyberbullying

No.	Stress reactions to cyberbullying	Answer options (%)		
		No reaction	little / mild reaction	Strong reaction
1.	I feel angry	30,9	42,6	26,4
2.	I feel upset	35,4	39,0	25,5
3.	I have a hard time concentrating (at school, at home)	41,4	41,4	17,1
4.	I feel worried	44,1	33,6	22,2
5.	I don't want to go to school	54,7	25,2	20,1
6.	I feel sick (I have headaches, my stomach hurts)	58,9	30,3	10,8
7.	I avoid going online for a while	54,4	32,7	12,9
8.	I have trouble sleeping	61,0	26,7	12,3
9.	I can't eat	69,4	21,9	8,7

High school students answered the question about stress reactions to cyberbullying as follows: 231 (69.4%) students claim that they do not eat at all or that they do not have an appetite for food due to stress caused by cyberbullying; 203 (61.0%) students have no sleeping problems in terms of stress response to cyberbullying; 196 (58.9%) students do not feel sick at all in terms of headaches, abdominal pain and the like; 182 (54.7%) students do not want to go to school at all due to cyberbullying; 181 (54.4%) students do not avoid going online at all; 147 (44.1%) students aren't worried at all because of cyberbullying; 138 (41.4%) students have no problems with concentration as a consequence of cyberbullying, i.e. mild difficulty concentrating (at school, at home); 142 (42.6%) students feel slightly angry in terms of stressful reaction to cyberbullying and 130 (39.0%) students feel slightly upset. A note related to previous responses to stress reactions caused by cyberbullying is that a relatively small number of students in our sample actually experienced or suffered from cyberbullying, so respondents had to guess what their stress reactions might be in case they experience cyberbullying.

**Table 10.** Distribution of answer frequencies on the response to cyberbullying

No.	Response to cyberbullying	Answer options (%)				
		I'm sure I wouldn't do that	I don't think I would do that, but I'm not sure	I'm indecisive about that	I think I would do that, but I'm not quite sure	I'm pretty sure I'd do that
1.	I would inform the parents	11,7	8,4	15,0	13,5	51,4
2.	I would no longer visit that website, I would block the person who is insulting me	8,7	5,7	9,0	11,1	65,5
3.	I would tell a friend	9,0	4,8	15,9	22,8	47,4
4.	I would show it to an adult	13,5	7,5	20,4	20,7	37,8
5.	I would tell my brother / sister	16,8	7,5	12,9	15,9	46,8
6.	I would officially report it (site administrator, police, etc.)	14,4	8,7	22,5	15,9	38,4
7.	I would tell the teacher / class teacher	30,0	12,6	23,7	16,5	17,1
8.	I would reciprocate equally	43,2	18,6	15,6	9,0	13,5
9.	I would laugh at that	41,7	12,0	20,1	9,3	16,8
10.	I wouldn't do anything	57,4	8,7	19,5	6,9	7,5

High school students answered the question about the response to cyberbullying, and the distribution of answers (i.e. answers with the highest frequency) is as follows: 219 (65.8%) students are sure that they would not act in a way of no longer visiting the internet; 218 (65.5%) students are quite sure that they would not visit that website anymore, they would block the person who insults them; 191 (57.4%) students are sure that they would not act in a way of doing nothing; 171 (51.4%) students are quite sure that they would inform parents about cyberbullying; 158 (47.4%) students are quite sure that they would tell a friend about cyberbullying; 156 (46.8%) students are quite sure that they would tell their siblings about cyberbullying; 144 (43.2%) students are sure that they wouldn't reciprocate equally or to the same extent; 139 (41.7%) students are sure that they would not laugh in terms of reaction to cyberbullying; 128 (38.4%) students are quite sure that they would officially report cyberbullying (site administrator, police, etc.); 126 (37.8%) students are quite sure that they would show an adult that they are exposed to cyberbullying; and 100 (30.0%) students are sure that they would not inform the teacher about their exposure to cyberbullying.

**Table 11.** Distribution of answer frequencies on attitudes about cyberbullying

No.	Attitudes about cyberbullying	Answer options (%)				
		I don't agree at all	I mostly don't agree	I don't agree nor disagree	I mostly agree	I completely agree
1.	If someone harassed me via the internet or mobile phone, I would feel bad.	23,1	10,8	16,5	21,3	28,2
2.	People become victims of cyberbullying for no particular reason.	12,6	8,7	33,0	25,2	20,4
3.	If I heard about a case of cyberbullying at school I would try to stop it.	10,8	5,7	27,9	27,6	27,9
4.	Bullying/violence via the internet and cell phones is much more serious than that in real life.	22,5	16,2	31,2	15,9	14,1
5.	If you abuse someone online, it is easier to go unpunished, because no one knows your identity.	20,7	12,3	25,2	21,6	20,1
6.	It's fun to send disturbing messages to someone anonymously.	70,9	9,6	10,2	2,7	6,6

Answers to questions about high school students' attitudes towards cyberbullying have the following highest frequencies: 236 (70.9%) students completely disagree that it is fun to send disturbing messages to someone anonymously; 110 (33.0%) students don't agree nor disagree on whether people become victims of cyberbullying for no particular reason; 104 (31.2%) students don't agree nor disagree on whether bullying via the Internet and mobile phones is much more serious than in real life; 94 (28.2%) students completely agree that they would feel bad if someone harassed them via the internet or cell phone; 93 (27.9%) students are undecided or completely agree with the statement that they would try to stop cyberbullying if they heard about a case of cyberbullying at school; 84 (25.2%) students don't agree nor disagree with the statement that online bullying goes easier unpunished, because no one knows your identity. If the affirmative answers of high school students are singled out, i.e. the distribution of response frequencies that high school students mostly or completely agree with certain statements that represent attitudes about cyberbullying, then the findings are as follows: 185 (55.5%) students would try to stop a case of cyberbullying at school; 165 (49.5%) students would feel bad if someone harassed them via the internet or mobile phone; 152 (45.6%) students agree that victims of cyberbullying become so for no particular reason; 139 (41.7%) students believe that if you abuse someone online, it is easier to go unpunished, because no one knows your identity; 100 (30.0%) students claim that bullying via the internet and mobile is much more serious than that in real life and only 31 (9.3%) students mostly or completely agree that it is fun to send disturbing messages to someone anonymously.

**Table 12.** Distribution of answer frequencies on internet usage habits

No.	Internet usage habits	Answer options (%)				
		never	rarely	sometimes	often	always
1.	Do you get nervous when the internet connection is lost?	12,6	15,6	26,1	21,9	23,7
2.	How often does your school achievement suffer because of the time you spend online?	16,5	20,7	29,4	22,8	10,5
3.	Do you avoid your daily responsibilities due to internet preoccupation?	21,6	25,8	29,7	15,9	6,9
4.	How often do you stay online longer than you planned?	3,6	12,0	22,8	35,7	25,8
5.	Would you rather talk to your friends online than meet them live?	32,7	30,9	22,5	5,7	8,1
6.	Do you talk and do things on the internet that you wouldn't in real life?	48,6	23,1	15,6	7,8	4,8
7.	Do you think that the internet is a completely safe medium?	34,2	28,8	25,8	7,2	3,9
8.	Do you feel that you are responsible and aware enough when communicating on the internet?	10,5	11,4	22,5	25,8	29,7
9.	Have you seduced a girl / boy online?	27,6	16,8	21,0	16,5	18,0
10.	Have you made honest friends using social media?	21,9	14,1	27,3	18,6	18,0

When asked about internet usage habits, high school students answered as follows: 162 (48.6%) students never say and do things online that they would not in real life; 119 (35.7%) students often stay online longer than planned; 114 (34.2%) students never think that the internet is a completely safe medium; 109 (32.7%) students never talk to their friends online instead of meeting them live; 99 (29.7%) students believe that they are always sufficiently responsible and aware when communicating on the internet; 99 (29.7%) students claim that they sometimes avoid their daily obligations due to internet preoccupation; 98 (29.4%) students feel that their school achievement sometimes suffers because of the time they spend online; 92 (27.6%) students have never seduced a girl / boy online; 91 (27.3%) students claim to have sometimes made honest friends using social networks; and 87 (26.1%) students sometimes become nervous when the internet connection is lost.

**Table 13.** Distribution of answer frequencies on unethical behaviour on the internet

No.	Unethical behaviour on the internet	Answer options (%)				
		never	rarely	sometimes	often	always
1.	Have you misrepresented yourself (made a fake profile) on the internet?	67,0	14,1	13,8	3,6	1,5
2.	Have you abused/bullied others online?	83,8	8,7	4,2	1,8	1,5
3.	Have you anonymously threatened others online?	85,3	6,0	6,0	1,5	1,2
4.	Have you violated anyone's privacy online?	78,7	9,0	7,2	3,3	1,8
5.	Did you suggest meetings with people you met online?	58,0	13,8	11,7	9,6	6,9

When asked about unethical behaviour on the Internet, high school students answered as follows: 284 (85.3%) students never threatened others anonymously on the internet; 279 (83.8%) students never abused/bullied others online; 262 (78.7%) students have never violated someone's privacy online; 223 (67.0%) students never misrepresented themselves on the internet and 193 (58.0%) students never suggested meetings with people they met online.

After analyzing the data from the research instrument for 333 high school students, the following was concluded: When asked about the availability of internet access and the frequency of internet usage, high school students answered as follows: 328 (98.5%) high school students have a mobile phone with internet access; 307 (92.2%) students have a computer at home with internet access; 323 (97.0%) students use the internet every day, 6 (1.8%) students use the internet several times a week. This indicates the fact that almost all students have access to the internet through mobile phones and computers in their homes, as well as that they use the internet every day, which also indicates the fact that this makes it difficult to control the use of the internet.

When asked about the purpose internet usage, high school students answered as follows: 300 (90.1%) high school students never write their own blog; 298 (89.5%) high school students often chats with friends; 258 (77.5%) high school students often look for entertainment online (music, movies, games, etc.); 211 (63.4%) high school students never visit forums and various chat rooms; 201 (60.4%) high school student never visits sites with adult content; 177 (53.2%) high school students often visit specialized social networking sites (Facebook, MySpace, etc.); 173 (52.0%) high school students never visit or read other people's blogs. This indicates that for high school students, the internet primarily serves to socialize in the virtual world as a substitute for the real world as well as for entertainment. The purpose and frequency of internet usage by high school students differ statistically significantly according to gender, based on the "Mann Whitney Test" for the following [results are presented in the form (M rank for male students <or> M rank for female students); (Mann Whitney U Test; p)]: chatting with friends (151.2 <176.5); (11021,000; p = 0.000); in favour of female students; playing various online games (218.9 > 135.8); (6516,500; p = 0.000); in favour of male students; surfing websites and searching for interesting content (189.2 > 153.6); (10219,500; p = 0.001); in favour of male students; searching for content that can help

students write assignments, papers or book reports (145.3 <180.0); (10289,500;  $p = 0.000$ ); in favour of female students; searching for additional literature related to school and school assignments (143.3 <181.2); (10039,000;  $p = 0.000$ ); in favour of female students; visiting forums and various chat rooms (189.4 > 153.5); (10194,000;  $p = 0.000$ ); in favour of male students; visiting sites with adult content (234.6 > 126.4); (4551,000;  $p = 0.000$ ) in favour of male students; visiting and reading other people's blogs (154.2 <174.7); (11405,000;  $p = 0.041$ ) in favour of female students; writing your own blog (176.8 > 161.1); (11778,500;  $p = 0.006$ ) in favour of male students. Only for two purposes of internet usage, i.e. for searching for entertainment (music, movies, games, etc.) as well as for visiting specialized social networking sites (Facebook, MySpace, etc.), no statistically significant difference was found in terms of student gender.

Attitudes of high school students about the advantages of using electronic media differ statistically significantly with respect to the grade they attend, based on the "Kruskal Wallis Test" for the following [results are presented in the form (M rank for first grade students; M rank for second grade students; M rank for third grade students and M rank for fourth grade students); ( $\chi^2$  test;  $p$ )]: regardless of all the dangers, children should be taught to use the internet (151.0; 184.4; 153.5 and 179.5); (9.127;  $p = 0.028$ ); new people can be met on the internet (170.8; 176.3; 177.6 and 132.2); (11,284;  $p = 0.010$ ); computer and mobile phones significantly accelerated and facilitated the work of employees (147.4; 180.4; 176.2 and 165.9); (7,918;  $p = 0.048$ ) and internet usage is a combination of the pleasant and useful (150.0; 185.0; 175.8 and 154.2); (9.406;  $p = 0.024$ ). For the remaining six claims that represent advantages when using electronic media, no statistically significant difference was found with respect to the grade that students attend.

Attitudes of high school students about the dangers of using electronic media differ statistically significantly with respect to the grade they attend, based on the "Kruskal Wallis Test" for the following [results are presented in the form (M rank for first grade students; M rank for second grade students; M rank for third grade students and M rank for fourth grade students); ( $\chi^2$  test;  $p$ )]: the use of modern technologies gradually leads to the impoverishment of vocabulary/language (147.4; 160.4; 182.1 and 193.4); (11,622;  $p = 0.009$ ); the development of modern technologies reduces social interactions between people (154.9; 150.0; 194.7 and 184.0); (13,594;  $p = 0.004$ ); mobile phones should be used only for emergency calls (181.1; 151.8; 186.0 and 147.5); (11,734;  $p = 0.008$ ); frequent use of personal computers makes people "less" intelligent (173.6; 139.4; 192.1 and 174.0); (14,877;  $p = 0.002$ ); the internet is a global evil (165.7; 142.9; 198.6 and 173.7); (15,521;  $p = 0.001$ ); for the remaining five claims about dangers when using electronic media, no statistically significant difference was found with respect to the grade that students attend. The presence and frequency of experiencing and committing cyberbullying by high school students vary with respect to school achievement and behaviour in school. Based on the obtained results (from the aspect of school achievement: for suffering or experiencing cyberbullying  $\chi^2 = 0.413$ ;  $p = 0.938$ ; for committing/doing cyberbullying  $\chi^2 = 3.675$ ;  $p = 0.299$ ; and from the aspect of behaviour in school: for suffering or experiencing cyberbullying  $\chi^2 = 3.014$ ;  $p = 0.389$ ; for committing/doing cyberbullying  $\chi^2 = 3.747$ ;  $p = 0.290$ ). It can be concluded that for the

presence and frequency of experiencing and committing/doing cyberbullying by high school students, no statistically significant difference was found with regard to school achievement and behaviour in school.

Ways of responding to cyberbullying by high school students differ statistically significantly according to gender, based on the "Mann Whitney Test" for the following: results are presented in the form (M rank for male students <or> M rank for female students); (Mann Whitney U Test; p): if cyberbullying happened, they would inform parents (122.3 <193.9); (7413,000;  $p = 0.000$ ) in favour of female students; they would no longer visit that website, they would block the person insulting them (131.1 <188.6); (8514,500;  $p = 0.000$ ) in favour of female students; they would tell a friend (147.1 <178.9); (10514,000;  $p = 0.002$ ) in favour of female students; they would show an adult that they are exposed to cyberbullying (140.4 <183.0); (9674,500;  $p = 0.000$ ) in favour of female students; they would tell their brother / sister (138.6 <184.0); (9455,500;  $p = 0.000$ ) in favour of female students; they would officially report it to the site administrator, the police, etc. (140.0 <183.2); (9630,500;  $p = 0.000$ ) in favour of female students; they would inform the teacher (140.1 <183.2); (9638,000;  $p = 0.000$ ) in favour of female students; they would reciprocate equally or in the same extent (202.6 > 145.6); (8554,500;  $p = 0.000$ ) in favour of male students; they would laugh at cyberbullying (205.5 > 143.9); (8189,500;  $p = 0.000$ ) in favour of male students; they would do nothing (192.2 > 151.9); (9850,000;  $p = 0.000$ ) in favour of male students. Only for one response to cyberbullying, and that is that high school students would no longer visit the Internet, no statistically significant difference was found from the aspect of gender.

## CONCLUSION

According to the presented results, the hypothesis that correlates the risk of manifestation of cyberbullying and certain modalities of behavioural disorders can be confirmed. Referring to Glasser's definition of behaviour that "Behaviour is the way an individual governs him/herself", it is questionable to confirm that students are fully aware of the advantages and disadvantages (dangers) of using the internet. The results presented above may indicate a potential risk of internet usage, especially in the context of inadequate socialization of children, given the purpose of using the internet in the context of chatting and entertainment. All of this results in the adoption of an impoverished vocabulary/language and a reduction in social interaction. The results, which indicate exceptional and uncontrolled availability and usage of the internet, result in a wide range of manifestations of stress reactions in students who have experienced one form of cyberbullying. These risks of untimely response by parents may be implied by the adoption of inadequate forms of age and gender behaviours that students do not perceive in this way but as an example of a desirable form of behaviour among peers and in the environment.

Nowadays, it's not possible to imagine everyday life without the internet, nor is it a goal, but the use of the internet should be based on knowledge and understanding of the advantages and dangers of internet usage. Special attention should be paid to children as the most exposed population, giving the necessary guidelines in order to use the internet as safely as possible, emphasizing the numerous advantages of using the internet, for example for educational

purposes. It is extremely important to emphasize the need for a joint approach of children and youth, parents, the education system, the local community, social, health, judicial and other organizations in providing safety and protection of children, both in the real and virtual world.

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**SIMPLE METHODS FOR DETERMINING FOOT DEFORMITY****JEDNOSTAVNE METODE ZA PROCJENU DEFORMITETA STOPALA**

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**ABSTRACT**

The cause of foot deformities is contained in insufficient physical activity of children, inadequate diet that increases obesity, as well as uncomfortable and inadequate footwear. Timely diagnosis increases the prevention and remediation of this deformity, which, if not treated properly, causes disruption of other parts of the posture of the body. There are various methods for diagnosing this disorder, from the most complex ones to the simplest ones - which are presented in this paper. Mayer's, Thomsen's, Chizhin's, Russian and German methods are realized with sufficient knowledge, and with minor material and technical requirements. This paper is aimed at presenting and explaining the application of these methods, each of which provides satisfactory indicators of foot deformity and can fully guide the work of the teaching staff. Foot deformity requires a long-term approach to treatment so it needs to be detected as early as possible. As recommended in this paper, this can be done in the fifth grade of elementary school at the latest.

**Key words:** Elementary School, Mayer, Thomsen, Chizhin, Russian method, German method

**SAŽETAK**

Uzrok nastanku deformiteta stopala sadržan je u nedovoljnoj tjelesnoj aktivnosti djece, neadekvatnoj ishrani koja povećava pretilost kao i neugodnoj i uopšte neadekvatnoj obući. Pravovremena dijagnostika povećava spriječavanje i saniranje ovog deformiteta, koji ukoliko se ne liječi na odgovarajući način, uzrokuje narušavanje i drugih dijelova posture tijela. Postoje različite metode za dijagnozu ovog poremećaja, od onih najsloženijih do jednostavnijih - koje su predstavljene u ovom radu. Mayerova, Tomsenova, Čižinova, Ruska i Njemačka metoda realizuju se uz dovoljno znanja, a uz male materijalno - tehničke zahtjeve. Ovaj rad usmjeren je na predstavljanje i objašnjenje primjene navedenih metoda, od kojih

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svaka daje zadovoljavajuće pokazatelje o deformitetu stopala i u potpunosti može usmjeriti rad nastavnog kadra. Deformitet stopala zatijeva dugotrajan pristup u liječenju tako da ga je potrebno što ranije otkriti. Kako je u ovom radu preporučeno to može biti najkasnije u petom razredu osnovne škole.

**Ključne riječi:** Osnovna škola, Mayer, Tomsen, Čižin, Ruski metod, Njemački metod.

## INTRODUCTION

The static role of the foot is reflected in taking over and carrying the entire weight of the body and distributing it to the basic fulcrums. Due to the load, the foot is subject to various changes in relation to the normal status. The static role of the foot is actively played by the muscles of the lower leg and foot, and passively by numerous interosseous ligaments as well as bones. Contact with the ground is made by the foot over three basic points of support (fulcrums): the nodules of the heel bone and the head of the first and fifth metatarsal bones (Ćibo, 2001; Guyton, & Hall, 2012). The flat foot represents the most common (Beganović, & Bešović, 2012a; Beganović, & Bešović, 2012b) deformity of the lower extremities, with the loss (lowering) of the physiological arches. It can be congenital and acquired (within the framework of this paper, the acquired lowered foot arch will be analyzed). Congenital flat foot should not be equated with the so-called "seemingly congenital flat foot" with which the child is born and which arises as a consequence of increased adipose tissue in the area of the plantum of the foot (Beganović & Bešović, 2011; Bjeković et al., 2011). It is a "fat cushion" that is gradually lost under the influence of functional stimuli, in the period when the child begins to get up and walk. After the second year of life, the arches of the feet gradually acquire their physiological appearance. Research (Krsmanović, 2007) has shown that about 20% of newborns have a certain level of deformity that is mild and without pathological significance. Deformity of the acquired flat foot occurs during development, especially if there are certain congenital predispositions. Acquired flat foot<sup>1</sup> can occur as a result of:

- hypokinesia,
- increased body weight,
- rickets at birth, and in the period of growth and development,
- traumatic factors,
- professional deformities,
- improperly selected and worn footwear.

There are three critical periods in the development of this deformity (Mađarević & Mustafičić, 2011):

- Infantile period - the phase of the child's uprightness, when it changes from a "four-legged" position to a standing one. This process should take place gradually and the child should only gradually move to an upright position. Premature and violent righting (often by parents or with the use of walking aids such as baby-walkers and baby-chairs) is not good for proper foot development.

- Adolescent period - a phase of accelerated growth and muscle weakness, with violent hormonal changes can contribute to the creation of a weak and loose loco-motor system, including the feet.
- The third delicate period - the adult age, where people whose occupations require a standing position (caterers, traders, dentists, surgeons) or people whose occupations require carrying of heavy loads, can develop a disorder in posture.

### How a flat foot is formed

Disorders of statics and normal appearance of the foot occur in the case of a disproportion between the active strength of the foot and the load force (Copeland & Solomon, 1991). At the same time, the strength of the muscles first decreases, then the ligaments stretch and finally the shape of the skeleton of the foot changes. Such disorders are manifested by the lowering of the arches of the feet and the appearance of a flat foot. First, the head of the talus (which forms the middle part of the tarsus) moves down (plantarly) and inwards (medially), and the position of the calcaneus changes at the same time. The calcaneus occupies the valgus position and this represents the first phase of the lowering of the longitudinal arch<sup>1</sup>. If this phase is not stopped, the navicular bone<sup>2</sup> and the cuboid bone<sup>3</sup> are further lowered, and the longitudinal and transverse arches are lowered, and another phase called PES PLANO-VALGUS occurs. Simultaneously with the changes in the longitudinal and transverse arch, the heads of the metatarsal bones move away and descend, which represents the third phase of the lowering of the foot arch (PES TRANSVERSO - PLANUS). The shape and type of the foot is determined by the length of the toes, and based on that there are three basic types of feet: square, Egyptian and Greek.

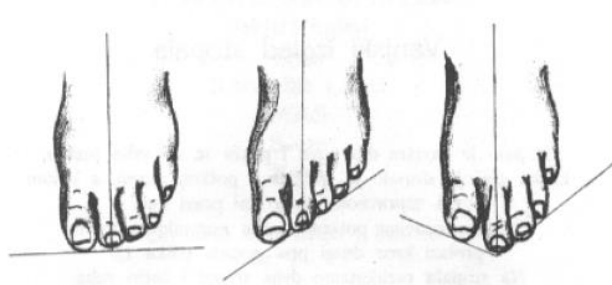


Figure 1. From left to right: Square, Egyptian and Greek foot <sup>4</sup>

Symptoms that indicate altered foot status are:

- pain occurring in the navicular bone, the middle part of the dorsum of the foot and the front part of the calcaneus,
- altered shape on the Achilles tendon, its distortion with inward convexity,
- valgus position of the heel,

<sup>2</sup> Os naviculare

<sup>3</sup> Os cuboideum

<sup>4</sup> <http://paedcro.com/hr/1287-pretraga-po-naslovu/271-271>, Accessed on October 20<sup>th</sup> 2020

- change in the position of the big toe that rotates around the longitudinal axis, the toenail rotates medially, and the whole big toe is abducted,
- the inner malleolus is bulged towards the medial side, it is enlarged and lowered,
- the front part of the foot is abducted and pronated,
- patient's shoe (the heel of the shoe is more worn out on the inside), and
- pain in the lumbosacral region.

### **Methods for determining deformity**

Diagnosis of a flat foot is performed in two ways:

- by clinical examination and
- by technical aids.

Clinical examination is usually performed by a physician/doctor (Krajcinović, 1995). He/she approaches the analysis of the appearance of the feet by individual details and as a whole. In terms of detail, the feet should be observed from the front, back, side and plantar side. The results of the observation should be compared with the correct appearance of feet. In order to determine the degree of the lowering of the foot arch, the respondent is required to raise his/her heels and keep the position of standing on his/her toes. In this position, attention is focused on the position of the Achilles tendons. Their correction, i.e. return to the vertical position in relation to the calcaneus, indicates that the changes are still functional. Additional exercise and movement activities can help in aiding this form of deformity. Next, the foot is examined from the side. The relationship between the foot and lower leg, then the position and appearance of the longitudinal arch, and especially the navicular bone, is determined. From this position, the degree of the lowering of the arch is determined. Respondents are required to raise one and maintain a stance on the other leg/foot. Under the influence of the respondent's weight, the muscles of the lower leg and the foot of the standing leg contract and raise the longitudinal arch of the foot. Its fixing and maintenance, indicates the so-called muscular phase of the lowered foot (functional changes). Additional exercises and increased motor activity also help with the appearance of this level of deformity (Hadžikadunić & Balta, 2004). If this test shows a short-term fix and re-lowering of the arch, it is a sign that the changes have progressed. Retaining the adhered sole to the ground during this test indicates the third - most severe phase of deformity. Within the most difficult phase, additional exercise and activity are only part of the overall therapeutic procedure. The position of the front part of the foot, the position of the toes and the big toe are observed from the front.

The use of various aids in the process of determining a flat foot can contribute to a more precise determination of the degree of deformity. In health institutions, special devices are used, such as a podoscope for direct visual observation of the plantar surface, a fluorescent pedograph and a photocell recorder. In addition to the above, a classic plantograph can be painted with colour applied to the foot and an imprint on paper. The advantage of using a classic plantograph is simple realization, with low material costs and simple determination of the degree of deformity.

### Simple methods for determining foot deformity

Simple methods for taking plantograms are based on taking a footprint on an A4-format-paper (Trošt et al., 2005). The foot is pre-coated with easily washable indigo paint, ink, pigmented paint and the like. The paint is applied with a roller on which the paint is evenly applied. Another way to apply the paint on the foot is when a metal or plastic container is used, at the bottom of which multi-layer gauze is placed. The gauze is evenly soaked in the coloured substance. Both feet are placed into the bowl at the same time. After one or the other foot is coated with paint, the respondent will stand on an A4-format- paper, leaving a sole print in the middle of the paper. After that, the analysis of plantograms is approached. There are several methods by which the obtained imprint is analyzed (Turk, E. 2011) and the most common are: Mayer's method, Thomsen's method, Chizhin's method, German method and Russian method.

### Mayer's method of determining foot deformity

On the footprint, a line is drawn that runs from the most protruding part of the heel bone to the medial edge of the fourth toe. We call this line the Mayer line. If the central part of the footprint exceeds the Mayer line, it is considered that the respondent has a foot deformity (Ahmetović, 2015; Rašidagić & Nikšić, 2014). The more the print crosses the Mayer line, the greater the deformation. The method is reliable, but its main drawback is slightly lower precision in determining the degree of deformity.



Figure 2. Mayer's method of determining foot deformity

### Thomsen's method of determining foot deformity

Thomsen's method is implemented in the following way (Nikšić and other authors, 2015b; Rašidagić & Mekić, 2018): from the centre of the heel, which is precisely determined on the plantogram, a line is drawn towards the lateral edge of the third toe. It represents the boundary line between a normal and a lowered foot arch and is known as the Mayer line. If the footprint does not cross this line towards the medial edge of the foot, it is a proper foot according to the criteria of this method. The crossing of the footprint over this line indicates a certain lowering of the longitudinal arch of the foot and dictates the need for further analysis of the plantogram. Further processing involves drawing a tangent that connects the most protruding part of the imprint of the medial edge of the heel with the imprint of the front part of the foot. After that, the nearest part of the footprint around the middle of its plantum (line segment A), expressed in millimetres, is linked with the Mayer line with a ruler at a right angle. Then from the same point, from the Mayer line, vertical to the tangent that connects the heel and the front part of the foot, (line segment B), expressed in millimetres, is drawn. After obtaining these two values, in order to calculate the index of the percentage of the longitudinal arch of the foot, they are placed in relation to each other ( $A / B * 100$ ). The obtained percentage indicates the size of the lowering of the longitudinal arch of the foot, as follows:

- 1-30% represents the first degree of the lowering of the foot arch,
- 31 - 60% represents the II degree of the lowering of the foot arch,
- over 61% represents the III degree of the lowering of the foot arch.

The disadvantage of this method is that people with a normal arch of the foot are left without an index, i.e. the index is zero, which makes static data processing more difficult.

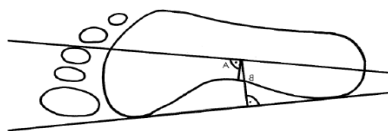


Figure 3. Thomsen's method of determining foot deformity <sup>5</sup>

### Chizhin's method of determining foot deformity

Chizhin's method for estimating plantograms involves dividing the foot with three lines. From the inside of the plantogram, the first line "AB" is drawn, which connects the most protruding medial part of the heel print to the anterior medial part of the foot at the height of the first metatarsal bone. The second line "CD" is drawn through the middle of the plantogram. This line connects the middle of the second toe and the middle of the last most protruding part of the heel. The third line "EF" runs perpendicular to the line "CD" through the middle of the foot and divides the foot into two equal halves. On the line "EF", point "a" is determined (contact of the line "EF" with the outer part of the foot), then point "b" (contact of the inner part of the foot with the ground) and finally point "c" (contact of the line "EF" with the line "AB"). The index of the lowering of the foot arch is calculated via the formula  $I = ab / bc$ . Estimation of deformity is determined by the formula:

- $I = 0$  to 1, normal foot (arch)
- $I = 1.01$  to 2, marginally lowered foot (arch)
- $I = 2.01$  and higher, represents a very lowered foot (arch)
- 

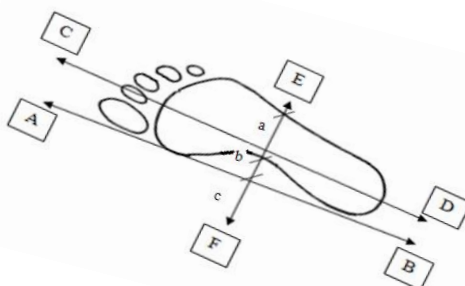


Figure 4. Chizhin's method for determining foot deformity

<sup>5</sup> Cited/taken from „Korektivna gimnastika“, Ilić.2012

### German method of determining foot deformity

This method divides the foot into three thirds. A transverse line is drawn on the widest part of the heel over the footprint. On the transversely drawn line over the heel, four points are marked that are evenly spaced, starting from the contact of the transverse line with the foot (medially and laterally). After this, line segments are drawn along the footprint, so that the first line segment (line) passes from the outside of the foot (laterally), the second line segment passes between the third and fourth toe and the first point marked on the transverse line of the heel, the third line segment passes between the big toe and middle toe and the second point marked on the transverse line, and the fourth line segment passes from the inside of the foot, touching the foot at the most protruding part of the footprint. If the inner arch of the foot is located within  $2/3$  of the drawn lines, then the foot is considered to be "not deformed".

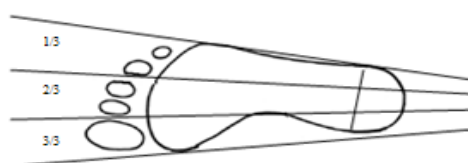


Figure 5. German method of determining foot deformity

### Russian method of determining foot deformity

The method of Russian authors is also a very simple method for determining foot deformities. The plantogram is divided into five equal parts in the front part of the foot at the height of the first and fifth metatarsal bones, as well as the imprint of the heel. If the footprint, observed from the outside to the inside, does not exceed two of the five drawn fields, it is considered that there is no foot deformity. If the footprint covers three of the five drawn fields, it represents the first degree of foot deformity, if the footprint covers four of the five drawn fields, it represents the second degree of foot deformity, and if the footprint covers the fifth drawn field or more, the foot is considered to be in the third degree of deformity.

- $3/5$  of the plantogram = I degree of lowered foot (arch),
- $4/5$  of the plantogram = II degree of lowered foot (arch); and
- $5/5$  of the plantogram = III degree of lowered foot (arch).



Figure 6. Method of Russian authors <sup>6</sup>

<sup>6</sup> Cited/taken from „Korektivna gimnastika“, Ilić.2012.

## CONCLUSION

Violation of the proper status of feet should be a warning to physical education teachers that children will not be able to fully realize all the teaching contents. It has been determined that a deformed foot causes various interfering factors that can manifest through a sore foot, pain in the tendons, lower legs and knees. Students may also experience various hesitations due to the appearance of poor leg posture (X legs), a disorder that also occurs as a result of foot deformities. Due to all the above, preventive action is needed (Rašidagić and other authors in 2016) by applying various shaping exercises that raise the functionality of the feet. The teaching staff in the classes, and also the coaches familiar with these indicators - in training, can measure the status of the feet. After that, depending on the determined degree of deformity, the rehabilitation of that disorder is approached. If the deformities are of a functional nature, exercises are planned with the students to restore their functional status (Rašidagić, 2011). If a structural disorder in the posture of the feet is determined, special exercises can stop the disorder (Krsmanović, 2007), but also, the child could be sent to a doctor. In their work, the teaching staff should also apply the teaching principle called the "principle of unified action", on the basis of which parents, doctors, coaches and others should be acquainted with the measurement results. Then other necessary measures can be taken to fix the deformity (making an orthopaedic insole, for example). Foot deformity requires a long-term approach in remediation, and prognosis is better if a timely diagnosis is established. Since the teaching of physical education and health education is taken over by sports teachers and physical education teachers already in the fifth grade of elementary school, this period could be stated as the final period for determining the status of feet (Hadžikadunić, 2000). In this paper, simple methods for determining foot deformities are presented, and well explained, each of which provides quite sufficient opportunities to be applied in the teaching process, also to teachers who were not enough familiar with them (Imamović-Turković and other authors, 2019). The teaching staff should work on informing both students and parents about the way of choosing sneakers and other footwear, but also the way of appropriate nutrition that will be aimed at reducing the obesity of students.

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## JUVENILE DELINQUENCY AND POVERTY REDUCTION POLICY

### MALOLJETNIČKO PRESTUPNIŠTVO I POLITIKA REDUKCIJE SIROMAŠTVA

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#### ABSTRACT

The subject of this paper is to point out poverty and material insecurity as a social context for the occurrence of juvenile delinquency. Social security is what every state policy strives for and what every citizen, every man, wants. Therefore, poverty reduction policy is an important aspect of social policy and development of any country. Quality social planning and coverage of all risks is extremely important for poverty reduction, and the creation of such a socio-cultural context that will contribute to the prevention of juvenile delinquency. Such planning implies social planning and undertaking measures and activities aimed at economic, social, and educational development of the state that can meet the needs of young people, citizens and society in general for quality satisfaction of life necessities and proper development of young people.

**Key words:** social policy, poverty, juvenile delinquency, reduction

#### SAŽETAK

Predmet ovog rada je ukazivanje na siromaštvo i materijalnu nesigurnost kao socijalni kontekst za pojavu maloljetničkog prestupništva. Socijalna sigurnost je ono čemu svaka državna politika teži i što svaki građanin, čovjek, želi. Zbog toga je politika redukcije siromaštva važan aspekt socijalne politike i razvoja svake države. Kvalitetno socijalno planiranje i pokrivenost svih rizika od izuzetnog je značaja za redukciju siromaštva, te stvaranje takvog socio-kulturnog konteksta koji će doprinijeti prevenciji pojave maloljetničkog prestupništva. Takvo planiranje podrazumjeva socijalno planiranje i preduzimanje mjera i aktivnosti usmjerenih ka ekonomskom, socijalnom, obrazovnom razvoju države koji može odgovoriti potrebama mladih, građana i društva uopšte za kvalitetno zadovoljavanje životnih potreba i pravilan razvoj mladih.

**Ključne riječi:** socijalna politika, siromaštvo, maloljetničko prestupništvo, redukcija

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## INTRODUCTION

Given that juvenile delinquency is a negative social phenomenon that has historically occurred in all societies and still exists today, in all countries, delinquency is a phenomenon to which, through social policy, planning and development, special social and state attention should be paid. The development of society and the development of the welfare state also influence the concepts of social policy that directs and refers to specific actions and relations of the state and society towards crises, social problems and risks. Thus, in recent decades, modernist concepts of observing social problems as more humane and multidimensional approaches have been increasingly developed. Under the influence of globalization changes in socio-economic and political processes in the world, emphasis has been placed in recent decades on the development of mechanisms for the protection of human rights, protection of children and families, access to education, as well as the development of new opportunities for finding and joint solutions to socio-political problems of marginalized social groups and social deviation. Social security is what every state policy strives for and what every citizen, or every man, wants. Therefore, poverty reduction policy is an important aspect of social policy and development of any country.

Quality social planning and coverage of all risks is extremely important for poverty reduction, and the creation of such a socio-cultural context that will contribute to the prevention of juvenile delinquency.

### **Social policy and poverty reduction**

There are different approaches and observations of states, i.e. public policies, towards social crises and different social problems. The forced quarantining of the sick, the engagement of the church, the care for war orphans, aid to the poor through charity and mercy have evolved over time to legislatively and systematically address poverty and help people in social need due to compromised social security. The systemic solution for the crisis of poverty as a social problem has its roots in the eleventh and twelfth centuries, because then poverty, instead of being observed as voluntary, was increasingly viewed as a condition caused by external, or social factors. In the sixteenth century there were changes in the social care of the poor in the sense that social protection and care are gradually taken over from the church authorities by civil authorities, and the roots of modern socio-political understandings of social development are found in philosophers in the eighteenth and nineteenth centuries. The works of philosophers result in the starting ideas of modern socio-political doctrines and theories of social development and social work.

Such observations of social risks are followed by a period of civil reform in countries where states have experimented with social care for the poor using different methods: "taxes for the poor", voluntary funds, social insurance, unemployment insurance, pension insurance for the poor, national pensions, laws for the poor, social laws, health insurance, etc.

Namely, during the development of states, social problems also evolved, that is, there were changes in their manifestations, so the attitude of society towards the problems that occur changed. Also, on the other hand, not all societies are advocates of the same procedures, primarily because they do not have the same problems and needs, nor the same value systems.

Thus, we can talk about more approaches of state policy towards social problems, about different elements of social and economic development and different goals of social planning. A. Halmi (1988) believes that social planning is a “programmed social action aimed at achieving an optimal relationship between social goals and the means to achieve those goals, which goes in the direction of meeting and humanizing the needs of people within a community.” (Gavrilović, 2010: 28 ).

The modern state has its roots primarily in the feudal state where the feudal lords were superior to the serfs and with a characteristic paternalistic relationship of disposal of the state and the system of government. Overcoming paternalism and administrative bureaucracy is one of the basic goals of the development of democracy and the process of human rights protection, so in the development of the state there are first labour movements aimed at protecting civil rights and then political rights, while in the 20<sup>th</sup> century social (cultural and economic) rights are proclaimed. Starting from the classical models of social policy (residual and redistributive) the state, i.e. society, developed further.

The literature discusses different criteria, i.e. different divisions of the social policy model. Nevertheless, neoliberal, conservative and corporatist models stand out as the most important, i.e. as the most significant, and liberal and conservative models stand out as the most modern models of social policy.

Liberalism or the Anglo-Saxon approach to social risks emphasizes the individual, the person, as the bearer of responsibility for personal life, and the protection of personal rights is set as the basic task of the state. Emphasis is placed on private ownership and free participation in the market. In this approach, social work is accepted as “part of subsidiary modest services of voluntary organizations or institutions (e.g. neighbourhood or interest groups, church, etc.), insisting on self-help and mutual protection” (Milosavljević, 1998: 69). The state's influence on social development, i.e. the planning of social actions, should be minimal. "If the mechanisms of the market, family or other forms of charity or voluntary solidarity do not eliminate poverty or other social cases due to the unfavourable position of individuals or social groups in the market - only then could the state social services act" (Gavrilović, 2010: 29). Neoliberals are calling for "less government", privatization, freedom of market participation for everyone, emphasizing universalism and strengthening social integration and inclusion, and on the other hand, the state minimally protects citizens from risks such as poverty while emphasizing redistribution of funds. This theory starts from the understanding that the economic development of a capitalist society, based on the *laissez-faire* market mechanisms, will eliminate poverty.

The social democratic or Scandinavian model of social policy starts from the proclamation of improving the lives of workers through social rights and social security, access to education and the like. The important values that characterize this political model are: freedoms, social justice and equality, and solidarity (Gavrilović, 2010: 30). According to this political model, social security in the state is achieved by such state actions where the state is the inviolable actor who decides on social security. Guided by basic and general interests and needs, and on the basis of assessment, the state makes the distribution of important national assets.

Active employment policies and inclusion of members of marginalized groups are pursued.

Originating in the developed era/state of capitalism, this model refers to the concept of poverty and the welfare state framework based on the idea that the state, through social programs, influences the redistribution of a part of national income in favour of the poor, thus achieving at least two basic effects: social peace and social justice.

Proponents of the corporatist model of social policy start from the classical social democratic model. The significant difference, however, is in the concept of agreement between the social partners. Labour and social rights are regulated by dialogue between employers and trade/workers' unions, and social security complements the relationship between workers and employers by participating in contribution financing. Countries that apply this model, such as Sweden, Japan, and Austria, advocate coordinated economic and social development, and full employment, manage to achieve a high level of social welfare, and the risks they face today are age of the citizens, rapid technological development, unemployment, education costs, the spread of poverty, etc.

At the end of the 19<sup>th</sup> century, in Great Britain, some pragmatists offered new solutions to solve social problems and risks, the so-called Fabian (strategy) approach, where they went between two extremes, i.e. liberalism and the socio-democratic system. Starting from the point of view that the market produces inequalities that most affect the working class, great importance is given to the state as an actor that can only reconcile these inequalities by redistributing wages, involving the working class in non-profit organizations, parties, institutions and elites. Thus, they believe, equality among citizens would be achieved, that is, access to employment, education and similar systems would be enabled. "Mass psychology + mass propaganda = mass hypnosis. The goal was to create today's principle of free trade that will unite the world through the idea of globalization, and strong individuals will be able to stand behind it all." (Србија данас, 2013).

On the doctrines of the above mentioned models and especially the social democratic model of social policy, other concepts based on the principles of solidarity and equality have emerged.

The combined model of social policy combines three sectors: governmental, private for-profit and non-profit, and emphasizes the individual who actively participates in the social policy system. In a similar sense, the term social pluralism (welfare pluralism) is used as a "wealth of differences" in a system where numerous social groups (political, economic, and religious) have the appropriate power and influence (Vidanović, 2015: 242). Today, the literature also states the integrative model of the welfare state, which advocates social integration "based on common values, interdependence of social institutions and social stability achieved through reforms and state intervention in economic and social change" (Gavrilović, 2010: 30).

Revising the basic starting points and results of the liberal and conservative socio-political model, we can conclude that social planning has gained importance as well as the fight against poverty, and considering different doctrines and approaches to poverty as a social problem, we can say that social planning is different and that it can act both progressively and regressively on the occurrence of poverty. The multidimensional view of poverty as a lack of food supplies, unemployment, social exclusion from the education system, etc., has shifted, in recent decades, society's attitude towards the problem of poverty.

There have been new social changes in society, i.e. the need to look at the problem comprehensively and for such social planning, which includes assessments of necessities, shifting the understanding from aid to charity to socio-economic planning and civic activism, and negotiating with various actors and beneficiaries. The main goal that the state should adhere to is to create a sense of equality among people, equal access to factors that ensure the satisfaction of social and economic needs, i.e. equal distribution of funds, and on the other hand encourage social action, suppressing the diffusion of individual responsibility and anomie of citizens' consciousness.

Humanity of approach is today what social policy adheres to, but still requires concrete results in the field of improving the economic development of the state, with the trend and the need to be included in current social trends. Facing the risks, the demands of modernization, crises such as wars, natural disasters and the like, social policy is also planned.

The European social model brings together historical, economic and cultural differences between EU member states and was developed in the last decade of the 20th century, stemming from the Lisbon Strategy (2000). The aim is for the union to achieve full employment, sustainable economic growth and social cohesion and integration, which will be achieved by harmonizing national policies with the improvement of the social security system and the elimination of social risks of poverty, unemployment, etc. (Milosavljević, 1998: 17).

Starting from the aspect of achieving the elimination of social exclusion, as a cause of poverty, the European Union sets the task of reducing poverty. With the Lisbon Strategy adopted in 2010, in order to achieve that goal, the European Community has set a common goal in the form of achieving smart, sustainable and inclusive growth and development. The task was, by the end of 2020, to reduce poverty by 25%. According to Eurostat, the number of people at risk of poverty began to decline after 2012, so that in 2018 it was lower by 8.2 million compared to that number in 2008. Thus, within the framework of the "Strategy 2020", 11 thematic goals have been set for stimulating growth in the period of 2014-2020. In the European acquis, the European pillar of social rights stands out here, which in recent decades has been aimed at creating and improving conditions for life, work, and providing adequate social protection. By adopting a series of anti-discrimination directives, ensuring the availability of funds, and strategies for specific groups of citizens, Europe directs the social development of countries through social policy goals, which would achieve equality and combat poverty and social exclusion. (Kennedy, 2019)

Poverty reduction is, therefore, one of the basic goals of social planning and social policy. Social events, great social transitions, difficulties and the like affect the socio-economic condition of society. By reducing unemployment, developing the economy, industry, labour productivity of the population and improving the education system, the social policy plans actions and preventions, and therefore prevents the occurrence of negative phenomena. The World Bank's anti-poverty strategies are largely based on fostering economic growth. The World Bank and the International Monetary Fund determine that an individual who has a daily income lower than one euro is extremely poor, and in 2030 there should be no more such examples - that is the goal of the World Bank. Economic and social policy measures are acts what will provide such demographic changes that can create a truly sustainable development of the country - statement of the World Bank (World Bank, 2016).

Anti-poverty measures, whether global or specific local ones, have wide implications. Social crises, such as the economic crisis caused by major natural disasters or even epidemics or pandemics like today's pandemic caused by the emergence and spread of Covid-19 disease, lead to disruption of social homeostasis and the emergence of social deviations. The state of poverty, i.e. the increase caused by the Covid-19 crisis, is difficult to measure. Namely, the World Bank reports, published in April and May of the current year, as well as the supplemented series of notes in June and September, state that the projection of macroeconomic impacts of Covid-19 on the Western Balkans showed a significant impact of Covid-19 in terms of economic and social impact, the impact on fiscal policy, and the external sector.

The World Bank, in the absence of official data, conducted a simulation analysis, i.e. an online survey conducted by the market research agency on the impact of the Covid-19 pandemic on social change, and it was found that approximately 45% of respondents live in a household where a member has had his/her employment agreement terminated, his/her shift hours reduced, or he/she had been sent to unpaid absence by the employer. This entails reduced income and the appearance of unfavourable material and financial condition of the household. The economic outlook is still uncertain, i.e. negative, due to the fact that the pandemic is still going on, so employers are facing problems with production, difficulties with the export of products, import of raw materials, lack of labour power due to illness and the like. Thus, Bosnia and Herzegovina is in recession due to the global financial crisis, and for explanation we can add the information provided in the reports and information of the World Bank of European Perspectives, which states that the number of unemployed citizens, compared to 2019, has increased by more than 19,000, and compared to the period until July 2019, the number of employed citizens decreased by about 3% until July 2020 (Luccheti, Rigolini, World Bank, 2020). The World Bank predicts that poverty due to Covid-19 events, without adjusted and necessary government interventions, will increase by approximately 3%, and the recession will take its toll in the sense that Western Balkan countries are expected to lose 1.7% of GDP in revenue due to the nominal contraction of BPD 2020, and Bosnia and Herzegovina will have the lowest fiscal deficit in the region, while, in terms of maintaining low and stable inflation, the situation in Bosnia and Herzegovina is positive because there is an annual lower deflation compared to other states in the Balkan region. (World Bank group, 2020, An Uncertain recovery, Western Balkans regular economic report). States, as well as Bosnia and Herzegovina, independently, but also with the help of international institutions and bodies such as the World Bank and the European Union, try various measures to help and improve the work of the economy, health and social protection.

Those measures are such as minimum wage subsidies, information and educational work with experts, hygienic-epidemiological measures, measures to control the spread of the disease and the like. Such planning implies social planning and undertaking measures and activities aimed at economic, social, and educational development of the state that can meet the needs of young people, citizens and society in general for quality satisfaction of life needs and proper development.

The perspective of the future is not yet known, but one can expect an increase in social deviations such as domestic violence that has already been detected, and behavioural problems in children due to changes in schooling, the need to develop new defence mechanisms due to family member illness or trauma due to social isolation, or due to reduced levels of family economic opportunities.

### **Poverty and juvenile delinquency**

Juvenile delinquency is a phenomenon that has negative consequences in relation to the youth, but also in relation to society. That is why countries are systematically dealing with the problem of crime and poverty, which can generate deviations. Thus, juvenile delinquency is such a social problem that requires social sensibility and full state integration into social policy and planning.

To understand juvenile delinquency, one must first start from aetiology, and there are a number of factors, approaches, and theories in explaining the causes. The concept of criminogenic risks and protective factors stands out as a development concept for understanding the occurrence, as well as for planning social prevention and correction programs. As risk and protective factors, this concept brings together individual factors, family, school environment, peer groups and the community. Family is an extremely important factor for a child's development and healthy maturation, but it can also be a risk factor if the parental style and relationships are of poor quality, disharmonious and conflicting. In the domain of the family, the factor of material condition, i.e. poverty, also stands out. Low socio-economic status / poverty is a risk factor for the development of a child aged 6-14, it is also stated in the presentation of risk and protective factors for the beginning of delinquency according to Josip Bašić. (Martinjak, Odeljan, 2016: 22, Bašić, 2009;).

After the aetiology, the phenomenology of the occurrence of juvenile delinquency occurs, followed by prevention measures. There are a number of international acts that states follow when creating social policy strategies, and they must certainly include the problems and consequences of juvenile delinquency, as well as work on the causes of the phenomenon.

Criminologists have proven in research that juveniles from families with unfavourable socio-economic status are "more prone" to the development of delinquencies and other crime-related behaviours. In contemporary literature, one can come across examples such as the study conducted by Shaw, Mackay and Eliot, in which they state that juvenile delinquents mostly come from families of low-skilled workers. The author Meryl, a criminologist, came to a similar conclusion, explaining that because of the difficult life situations, those children neglected their education and delinquent behaviour occurred. Criminologist Burt obtained similar results showing that 19% of juvenile delinquents live in extreme poverty, and 37% of them come from families with incomes above the extreme poverty line, citing the inability of members of the lower social class to avoid prosecution. (Dimovski, Mirić, 2013: 183).

In explaining the impact of the socio-cultural context of juvenile delinquency in Serbia, the authors address the importance of the link between unemployment and family deprivation that affect children by "increasing the risk of releasing negative social development factors or negative personality potentials." (Jugović, L., Ilić, 2011.: 393).

The socio-cultural context, as a context for the development of juvenile delinquencies and crime, must be viewed with elements of unemployment, social exclusion, and the general family context thwarted by family poverty, socializing functions and protective functions.

That the material status of the family, i.e. parental unemployment, refugee status and non-attendance at school are potential factors in the development of antisocial and criminal behaviour of minors is a claim made by analyzing the content of the report of experts from social work centres in Serbia conducted in 2014. (Krstić, Lj.. 2014:332 ).

Starting from the research of Singer and Mikšaj-Todorović (1989), where a significant role of the material condition of the family in providing conditions for healthy growing up and socialization of children was established (Macanović, 2014; according to Macanović, Dujaković, 2019: 63), and dealing with the phenomenology of juvenile delinquency, authors in Republic of Srpska investigate the relations between the socio-economic status of the family and behavioural disorders. Thus, in the analysis of the state of juvenile delinquency in the highly economically developed municipality of Derventa, it was found that, although no direct conditioning was shown, in 38% of cases the family does not have regular monthly income, and that all families have a socio-pathological problem (alcoholism 54%, conviction for criminal offenses 15%, propensity to inaction 13%, propensity to vagrancy 10%, prostitution 8%), i.e. some kind of degradation of the family. (Macanović, Dujaković, 2019: 62).

A survey of socio-economic characteristics of adult perpetrators of crimes (convicts) in the Republic of Serbia conducted in 2019 indicates an extremely high unemployment rate that is five times higher than the unemployment rate of the total population, and a low educational structure with a higher percentage of people with or without primary school (i.e. with low income). The above mentioned indicates the unfavourable social and economic status of persons with criminal behaviour. (Radović-Stojanović, V., Tomić, J., 2019).

Broadly speaking, given the analysis of the conditions of growing up and living of juvenile offenders/convicts, and unfavourable conditions for their correction and re-socialization, the crisis and emergent response of states to juvenile delinquency requires global measures, as well as social policy measures. Thus, we come to measures for combating crime in general and to general prevention, and, given the aetiology, these measures should be aimed precisely at the life conditions of children and families. Given that poverty is a widespread global problem and a topic of discussion of state and interstate strategies, plans and actions, it was given special importance within the socio-political measures to combat and prevent juvenile delinquency. Anti-crime policy can thus be linked to general prevention and treatment recommendations contained in acts such as the United Nations Guidelines for the Prevention of Juvenile Delinquency (Riyadh Guidelines), the Beijing Rules, the JDL Rules, the Tokyo Rules, the Vienna Guidelines and others; given the importance of their incorporation into the domestic legislation of the states. Given poverty as a criminological feature of juvenile delinquents, for the successful combating against crime, the creation of conditions for favourable and desirable social development is also needed. This approach to juvenile delinquency, combined with measures and social policy of the European Union, can help create such a social context at the local or national level, to take such measures that will give the state a chance of achieving the conditions for proper early growth and development and maturation of children, as well as quality and satisfied life.

Quality social planning and coverage of all risks is extremely important for poverty reduction, and the creation of such a socio-cultural context that will contribute to the prevention of juvenile delinquency. Such planning implies social planning and undertaking measures and activities aimed at economic, social, and educational development of the state in order to meet the needs of young people, citizens and society in general for quality satisfaction of life necessities and proper development of young people. Socio-political doctrines are extremely important for the economic and social development of the state, because they direct the state and society to take such methods and such decisions that will control social relations, prevent and reduce social risks for social deviations.

## CONCLUSION

There has been a lot of talk about the occurrence of juvenile delinquency lately, but it is also a current topic because it concerns a socially sensitive group of the population, i.e. children, and also because there is no universal solution for this kind of social problem and it requires constant monitoring and work on prevention and correction. Etiologically speaking, there are a number of causes that affect the generation of juvenile delinquency, and one of the social characteristics is the socio-economic status of the family, i.e. poverty. Historically, the disintegration of traditional social structures has required such state engagement that will protect citizens from social risks such as poverty, unemployment, disease, and juvenile delinquency. Thus, today, within the process of modernization, the task of socio-political development of the state is to provide an economically sustainable and at the same time adequate level of protection of citizens from social risks.

Effective poverty reduction requires a decisive analysis of risk and protective factors of children's development, and social planning adapted to domestic needs, but also to global trends and requirements of world development. Reducing the risk of poverty, developing a culture of living, reducing unemployment, eliminating social exclusion, strengthening social actions, developing national development policies and programs of social development and social planning are combat methods against juvenile delinquency; looking through the concept of risk and protection factors, and the way to improve the condition of the family as the first factor in the proper socialization of children. Thus, in addition to social control, suppression and prevention of juvenile delinquency, the emergence of deviance and mechanisms such as (re) socialization, social investment in youth and education and lifelong learning, social plans must be constructed in a manner to act on a system of norms, values, customs relevant to conscious and stable functioning of the individual and society. It is precisely with such attitudes that socio-political understandings are built when planning such measures and social programs that will be able to respond to today's challenges, and especially to the problem of poverty. An integral part of the social policy program is to ensure the actualization of problems and conditions and development needs, and to strengthen public awareness and the culture of living itself. Supervision and evaluation of social policy are essential to ensure the monitoring of developed development strategies as well as the monitoring of global trends and requirements. The challenge is to respond to the needs of citizens and the demands placed on the actors of social and economic policy of a country.

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