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# RESEARCH IN EDUCATION AND REHABILITATION

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# PREDGOVOR

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

### FOREWORD

Dear readers, authors, associates,

It is our pleasure to introduce you a new edition of the jornal 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 jornal "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 investigates, displays and promots. 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

# DIFFERENCES IN THE FUNCTIONING OF FAMILIES OF CHILDREN WITH INTELLECTUAL DISABILITIES AND CHILDREN OF TYPICAL DEVELOPMENT

# RAZLIKE U FUNKCIONISANJU PORODICA DJECE SA INTELEKTUALNIM TEŠKOĆAMA I DJECE TIPIČNOG RAZVOJA

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**Original scientific articles** 

# ABSTRACT

A family that achieves family goals considers as functional family, while a family that does not meet family goals considers as dysfunctional. The study was aimed to examine the differences in the functioning of families of children with intellectual disabilities and families of children with typical development. The sample consisted of parents of primary school children (N=80) divided into two sub-samples, namely a sub-sample of parents of children with intellectual disabilities (N=40) and a sub-sample of parents of typical development children (N=40). Family functioning was examined with the Beavers model of family functioning by using the Selfreport Family Inventory scale Version II. After giving written consent to participate in the study, the parents completed the scale individually. Differences among the respondents regarding the functioning of families have been examined by the  $\chi^2$  test and the t-test. Statistical data processing was done in the statistical package SPSS 21.0 for Windows. The results showed that the families of the two groups of children were statistically significantly different in terms of family functioning ( $\chi^2$ =14.031, p=0.029), as well as in the two family dimensions, health/competence (t=2.462, p=0.021) and expressiveness (t=1.743, p=0.043). More families that are dysfunctional reported in families of children with intellectual disabilities, and these families are slightly worse than families of children with typical development on family dimensions of health/competence and expressiveness.

**Key words:** family functioning, Beavers model of family functioning, children with intellectual disabilities, children of typical development, family dimensions

# SAŽETAK

Funkcionalnom porodicom smatra se porodica koja dostiže porodične ciljeve, dok se disfunkcionalnom smatra porodica koja ne ispunjava porodične ciljeve. Cilj istraživanja bio je ispitati razlike u funkcionisanju porodica djece s intelektulanim teškoćama i porodica djece tipičnog razvoja. Uzorak ispitanika sačinjavali su roditelji djece osnovnoškolskog uzrasta (N=80) podijeljen na dva subuzorka i to: subuzorak roditelja djece sa intelektualnim teškoćama (N=40) i subuzorak roditelja djece tipičnog razvoja (N=40). Za ispitivanje funkcionisanja porodica koristio se je Beavers model porodičnog funkcionisanja, a primjenjena je Skala samoprocjene porodičnog inventara verzija II. Roditelji su, nakon davanja pismene saglasnosti za sudjelovanje u istraživanju, individualno popunjavali skalu. Razlike među ispitanicima u pogledu funkcioniranja porodica ispitane su  $\chi^2$  testom i t-testom. Statistička obrada podataka rađena je u statističkom paketu SPSS 21.0 for Windows. Rezultati su pokazali da se porodice dvije grupe djece statistički značajno razlikuju u pogledu porodičnog funkcionisanja  $(\chi^2 = 14.031; p = 0.029)$ , kao i u dvije porodične dimenzije, zdravlje/kompetencije (t=2.462, p=0.021) i emocionalna ekspresivnost (t=1.743, p=0.043). Veća disfunkcionalnost se bilježi u porodicama djece sa intelektualnim teškoćama, te su ove porodice nešto lošije od porodica djece tipičnog razvoja na porodičnim dimenzijama zdravlje/kompetencije i ekspresivnost.

**Ključne riječi:** funkcionisanje porodica, Beavers model porodičnog funkcionisanja, djeca sa intelektualnim teškoćama, djeca tipičnog razvoja, porodične dimenzije

#### **INTRODUCTION**

The term functional/dysfunctional family often used to define the "normality" of a family (Cicović Maslovar, 2015). The criterion to determine whether the family is functional or dysfunctional refers to the patterns of organizing the family process. A form considered as functional or dysfunctional depending on how well it fits or how well it fits into a particular context or family situation rather than its intrinsic qualities. A family pattern is functional if can be used to achieve family goals, while the term dysfunctional describes family patterns that do not meet tasks and goals, so symptoms or dissatisfaction occur (Cicović Maslovar, 2015). Merkaš (2012) states that family functioning provides information about the weaknesses and strengths of the family and its members. Family competence, which can go from successful and healthy family functioning to various dysfunctional patterns, is a continuum, not a series of separate categories. A competent family can change their style depending on developmental changes, while dysfunctional families show a marked rigidity of style.

Family functioning is viewed through several models in the literature that are used to evaluate family functioning, and Cicović Maslovar (2015) states that multidimensional systemic perceptions of family functioning are presented in three commonly used models: Circumplex model, McMaster model, and the Beavers model. A family functioning in this study was examined by the Beavers model of family functioning. The Beavers model of family functioning (Beavers & Hampson, 2000) assesses two dimensions: family competence and family-style. The results can be presented on a diagram in which the vertical axis represents the family-style, which in this model can be centripetal or centrifugal, while the horizontal axis shows the results for family competencies. The intersection of these two dimensions yields nine groups of dysfunctional families (mid-range families - centripetal, centrifugal and mixed; borderline families - centripetal and centrifugal; severely dysfunctional families - centripetal and centrifugal).

Foreign research shows that families with a child with developmental disabilities function differently and that greater degree of dysfunction is often encountered in these families (Axelsson, Granlund, & Wilder, 2013; Dyson, 1993; Fenning, J. Baker, B. Baker, & Crnic, 2007; Fenning, J. Baker, B. Baker, & Crnic, 2014; Rani et al., 2018; Rieger & McGrail, 2013). Dyson (1993) examined parental stress and the functioning of a family of children with disabilities and typical development children at two-time points. The results showed a stable high level of parental stress and a moderate degree of consistency in the functioning of families of children with disabilities. Families of children with disabilities exhibited greater levels of parental stress in both periods than parents of children of typical development. Interesting research was conducted by Rieger and McGrail (2013), who investigated whether parental humor is one of the predictors of family functioning in families of children with developmental disabilities. The sample included 72 parents of children with autism spectrum disorders and multiple disabilities. The results showed that humor was a significant, albeit poor predictor of family cohesion and adaptability, but on the other hand, the educational level and number of children in the family have a significant predictive effect on family cohesion and adaptability. Fenning et al. (2007) examined parenting among families of children with borderline intellectual functioning compared with families of children with typical development and children with disabilities. Parenting data were obtained from mothers of five-year-old children

through naturalistic home observation. Mothers of children with borderline intellectual

functioning showed less positive and less sensitive parenting behavior than other mothers show, and showed the least style of positive engagement. It was not observed that children with borderline intellectual functioning had more behavioral problems than other children; however, their mothers noticed more externalizing symptoms than mothers of typically developed children did. Fenning et al. (2014) conducted another study investigating parent-child interactions over time in families of young children with borderline intellectual functioning and families of typically developing children. Fathers were also included in the research and families were monitored for one year. The results showed that mothers of children with intellectual disabilities between the ages of 5 and 6 years showed a greater increase in negatively controlled parenting than mothers of typical children; fathers exhibited more negative behavior in compared to fathers of typically developed children. Also, children with borderline intellectual functioning alone showed more significant escalations in undesirable behaviors than did children of typical development. Rani et al. (2018) investigated the functioning of families in India using a systems approach and included 62 families of children with intellectual disabilities and 62 families of children with typical development in the study. The results showed that about 53% of families of children with intellectual disabilities and 19% of families of typical children were dysfunctional, and the authors conclude that a greater degree of dysfunction is prevalent in families of children with intellectual disabilities.

Foreign research shows that the functioning of families of children with disabilities in general, as well as families of children with intellectual disabilities, differs from the functioning of families of children with typical development, while in Bosnia and Herzegovina there are no studies of this type. The aim of this research imposed itself, due to these facts. This research was aimed to examine differences in the functioning of families of children with intellectual disabilities and families of children with typical development. According to the results of foreign research, as well as the lack of systematic support for families of children with intellectual disabilities in our country, the research started from the assumption that families will differ in their functionality. It was assumed that are more dysfunctional families would be more represented in families of children with intellectual disabilities in relation to the families of typical children.

# MATERIAL AND METHODS Sample of participant

The sample was composed of parents of primary school children (N = 80). The sample was divided into two sub-samples: the sub-sample of parents of children with intellectual disabilities (N=40) and the sub-sample of parents of children with typical development (N=40).

A sub-sample of parents of children with intellectual disabilities consisted of parents whose children attend the Public Institution "Institute for the education of persons with psychical and physical disabilities" in Tuzla and parents whose children are beneficiaries of the Public Institution "Cazin II" Primary School - Canter for Development of Inclusive Practices in Cazin. The criteria for selecting parents of children with intellectual disabilities were the diagnosis of intellectual disabilities (mild and moderate intellectual disabilities) in the child. The sample is appropriate because the sample includes all parents of children with intellectual disabilities who were in these institutions.

The sample of parents of children with typical development consisted of parents whose children attend the elementary school "Gornja Koprivna" Cazin. The selection criteria for this sample were to equalize the sub-samples of parents according to the school-age of the children.

#### Method of conducting research

The study was conducted in the cities of Tuzla and Cazin. Requests for research work were sent to the institutions, as well as the proper ministries. After obtaining the consent to conduct the research, the parents, who made the sample, were asked for written consent to participate in the research, after which the research work began. Parents completed the scale individually after being explained the principle of completing measuring instruments.

#### Measuring instruments

The Self-report Family Inventory scale Version II – SFI (Beavers & Hampson, 1990, as cited in Beavers & Hampson, 2000) was used in the research and it consisting of 36 items. The scale is a Likert type on which family members, in this case parents, rate their family in the range of 1 to 5 (1 - YES, fits my family very well; 3 - SOMETIMES, sometimes fits in my family; 5 -NO, it does not fit in my family; unless the family members are not sure and believe that the claim is between odd numbers, that is, between YES and SOMETIMES or SOMETIMES and NO, they can round out even numbers between, respectively 2 or 4). SFI has a high internal consistency ratio (Cronbach's Alpha between 0.84 and 0.93 and test-retest reliability of 0.85 or better). SFI assesses 5 family dimensions: health/competencies, conflict, cohesion, leadership, and expressiveness. Lower scores indicate higher competencies across all dimensions. For the interpretation of the results of the SFI scale on the diagram, the results achieved on the dimension of health/competence should be entered on the horizontal axis, and they represent the family competence, while on the vertical axis should be entered the result on the dimension of cohesiveness, which is used to assess family style. In this study, Cronbach's Alpha was 0.79. A General Questionnaire was also constructed that was designed for this research to capture general information about parents.

#### **Data processing methods**

The response was presented with frequencies and percentages as well as descriptive statistics. Differences among the respondents regarding the functioning of families were examined by the  $\chi^2$  test and the t-test. Statistical data processing was done in the statistical package SPSS 21.0 for Windows.

#### **RESULTS AND DISCUSSION**

Groups of families of children with intellectual disabilities and typical development children according to the Beavers model of family functioning are presented in Table 1.

		Family of c	hildren with
	Group of familias	Intellectual	Typical
	Group of failures	disabilities	development
		N (%)	N (%)
Eurotional	Optimal families	2 (5.0)	2 (5.0)
functional	Adequate families	13 (32.5)	28 (70.0)
Taimines	Sum	15 (37.5)	30 (75.0)
	Mid-range centripetal families	12 (30.0)	3 (7.5)
	Mid-range mixed families	9 (22.5)	5 (12.5)
	Mid-range centrifugal families	2 (5.0)	2 (5.0)
Dysfunctional	Borderline centripetal families	1 (2.5)	-
families	Borderline centrifugal families	-	-
	Severely dysfunctional centripetal families	1 (2.5)	-
	Severely dysfunctional centrifugal families	-	-
	Sum	25 (62.5)	10 (25.0)

Table 1. Groups of families of children with intellectual disabilities and children of typical development according to the Beavers model of family

 $\chi^2 = 14.031$ , p=0.029

The results presented in Table 1 show that the families of typical development children are in greater numbers (N=30 or 75.0%) in one of the functional family groups, namely 2 (5.0%) are optimal families, while 28 (70.0%) is adequate families. In the group of dysfunctional families, there are 10 (25.0%) families of children with typical development. Families of children with intellectual disabilities, on the other hand, are more dysfunctional (N=25 or 62.5%), namely 12 (30%) are mid-range centripetal families, 9 (22.5%) are mid-range mixed families, 2 (5.0%) are mid-range centrifugal families, 1 (2.5%) is borderline centripetal family, and 1 (2.5%) is severely dysfunctional centripetal family. Only 15 (37.5%) families of children with intellectual disabilities are functional, namely 2 (5.0%) are optimal and 13 (32.5%) are adequate families. The significance of the observed differences between families in terms of functioning was tested by the  $\chi^2$  test, which showed that the families of the two groups of children were statistically significantly different ( $\chi^2$ =14.031, p=0.029).

The results obtained were expected because it was assumed that families of children with intellectual disabilities would exhibit a greater degree of dysfunctional. The results of the study are in line with foreign studies in which a greater degree of dysfunction has also been observed in families of children with intellectual disabilities (Fenning et al., 2014; Fenning et al., 2007; Rani et al., 2018). On the other hand, research conducted by Dyson (1997) shows that there are no differences in family functioning between families of children with intellectual disabilities and families of children with typical development, but parents of children with intellectual disabilities have been shown to experience significantly greater levels of stress.

The higher degree of dysfunction in families of children with intellectual disabilities can be explained by the fact that the presence of a child with intellectual disabilities puts all family

members in a specific position, especially parents who are often overwhelmed by the effort to meet the special needs of the child (Kraljević, 2011). Also, being a parent of a child with a disability often described as significantly more challenging than parenting a child of typical development, burdened with factors such as the child's specific needs and heightened demands for additional health support (Van Ijzendoorn, Goldberg, Kroonenberg, & Frenkel, 1992, as cited in Mihić, Rajić, & Krstić, 2016). Denona (1999, as cited in Leutar & Stambuk, 2007) points out that everyday experiences and research findings indicate that families differ in adjustment. Not all families accept in the same way the fact that the child has a disability, and that the child is not the typical child they had hoped for over the past nine months. However, the results of this study and the research conducted abroad show that the birth and presence of a child with intellectual disability disturb family functioning and that families clearly cannot cope with the challenges that a child with intellectual disability puts in front of family as a whole and that these families need systemic and continues support to successfully cope with the challenges they face and to be functional families. Only functional families will be able to perform their role, that is, as stated by Kraljević (2011), to be the basis for the child's overall development, physical and psychological, as well as social and spiritual development.

The SFI scale measuring five family dimensions: health/competencies, expressiveness, cohesion, leadership, and conflict. Only two dimensions, health/competences, and cohesion use to determine the type of families in the diagram of the Beavers family function model, while the other dimensions do not take into account when determining family functioning. Therefore, there was a need to identify differences in the functioning of families on each family dimension. The differences in the results of parents of children with intellectual disabilities and children with typical development concerning the summary results for each family dimension are presented in Table 2.

Family dimension	Family of children with	AM	SD	t	р
Expressiveness	Intellectual disability	8.3000	3.61762	1 7/2	0.043
Expressiveness	Typical development	7.1250	2.25534	1.745	0.043
Landership	Intellectual disability	6.3500	3.03442	0 222	0 078
Leadership	Typical development	6.2000	3.01449	0.222	0.978
Conflict	Intellectual disability	27.2500	6.27061	3 786	0.266
Commet	Typical development	22.4500	4.99718	5.780	0.200
Cohesion	Intellectual disability	9.6750	2.40075	0.830	0.00
Conesion	Typical development	9.2000	2.70991	0.850	0.909
II. alth/annuation ag	Intellectual disability	34.0750	12.52155	2 162	0.021
rieann/competence	Typical development	28.4250	7.33760	2.402	0.021

Table 2. Differences in the functioning of families on each family dimension concerning summary results

As noted above, lower scores on all family dimensions signify greater competencies on them. Mean scores by dimensions are health/competence 57, cohesion 12, conflict 36, leadership 9 and expressiveness 15, and below-average results indicate that families have better functioning on these dimensions. Values of arithmetic means for each of the five family dimensions that

are presented in Table 2, show that both groups of families, families of children with intellectual disabilities and families of children with typical development, achieve results below the mean values on all five family dimensions, indicating that both groups of families have satisfactory competences on all five dimensions. However, Table 2 shows that the arithmetic means of families of children with typical development on all five dimensions is lower than the arithmetic mean of families of children with intellectual disabilities. The t-test was performed to determine whether the observed difference were statistically significant. The results of the t-test showed that there was a statistically significant difference between the families of children with intellectual disabilities and children of typical development in the two family dimensions, namely the dimension health/competence (t=2.462, p=0.021) and the expressiveness dimension (t=1.743, p=0.043). There was no statistically significant difference between the two groups of families in the other three family dimensions: cohesion, conflict, and leadership. Similar results obtain Rani et al. (2018) who found that families of children with intellectual disabilities differed from families of children with typical development on dimensions of family functioning such as beliefs, cohesiveness, support, etc., but that both groups of families achieved positive results on the dimensions.

Most of the research, as well as this research, deals with the impact of child characteristics on family functioning, while the results of the research conducted by Timothy et al. (2011) show that factors such as income, available time to interact with the child, and social support predict parents' stress much better than aspects of the child's functioning. Therefore, when researching family functioning in families of children with intellectual disabilities, or developmental disabilities in general, it should take into account that many other factors can influence family functioning besides the presence of a child with disabilities. Another limiting circumstance encounter in the research of this issue, which relates to the fact that research on the impact of a child with an intellectual disability on the family focuses solely on mothers. Therefore, Ridding & William (2019) conducted a study aimed to examining fathers' experiences of parenting a child with Down syndrome, their impact on family functioning, and involvement in supporting their child. Semi-structured interviews conducted with 15 fathers and the results showed that the path of father adjustment depends on three key factors: child adaptation, parent/spouse role adjustment, and social adjustment. The results showed that fathers, despite practical and emotional challenges, use strategies to achieve positive adjustment. Fathers identified the need for services to recognize their role and involve them in supporting their child.

#### CONCLUSION

The results showed that greater dysfunction observed in families of children with intellectual disabilities and that families of children with intellectual disabilities were slightly worse than families of children with typical development in two family dimensions: health/competences and expressiveness. It is important to emphasize that both groups of families have satisfactory competences on all five dimensions. The results obtained in this research should be taken with some caution because of the limitations of the measuring instrument that was used, because it is uncertain how culturally appropriate is it for our social environment and family functioning characteristics. Also, this research focuses on the impact of the presence of a child with intellectual disabilities in the family on family functioning, and other factors that may affect family functioning have not been investigated. Also, for the most part, information was obtained from mothers, and fathers were not sufficiently represented.

Given these limitations, it would certainly be advisable to repeat the study on a larger sample of parents of both groups and try to remedy the shortcomings observed in this study. In addition to the limitations identified, the results obtained can be a good starting point for further examination of this issue in our region.

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# CORRELATION BETWEEN RELIGIOSITY AND QUALITY OF LIFE IN PERSONS WITH DISABILITIES

# POVEZANOST IZMEĐU RELIGIOZNOSTI I KVALITETE ŽIVOTA KOD OSOBA SA INVALIDITETOM

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#### **Original scientific articles**

#### ABSTRACT

The aim of the study was to determine the correlation between religiosity and quality of life in persons with disabilities. The survey included a total sample of 92 respondents from the area of Tuzla Canton. Of the total sample, 41.3% had paraplegia, 30.4% had cerebral palsy, and 28.3% had amputation. The World Health Organization's Quality of Life Questionnaire as well as the religiosity assessment questionnaire were used to verify the set research objective. A correlation analysis was applied to verify the set research objective. Based on the results of the research, it can be concluded that there is a statistically significant correlation between different domains of religiosity and quality of life in persons with disabilities.

Key words: Religiosity, Quality of Life, Persons with Disabilities.

# SAŽETAK

Cilj istraživanja je bio utvrditi povezanost religioznosti i kvalitete života kod osoba sa invaliditetom. Istraživanjem je obuhvaćen ukupan uzorak od 92 ispitanika sa područja Tuzlanskog kantona. Od ukupnog uzorka 41,3% ispitanika je sa paraplegijom, 30,4% sa cerebralnom paralizom, dok je 28,3% ispitanika sa amputacijom. U svrhu provjere postavljenig cilja istraživanja primjenjen je upitnik o kvaliteti života Svjetske zdravstvene organizacije, kao i upitnik za procjenu religoznosti. U svrhu provjere postavljenog cilja istraživanja primjenjena je korelacijska analiza. Na osnovu dobijenih rezultata istraživanja može se zaključiti da postoji statistički značajna povezanost između različitih domena religioznosti i kvalitete života kod osoba sa invaliditetom.

Ključne riječi: Religioznost, kvaliteta života, osobe sa invaliditetom.

#### INTRODUCTION

Since its inception, the humankind has had the need to believe in supernatural beings, multiple deities, or to witness faith in the One and Only God, faith in Allah. This human need for religious identity has not changed to this day, because human, besides other identities (national identity, geographical identity, etc.), has a need for religious identity (Saliji, 2015). When we talk generally about the terminological definition of religiosity and religion, we can say that with the development of scientific thought and cognition different, but essentially similar interpretations of religion, religiosity, as well as their meaning in the life of human, arise. The concepts of religion and religiosity are intertwined in definitions, with religion more concerned with the socio-cultural aspect and religiosity with the individual-experiential aspect (Charapina et al., 2013). There are different definitions of religion and religiosity, but in their essential meaning they relate to belief (Mehmedinović et al., 2011). Religion is a tightly knit system of beliefs and customs that relate to the saints, that is, separate and forbidden things, a system of beliefs and customs that unite all their followers into the same moral community (religious community, church, etc.) (Durkheim, 2008), collective matter Religiosity reaches the depths of a person's personality and touches all its dimensions (Smajić, 2015). Religiosity involves or implies one's own living a religious dimension of life, implies an inner attitude, commitment and beliefs about the existence of something transcendent, about the existence of God, and implies living in accordance with those beliefs (Bakrač, 2012). Religiosity is conceived at the level of the individual, where a person describes himself as a believer, which implies adherence to certain religious beliefs (James, 1994). The religious dimension of Islam is reflected within the word din, which denotes faith as an act (Qur'an, 5: 3). Din, an act of religion, is a religion that denotes Islam (halal, haram, good deeds, behavior, etc.). Islam is a revealed religion from God, which means devotion (at-taslim) (Beglerovic, 2009). Ad-din is a set of teachings, which include the testimony of Tawhid, then the mission of the prophet Muhammad, to whom God gave the Book of guidance whose nature he spiritually profiled to perfection, and addressed the Prophet's nature and upbringing as the most beautiful of all (Hafizovic, 1996), and an expression of obedience to God as recorded in the Book of Instruction (Sachiko and C. Chittick, 2005). The study of religiosity is multidisciplinary, it is researched within the theology, philosophy, history, anthropology, sociology, psychology, etc. In the world, over the last ten years, there has been a great deal of research showing that religiosity is linked to a healthy and stable family life, leads to a reduction in domestic violence, and leads to improved physical and mental health (Fagan P, 2006). Also, parents who are religious have a better relationship with their children (Pierce and Axinn. 1998) and are more likely to be involved in their children's education (Wilcox, 2002). The above studies and previous interpretations are the starting point for the assessment of religiosity in parents of children with disabilities, which can serve as a basis for future research that will deal with the correlates of religiosity and attitude towards the child, quality of marital union, etc.

Knowing religiosity in parents of children with disabilities, somatotherapists, sophologists, occupational therapists, theologians, psychologists, educators and health care professionals can help in creating possible supportive assistance programs, which must adopt the use of and new interdisciplinary communication languages, complementary purposeful communication understanding and supporting the biopsychosocial and spiritual potentials of human existence (Prstacic, 2006). It is an indisputable fact that experts of different profiles are engaged in the study of quality of life, which is one of the essential indicators of human homeostasis. The human is a biopsychosocial, but also a spiritual being, and therefore we can talk about the quality of life in biological, psychological, social and spiritual terms, but we can also talk about the conditional interconnection of these structures that actually represent a being. So, for example, speaking in the language of biology, it is essential to what extent physiological changes (nervous system, immunity, heart) in the human body affect the quality of life. From a psychic point of view, it is important how much trauma, stress, tension, fear as an emotional state, and also how much the relationship with family, friends, colleagues, generally with the community, affect the quality of life. In spiritual terms, we can say how much practicing faith affects the quality of life. All this in fact suggests that we must approach it in a multidimensional way, because, according to Prstacic (2006), "the psychosomatic unity of human is inseparable from its spiritual and psychosocial structure", and therefore we can conclude that the separation of any dimension of quality of life "impairs "its objective measurability. For the quality of life, we can say that it is the multidimensional structure of human satisfaction (Gojčeta et al., 2008), "the degree of what makes life good" (Brajša-Žganec and Kaliterna-Lipovčan, 2006), overall general well-being (Falce and Perry, 1995). It focuses on different dimensions, depending on the profession of those involved in its research, such as: for those who practice medicine, quality of life is health, for theologians it is faith and health, etc. (WHOQOL, 1996). Psychologists and medical researchers study the quality of life from the standpoint of the individual (often bringing the quality of life in relation to health) (Martinis, 2005), while theologians focus on the quality of life from the standpoint of religious tradition. There is a large number of measurement instruments in the world that assess quality of life and their division depends on which areas of human life are covered. When it comes to parents of children with disabilities and quality of life, there is also a great deal of research, but there are also many differences between experts in terms of reaching harmonized conclusions. So, Benjak (2010) states that some authors find that social assistance for a disabled child contributes to improvement, while other authors state that child welfare benefits reduce the quality of life of parents. These and similar findings open the door to further research on this topic, especially among parents of children with disabilities, because to the best of the available literature, there is a limited number of empirical studies on parents' religiosity and the relationship with the quality of life of children with disabilities. Accordingly, the aim of the research is to assess whether there is a correlation between quality of life and religiosity in persons with disabilities.

# MATERIAL AND METHODS Sample of participant

The survey included a total sample of 92 respondents from the area of Tuzla Canton. Of the total sample, 41.3% had paraplegia, 30.4% had cerebral palsy, and 28.3% had amputation. In terms of gender was 68 male subjects with an average chronological age of  $36.76 \pm 12.61$  years, and 24 female subjects with an average chronological age of  $38.66 \pm 16.23$  years.

#### Measuring instruments

For assess quality of lifeThe WHOQOL-BREF (World Health Organization Quality of Life-Bref) Questionnaire was used. This questionnaire is an abbreviated form of the WHOQOL-100 Quality of Life Questionnaire. It covers a number of areas of quality of life. The questionnaire contains 26 questions. The first two questions about self-assessment of quality of life and for WHOQOL-BREF are given a quality of life profile that starts with a model that explains quality of life across four domains: physical health, mental health, social relations and the environment. The answers on each of the applied variances were on a 1-5 Likert-type scale, where 1 indicates the least agreement and 5 indicates the highest agreement with the particle. Individual domain responses were transformed into interval scales.

For examine religiosityThe Rieger, Bawidamanna, Jäger (2008) questionnaire was used. The answers on a Likert-type scale range from nothing to very important. The questionnaire consists of five religious domains ideological, experiential, ritual, intellectual and consequential domains. In each domain, the responses on the individual variables were transformed into an interval type scale.

#### **Data processing methods**

Research data was processed by method of parametric and nonparametric statistics. Measures of central tendency, dispersion measures, frequency and percentages were calculated, and results were presented tabular. In order to determine the aim of the research correlation analysis was applied. Research data was processed by statistical package SPSS 20. for Windows.

#### **RESULTS AND DISCUSSION**

Table 1 shows the results of the correlation analysis with respect to the dimensions of religiosity and domains of quality of life. Based on the results obtained, it can be concluded that at the level of statistical significance at the level of 0.05, there is a correlation between physical health and intellectual religiosity. At a statistical significance level of 0.01, there is a correlation between physical health and the ideological, experiential, ritual and consequential dimension of religiosity. At the statistical significance level of 0.05, there is a correlation between mental health and the ideological dimension of religiosity.

	DFZ	DPZ	DS/DO	DO	IDR	ISDR	RDR	INDR	PDR
DFZ	1	$.878^{**}$	.892**	.859**	.352**	.519**	.376**	.244*	.773**
DPZ		1	.826**	.838**	$.262^{*}$	.431**	.295**	,169	.684**
DS/DO			1	$.890^{**}$	.353**	.546**	.392**	$.210^{*}$	.831**
DO				1	.334**	.437**	.337**	,204	.652**
IDR					1	.793**	.935**	$.828^{**}$	$.580^{**}$
ISDR						1	.904**	$.859^{**}$	.781**
RDR							1	.913**	.642**
INDR								1	.471**
PDR									1

Table 1. Correlation analysis

**Legend:** Domain physical health (DFZ), domain mental health (DPZ), domain Social / Social Relations (DS / DO), domain Environment (DO), ideological dimension religiosity (IDR), experiential dimension religiosity (ISDR), ritual dimension religiosity (RDR) ), Intellectual dimension of religiosity (INDR), Consequential dimension of religiosity (PDR).

At a statistical significance level of 0.01, there is a correlation between mental health and the experiential, ritual, and consequential dimension of religiosity. Based on the results obtained, it can be concluded that at the level of statistical significance of 0.05, there is a correlation between the domain of social relations and intellectual religiosity. At the level of statistical significance of 0.01, there is a correlation between the domain of social relations and the ideological, experiential, ritual and consequential dimension of religiosity. Based on the results obtained in the domain of environment, it can be concluded that at the level of statistical significance of 0.01, there is a correlation between the domain of environment and the ideological, experiential, ritual and consequential dimension of religiosity. There are numerous studies explaining the positive correlation between religiosity / spirituality and quality of life, which is consistent with the research in question. For example, Leutar Z and Leutar I (20017) conclude that going to a prayer, participation in programs organized by the Church for persons with disabilities, talking about spiritual matters, and active living of faith contribute to a better quality of life for the individual and that faith gives their lives sense, and the relationship with God gives the answers for basic life questions. One such study is the study by Poston and Turnbull (2004), who examined quality of life and spirituality and found positive correlation in these areas, where respondents indicated that religion was of utmost importance to them and led them to accept disability, especially if their occurrence of disability could not be explained by experts. The present study is also in line with the study by Young (2012) who concluded that there is a positive correlation between religiosity and quality of life. A significant place in religiosity belongs to the salah, whose implementation affects all domains of quality of life, engages the physical, mental, psychological, spiritual potentials of the individual, both individually and socially. As Pajević and Sinanović (2002) point out, regular salah (Islamic prayer) strengthens the will and capacity for self-control, encourages the pursuit of self-improvement and expression of one's personality, the acquisition of new knowledge and its practical application. They also point out that the salah affects the human to have a more correct and clearer life orientation, a better and more solid

character, a built identity, stability and pragmatism, and provides a clear life direction, solid foundations, and secure frameworks for building personality, which was the goal of religious education programs. By addressing this topic, Zargani, Nasiri, Hekmat, Abbaspour, and Wahabi (2018) established a significant relationship between religiosity and quality of life in breast cancer patients. Abdel-Khalek (2010) found on a sample of Muslim students that there is a positive correlation between religiosity and quality of life, and states that religiosity may be considered as a salient component of- and a contributing factor to QOL among this sample of Muslim college students. Therefore, Islamic beliefs and practices may have the potential to be integrated in psychotherapeutic procedures among Muslim clients. Also, Rule (2007), who established a correlation between religiosity and quality of life in North Africa, concluded that the data showed that there was a significant but not very strong statistical relationship between religiosity and quality of life. In a sample of 419 students, Matić (2014) found that there was a statistically significant positive correlation between religiosity and life satisfaction.

#### CONCLUSION

Based on the results of the research, it can be concluded that there is a statistically significant correlation between religiosity and quality of life in persons with disabilities. There is a statistical correlation between intellectual, experiential, ritual, consequent religiosity and mental health, social relations and the domain of the environment.

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# PSYCHOSOCIAL CONSEQUENCES AND OTHER RISK BEHAVIORS CAUSED BY GAMBLING OF HIGH SCHOOL STUDENTS IN THE ŽIVINICE TOWN AREA

# PSIHOSOCIJALNE POSLJEDICE I DRUGA RIZIČNA PONAŠANJA UVJETOVANI KOCKANJEM KOD SREDNJOŠKOLACA NA PODRUČJU GRADA ŽIVINICE

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**Original scientific articles** 

# ABSTRACT

The aim of the study is to determine the intensity of high school students' involvement in gambling activities, given the level of adverse consequences with gambling and the tendency to engage in other risky behaviors. The survey was conducted in 2016 on a sample of 340 students of both genders (170 male students and 170 female students) in high schools in the City of Živinice. For the purposes of the survey, two measurement instruments were used: the Zimbardo Time Perspective Inventory (ZTPI), (Zimbardo and Boyd, 1999) for the male and female gender, and the International Personality Item Pool (IPIP) for the male and female gender (Goldberg, 1999). The survey results show that the largest percentage of respondents suffer psychological consequences of gambling, as well as interpersonal and financial consequences. Regarding other risky and unacceptable behaviors, the following were identified: lenient delinquent behaviors, undesirable normative behaviors, risky gender behaviors, psychoactive substance abuse (PAS), and violent behavior in close relationships. The results of the Z-test and the associated P-value (P < 0.05) show that there is a statistically significant difference in the percentage (proportion) of students prone to certain forms of unacceptable behavior between gambling and non-gambling students. For all of these forms of unacceptable behavior, a significantly higher percentage (proportion) of students who gamble is prone to these behaviors compared to students who are not prone to gambling.

Keywords: adverse effects, adolescents, delinquent behavior.

# SAŽETAK

Cilj istraživanja je utvrditi intenzitet uključenosti srednjoškolaca u kockarske aktivnosti s obzirom na razinu štetnih posljedica s kockanjem i s obzirom na sklonost uključivanja u druga rizična ponašanja. Istraživanje je provedeno tokom 2016. godine na uzorku od 340 učenika oba spola (170 učenika i 170 učenica) u srednjim školama u Gradu Živinice. Za potrebe istraživanja su korištena dva mjerna instrumenta: Zambardov upitnik vremenske perspektive (ZTPI), (Zimbardo i Boyd, 1999) za muški i ženski spol, i Međunarodni fond varijabli ličnosti (IPIP) za muški i ženski spol (Goldberg, 1999).

Rezultati istraživanja pokazuju da najveći procenat ispitanika ima psihološke posljedice kockanja, te interpersonalne i finansijske posljedice. Kada su u pitanju druga rizična i neprihvatljiva ponašanja identifikovani su: lakša delinkventna ponašanja, nepoželjna normativna ponašanja, rizična spolna ponašanja, zloupotreba psihoaktivnih supstanci (PAS), nasilno ponašanje u bliskim odnosima. Rezultati testa o razlici proporcija Z-test i njemu pripadajuća P-vrijednost (P<0,05) pokazuju da postoji statistički značajna razlika u procentu (proporciji) učenika sklonih pojedinim oblicima neprihvatljivog ponašanja između učenika koji kockaju i učenika koji ne kockaju. Kod svih navedenih oblika neprihvatljivog ponašanja značajno veći procenat (proporcija) učenika koji kockaju je sklona navedenim oblicima ponašanja u odnosu na učenike koji nisu skloni kockanju.

Ključne riječi: štetne posljedice, adolescenti, delinkventno ponašanje.

# INTRODUCTION

Youth gambling and high school students' problems are generally related to the transition period from childhood to adulthood, accompanied by numerous physical, psychological, intellectual, emotional, social and spiritual phenomena (Cian, 1988, according to Ninčević, 2009).

Gambling problems were previously thought to be mainly related to the adult population. However, a growing body of research shows that all children and adolescents have a "mix" of risk and protective factors that determine the likelihood of a problem. Gambling is a risky activity for both the person's finances and psychosocial development. It is important to emphasize that problem gamblers are not the only ones who face problems as a result of gambling. The same problems exist with young people who are not problematic gamblers. Gambling is a common name for a set of diverse games, behaviors and activities, which involve investing money with the risk and hope of expecting a positive outcome, i.e. the player is at risk and has the hope of returning the investment or receiving more than he invested (Koić et al. 2009). Investing something valuable in that event that may (but may not) result in a greater and more favorable outcome (Petry, 2001).

Epidemiological data indicate that youth gambling, like many behaviors in adolescence, occurs on a frequency continuum, ranging from non-participation to experimentation, occasional gambling, regular gambling, and preoccupation with gambling with serious consequences (Stinchfield and Winters, 1998, according to Winters et al. 2002).

Torre and Zoricic (2013) state that gambling seems appealing to young people because it leads to intense excitement while at the same time making it easy to earn money, which leads to the realization of all youthful daydreams.

Research addressing the problems of adult gambling has shown that pathological gambling has strong roots in gambling at a young age (Custer and Milt 1985; Volberg 1994; according to Volberg 2002). Attempts to combat gambling among young people must include addressing peer pressure and eliminating the general positive attitude of young people towards gambling among friends. Also, a large percentage of young people begin to gamble with a family member, indicating the necessary education for the family as a center of prevention efforts.

Today, most people see gambling as socially unacceptable behavior reserved for marginalized groups. In other words, gambling is the investment of something valuable in an event that can result in a greater and more favorable outcome (Petry, 2001, according to Dodig and Ritsiash, 2011).

Given the frequency and consequences, gambling can best be described as a continuum of behavior from complete absence of gambling, through social and risky, to problematic and pathological gambling (National Research Council, 1999).

Over the past few years, we have witnessed an increasing number of people developing problematic level gambling, and the increasing availability of games of chance is cited as possible cause (Dodig and Ricijaš, 2011). Although numerous studies attempt to answer the question of what are the risk factors contributing to gambling and the development of gambling problems, the review of relevant professional and scientific literature gives the impression that there is a lack of research focused on youth, that is, on the question of what personality traits lead to the development of gambling problems.

This is an interesting research question, and an area that is not well researched yet topical in our region. The risk of problematic level gambling is related to certain aspects of gambling activities, drug abuse, crime, as well as socio-demographic characteristics. Research shows that problematic level gambling is also linked to criminal behavior. Blaszczynski and Mcconaughy (1994; according to Welte, 2004) point out that problem gamblers have a much higher risk of committing crimes than average, a risk of aggressive behavior, and a greater likelihood of being diagnosed with antisocial personality disorder.

The aim of the study is to determine the intensity of high school students' involvement in gambling activities, given the level of adverse consequences with gambling and the tendency to engage in other risky behaviors. The study hypothesized that there was a difference in the propensity to engage in other risky and delinquent behaviors, given the frequency of gambling in such a way that high school gamblers became more involved in other risky and delinquent behaviors.

# **RESEARCH MATERIAL AND METHODS** Sample of respondents

The study was conducted in April and May 2016 on a sample of 340 students of both genders (170 male students and 170 female students) in high schools in the municipality of Živinice (Medical School, Electrical Engineering School and PI Gymnasium Živinice). Students from grades 1-4 are represented, and the age of respondents ranges from 16 to 19 years from grades 1-4. The choice of respondents enables the self-completion of the inventory/questionnaire, and data were collected during the second semester of 2016.

# The method of research conduction

Data were collected in a way that students completed the inventories/questionnaires, through self-expression. All results were presented following the principle of anonymity, and prior written consent was obtained from the parents of the students and also from the management of the schools where the data were collected.

The study was conducted in accordance with the code of ethics for research with children, and the "paper-pencil" method of self-expression was used. Prior to completing the inventory/questionnaire, students were informed that participation in the survey was entirely voluntary and anonymous, and that the data obtained through the survey would be used for research purposes. The research was also beforehand approved by the Ministry of Science, Culture and Sports of the Tuzla Canton. One 45-minute school hour was scheduled to complete the inventory/questionnaire.

Students were introduced to the basic purpose of the research, gave their own oral consent to participate in the research, and were able to drop out at any time. The survey used an already proven instrument of very good metric characteristics.

# **Measuring instrument**

For research purposes, the following instruments were used:

1) Zimbardo Time Perspective Inventory (ZTPI), (Zimbardo and Boyd, 1999) for males and females.

The instrument (ZTPI) consists of five different sub-scales, each representing one coherent temporal dimension. The instrument consists of five factors of temporal perspective: 1) pastnegative, 2) past-positive, 3) present-hedonistic, 4) present-fatalistic, 5) future. These dimensions are orthogonal in theory and it is therefore possible for an individual to have a high score on all five dimensions or a low score on all dimensions. Although this sub-scale independence is not commonly found in practice, it is important that the operationalization of time perspective measurements reflects the complexity of this multidimensional construct. Focusing on one perspective in isolation can lead to an incomplete and potentially distorted image of an individual, but considering the profile by tracking what outcome an individual achieves on each dimension can deepen our understanding of human behavior (Boyd and Zimbardo, 2005).

2) Internacional Personality Item Pool-IPIP for males and females (Goldberg, 1999).

Goldberg's IPIP - 100 is a personality questionnaire based on the Big Five personality model. It contains 100 variables, 20 for each of the Big Five dimensions: extraversion, comfort, conscientiousness, neuroticism and intellect. The task of the participant is to evaluate on a five-level scale (completely incorrect, mostly incorrect, neither true nor false, mostly true, completely true) how much the claim in each individual variable corresponds to his or her self-description. An instrument for measuring the distortion of the response was also used. It contains 43 variables, 21 of which were taken from the L-scale of the Eysenck personality inventory/questionnaire and 22 from the Paulhus BIDR, a questionnaire that operationalizes the Paulhus model of distortion of responses to personality inventories/questionnaires.

The inventory/questionnaire is aimed at assessing the behavior of high school students and their involvement in gambling activities. By filling in the inventory/questionnaire, there are no correct and incorrect answers, but an attempt is made to examine the opinion and experience of young people in high school.

The IPIP has 27 questions. The credit for conceptualizing the Big Five model goes to Goldberg (1999), who was equally credited with popularizing it. Factors, traditionally numbered, were named by Goldberg as follows: 1) extraversion or surrogacy, 2) comfort, 3) conscientiousness or reliability, 4) emotional stability, 5) culture or intellect.

The factors of the large personality model represent personality at the most general and abstract level, and each of the five dimensions includes a large number of specific personality characteristics (Mikloušić, 2007).

# Method of data processing

The data obtained from this research were processed by the methods of parametric and nonparametric statistics, that is, the methods of descriptive statistics. The methods of collecting, editing, tabular and graphical representation of data, and methods of calculating the parameters of statistical sets are the areas of descriptive statistics.

# **RESULTS AND DISCUSSION**

In the samples of the participants in this research, the psychological consequence factor and the preoccupation factor and lack of control were grouped into one factor.

Table 1.	Relative	frequencies	on the ZTPI	and IPIP	variables o	f adolescent	gambling
							0

	Variables	0	1	2	3
		%	%	%	%
	14. How often have you felt it would be better for you to stop gambling / betting?	44,	20,	22,	12,44
		98	10	49	
	17. How often have you hidden your gambling / betting activities from parents, other	47,	23,	17,	11,48
D	family members or teachers?	85	44	22	
ž	15. How often did you come back to try to recover the money lost by gambling / betting?	47,	23,	18,	10,53
Z		85	44	18	10.50
2	16. How often did you gamble / bet more money than you intended?	47,	23,	18,	10,53
		85	44	18	
ົ້	13. How often did you gamble / bet for a longer period than you intended?	44,	24,	20,	10,05
		98	88	10	
Ì	20. In the past 3 months, how often have you felt that you may have a problem with	51,	22,	17,	8,13
Z	gambling / betting?	67	97	22	
	11 How often did you feel stressed about combling / betting?	13	22	26	7 66
Ę	11. How often did you feel stressed about gambling / betting?	43, 06	22, 07	20,	7,00
Ž		00	)	52	
Ð	12. How often have your family members or friends complained about you gambling /	44,	23,	23,	7,66
3	betting too much?	50	92	92	
Ź	1 How often have you felt guilty about (the amount of) money lost by gambling / betting?	37	44	12	6.22
S.	1. How originate you for guildy about (the amount of) money fost of guilding, beams.	32	02	44	0,22
Ĩ	5. How often did gambling / betting make you frustrated?	37.	45.	11.	5.74
N	······································	80	45	00	-,
5	3. How often have you felt sad or depressed about (the amount of) money lost by	42,	42,	11,	4,78
2	gambling / betting?	11	11	00	
2	10. How often did you gamble / bet your winnings?	38,	28,	28,	4,78
S		28	23	71	
Š	7. How often have you planned your gambling / betting activities?	44,	30,	21,	3,35
2		50	62	53	
	8. How often did you feel bad about the way you gamble / bet or what happens while you	42,	28,	26,	2,87
	gamble / bet?	58	23	32	
z	18 How often have you had difficulty paying down gambling / betting debts?	52	21	15	157
	10. How often have you had unneutry paying down gambing / betting debts?	54,	<i>4</i> 1,	15,	15,7

19. How often has anyone pressured you (in any way) to pay off your debt you lost by	15 53,	53 22,	79 14, 25	10,53
gambling / betting?	59	01	35	10,05
22. How often have you spent money for food, clothing, cinema and the like on gambling / betting or repaying gambling / betting debts?	44, 98	28, 71	20, 10	6,22
24. How often have you stolen money or other valuable items to gamble / bet or to repay gambling / betting debts?	53, 59	21, 53	18, 66	6,22
21. How often have you borrowed money from family, friends or other persons for gambling / betting?	49, 76	26, 32	18, 66	5,26
23. How often have you sold your personal property (electronics, clothing, etc.) to have money for gambling / betting or repaying gambling / betting debts?	51, 67	24, 88	19, 14	4,31
4. How often did you miss family gatherings in order to gamble / bet?	48, 33	38, 28	10, 53	2,87
9. How often have you missed hanging out with your friends because of gambling $/$ betting?	46, 41	22, 97	27, 75	2,87
2. How often did you miss or quit some leisure activities (e.g. sports, music school, etc.) because of gambling / betting?	46, 41	39, 23	12, 44	1,91
6. How often have you missed hanging out with your non-gambling / non-betting friends to hang out with your gambling / betting friends?	46, 89	34, 45	16, 75	1,91

Frequency responses to the variables give us even more insight into the areas of psychosocial functions that are more severely impaired for high school students because of gambling, and the interpersonal and financial consequences of gambling. When it comes to psychological consequences and loss of control, the highest percentage of students who profess to feel and suffer these consequences are almost always recorded with the saying that the student felt it would be better for him or her to stop gambling / betting (12.44%), that he/she hid his/her gambling / betting from parents, other family members or teachers (11.48%) and that he/she would often return the other day to try to recover the money lost by gambling / betting (10.53%). When it comes to interpersonal and financial consequences, the highest percentage of students who profess to feel and suffer these consequences are almost always recorded with the saying that the student had difficulty paying their gambling / betting debts (10.53%). that often someone pressured him/her (in any way) to pay his/her debt after losing by gambling / betting (10.05%) and that often money intended for food, clothing, cinema and the like was used for gambling / betting, or to repay gambling / betting debts (6.22%). According to the above, students who are prone to gambling suffer to a greater extent psychosocial consequences in relation to interpersonal and financial consequences.

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Table 2. Descriptive representation of boys and girls response frequencies on gambling belief scale varia	ables
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Ordinal	CLAIMS	Prone to gambling	1	2	3	4	5	М	SD	Р
	Cambling automas and be	NT.	%	%	%	%	%	1 4 4	0.05	0.000
1.	gambling outcomes can be predicted.	No	80,15	3,82	9,92	4,58	1,53	1,44	0,95	0,000
		Yes	22,01	30,62	29,19	14,83	3,35	2,47	1,09	0.000
2.	Some activities (e.g. rituals, etc.) increase the likelihood of gambling winnings	No	78,63	8,40	8,40	3,05	1,53	1,40	0,88	0,000
3	In the long run gambling	res	30,30 80,15	20,52 6.87	20,52 8 40	8,01 2,29	2,39	2,14	1,08	0.000
5.	attributes more wining than		00,15	0,07	0,40	12,29	2,2)	1,40	0,91	0,000
	losing.	Yes	29,19	21,53	27,27	13,40	8,61	2,51	1,28	
4.	If one is successful at gambling, it is proof that he or she possesses the knowledge and	No	77,10	5,34	6,11	6,11	5,34	1,57	1,18	0,000
	skills required to gamble.	Tes	22,49	21,33	54,45	14,55	7,10	2,02	1,19	
5.	Whoever has no luck in love, will have luck in gambling.	No	83,97	5,34	8,40	1,53	0,76	1,30	0,75	0,000
(	TC · 11· 1	Yes	31,10	27,75	27,27	7,18	6,70	2,31	1,18	0.000
0.	series of winnings, it is very	No	//,10	9,16	9,16	1,53	3,05	1,44	0,95	0,000
	likely that the winnings will continue.	Yes	26,79	32,06	30,62	8,61	1,91	2,27	1,01	
7.	A person can sense when they will be lucky in gambling	No	74,05	14,50	7,63	2,29	1,53	1,43	0,85	0,000
	whi be lucky in gambling.	Yes	24,40	31,10	33,01	8,61	2,87	2,34	1,03	
8.	Lucky items (e.g. wearing a certain piece of clothing,	No	75,57	16,03	7,63	0,76	0,00	1,34	0,65	0,000
	pendant, etc.) increase the likelihood of gambling winnings.	Yes	32,06	30,62	28,71	8,13	0,48	2,14	0,98	
9.	The chances of winning a large amount of money by gambling	No	74,05	16,79	7,63	0,76	0,76	1,37	0,73	0,000
	are quite high.	Yes	26,79	26,79	33,01	11,48	1,91	2,35	1,05	
10.	One cannot become addicted to gambling.	No	70,99	20,61	5,34	1,53	1,53	1,42	0,79	0,000
		Yes	35,41	21,05	28,23	11,96	3,35	2,27	1,16	
11.	Skills determine how successful a gambler will be.	No	67,94	19,85	8,40	3,82	0,00	1,48	0,81	0,000
		Yes	22,01	28,71	36,36	11,48	1,44	2,42	1,00	0.000
12.	If a person loses by gambling for a longer period, they are more	No	72,52	16,03	9,92	1,53	0,00	1,40	0,73	0,000
	likely to start wining soon.	Yes	27,27	21,05	37,32	14,35	0,00	2,39	1,04	
13.	A person is more likely to win a gamble if they use their lucky	No	69,47	17,56	6,87	5,34	0,76	1,50	0,90	0,000
	numbers.	Yes	22,01	24,40	37,80	12,92	2,87	2,50	1,06	
14.	Focusing thoughts on wining increases its likelihood.	No	73,28	16,03	7,63	3,05	0,00	1,40	0,76	0,000
17		Yes	24,40	26,32	37,80	10,53	0,96	2,37	1,00	0.000
15.	Gambling simultaneously in different games increases the likelihood that a person will win	No	68,70	19,08	9,92	1,53	0,76	1,47	0,80	0,000
	at least in one of them.	103	10,10	21,13	50,04	13,17	1,44	2,33	1,01	0.0
16.	To make money by gambling you need to have a good gaming system	No	70,23	14,50	9,16	3,82	2,29	1,53	0,97	0,000
	., som.	res	13,19	50,14	32,34	19,02	1,91	2,02	1,05	
17.	Gambling winnings are not just	No	70,99	13,74	9,16	4,58	1,53	1,52	0,95	0,000
	about luck.	Yes	14,83	22,97	36,84	19,14	6,22	2,79	1,11	
18.	Although a gambler has a series of losses, they will win back	No	75,57	13,74	8,40	1,53	0,76	1,38	0,77	0,000
	their money if they play long enough.	Yes	31,58	27,27	30,14	9,09	1,91	2,22	1,05	

A survey of high school students' gambling and betting opinions found that there was a statistically significant difference between high school students who were prone to gambling and those who were not prone to gambling, given that all 18 variables were P <0.05 (5% significance level on which the hypothesis that there was a difference between groups was tested).

Higher average scores on each of the 18 variables listed in Table 2, which relate to students' gambling opinion, were recorded in gambling-prone students. In order to answer the research problem, the response frequencies of the variables are presented.

Gambling conviction scales.

It may be noted from the above that high school students who tend to gamble answer the illusion claims with "No". Thus, 83.97% for the claim "Whoever has no luck in love, will have luck in gambling.", 80.15% for "Gambling outcomes can be predicted" agree that they are not prone to gambling, 80.15% "In the long run, gambling attributes more wining than losing", 75.57%" Although a gambler has a series of losses, they will win back their money if they play long enough, "75.57% "Lucky items (e.g. wearing a certain piece of clothing, pendant, etc.) increase the likelihood of gambling winnings", 74.05%" The chances of winning a large amount of money by gambling are quite high". Thus, in gambling students, the largest percentage of those who fully agreed with one of the proposed claims is thus noted in the claim that "In the long run, gambling attributes more wining than losing", 35.41% for "One cannot become addicted to gambling", 32.06% for "Lucky items (e.g. wearing a certain piece of clothing, pendant, etc.) increase the likelihood of gambling winnings", 31.58% for "Although a gambler has a series of losses, they will win back their money if they play long enough", 27.27% for "If a person loses by gambling for a longer period, they are more likely to start wining soon", 26.79% for "The chances of winning a large amount of money by gambling are quite high". The above claims are stated as superstitious. Of these 18 variables, it is necessary to indicate how many times during the course of a student's life he or she behaved in a specific manner described in this way:

0- has never e.g. destroyed school property,

1-2 times e.g. ran away from home,

3-4 times e.g. took from a car something that didn't belong to him/her,

5 and more times e.g. cheated on a test at school.

Variables are saturated with seven factors:

- 1) lenient delinquent behavior,
- 2) undesirable normative behaviors,
- 3) risky gender behaviors,
- 4) psychoactive substance abuse (PAS),
- 5) violent behavior in close relationships,
- 6) severe delinquent behaviors (such as theft, burglary, etc.),
- 7) suicidal behaviors.

We will single out some of the claims and consider as a percentage such claims:

"Gambling outcomes can be predicted " yes 22,01%, no 80,15%, 0-times 3,82%, 1-2 times 9,92%, 3-4 times 4,58%, 5 and more times 1,53%.

" In the long run, gambling attributes more wining than losing " yes 29,19%, no 80,15%, 0-times 6,87%, 1-2 times 8,40%, 3-4 times 2,29%, 5 and more times 2,29%.

"Whoever has no luck in love, will have luck in gambling " no 83,97%, yes 31,10%, 0-times 5,34%, 1-2 times 8,40%, 3-4 times 1,53%, 5 and more times 0,76%.

" If a person in gambling has a series of winnings, it is very likely that the winnings will continue " no 77,10%, yes 26,79%, 0-times 9,16%, 1-2 times 9,16%, 3-4 times 1,53%, 5 and more times 3,05%.

Table 3 presents data on the number and structure of students according to their propensity to other forms of delinquent behavior, depending on whether or not they are prone to gambling.

Ordinal	OTHER ACTIVITIES AND FORMS OF DELIQUENT	Pro gam	Prone to gambling		Not prone to gambling		Р
	BEHAVIOR	f	%	f	%		
1.	Deliberately teared, damaged or destroyed school property.	44	21,05	3	2,29	4,88	0,000
2.	Stole or tried to steal a bike or skateboard.	38	18,18	1	0,76	4,91	0,000
3.	Took something from the store without paying for it.	55	26,32	3	2,29	5,73	0,000
4.	Took money at home that did not belong to us (e.g. from mom's wallet).	73	34,93	10	7,63	5,70	0,000
5.	Took something from the school that did not belong to us (e.g. from a teacher or student).	69	33,01	4	3,05	6,55	0,000
6.	Took something from a random car that did not belong to us.	80	38,28	7	5,34	6,77	0,000
7.	Cheated on a test at school.	149	71,29	27	20,61	9,10	0,000
8.	Hit or pushed a teacher or other adult at school.	82	39,23	9	6,87	6,56	0,000
9.	Hit or pushed one of the parents.	84	40,19	7	5,34	7,06	0,000
10.	Hit or push peers or physically clash with them.	104	49,76	9	6,87	8,17	0,000
11.	Entered someone's house, garage or yard without permission.	88	42,11	7	5,34	7,35	0,000
12.	Ran away from home.	68	32,54	5	3,82	6,28	0,000
13.	Ran away from school.	91	43,54	10	7,63	7,05	0,000
14.	Had a dialogue with the principal due to misbehavior at school.	50	23,92	3	2,29	5,35	0,000
15.	Wrote / paint graffiti on walls or cars without permission.	45	21,53	1	0,76	5,45	0,000
16.	Behaved inappropriately in public, which is why we had problems.	36	17,22	0	0,00	5,02	0,000

Table 3. Descriptive representation of the number and structure of boys and girls in relation to the propensity to various forms of delinquent behavior

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17.	Deliberately set fire to or attempt to set fire to a building, car or	34	16,27	0	0,00	4,87	0,000
	something else.						
18.	Carried weapons in public (close combat weapon or firearm).	32	15,31	1	0,76	4,41	0,000
19.	Avoided paying for cinema, food or the like.	37	17,70	0	0,00	5,10	0,000
20.	Stole someone's purse or wallet, or stole something from someone's pocket.	23	11,00	0	0,00	3,93	0,000
21.	Targeted people with stones, bottles or similar objects.	36	17,22	6	4,58	3,45	0,001
22.	Consumed alcoholic beverages.	54	25,84	11	8,40	3,98	0,000
23.	Smoked cigarettes or chewed tobacco.	34	16,27	8	6,11	2,77	0,006
24.	Smoked marijuana.	28	13,40	4	3,05	3,18	0,001
25.	Sniffed glue.	31	14,83	5	3,82	3,21	0,001

Reviewing the results in Table 19, it can be said that the following forms of unacceptable behaviors are prevalent in gambling students:

- 1) Cheated on a test at school 71,29%,
- 2) Hit or pushed one of the parents 40,19%,
- 3) Hit or push peers or physically clash with them 49,76%,
- 4) Ran away from school 43,54%,
- 5) Entered someone's house, garage or yard without permission 42,11%.

Furthermore, students who are not prone to gambling have mostly the following forms of unacceptable behavior:

- 1) Cheated on a test at school 20,61%,
- 2) Consumed alcoholic beverages 8,40%,
- 3) Ran away from school 7,63%,
- 4) Hit or push peers or physically clash with them 6,87%.

The results of the Z-test and the associated P-value (P < 0.05) show that there is a statistically significant difference in the percentage (proportion) of students prone to certain forms of unacceptable behavior between gambling and non-gambling students. For all of these forms of unacceptable behavior, a significantly higher percentage (proportion) of students who gamble is prone to these behaviors compared to students who are not prone to gambling.

Students in the US and Canada alike cite fun, excitement, socializing and winning money as the main motives for gambling (Derevensky et al., 2010; Volberg et al., 2008; Wickwire, Whelan, & Meyers, 2010; Zhang, Dong and Stormann, 2008, according to Bell and Boldero, 2011). A study conducted in the Republic of Croatia confirmed the results of a study conducted for the purposes of this paper and found that the most pronounced reasons for gambling were fun / excitement (49.6% of adolescents gamble mostly or always because of it) and winnings/earnings (44.2% of adolescents cited this as a reason mostly or always).

Concerning risky and delinquent behavior, the results are consistent with foreign studies, that is, the hypothesis has been confirmed that engaging in risky and delinquent behaviors regarding gambling risk in such a way that students with more pronounced gambling problems engage in more risky and delinquent behaviors compared to those students who exhibit less gambling-related problems.

Given the results obtained, we can accept the hypothesis and conclude that there are no differences in the severity of adverse effects with regard to the type of school, but differences in the intensity, participation in different games of chance exist in some activities, but also that the effects of these differences are relatively small, given that high school students with already serious gambling problems participate in a number of different games and do so to a much greater extent. Gambling and gambling problems are most often the result of poor handling of a difficult life situation such as retirement, the death of a spouse and the like. It is a worrying phenomenon in for the society where gambling is accepted as a fun family activity and a very acceptable way of spending free time for parents and their child. As gambling is an activity on the market that has a wide range of modalities tailored to players and their needs, so it can be assumed that more intense involvement in one gambling activity is characterized by more intense gambling through other games, as confirmed by research (Ricijaš et al., 2013).

The results are surprising since problematic level gambling often occurs as part of certain behaviors that involve taking risks, seeking excitement, impulsiveness and usually low selfcontrol. Engaging in risky behaviors leads to engaging in other risky behaviors, so youthful involvement in risky behaviors, through certain boundary testing, is not at all harmless.

Adolescence is a complex period that presents an abundance of risks to the healthy development of the individual. Therefore, one should always be on the lookout for the development of risky behaviors among young people so that, through certain treatments, the necessary assistance can be provided in an effective and timely manner.

Adolescent gambling is a growing and significant public health problem today, as young people are precisely the group most at risk for developing gambling problems (Heung et al., 2007).

Gambling is reaching daily proportions at all ages. The mass media are increasingly promoting risky behaviors leading to severe and delinquent behaviors.

# CONCLUSION

This paper provides insights into the characteristics of high school students sports-betting activities, as well as some specific characteristics that through certain experiences contribute to the more frequent and intense involvement in gambling activities. As mentioned above, adolescence is a particularly vulnerable period and is also conducive to engaging in risky behaviors as well as developing various addictions (Chambers, Taylor, & Potenza, 2003).There are differences in the types of psychosocial consequences in a way that the youth is more likely to experience the detrimental psychosocial consequences associated with gambling, which are divided into two factors:Psychological consequences and loss and Interpersonal and financial consequences.

Regarding differences in the severity of adverse psychosocial consequences associated with gambling, the Hi-square test of high school gamblers found the following: Four-year vocational school 68%, PI Gymnasium in Živinice 60% (X2 = 0.942, df = 1, p = 0.332) i.e. students of all types of schools are equally represented in different risk categories. The implications of this research are numerous. The data could be used in two ways: to monitor changes in certain behaviors in adolescents, to scientifically analyze all childhood stressful events resulting in delinquent behavior and thus in various gambling activities.

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# VISUAL PERCEPTION IN CHILDREN WITH MILD INTELLECTUAL DISABILITIES

# VIZUELNA PERCEPCIJA KOD DJECE SA BLAŽIM INTELEKTUALNIM TEŠKOĆAMA

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#### **Original scientific articles**

#### ABSTRACT

Visual impairment is a major problem for every individual, considering that visual information makes up about 90% of the data arriving into the cerebral cortex via all human sensory organs. The human learns through visual imitation, which is why it is very important having good visual perception to facilitate overall development.

The aim of this study is to examine the level of school competence/readiness of students with mild intellectual disabilities, and to determine whether there are differences in visual perception abilities between students with mild intellectual disabilities who attended preschool education and students with mild intellectual disabilities who did not attend preschool education. The study was conducted on a sample of 60 students with mild intellectual disabilities, both genders were included, first graders and second graders. The sample of respondents was divided into two sub-samples: students with mild intellectual disabilities who attended preschool education (N = 25) and students with mild intellectual disabilities who did not attend preschool education (N = 35). The study was conducted using the DABERON-2 test (Danzer, Frances, Gerber, Lyons, Voress, 1991). The test was designed to test ten areas, but for the purposes of this research, a part of the test related to visual perception area testing was isolated, and this part involves examining visual perception through the ability to map the same figures. The maximum number of points that can be achieved in this area is 10. The results were presented by descriptive statistics, and the differences between the respondents were calculated by t-test. On the summary variable of the "Visual Perception" area, students with mild intellectual disabilities who did not attend preschool education achieved an average score of 7.37, with a standard deviation of 2.43, while the other group of students with the same disabilities, who attended preschool education, achieved an average score of 5.84 with a standard deviation of 3.09. The results of the t-test did not show a statistically significant difference in the level of school competence/readiness of students with mild intellectual disabilities in relation to the attendance of preschool education; in the area of "Visual Perception" (t = -2,144; p = 0,169).

Keywords: students with mild intellectual disabilities, visual perception, preschool education

# SAŽETAK

Oštećenje vida za svaku osobu predstavlja veliki problem, uzmemo li u obzir da vizuelna informacija čini oko 90% podataka, koji dolaze u koru velikog mozga preko svih čovjekovih osjetilnih organa. Čovjek uči kroz vizuelnu imitaciju, te je zbog toga jako važno da imamo dobru vizuelnu percepciju kako bi se olakšao ukupan razvoj.

Cilj rada je ispitati nivo školske spremnosti učenika sa blažim intelektualnim teškoćama, te utvrditi da li postoje razlike u sposobnostima vizuelne percepcije između učenika koji su bili obuhvaćeni predškolskim odgojem i učenika koji to nisu. Istraživanje je sprovedeno na uzorku od 60 učenika s blažim intelektualnim teškoćama, oba spola, I i II razreda. Uzorak ispitanika podjeljen je na dva subuzorka: učenici s blažim intelektualnim teškoćama koji su bili obuhvaćeni predškolskim odgojem (N=25) i učenici koji nisu obuhvaćeni istim (N=35). Istraživanje je provedeno testom DABERON-2 (Danzer, Frances Gerber, Lyons i Voress, 1991). Test je konstruisan za ispitivanje deset područja, međutim za potrebe ovog istraživanja izdvojen je dio testa koji se odnosi na ispitivanje područja- vizuelna percepcija, koji podrazumjeva ispitivanje vizualne percepcije kroz mogućnost preslikavanja istih figura. Maksimalan broj bodova koji se može postići na ovom području je 10.

Rezultati su predstavljeni deskriptivnom statistikom, a razlike ispitanika izračunate su t-testom. Na sumarnoj varijabli područja "Vizuelna percepcija", učenici sa blagim intelektualnim teškoćama koji nisu bili obuhvaćeni predškolskim vidom odgoja i obrazovanja postigli su prosječan rezultat koji iznosi 7,37, uz standardnu devijaciju od 2,43, dok je druga skupina učenika, sa istim teškoćama, koji su bili obuhvaćeni predškolskim vidom odgoja i obrazovanja ostvarili prosječan rezultat od 5,84 uz standardnu devijaciju 3,09. Reultati t-testa nisu pokazali statistički signifikantnu razliku u nivou školske spremnosti učenika sa blažim intelektualnim teškoćama u odnosu na obuhvaćenost predškolskim vidom odgoja i obrazovanja na području "Vizualna percepcija"(t=-2,144; p=0,169).

Ključne riječi: učenici s blažim intelektualnim teškoćam, vizuelna percepcija, predškolski odgoj

# **INTRODUCTION**

Intellectual disabilities (ID) are characterized by impaired intellectual functioning and adaptive behaviour that occur in childhood. Diagnostic criteria for ID include an intelligence coefficient (IQ) below 70, difficulties in the area of adaptive behaviour, and the occurrence before the age of 18<sup>1</sup>. Students with mild intellectual disabilities differ very little in most respects from students whose IQ ranges from 70-85, who in the past have been called "slow learners" or "low-achieving students"<sup>2</sup>. Basic characteristics of persons with intellectual disabilities<sup>3</sup> in relation to IQ, developmental age, cognitive development, social development, emotional development and personality development are shown in Table 1.

IQ	50-70			
Developmental age	7-12			
	- logical thinking,			
	- learns from examples and through			
Cognitive development	his/her own experiences,			
	- can read, write and count,			
	- thinks about specific situations.			
	- dependent on the opinions of others,			
Social development	- accepts social rules,			
Social development	- shows loyalty to "important people",			
	- wants to belong to a specific group.			
	- developed sense of self-worth,			
	- takes care of loved ones/family/friends,			
	- cares about the future,			
Emotional development	- emotions: joy, sorrow, love, hate,			
	- trust, distrust, empathy; less developed			
	emotions: conscience, sexual love,			
	- aggression directed at specific persons.			
	- problems of personal autonomy,			
Personality development	- "self" is dependent,			
	- problems with the internalization of the			
	"super-ego".			

Table 1. Characteristics of persons with intellectual disabilities<sup>3</sup>

The role of eyesight in the development of a child and the integration of information we receive through other senses explains the negative effects of visual impairment on almost all developmental domains. If not corrected in a timely manner, visual impairment can have a negative impact on achievements in various areas of daily functioning<sup>4</sup>, which is even more pronounced in the case of children with intellectual disabilities<sup>4</sup>.

Reduced visual acuity and visual field tantrums are explained by damage to the primary visual pathways. However, brain damage can also affect multiple visual functions, such as shape recognition, motion perception, or orientation in space. More visual features can be damaged without any change in visual acuity<sup>5</sup>.

Visual perception is not only about the possibility of seeing things, it has elements of understanding, or at least an association with the meaning of what is seen. As a result, the impulses (information) that reach the brain are linked to the memory of the individual's past experiences and stimuli. In this way we study our outside world, using past experiences combined with new experiences, thus enhancing our knowledge<sup>6</sup>. Visual perception plays an important and integrating role in the development of cognitive and perceptual-motor skills<sup>7</sup>.

The difficulties of visual perception negatively affect a person's independence, their ability to learn new actions, to maintain an upright balance of the body, to accurately observe space or manipulate objects<sup>8</sup>.

#### Aim of the research/study

The aim of this study is to examine whether there are differences between students with mild intellectual disabilities who attended preschool education and those with the same disabilities who did not attend preschool education; in the area of "Visual Perception".

#### Methods of research

A total of 60 students with mild intellectual disabilities participated in the study, 35 students (N-35) attended preschool education and 25 students (N = 25) did not attend preschool education. First and second grade students of both genders of primary school were included in the research. The study was conducted using the DABERON-2 test by Danzer, Frances, Gerber, Lyons, Voress (1991)<sup>9</sup>. The test is used to assess school competence/readiness. It consists of 122 variables examining the following areas: body parts, colour concept, concept of numbers, suggestions, following instructions, plural, general knowledge, visual perception, motor development, categories. For the purposes of this study, only one part of the test was used - the "Visual Perception" area, which included the examination of visual perception through the ability to map the same figures.

The maximum number of points that can be scored or achieved in this area is 10. Answers on the DABERON-2 test are marked as (R) - right, (W) - wrong, (N) - no answer, (I) - inadequate answer. In most cases, the answer is right or wrong, and the child scores/achieves a point only for correct answers, so the correct answer is 1 point and the incorrect one is no points (0). The study was conducted individually with each respondent, at different time periods. The average test duration is about 20 minutes. Due to the low percentage of children enrolled in preschool education, the survey was conducted in several schools in Bosnia and Herzegovina. The surveyed schools were: Primary School "Safet-beg Bašagić", Primary School "Ivan Goran Kovačić", and Primary School "Musa Ćazim Ćatić" - in the Gradačac area. Schools in Brčko District area: First Primary School and Second Primary School in Brčko, Seventh Primary School in Gornji Rahić, Eighth Primary and High School "Dorđe Natošević" in the Prijedor area, and Public Institution Centre for Children and Youth with Special Needs "Los Rosales" in Mostar.

# RESULTS

Table 1 shows the results of the percentage representation of correct/right (R) and incorrect/wrong (W) answers of students with mild intellectual disabilities who did not attend preschool education; in the area of "Visual Perception". This area consists of 10 variables.

Number	Variable		0	YES	
		F	%	F	%
95	Circle (something) (3 years old)	2	5,7	33	94,3
96	Cross (something) (4-4.5 years old)	2	5,7	33	94,3
97	Square (4.5 years old)	6	17,1	29	82,9
98	X (4-5 years old)		20,0	28	80,0
99	Triangle (5 years old)	10	58,6	25	71,4
100	Three crossed lines ( 6 years old)	22	62,9	13	37,1
101	3 blocks of the pyramid ( 3 years old)	5	14,3	30	85,7
102	5 blocks of a train (3 years old)	7	20,0	28	80,0
103	6 blocks of the pyramid (4 years old)	13	37,1	22	62,9
104	10 blocks of the pyramid (5 years old)	18	51,4	17	48,6

Table 1. Percentage representation of students with mild intellectual disabilities who did not attend preschool education; in the area of "Visual Perception".

Table 1 shows that respondents achieved the highest number of correct answers on the variables "Circle (something) (3 years old)" and "Cross (something) (4-4.5 years old)" with 33 correct answers or 94.3%. Also, a great number of correct answers, 30 in total, was achieved on the variable "3 blocks of the pyramid (3 years old)", where the percentage of correct answers is 85.7%. On the variable "Square (4.5 years old)" the number of correct answers is 29 or 82.9%. In the area of "Visual Perception", students with mild intellectual disabilities who did not attend preschool education, on the variable "10 blocks of the pyramid (5 years old)" , achieved a total of 17 correct answers (48.6%), while on the variable "Three crossed lines (6 years old)", they achieved 13 correct answers or 37.1%.

Table 2. Percentage representation of students with mild intellectual disabilities who attended preschool education; in the area of "Visual Perception"

Number	ber Variable		С	YES	
		f	%	F	%
95	Circle (something) (3 years old)	7	28,0	18	72,0
96	Cross (something) (4-4.5 years old)	8	32,0	17	68,0
97	Square (4.5 years old)	6	24,0	19	76,0
98	X (4-5 years old)	10	40,0	15	60,0
99	Triangle (5 years old)	8	32,0	17	68,0
100	Three crossed lines ( 6 years old)	17	68,0	8	32,0
101	3 blocks of the pyramid ( 3 years old)	6	24,0	19	76,0
102	5 blocks of a train (3 years old)	7	28,0	18	72,0
103	6 blocks of the pyramid (4 years old)	16	64,0	9	36,0
104	10 blocks of the pyramid (5 years old)	19	76,0	6	24,0

Table 2 shows that the respondents achieved the highest number of correct answers on the variables "Square (4.5 years old)" and "3 blocks of the pyramid (3 years old)". On these variables, the number of correct answers is 19 out of a possible 25, while the percentage representation of correct answers is 76.0%. The number of correct answers on the variables "Circle (something) (3 years old)" and "5 blocks of a train (3 years old)" is 18, or 72,0%. Also, we have two variables "Cross (something) (4-4.5 years old)" and "Triangle (5 years old)" with 17 correct answers, that is, the percentage of correct answers is 68.0%. Variables with a percentage lower than 50%, or variables with the least number of correct answers in the "Visual Perception" area are: "6 blocks of the pyramid (4 years old)" with 9 correct answers (36.0%), the variable "Three crossed lines (6 years old)" where the number of correct answers is 8 (32.0%) and the variable "10 blocks of the pyramid (5 years old)" with the lowest number of correct answers, 6 in total, and the percentage representation of correct answers on this variable is 24.0%. Students with mild intellectual disabilities who attended preschool education achieved worse results in the area of "Visual Perception" than students with the same disabilities who were not covered by the preschool aspect of education. However, it should be emphasized that despite the differences in the results achieved, there is no statistically significant difference.

Table 3.	Descriptive	statistics	of the	summary	variable	for	students	with	mild	intellectual
disabiliti	es in relation	to the atte	endance	e of presch	ool educa	ntior	1			

	Kinderg			
Area	arten	Ν	AM	SD
Visual perception	YES	25	5,84	3,09
	NO	35	7,37	2,43

Based on the results presented in Table 3, it is evident that on the summary variable of the area "Visual Perception", better results are achieved by students with mild intellectual disabilities who did not attend preschool education (AM = 7.3), compared to students with the same disabilities who did attend preschool education (AM = 5.8). The standard deviation value for the respondents who did not attend preschool education is (SD = 2.4), and for the respondents who did attend preschool education is (SD = 3.0).

Table 4. Differences in abilities of visual perception of students with mild intellectual disabilities in relation to the attendance of preschool education

	F	р	t	df
Visual perception	1,938	0,169	-2,144	58

The results of the t-test, shown in Table 4, showed no statistically significant difference in the level of visual perception of students with mild intellectual disabilities in relation to the attendance of preschool education (t = -2,144; p = 0,169).

# DISCUSSION

Visual perception is preserved if the subject/respondent successfully names the objects, shows the named objects, and describes their function or use. Thus, visual perception proceeds continuously from registering simple characteristics of visual stimuli such as luminance, angle, length, curvature, movement, size, etc., to perception of wholes/units, spatial relationships and recognition<sup>10</sup>. Visual perception is the basis for the development of many cognitive functions. Thanks to visual perception and its simultaneity, the human receives information from the outside world. Visual perception is one of the basic cognitive functions, which means recognizing and discriminating stimuli, as well as interpreting them, and linking received information to previous experience<sup>11</sup>. If a child with intellectual disability cannot learn something or perform an activity, or does so with great difficulty, it is generally thought to be due to a problem with its mental function, and it is rarely associated with visual impairment. The neglect of the fact that visual impairment can be a potential cause of difficulties for children with intellectual difficulties in the process of acquiring abilities and skills acquisition, calls into question rehabilitation and educational programs based on the assumption that there is no eyesight problem<sup>12</sup>. In our study in the area of "Visual Perception", the tasks were mainly about hand-eye coordination and outline of the same shapes. Based on the results obtained, we conclude that respondents with mild intellectual disabilities who did not attend preschool education achieved slightly better results than those with the same disabilities who attended preschool education, with the number of correct answers gradually decreasing as the complexity of the tasks the respondents were completing increased.

# CONCLUSION

Based on the presented study results, we can conclude that there is a difference in visual perception abilities between students with mild intellectual disabilities who attended preschool education and those with the same disabilities who did not attend preschool education. Better results were achieved by students with mild intellectual disabilities who did not attend preschool education, which was contrary to what was expected. The reasons for this outcome are numerous, but one of them is the insufficient involvement of experts, that is, special educators and rehabilitators in preschool institutions. One of the reasons may also be the inadequate approach of the tutor/educator, in terms of insufficient knowledge of working methods with these children, which can create negative experiences for children with intellectual disabilities and, consequently, reduce their will and desire to work.

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# ADHD SYMPTOMS AND BEHAVIOUR DISORDERS OF CHILDREN OF PRIMARY SCHOOL AGE

# SIMPTOMI ADHD I POREMEĆAJI PONAŠANJA DJECE OSNOVNOŠKOLSKE DOBI

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**Original scientific articles** 

# ABSTRACT

The main objective of the study was to investigate the prevalence of ADHD and behavioural disorders of children of primary school age. The sample consisted of 500 primary school children from the Tuzla Canton, Bosnia and Herzegovina. ADHD was examined using the Attention Deficit/Hyperactivity Disorder Test (ADHDT) (Gillian, 1996), while the presence of behavioural disorders was examined using the Achenbach System of Empirically Based Assessment-ASEBA (Achenbach and Rescorla, 2001). The results of the study showed that 10.3% of primary school age children have ADHD or belong to the risk group/category. In children with and without ADHD, the presences of behavioural disorders, as well as differences in relation to age and gender have not been established.

Keywords: ADHD, behavioural disorders, children of primary school age.

# SAŽETAK

Glavni cilj istraživanja je bio da se ispita prevalenca ADHD i poremećaja ponašanja djece osnovnoškolske dobi. Uzorak ispitanika je obuhvatio 500 djece osnovnoškolske dobi sa područja Tuzlanskog kantona. ADHD je ispitan primjenom Test za deficit pažnje/hiperaktivni poremećaj (ADHDT) (Gillian, 1996), dok je prisustvo poremećaja u ponašanju ispitan primjenom Achenbach sistem na empirijskim zasnovanim procjenama-ASEBA (Achenbach i Rescorla, 2001). Rezultati istraživanja su pokazali da 10,3% djece osnovnoškolske dobi ima ADHD ili spadaju u rizičnu grupu djece. Kod djece sa i bez ADHD nije utvrđeno prisustvo poremećaja u ponašanju, kao ni razlike u odnosu na dob i spol.

Ključne riječi: ADHD, poremećaji u ponašanju, djeca osnovnoškolske dobi

#### **INTRODUCTION**

Attention Deficit/Hyperactivity Disorder (ADHD) is considered to be one of the most commonly investigated neurodevelopmental disorders that affects both the individual and their family and the community as a whole (Ercan et al., 2015). ADHD is a disorder most commonly diagnosed in children during primary school age; however, it is nowadays increasingly being identified during preschool age (Visser et al., 2014). It is defined as a relatively stable pattern of impairment of inattention, hyperactivity, and/or impulsivity (DSM-V: APA, 2013), which affects 2% to 20% of the school population (Biederman and Faraone, 2005; Visser et al., 2014; Wolraich et al., 2014). There is no single test that will confirm the existence of ADHD syndrome with certainty, nor can the chemical or genetic markers that distinguish children with this syndrome be identified (Reid and Johnson, 2012). Diagnosis is subjective, and therefore the diagnosis of ADHD syndrome must be made on a unique and individual basis. With the aim of reducing the possibility of errors in making the final diagnosis, the recommended model in the evaluation of this syndrome is a multidimensional approach, where as much data as possible needs to be collected (Handler and DuPaul, 2005). The diagnosis of ADHD in children is difficult to make before the age of four or five, except that the characteristic behaviour of younger children is more variable, they are also less demanding for more sustained attention and behavioural control (McGoey et al., 2002; Barkley, 2000; Strock, 2003). A diagnosis of ADHD can be made with certainty after the age of seven; however, symptoms must occur before this age. ADHD is most commonly diagnosed during primary school age, more precisely, in the fifth grade of primary school, because during these periods, adjustment requirements in children are greatest and continue to persist in adolescence and adulthood in most people (50-70%) (Bernardi et al., 2012). The disorder is diagnosed according to ICD-10 and DSM-V diagnostic criteria. The symptoms of the disorder are almost identical in both criteria, but differences are expressed in the diagnostic algorithm (Sekušak-Galašev, 2005). The assessment process begins by collecting basic information about the child through interviews. The primary objective of the interview is to define a list of specific child behaviour problems that will be compared with DSM criteria (Anatopoulos and Shelton, 2001). Data is collected from parents, educators and teachers. Parents provide information regarding the medical history of the child, about the time when behavioural problems first arose, about the child's development, about family history information, etc. Educators and teachers are crucial in the assessment process because they monitor behaviours on a daily basis and monitor the academic achievement of children (Reid and Johnson, 2012). Direct observation is the best assessment practice that is not as often represented in practice as it should be (Handler and DuPaul, 2005).

According to the DSM-V (APA, 2013), there are three basic forms (types) of Attention Deficit/Hyperactivity Disorder (ADHD):

1. Attention Deficit/Hyperactivity Disorder - combined type (six or more symptoms of inattention and six or more symptoms of hyperactivity - impulsivity lasting for at least six months and occurring in the greatest number of children and adolescents);

- 2. Attention Deficit/Hyperactivity Disorder predominantly inattentive type (six or more symptoms of inattention, but less than six symptoms of hyperactivity impulsivity lasting at least six months);
- 3. Attention Deficit/Hyperactivity Disorder predominantly hyperactive-impulsive type (six or more symptoms of hyperactivity-impulsivity are represented, but less than six symptoms of inattention lasting at least six months).

Although ADHD is not an educational category but a medical diagnosis, a great number of students with ADHD are just eligible for services and legal protection in the education field. Schools should offer these students a wide range of services for students with ADHD symptoms and behavioural disorders. Services can be academic and non-academic.

Potential diagnoses (or comorbidity) diagnoses

- Oppositional defiant disorder or behavioural disorders (may sometimes cause problems in differential diagnosis)

- Pervasive developmental disorders
- Anxiety and mood disorders
- Acute adjustment disorders
- Attachment disorders
- Learning disorders (differential diagnosis to inattention)
- Mental retardation (does not rule out the diagnosis of ADHD)
- Domestic conflict, abuse or child abuse can also occur with symptoms similar to ADHD

- Chromosomal, metabolic, neurological or somatic disorders (e.g. Fragile x syndrome; 22q1 deletion syndrome, pti mal seizure (epilepsy), migraine, hyperthyroidism) may be masked as ADHD

- Medications, especially anticonvulsants, antihistamines, sympathomimetics, steroids (Banaschewski et al., 2015).

According to research, over 90% of students with ADHD in developed countries of the world receive academic services. About two-thirds of these students receive some of the non-academic services at school, such as behaviour management, mental health services or occupation services. Also, social services and/or parental counselling/training should be provided within the school curriculum (Dizdarević, 2013).

ADHD has been the most common diagnosis for school-age children for many years, with prevalence rates ranging from 2% to 16% (Kirby and Kirbi, 1994; Barkley, 2000; Rader, McCauley, & Callen, 2009; Willcutt, 2012), and it is estimated that ADHD is four to five times more frequent in boys than girls (Barkley, 2000), i.e. ratio of 2: 1 to 6: 1 (Biederman et al., 2010).

Attention disorders are more common in boys than girls (3:1). According to some studies, the ratio is as high as 6:1 to 10:1. Western countries statistics show that ADHD accounts for about 70% of the total number of diagnoses of children (Jovanovic et al., 2006). Children with ADHD are at risk for academic and social failure including school failure, grade repetition, low self-esteem, systematic abuse, and early pregnancy (LeFever, Villers, Morrow, & Vaughn, 2002). It is found that more of 30% of children with ADHD repeat grades, 57% are enrolled in special education services, over 46% have dropped out of school, 10% to 20% have been expelled from school and 10% to 35% fail to finish high school (Barkley, DuPaul, & McMurray, 1990; Barkley, Fischer, Smallish, & Fletcher, 2002). Children with ADHD are at least twice as likely to develop depression (Kessler et al., 2006) or 21.6% (Elia et al., 2008). The relatives of children with ADHD are at high risk for ADHD, comorbid psychiatric disorder, school failure, learning disabilities and intellectual impairment (Faraone and Biederman, 1994).

Self-assessment questionnaires, observations, structured interviews, and achievement on specific tests are commonly used to assess behavioural problems. One of the most commonly used scales for assessing child behaviour is the Child Behaviour Checklist (CBCL) (Živčić-Bećirević et al., 2003).

Achenbach's (1993) division classifies internalized and externalized behavioural problems. Koller-Trbovic (2004) describes eight groups of syndromes divided into internalized and externalized syndromes. Anxiety or depression and somatic difficulties belong to the internalized syndrome group, while aggressive and delinquent behaviours belong to the externalized syndrome group. Non-group syndromes are attention problems, social problems, and thinking problems. The difference between the two groups of symptoms of externalized and internalized problems is manifested in the fact that in the first case, the response of children creates problems for others, and in the second case, the response creates problems for the child itself (Koller-Trbović, 2004). Under-controlled behaviour is more common in boys, and over-controlled behaviour is more common in girls (Davison and Neale, 1999).

The importance of early identification is crucial to the child's overall development, overcoming negative feelings and building a positive self-image. At the same time, a child may exhibit a number of different disorders and difficulties, and internalized and externalized problems, although different, are not mutually exclusive (Achenbach and Rescorla, 2001). Symptoms of this disorder affect the child's behaviour and its cognitive, academic, emotional, social and developmental functioning (Rader, McCauley, & Callen, 2009).

In our country, there are no established indicators of early identification of children with behavioural problems, nor identification of given difficulties, including ADHD and its reflections or correlation with variables of school functioning, or influence on academic achievement and primary school age student behaviour, as well as no established recommendations for work related to an established difficulty. Accordingly, this study raises the question of the incidence of ADHD in children of primary school age and the frequency of clinically relevant problem behaviour in children with and without ADHD.

This study seeks to investigate the prevalence of ADHD and behavioural disorders in children of primary school age, and to determine the difference in behaviour disorders of children with and without ADHD with respect to age and gender.

# **RESEARCH MATERIAL AND METHODS**

# Sample of respondents

The sample consists of 500 primary school students aged 6-14 who attend the regular education system in the Tuzla Canton, Bosnia and Herzegovina. The choice of respondents was made randomly. No participants were excluded from the study because of the aetiology of the eventual difficulty, the level of difficulty, the presence of sensory or physical impairment, or the associated psychiatric or behavioural problems.

# Measurement instrument and research variables

ADHD was tested using the Attention Deficit/Hyperactivity Disorder Test (ADHDT), (Gillian, 1996). It is a standardized test that contributes to the diagnosis of students with Attention Deficit/Hyperactivity Disorder. ADHDT consists of 36 particles describing the behaviour and characteristics of persons with ADHD and these particles are based on the most common ADHD behaviour problems listed in the DSM-IV and the professional literature. ADHDT consists of three subtests: the hyperactivity subtest, the impulsivity subtest, and the inattention subtest. The hyperactivity subtest measures excessive motor movements, and is illustrated by the particles "excessive running, jumping, climbing" and "excessive speaking". The impulsivity subtest evaluates the problems of inhibiting behaviour and delaying the reaction and is illustrated by the particles "acting before thinking". The inattention subtest evaluates by examples/particles "failing to finish what he/she has started" and "having difficulty maintaining attention".

Problem behaviour was examined by applying the Achenbach System of Empirically Based Assessment-ASEBA via the Child Behaviour Checklist-CBCL (Achenbach and Rescorla, 2001). The Achenbach System of Empirical Based Assessment-(Achenbach and Rescorla, 2001) for ages 6-18 is a revised version of the assessment of adaptive behaviour and behavioural problems in a simple and effective way. ASEBA forms can be administered over a period of 15-20 minutes.

The Child Behaviour Checklist (CBCL) consists of 113 assertions where the administrator should rate behaviour, emotional and social problems with 0-not true, 1-somewhat or occasionally true, 2-frequent or constantly true. In order to indicate problems for each child, each assertion and rating scale is entered into a profile. For the purposes of this research, a manual way of creating profiles for CBCL forms of school-age-DSM-5 oriented scales was used, separate profiles for boys and girls showing gender specific norms for ages 6-11 and 12-18, used for the purposes of this research.

The Child Behaviour Checklist (6-18) is intended to examine parental assessments of children's behavioural and emotional responses on eight different dimensions:

- 1. Anxiety/Depression
- 2. Reticence/depression
- 3. Somatic difficulties
- 4. Social problems
- 5. Thinking problems
- 6. Attention problems
- 7. Violation of rules
- 8. Aggressive behaviour and other.

This behaviour assessment checklist was filled out by parents, guardians, or other persons who are very close to the child, that is, teachers or staff involved in direct childcare.

# Methods of data collection

Prior to working with the respondents, the researcher informed the representatives of the institutions and the respondents about the goals and objectives of the planned study. The research survey was conducted anonymously and personal data on participants will not be available or used for any purpose other than this research/study.

# Data analysis and data processing procedures

Statistical data processing was performed using SPSS 24.0. Prior to the statistical analysis, the collected data was processed and encoded. Statistical data processing included the application of descriptive and inferential statistical methods. Average age equivalents across areas and sub-areas and total points on the Child Behaviour Checklist (CBCL) were compared between two groups of children using a t-test. Using the cross-sectional method, children of different chronological age and gender with the type of behavioural disorders and the prevalence of ADHD were compared.

# **RESEARCH RESULTS AND DISCUSSION**

The prevalence of children with ADHD, the prevalence of primary school age children with behavioural disorders who did not have ADHD were determined in relation to the set objective of the study, and the difference in the behaviour disorders of children with and without ADHD in relation to age and gender was determined. The basic data on the respondents relate to the tabular presentation of data collected by the general part of the questionnaire used in the research, while the presentation of the total survey results included grouping of variables according to the sub-scales of the measuring instrument, descriptive and inferential statistical analysis, as well as their tabular presentation and discussion.

#### Sample of respondents

Table 1 shows the sample of respondents by gender.

Table 1. Gender of the respondents

Gender	Number of	Percentage
	respondents	%
	Ν	
Male	262	52.4
Female	238	47.6
Total	500	100.0

In relation to the results shown in Table 1, we can see that the sample of respondents was uniform in gender, and that from the total number of respondents (N = 500) 52.4% (N = 262) were boys and 47.6% (N = 238) were girls.

Table 2 shows the sample of respondents by age.

Age	Ν	%
7	5	1.0
8	128	25.6
9	77	15.4
10	91	18.2
11	126	25.2
12	73	14.6
Total	500	100.0

Table 2. Age of the respondents

The study included respondents aged 7 to 12, and according to the results shown in Table 2, we can see that the highest number of respondents was 8 years old (25.6%) and 11 years old (25.2%). The smallest number of respondents was 7 years old, or only 1% of respondents.

# **Results of prevalence of ADHD in children of primary school age and behavioural disorders**

Frequencies and percentages of respondents were calculated to determine the prevalence of ADHD and behavioural disorders in children of primary school age, while a t-test for two independent samples and a univariate variance analysis were used to determine differences in behavioural disorders in children of primary school age with and without ADHD in relation to gender and age.

Probability of ADHD	ADHD quotient	Ν	%
Very low	<69	353	70.6
Low	70-79	95	19.0
Below average	80-89	38	7.6
Average	90-110	11	2.2
Above average	111-120	3	0.6
Tota	1	500	100.0

Table 3. The	probability	of ADHD	in children of	primary	/ school	age
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Table 3 presents the results related to the prevalence of children of primary school age with ADHD. Based on the results presented, we can conclude that 2.8% of children of primary school age certainly have ADHD, as 50% of respondents with ADHD achieve results in this range. This includes children who achieved average and above-average scores on the probability assessment of ADHD. For children who achieved below-average results, precisely 7.6% of the respondents, additional data is needed based on other tests, interviews with parents and behavioural observations, and this percentage of children may be considered as a category of children at risk for ADHD.

Gender o	of the	Very	Low	Below	Average	Above	Total
respond	lent	low		average		average	
Mala	Ν	170	61	24	4	3	262
Male	%	64.9%	23.3%	9.2%	1.5%	1.1%	100.0%
Eamola	Ν	183	34	14	7	0	238
remale	%	76.9%	14.3%	5.9%	2.9%	0.0%	100.0%
Total	Ν	353	95	38	11	3	500
	%	70.6%	19.0%	7.6%	2.2%	0.6%	100.0%

Table 4. The probability of ADHD in children of primary school age in relation to gender

Table 4 shows the results of the probability of ADHD in relation to the gender of the respondents. In relation to the results, we can see from the total sample of children who show symptoms of ADHD that the respondents are gender balanced (i.e. a total of 14 which makes 2.8% of the total sample). However, boys show more pronounced symptoms because out of the total sample, 1.4% were boys with symptoms of ADHD, while 0.6% of them had an above-average probability of ADHD. When it comes to girls, the percentage within the total sample is equal to boys and stands at 1.4%, with girls achieving an ADHD quotient indicating its average probability. When it comes to the sample of children who achieved below-average ADHD quotient scores and who are considered to be a high-risk group for ADHD, the percentage of boys is higher than that of girls and it is 4.8% of the total sample, and 9.2% of the sample of boys included in the study.

Most previous studies confirm a higher prevalence of ADHD in boys than girls, ranging from ratios of 2:1 to as high as 9:1 (Al Azzam et al., 2017), while Joshi and Angolkar (2018) cite conflicting research findings with significantly higher prevalence of ADHD in children of primary school age (5.76%) and higher prevalence of ADHD in girls (3.8%) than boys (1.9%).

# Prevalence of behavioural disorders in children of primary school age with ADHD

The prevalence of behavioural disorders in children of primary school age with ADHD included presentation of the prevalence of behavioural disorders in children in relation to the achieved T-score and its qualitative descriptors.

Rank of behavioural	t-score	Ν	%
disorder			
Normal	>63	500	100.0
Marginal	60-63	0	0.0
Clinically significant	<60	0	0.0
Total		500	100.0

Table 5. Prevalence of behavioural disorders

In relation to the results presented in Table 5, it is evident that the respondents did not show the presence of behavioural disorders, that is, they did not achieve values indicating marginal or clinically significant results. The reasons for these results can be explained to some extent by a sample of respondents that mostly included children of primary school aged 6-12 years. In contrast to this research, other authors cite an association between the diagnosis of ADHD and substance use in adolescence. Brooke and William (2003) report that children diagnosed with ADHD (n = 142) prospectively followed in adolescence (13-18 years old) compared to adolescents of the same age without ADHD (n = 100) show higher levels of use of alcohol, tobacco, and illicit drugs abuse than the control group. Within the sample, the severity of ADHD symptoms during childhood predicted multiple results of substance abuse. On the other hand, some authors highlight the importance of parental interaction of children with ADHD and parenting style and their influence on the occurrence of behavioural disorders. Giannotta and Rydell (2016), state that hyperactive/impulsive child behaviour was a predictor of antisocial behaviour in adolescence.

Table 6. Differences in behaviour disorders of children of primary school age with ADHD in relation to gender

0						
Gender of the	Ν	AM	SD	SE	t-test	р
respondent						
М	33	78.78	2.99	.52	.66	.510
F	19	78.26	2.23	.51		

The results presented in Table 6 show that there is no difference in the behavioural disorders of children of primary school age with ADHD in relation to gender, because the t-test value (t = 0.663; p = 0.510) for two independent samples did not confirm that there was a significant statistical difference between these two groups of respondents.

Table 7. Differences in behaviour disorders of children with of primary school age with ADHD

	Sum of Squares	df	Mean	F	р
			square		
Between Groups	31.305	4	7.826	1.053	.390
Within Groups	349.214	47	7.430		

The results presented in Table 7 show that there is no difference in the behavioural disorders of children of primary school age with ADHD in relation to age because the results of univariate analysis of variance showed that there was no significant statistical difference between the observed groups of respondents (F = 1,053; p = 0,390).

Table 8. Differences in the behavioural disorders of children of primary school age without ADHD in relation to gender

Gender of the respondents	Ν	AM	SD	SE	t-test	р
М	262	76.16	2.00	.12	.687	.092
F	238	75.85	2.06	.13		

The results presented in Table 8 show that there is no difference in the behavioural disorders of children of primary school age without ADHD in relation to gender, because the t-test values (t = 0.687; p = 0.092) for the two independent samples did not confirm that there was a significant statistical difference.

Table 9. Differences in behaviour disorders of children of primary school age without ADHD in relation to age

	Sum of Squares	df	Mean	$\mathbf{F}$	р
			square		
Between Groups	34.181	5	6.836	1.656	.144
Within Groups	2038.721	494	4.127		

The results presented in Table 9 show that there is no difference in the behavioural disorders of children of primary school age without ADHD in relation to age because the results of univariate analysis of variance showed that there was no significant statistical difference between the observed groups of respondents (F = 1,656; p = 0, 144).

### CONCLUSION

The study aimed to determine the prevalence of ADHD and behavioural disorders in children of primary school age, and the differences in behavioural disorders in children with and without ADHD in relation to age and gender. The quantitative method of the study provided data on the percentage of children of primary school age showing symptoms of ADHD and behavioural disorders. The results of this study showed that out of the total number of respondents, 10.4% of them have ADHD, or they belong to the group of children at risk for ADHD. Of this percentage, 2.8% of children of primary school age are diagnosed with ADHD with certainty, while 7.6% of children of primary school age require additional assessment and observation. An assessment of behavioural disorders in children of primary school age found that a significantly higher proportion of children showed symptoms of internalized behavioural disorders, compared to children who exhibited externalized behavioural disorders. When it comes to internalized behavioural disorders, the results show that children of primary school age often show excessive concern and insecurity as well as unfounded fear, while never showing behaviours related to the story of suicide or fear of school. When it comes to externalized behavioural disorders, children of primary school age show no symptoms of sexual problems, they do not steal things outside of home or set things on fire, while very few children feel guilty about doing something wrong and prefer to socialize more with adults than their own peers. Concerning the differences in the prevalence of ADHD in relation to gender, it was found that boys had a higher prevalence than girls, which is in line with previous research. In the sample of children with and without ADHD, no symptoms of behavioural disorders were observed, nor was a difference in T score obtained in relation to age and gender of the respondents. As we said in the introductory part, in our country there are no established indicators of early identification of children with behavioural problems, nor identification of given difficulties, including ADHD and its reflections or correlation with variables of school functioning, that is, influence on academic achievement and behaviour of children of primary school age, as well as no established recommendations for work in relation to the identified difficulty. Accordingly, in the study we determined the incidence of ADHD in children of primary school age and the incidence of clinically significant problem behaviour in children with and without ADHD. Through this research, we made an initial database on the current status of ADHD and behavioural disorders in children of primary school age in the Tuzla Canton, and created implications for future research. Future research should place greater emphasis on the incidence of ADHD and its implications on academic achievement and social goals and, in relation to the results, take appropriate action by introducing appropriate forms of treatment and methods for working with this small population of children in our schools, through a multidisciplinary approach that would advocate a multimodal form of work led by a rehabilitation educator who would be responsible for its implementation.

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# SOME CHARACTERISTICS OF DEAF AND HARD OF HEARING CHILDREN'S TEXT REWRITING ACTIVITIES

# NEKE KARAKTERISTIKE PREPISIVANJA GLUHE I NAGLUHE DJECE

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#### Original scientific articles

# ABSTRACT

The aim of the research was to examine the successive rewriting abilities aimed at determining the difficulties in the phonological-phonematic, optical, kinetic, spelling and grammatical components of writing. The analysis determined the number of errors for the respondent which are omitting or adding letters, syllables, words, sentences, spelling and grammatical errors. The general purpose of this part of the examination is to determine the degree of mastery of writing, to find difficulties in writing, to determine the mechanism, form and extent of these difficulties. The aim was to investigate and determine whether there was a statistically significant difference in rewriting ability with respect to the age of the respondent. The study was conducted on 45 hearing impaired respondents (primary and high school students). Based on this research, it was found that: no statistically significant difference in rewriting abilities was found with respect to the age of the rewriting, hearing impaired respondents had no errors at the text level; no errors at the word level, and specific spelling errors (optical and phonological - phonemic character) and linguistic analysis and synthesis errors were recorded, while no kinetic - type errors were recorded.

**Keywords:** deafness, writing, rewriting, type of errors

# SAŽETAK

Cilj istraživanja bio je ispitati sposobnosti sukcesivnog prepisivanja usmjerenog na određivanje teškoća u fonološko-fonematskoj, optičkoj, kinetičkoj, pravopisnoj i gramatičkoj komponenti pisanja. Analizom je utvrđen broj grešaka za ispitanika u vidu izostavljanja ili dodavanja slova, slogova, riječi, rečenica, pravopisne i gramatičke greške. Opšta svrha ovog dijela ispitivanja je određivanje stepena ovladavanja pisanjem, pronalaženje teškoća u pisanju, određivanje mehanizma, oblika i stepena tih teškoća. Zadatak je bio istražiti i utvrditi postoji li statistički značajna razlika u sposobnostima prepisivanja u odnosu na uzrast ispitanika. Istraživanje je provedeno na 45 ispitanika oštećena sluha, učenika osnovne i srednje škole.

Na temelju ovog istraživanja utvrđeno je da: nije utvrđena statistički značajna razlika u sposobnostima prepisivanja u odnosu na uzras ispitanika; prilikom prepisivanja, ispitanici oštećena sluha ne prave greške na razini teksta; zabilježene su greške na razini riječi, te specifične pravopisne greške, i to optičkog i fonološko – fonematskog karaktera, te greške jezičke analize i sinteze, dok greške kinetičkog tipa nisu zabilježene.

Ključne riječi: gluhoća, pisanje, prepisivanje, vrsta pogrešaka

# **INTRODUCTION**

Writing is the most complex human activity, and rewriting is the simplest form of written exercises of reproductive character in relation to a person's involvement in rewriting (Pribanić, 1998). Čop (1972) and Vladisavljevic (1991) distinguish between three types of rewriting: identical rewriting by pattern, rewriting of printed/block letter text (in which there can be lowercase and / or uppercase letters) to cursive or vice versa, and rewriting from one type of writing system to another. The physiological basis of rewriting is mainly based on visual and graphomotor activity. The accuracy and aesthetics of the rewriting are ensured by: good spatial orientation, advanced hand motility, coordinated hand and finger movements, good visual perception and oculomotor coordination. Likewise, some psychic functions influence rewriting: attention, perseverance, motivation and fatigue.

Rewriting is predominantly of reproductive type, although it is not always pure reproduction. Rewriting is for developing writing techniques, practicing and improving grammatical and spelling skills, developing regularity of expressions, enriching vocabulary, and partly for developing the style and ability of writing. Rewriting is more of a preparatory action that, to a certain extent, enables students to master some of the rules necessary to enable them to express themselves properly in written expression. The rewriting must be organized in such a way that it has a purpose; it should not be reduced to simple, mechanical copying of the text. The goals of rewriting activities are: mastering writing techniques, developing a working discipline and sense of neatness, accuracy and logic of spelling and grammar rules, enriching vocabulary, practicing style, thinking and thoughtfully deepening of the text being rewritten. It would be a good idea to have each rewriting controlled and assessed by the teacher so that the children can correct their errors.

With all these facts in mind, it is not necessary to emphasize the need for rewriting exercises in hearing impaired children, not only because they contribute to the development of mechanical habits of writing rules, but the student, rewriting the text according to a written sample, notes the structure of words, grammatical orthographic elements and identifies visual and motor concepts of grammatical and spelling forms. By rewriting, the student gets an optical image of the word, imitating and memorizing it by writing, noticing sentence composition, punctuation, and more (Chop, 1972).

A well-crafted rewriting technique not only allows for faster application of the writing system, but also accomplishes the process of thinking, linguistically shaping thoughts and expressing them in writing (Nikolić, 1996).

# **RESEARCH MATERIAL AND METHODS** Sample of respondents

The study was conducted on a sample of 45 respondents (primary and high school students). The sample was selected respecting the following criteria: students had to attend primary or high school; by the time of the survey they were covered by a hearing and speech rehabilitation program; they had an average intellectual status. The sample is divided into three sub-samples:

- Students of primary school education / lower primary school age from 3rd to 5th grade;
- Students of subject teaching education / senior primary school age from 6th to 9th grade;
- High school students (table 1).

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Age of the respondent	Number of respondents	
Students of primary school education	15	
Students of subject teaching education	15	
High school students	15	

Table 1. Distribution of respondents with respect to age

# Method of conducting research and Measuring instruments

A Diagnostic kit for testing speech, language, reading and writing (Bjelica, Posokhova, 2001) was used to assess the ability to rewrite. The general purpose of this part of the examination is to determine the degree of mastery of writing, to find difficulties in writing, to determine the mechanism, form and extent of these difficulties.

Rewriting evaluation variables:

- Rewrites the text correctly,
- Commits optical errors (mirror letters, rotation),
- Commits kinetic errors (omitting letter elements, adding redundant elements, difficulty transitioning from one letter to another),
- Commits phonological-phonematic errors (which letters represent a problem),
- Commits linguistic analysis and synthesis errors:
  - at the letter and syllable level (moving, omitting, adding);
  - at the word level (spelling the same word separately, writes multiple words composing a single word, morphological disgrammatism);
  - at the sentence level (distorting word boundaries in a sentence, syntactic disgrammatism, no clear sentence feature capital letter, dot);
  - at the text level;
- Commits non-specific grammatical/spelling errors,
- Unable to rewrite the text.

#### **Data processing methods**

After the research, the obtained data were processed by the statistical program SPSS 16.0 for the Microsoft Windows operating system. In the statistical data processing, in accordance with the defined research aims, basic statistical parameters were calculated for all variables: range of results, minimum and maximum results, arithmetic mean and standard deviation. To test the set hypothesis, a variance analysis method was applied. The results were also interpreted by analyzing the errors of the respondents on the tasks.

#### **RESULTS AND DISCUSSION**

The activity of rewriting of the text was intended to examine the capabilities of successive rewriting aimed at determining the difficulties in the phonological-phonematic, optical, kinetic, spelling and grammatical components of writing. The analysis determined the number of errors for the respondent, which are omitting or adding letters, syllables, words, sentences, spelling and grammatical errors. The general purpose of this part of the examination is to determine the degree of mastery of writing, to find difficulties in writing, to determine the mechanism, form and extent of these difficulties.

Our task was to investigate and determine whether there was a statistically significant difference in rewriting ability with respect to the age of the respondents. We accomplished this task through a one-factor analysis of variance, and presented and explained the results in tables. Using the one-factor analysis of variance, we explored the influence of respondents' age on rewriting ability.

Looking at Table 2, we can conclude that 37 out of 45 respondents, or 82.22% of them, correctly rewrite the text. 8 respondents (17.78%) committed specific errors.

		Lower primary	Senior primary	Uigh ashaal aga	Total
		school age	school age	flight school age	10181
The child correctly	f	12	12	13	37
rewrites the text	%	80	80	86,67	82,22
The child rewrites the	f	3	3	2	8
text with specific errors	%	20	20	13,33	17,78
Unable to	f	0	0	0	0
rewrite the text	%	0	0	0	0
Total	f	15	15	15	45
Total	%	100	100	100	100

Table 2. Text rewriting performance with respect to the age of the respondents

Table 3 represents the basic statistical parameters for all three sub-samples of the survey: arithmetic mean, standard deviation, standard error, range of results, minimum and maximum results.

Respondents of lower primary school age committed a minimum of 0 and a maximum of 6 rewriting errors, the average number of errors was 0.80, with a standard deviation value of 1.82. The respondents of senior primary school age committed a minimum of 0 and a maximum of 3 errors during rewriting. The average number of errors was 0.60 with a slightly smaller standard deviation (1.06). High school respondents averaged 0.80 errors, with a range of 0 to 8 errors. At the same time, the largest individual deviations were recorded in this group of respondents (2.24).

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	N	Arithmetic	Stand.	Stand.	95 confic inte	% dence rval	Min.	Max.
		mean	ueviation	error	Lower limit	Upper limit		
Lower primary school age	15	0,80	1,82	0,47	-0,21	1,81	0	6
Senior primary school age	15	0,60	1,06	0,27	0,02	1,18	0	3
High school age	15	0,80	2,24	0,58	-0,44	2,04	0	8
Total	45	0,73	1,74	0,26	0,21	1,26	0	8

Table 3. Descriptive statistics of the variable *Rewriting* with respect to the age of the respondents

Given that the majority of respondents correctly rewrite the text, one-factor analysis of variance did not reveal a statistically significant difference in the ability to rewrite with respect to the age of the respondents (Table 4), and the hypothesis H1, which assumes that there is a statistically significant difference in the ability to rewrite with respect to the age of the respondents, can be dismissed. The value obtained by one-factor analysis of variance is F = 0.06 with a significance of 0.94.

Table 4. One-factor analysis of variance for the variable *Rewriting* 

	Sum of squares of deviations	Degree of freedom	Square of arithmetic means	F	Significance
Between groups	0,40	2	0,20	0,06	0,94
Within the group	132,40	42	3,15		
Total	132,80	44			

Table 5 shows the estimation of the nature and type of errors for the *Rewriting* variable with respect to the age of the respondents: the largest number of errors in the rewriting activity of lower primary school students was of the optical type - the following marked word pairs are in Bosnian (nirno-mirno; podjegle-pobjegle; sednica-sedmica; drglogu-brlogu; baleko-daleko; podjegle-pobjegle; sebmica-sedmica; gnijezba-gnijezda) and one error at the word level (daleka-daleko). Similar results are obtained by Huremović and Tulumović (2012a and 2012b). One spelling error was the omitting of quotation marks. Other types of errors were not observed. Senior primary school age students had a total of 5 errors; 3 optical (školskinškolskim; bilo-bila;) and 2 at the word level (predetava-predstava; kuće-kući) and one spelling error - capital letter (sanja-Sanja). High school students committed errors only at the phonological-phonemic level (lizica-lisica; skrovižta-skrovišta; juznih-južnih; vracajuvraćaju). With the increase of the chronological age there is a decrease in the number of errors, so that only the phonematic-phonological errors occur when rewriting at an older age. We believe that the reason for this is the mechanical rewriting by hearing impaired students. Older students try to use linguistic redundancy, as has been reported in hearing learners, but their poor linguistic experience hinders them. Incorrect positioning of letters in word composition is caused by insufficient language experience as a direct consequence of hearing impairment. In the case of replacement, addition or omission of a letter, the word may carry a whole new meaning or have no meaning. More linguistic experiences could prevent errors of this type.

	Lower primary	Senior primary	High school age	
	school age	school age		
Optical errors	8	3	0	
Kinetic errors	0	0	0	
Phonological -	0	0	6	
phonematic errors	0	0	0	
Language analysis and				
synthesis errors				
- At the letter and	0	0	0	
syllable level	0	0	0	
- At the word level	1	2	0	
- At the sentence	0	0	0	
level	0	0	0	
- At the text level	0	0	0	
Non-specific spelling	1	1	0	
errors	1	1	0	
Total	10	6	6	

Table 5. Types of rewriting errors with respect to the age of the respondent

# CONCLUSION

- No statistically significant difference was found in the rewriting ability with respect to the age of the respondents.
- When rewriting, hearing impaired respondents commit no errors at the text level.
- Errors at the word level, specific spelling errors of optical and phonological-phonemic character, and linguistic analysis and synthesis errors were noted, while kinetic-type errors were not recorded.

Considering that many authors emphasize the importance of the rewriting method as a method that affects the adoption of spelling and grammatical norms in hearing impaired children, and that in practice it is the most commonly used method, we conclude that this method often results in mechanical rewriting and copying of the text without content analysis and requests.

In this regard, when dealing with deaf and hard of hearing children, we must take into account that rewriting must be organized in such a way that it has a clear requirement, direction and purpose, and that it must not be reduced to just a simple mechanical activity.

When working on the development of writing skills for hearing impaired children, other methods should be preferred, such as logical complementing of parts of words, completing words in a sentence, answering questions, dictating, describing, recounting, writing letters, and the like, or combining these methods with the rewriting method.

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#### AIM & SCOPE

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