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DEPRESSION AND AUTO-AGGRESSIVENESS IN ADOLESCENTS IN ZAGREB

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SUMMARY

Background: *The aim of the study was to explore the frequency of depression among the general population of adolescents who were high school students in the city of Zagreb. As depression is associated with increased suicidal risk we wanted to check to what extent depression, as an emotional problem among youth, is associated with auto-aggression in the general population of adolescents.*

Subjects and methods: *The study was conducted on a sample of high school students in Zagreb and it included 701 students of both genders aged from 14-19 years of age. To test the depression a Beck Depression Inventory (BDI) was administered for youth between 11-18 years of age (Youth Self Report for ages 11-18). To test auto-aggression a Scale of Auto-destructiveness (SAD) was used.*

Results: *Results obtained by this study show that about 20.7% of high school students have mild and borderline depressive disorders while moderate or severe depression shows about 5% of them, whereby depression is statistically significant among girls who, on average, report more symptoms of depression. It has also been proven a significant impact of depression levels ($F(2,423)=35.860$, $p<0.001$) on auto-aggression in subjects of both genders. In both genders, moderately depressed show more auto destructiveness than those without depression symptoms ($p<0.01$). In the group of heavily depressed ($n=30$), significantly higher self-destructiveness is shown by girls ($p<0.01$).*

Conclusions: *The data suggest the importance of early recognition, understanding and treatment of depressive symptoms in adolescents in order to reduce the risk of subsequent chronic psychosocial damage.*

Key words: *depression – adolescents - auto-aggressiveness - urban populations*

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INTRODUCTION

When depression is mentioned it is important to know that it is clinically analyzed on three levels: on the level of symptoms, syndromes and disorders; and symptomatology is observed also in a function of age and gender of the child. Although the first researches of occurrence, development and nature of depression in children and adolescents are mentioned in the works of Spitz (1965) and Bowlby (1960), it was considered for a long time that depression in children and youth cannot occur because it is hidden with psychosexual development, cognitive-emotional development, immature character or behavioral problems such as aggressiveness. In the systematic research about adolescent depression in the eighties it was observed that depressive symptoms of young adults are similar to depressive symptomatology of adults with certain specifics. The etiology of the depression in adolescence is complex, and models can be divided into two basic categories, namely biological and psychosocial. Assumed biological factors include genetic inheritance and biochemical factors, whereas psychosocial include the developmental history of the individual as well as adverse events in the environment, such as abuse and neglect and generally growing up in disadvantaged family environment. Regardless of the cause depression affects all levels of functioning of the individual and can lead to severe disturbance of normal development if it's not diagnosed and if its possible negative effects are not prevented (Rudan & Tomac 2009, Harrington 1993).

Depression among adolescents is manifested by symptoms such as low self-esteem, anhedonia, social withdrawal, fatigue, thought and attention problems, somatic disorders, self-destructive impulses, delinquent and aggressive behavior. Manifestation of depression in young people can be divided into three phenomena. For the first it is characteristic that adolescents only occasionally feel depressed mood, feel sad, moody, disappointed, miserable. Second phenomenon is the depressive syndrome, and it refers to a set of symptoms in the field of emotions and behaviors that occurs together. The third relates to the clinical view of depression with precisely defined criteria that significantly impede an individual's activities in different areas of life (Brajša-Žganec & Glavak 2002). According to the DSM-IV children and adolescents can be diagnosed with following depressive disorders: adjustment disorder with depressed mood, major depressive episode and dysthymia as the longest and most complicated disorder (APA 2000). Adolescence is considered a period of more frequent occurrence of depressive moods although

clinical depression in adolescence more often than in younger children or those before the onset of puberty, especially among girls. Approximately 5-10% of children and adolescents have experience with depressive disorders, and research suggests that the occurrence of depressive symptoms in childhood is closely associated with occurrence of depression in adulthood. Research also indicates the importance of the appearance and development of gender differences. In adolescence, the ratio of depression occurrence in boys and girls is 1:2. Regardless of the various phenomena of depression occurrence such adolescents are at significant risk of suicide, development of associated psychiatric disorders, and other medical problems (Rudan & Tomac 2009, Vulić-Prtorić 2004).

SUBJECTS AND METHODS

The research included 701 highschool students, of which one's gender was not recorded and 3 were twenty years old, which exceeded the planned age span, so their data were excluded from further investigation. The final sample consisted of 697 respondents, of which 395 boys and 302 girls. The respondents' age averaged 16.5±1.0. The respondents attended 35 classes in various Zagreb highschools (vocational and regular), where the ratio of vocational and regular classes was kept in accordance with the actual population ratio (1:3 in favor of vocational classes). The respondents' structure followed the actual ratio of the school types (1/3 regular and 2/3 vocational), while the gender distribution was in favor of boys due to the type of vocational schools involved. None of the respondents refused to take part in the research, making the turnout 100%.

Upon the obtained written permission of the Ministry of Science, Education and Sport, the headmasters of the schools in question were informed of the research. Parents were sent a written notice and the students were briefly informed about the aim, methods and procedure of the research. If both the parents and the student agreed to take part in the research, they signed a consent form. The testing was done in groups, in the classroom, during class, and lasted two classes (90 minutes). The questionnaire sequence varied in the way that in each class the sequence was moved forward by one (the last questionnaire in one class was the first in the next class, the first one became the second, etc.). Data collection was anonymous and the respondents had the right to withdraw at any moment. They were offered a possibility to talk to the examiner or to get help at any time during or after the examining.

Materials

The following instruments were used to gather the data:

- To test depression the Beck Depression Inventory – BDI was used. It is the most widely used instrument for identifying depression in the world, consisting of 21 items, the content of which is aligned with the criteria for a diagnosis of depression. Each item is a list of four statements arranged by severity of specific symptoms of depression (Beck et al. 1996).
- For auto-aggressiveness testing a standardized questionnaire, the Scale of Auto-destructiveness–SAD, was used. SAD is the instrument for measuring auto-destructive tendencies in individual's personality which is applied to respondents over 14 years of age. It consists of 107 grouped statements that make 4 subscales (suicidal depression, anxiety, aggressiveness, and borderline). The respondents' task was to answer with a YES or NO depending on whether the statement was true for them. The scales application can be individual or group, and on average it takes from 15 – 20 minutes (Dautović 2000).
- For the testing of personal, social, and school functioning as well as testing of emotional and behavioral disturbances a Youth Self Report for Ages 11 – 18 has been used The questionnaire consists of two parts. The first part refers to information about the personal, social and school functioning of adolescents. The second part contains 112 items (statements). The sum total of individual item forms eight syndrome scales (scale of seclusion, scale of physical disorders, anxiety/depression scale, social problems scale, opinion problems scale, scale of attention problems, delinquent behavior scale and the scale of aggressive behavior).

These syndrome scales are based on second-order factor analysis divided into three groups: internalizing disorders, externalizing disorders and mixed disorders, which cannot be included in any internalizing nor externalizing disorders (Achebach & Rescorla 2001).

Statistical analysis

Standard descriptive statistical methods were used for statistical and graphical data analysis (arithmetic mean, standard deviation and minimum and maximum result for normally distributed variables, and median and inter-quarter dispersion for asymmetrically distributed variables). Furthermore, the calculation of differences between groups was done with the t-test and variance analysis in cases where the variables were normally distributed and where the conditions of examined groups' variance homogeneity were met. Where the prerequisites for calculation of parametric statistical analysis were not met, a non-parametric test was used, either Mann-Whitney U test or Kruskal-Wallis test. Of the other statistical methods, multiple regression analysis was calculated. The data analysis was done using Statistical Package for Social Sciences for Windows v. 13.0 (SPSS Inc., Chicago, IL, USA) (Petz 2002, Preacher & Hayes 2008).

RESULTS

Incidence of depression

The total score was obtained by summing the items on BDI Scale. Later it was recoded into a smaller number of categories in two ways: In one case, the results are grouped in a total of 6 classes: No Depression (1-10 points), mild disability (11-16 points), marginal depression (17-20 points), moderate depression (21-30 points), severe depression (31-40 points) and very severe depression (more than 41 points). The second division is made so that the above classes are grouped into three categories: no depression (1-20 points), moderate depression (20-30 points), and severe and very severe depression (31 or more points).

The incidence of depression according to the Beck questionnaire (BDI) is shown in figure 1 and figure 2.

Figure 1 shows that mild depressive disorders has 16.1% of respondents, and 5.5% of respondents show moderate and severe depression, while the marginal depression shows 4.6% of respondents. Severe depressive disorders show 1.5% of respondents.

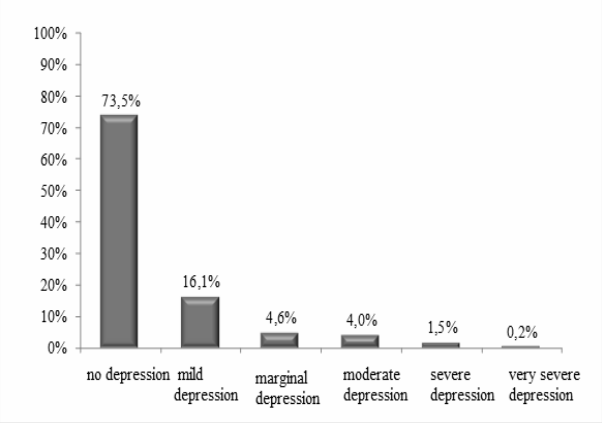

Figure 1. Classification of results on BDI questionnaire in a sample (1)

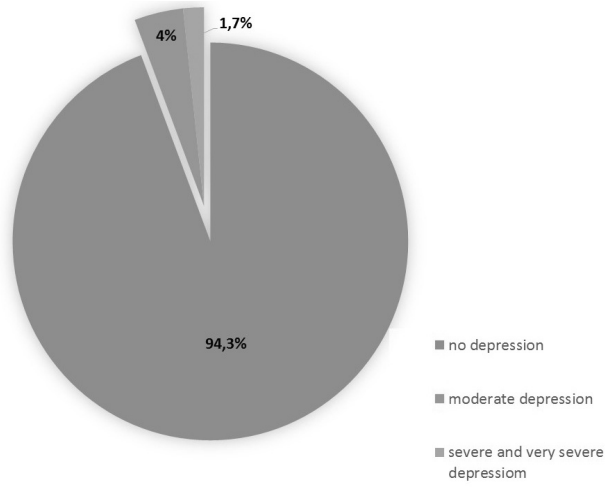

Figure 2. Classification of results on BDI questionnaire in a sample (2)

Gender differences in the average values on individual charts

T-tests for independent samples examined gender differences in the average values which subjects achieved on individual measurement charts. Where the variance did not match in homogeneity (i.e. where Levene's test was statistically significant), the value of the cases, when it is not supposed equality of variance, read „equal variances not assumed".

Average values are shown in order in figures 3, 4 and 5.

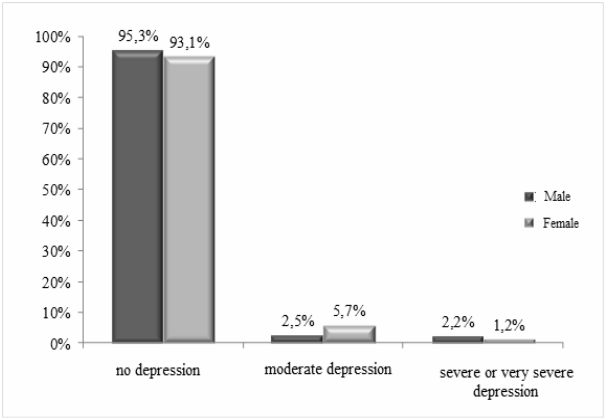

Figure 3. Classification of categories of depression by gender on BDI

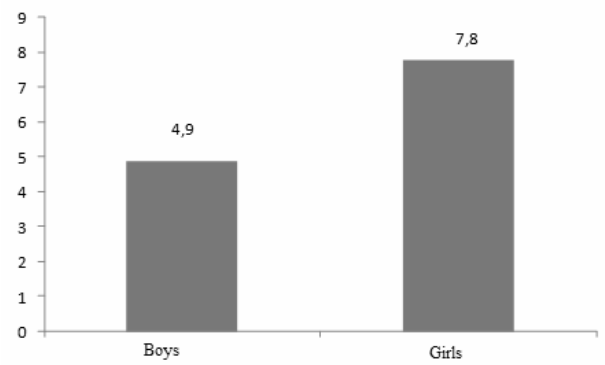

Figure 4. Average scores on the SAD depression scale considering the gender

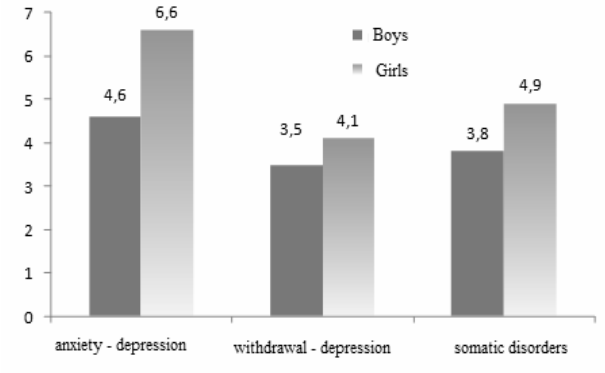

Figure 5. Average scores on the scales of anxiety-depression, depression-withdrawal and somatic disorders (Achenbach) considering the gender

The difference in achieved results on depression was statistically significant (t=5.399, df=598.1, p<0.001) in favor of girls who, on average, report more symptoms of depression.

T-test is statistically significant and shows that girls achieve higher ranking of suicidality (t=-3.809, df=637, p<0.001) compared to boys.

Girls also largely express anxiety/depression (t=6.386, df=660, p<0.001), withdrawal/depression (t=2.847, df=671, p=0.005) and somatic disorders (t=3.659, df=647, p<0.001) compared to boys. Figure 5.

Age differences in the average values on individual charts

The age variable is for this purpose recoded into two categories - one category consists of respondents from 14 to 16 years, and another from 17 to 19 years (Figure 6).

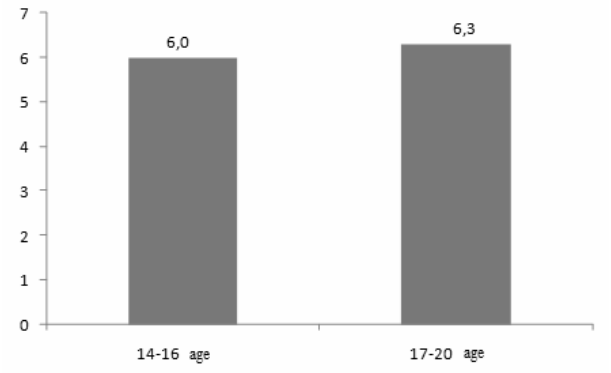

Figure 6. Average scores on the depression scale considering the age

The difference in the results achieved on the depression subscale SAD with respect to age group were not statistically significant (t=0.589, df=629, p=0.556), as well as the average scores on a scale of suicidal depression (SAD) considering the age calculated by t-test were also not statistically significant (p>0.05). Along with that, the average scores on scales of depression anxiety, withdrawal and somatic disorders (Achenbach) shows that the withdrawal/depression (t=2.300, df=449, p=0.22) was largely present in the older age group while at anxiety-depression and somatic disturbances there were no statistically significant differences.

Impact of depression on auto-aggressiveness

Bidirectional ANOVA was used to determine the effects of depression and gender as well as their interaction on the level of students' auto-destructiveness. The results are shown in Figure 7.

2x3 ANOVA shows a statistically significant main gender effect (F(1,423)=5.082, p=0.025) - girls are more auto-destructive. The effect levels of depression is also significant (F(2,423)=35.860, p<0.001). Post hoc tests showed no difference between boys and girls who do not have or have a moderate level of depression and that in both genders the moderately depressed exhibited more auto-destructiveness than those without depressive symptoms (p<0.01). In the group of severely depressed (n=30) girls shows a significantly higher auto-destructiveness (p<0.01).

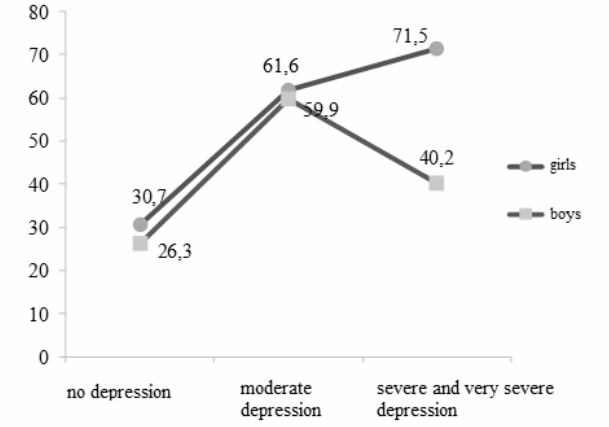

Figure 7. Average results of boys and girls in auto-destructiveness in the SAD questionnaire considering the gender and category of depression

DISCUSSION

This survey obtained results which showed that mild and borderline depressive disorders has about 20.7% of high school students while moderate or severe depression shows about 5% of the respondents, where depression was statistically significant in favor of girls who, on average, reported more symptoms of depression. This result corresponds to the epidemiological data that approximately 5-10% of adolescents have syndrome symptoms of depressive disorder. Studies show that contact with depression has around 5% of children and between 10 and 20% of adolescents. In fact, it is believed that, during adolescence, parental support, in ways of coping with negative life events, is more lacking than in relation to early childhood, and adolescence only implies greater sensitivity to stressful events (Reynolds 1994, Reynolds & Johnston 1994).

This survey also obtained the gender differences whereby girls are more depressed and report more anxiety/depression, on a scale of Achenbach questionnaire, compared to boys. This result is in accordance with studies from the literature. Some studies suggest that gender differences are caused by biological differences and even hormonal changes between girls and boys, and others believe that difference in socialization, in which girls are encouraged to be more focused on their own emotions and the analysis of them often leads to depressed mood (Halgin & Krauss Whitbourne 1994, Lewiss 2007, Brent et al. 1999).

For higher levels of the aforementioned emotional problems among girls, along with socializing and biological factors, important role plays puberty during which large hormonal changes are occurring which

generate differences in perception of themselves. Self-esteem among boys is growing because they feel stronger and bigger, and the girls are becoming dissatisfied with themselves. In addition, girls are generally more socially oriented and more dependent on positive social relationships which makes them more sensitive to the loss of friendships than boys, which therefore makes them more vulnerable to the development of emotional disorders (Mash & Barklay 2003, Rutters et al. 2008).

Exploration of emotional factors associated with auto-aggressiveness in our study showed that depression and auto-aggressiveness are significantly associated. Within both genders the moderately depressed exhibited more auto-aggressiveness than those without depressive symptoms, while in the group of severely depressed significantly more auto-aggressiveness is exhibited among girls.

Since gender differences are, in terms of emotional and behavioral problems, common finding, only differences obtained by this study and commented connection between aforementioned problems with auto-aggressiveness is presented.

Young men are more aggressive and prone to violating rules, while girls largely express anxiety and depression as well as a tendency to withdraw, somatic disorders, attention problems and other problems. For all of these problems it applies that the higher levels of emotional and behavioral problems are associated with higher auto-aggressiveness.

Age differences were also obtained. The tendency to withdraw, depressiveness and violation of the rules are largely present in the older age group. Bowlby suggested several possible circumstances that are associated with the late development of depression. His stance is in line with the theory of learned helplessness in depression, which considers that hopelessness and subsequent depression are developing when adverse events are experienced as those which cannot be controlled. In the first type of circumstances in which Bowlby (1960, 1980) states the death or loss of a parent, child feels a lack of control about the loss of caregivers and later experiences of care and/or cannot control disappointing answers addressed by the parents.

According to a study conducted in the U.S., published in May 2011., suicide is the third leading cause of death among adolescents in the U.S. and the second most common cause in the rest of the developed world which emphasizes that depressive disorder or major depressive episode is most commonly present psychiatric disorder, and is present in 35% of all suicides (Brent 2011).

Depression is the most common condition that, according to many studies conducted so far, is associated with auto-aggressive behaviors in line with self-harm and suicidal ideation where the loss of hope and a sense of hopelessness is the most powerful mediator between depression and suicidal behavior (Portzky et al. 2005, Thomson et al. 2005).

Limitations of this study derive largely from the methodology. In this study only descriptive techniques were used so the assessment of adolescents is not necessarily correct. Also, for testing of auto-aggressiveness a questionnaire was used that tendency toward auto-aggressiveness examines on the continuum.

As for the respondents, the research should definitely be carried out on a greater number of youth and children of different ages. This study was aimed at adolescents, and the differences between them and younger children can be very big. Likewise, it would be good to carry out the research on a larger sample of clinical populations. The implementation of research with participants of different age and clinical group of adolescents would give a better insight into the interrelationships of emotional, social and family circumstances associated with the development of depression. Besides, the sample of respondents on which the data was collected is made of urban population because the research was conducted in Zagreb, which is why the generalization of research is only possible with a similar population. The survey does not cover students who are excluded from school, and for them there is often a greater number of mental health problems (Laye-Gindhu & Schonert-Reichl 2005).

CONCLUSION

The results of our study indicate a large incidence of depression among adolescents. From the results of our study we can conclude that there is a relatively strong association of depression with auto-aggressive behaviors. The higher prevalence of depression among girls points to the need for a possibly different approach for girls as to boys. Certainly it would be important to sensitize the school and social services considering the importance of early recognition of these issues. The resulting data and knowledge about the serious consequences of depression indicate the importance of early recognition, understanding and treatment of adolescents with the aim of diminishing the risk of subsequent chronic psychosocial damage.

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Conflict of interest : None to declare.

References

1. *Achebach TM, Rescorla LA: Manual for ASEBA School Age Forms and Profiles, Burlington VT: University of Vermont, Research Centar for Children, Youth and Families, 2001.*
2. *American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders 4th Edition. Text revision. Washington DC. American Psychiatric Association, 2000.*

3. *Beck AT, Steer RA, Brown GK: BDI. Oxford England: Psychological corporation, 1996.*
4. *Bowlby J: Grief and Mourning in Infancy and Early Childhood The Phychoanalytic Study of the Child 1960; 15:9-52.*
5. *Bowlby J: Attachment and Loss: Loss: Sadness and depression. New York: Basic Books, Vol. 3, 1980.*
6. *Brajša-Žganec, Glavak R: Povezanost bazičnih dimenzija ličnosti i depresivnosti u ranoj adolescenciji, Društvena istraživanja 2002; 11:4-5,641-658.*
7. *Brent D: Do Physicians Take Self-Injury Seriously Enough? Am J Psychiatry 2011; 168:452-454, 495-501.*
8. *Brent DA, Bugher M, Bridge J, Chen T, Chiappetta L: Age and sex–related risk factors for adolescent suicide. J Am Acad Child Adolesc Psychiatry 1999; 38:1497-1505.*
9. *Dautović M: Skala autodestruktivnosti i priručnik za skalu autodestruktivnosti SA, Jastrebarsko, Naklada Slap, 2000.*
10. *Halgin RP, Krauss Whitbourne S: Abnormal psyhology: The human experience of psychological disorders. Dubuque: Brown & Benchmark, 1994.*
11. *Harrington R: Depressive disorder in childhood and adolescence, Chichester: John Wiley and Sons, 1993.*
12. *Laye-Gindhu A, Schonert–Reichl K: Nonsuicidal self-harm among community adolescents: Understanding the "whats" and "whys" of self-harm. J Youth Adolesc 2005; 34:447–457.*
13. *Lewiss M: Lewis's Child and adolescent psychiatry: A comprehensive textbook (3rd ed.), Philadelphia, US: Lippincott Williams & Wilkins Publishers 2007; 503:13–17.*
14. *Mash EJ, Barklay RA: Child Psychopatology, The Guilford Press:New York:144-199, 2003.*
15. *Petz B: Osnovne statističke metode za nematematičare. Jastrebarsko: Naklada Slap; 2002.*
16. *Portzky G, Audenaert K, Van Heeringen K: Suicide among adolescents: A psychological study of psychiatric, psycho-social and personality-related risk factors, Soc Psychiatry Psychiatr Epidemiol., 2005; 40:922-30.*
17. *Preacher KJ, Hayes AF: Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. Behav Res Methods 2008; 40:879-891.*
18. *Reynolds WM: Depression in adolescents: Contemporary issues and perspectives: U:T:H. Ollendick i R.J. Prinz (ur.) Advances in Clinical Child Psychology. New York.Plenum Press 1994; 16:261-316.*
19. *Reynolds WM, Johnston HF: The nature and study of depression in children and adolescents. U: W.M. Reynolds i H.F. Johnston (ur.) Handbook of depression in children and adolescents New York: Plenum Press, 1994; 3-17.*
20. *Rudan V, Tomac A: Depresija u djece i adolescenata, Medicus 2009; 18:73-179.*
21. *Rutters M, Bishop D, Pine D, Scott S, Stevenson J, Taylor E et al.: Child and Adolescent Psychiatry, 5th edition. Blackwell Publishing 587-604, 2008.*
22. *Spitz R: The First Year of Life. New York:International Universities Press, 1965.*
23. *Thomson EA, Mazza JJ, Herting JR, Randell BP, Eggert LL: The mediator roles of anxiety, depression, and hopelessness on adolescent suicidal behaviors, Suicide Life Threat Behav 2005; 35:14-34.*
24. *Vulić-Prtorić A: Depresivnost u djetinjstvu i adolescenciji, Jastrebarsko. Naklada Slap, 2004.*

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