DEPRESSION IN ADOLESCENCE, NEGATIVE LIFE EVENTS AND SENSE OF COHERENCE

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Abstract: Introduction: Many studies have shown that negative life events and the sense of coherence are correlated with depression, but there is little data about their specifics in adolescent population. Goal: The objective of our study was to explore differences in the frequency of negative life events and sense of coherence in adolescents with depressive disorder, compared to adolescents with other psychiatric disorders and those in nonclinical population. Method: The sample consisted of 101 adolescents, age 16 to 24 years, divided in three groups: 1) study group consisted of 40 adolescents, with the diagnosis of depressive disorder; 2) psychiatric control group consisted of 30 adolescents that have not fulfilled criteria for depressive disorder, but had some other psychiatric disorder; 3) control group consisted of 30 adolescents that were never psychiatrically treated. The assessment was carried out by the following instruments: 1) General demographic questionnaire 2) Semistructured clinical interview for DSM-IV disorders; 3) Beck Depression Inventory; 4) Sense of Coherence Scale Questionnaire and 5) Negative Life Events Inventory. Results: Adolescents with depressive disorder had lower sense of coherence in all three dimensions (comprehensibility, manageability and meaningfulness) compared to adolescents in control groups, while the group of adolescents with other psychiatric disorders had lower sense of coherence in two dimensions (comprehensibility and meaningfulness), compared to non-clinical control group. Higher score of depressive symptoms was significantly correlated with higher prevalence of negative life events and with lower sense of coherence. Conclusion: Our findings have shown that depression among adolescents is correlated with higher number of negative life events and with lower degree of sense of coherence. These findings might be important for planning targeted therapeutic interventions aimed at strengthening the sense of coherence.

Key words: adolescence, depression, negative life events, sense of coherence
Introduction

Adolescence is a developmental period accompanied by numerous physical, psychological, cognitive and socio-cultural changes. It was shown that as many as 20% of adolescents at the end of that period have a positive life prevalence of depression [1] which may have a more severe form than depression in later life [2] because it leads to serious long-term consequences, including psychological and physical dysfunction, substance abuse, antisocial and suicidal behavior [3,4,5]. However, depression is often considered as part of „normal adolescence“ and remains unrecognised and untreated [2]. In comparison with depression in adults, knowledge on adolescent depression is still scarce, due to the presence of developmental variations in its manifestations [2]. Therefore it would be of great importance to consider psychosocial factors that are potentially related to the manifestation of this phenomenon.

Frequent negative life events lead to prolonged activation of stress mechanisms, chronic cortisol discharge, which causes toxic effects of glutamate in hippocampal neurons and leads to manifestation of depressive symptoms [6]. There seems to be a significant interaction with the gene for corticotrophin-releasing hormone receptor 1 (CRHR1), which has a mediating role in response to stress, and increases sensitivity for development of depression in adulthood [7]. There are controversial assumptions about whether the retrospective view on negative events is a real cause of depression, and that depression itself might influence the memory of previous events [8]. Nevertheless, it was shown that negative life events were predictors of psychological distress even when the effect of previous symptoms was controlled [9,10]. However, findings about the correlation of negative life events and depression are not consistent, which may be related to the use of heterogeneous instruments for assessment of depression.

According to salutogenic model by Antonovsky [11], health is related to „sense of coherence“. The sense of coherence is a global orientation that reflects degree to which one has pervasive, permanent or dynamic belief that: 1) stimuli from internal and external environment throughout life are structured, predictable, explainable (dimension – „comprehensibility“); 2) resources for the response to the demands of these stimuli are available to a person (dimension – „manageability“); 3) these demands are worth the investment and engagement (dimension – „meaningfulness“) [11]. Persons with higher sense of coherence remain healthy in the presence of stressful events, while those with lower sense of coherence find it harder to deal with unexpected and adverse situations, making them more vulnerable to health problems, among which is also depression [12,13,14]. When sense of coherence is addressed in the younger population, it is lower than among adults, especially in the comprehensibility dimension, which is related to the lack of life experience [15] and represents another aspect of adolescent vulnerability. Some studies have shown a lower sense of coherence in adolescents with mental health and emotional problems [16,17], among which is also depres-
sion [18]. However, there is little data about sense of coherence in clinical population of adolescents [19].

Given the scarcity of data on the specifics of negative life events and sense of coherence in adolescent depression, which is further complicated by the presence of developmental variations compared to adult depression, our study was designed with the aim of investigating these factors in the group of adolescents with depressive disorder, compared to adolescents with other psychiatric disorders and those in non-clinical population.

**Method**

**Participants**

The study involved 101 adolescents from the territory of Belgrade and surroundings (49 male, 52 female), age 16 to 24 years (mean age 18.95±2.23), divided into three groups. The study group involved 40 adolescents that were treated as outpatients or in the Day Hospital for Adolescents at the Institute of Mental Health, and fulfill criteria for some depressive disorder according to DSM-IV. Twenty two adolescents fulfilled criteria for depressive episode (21.78%), 16 adolescents (15.84%) for recurrent depressive disorder to, and 3 adolescents (2.97%) for dysthymic disorder. Psychiatric control group involved 30 adolescents that were treated as outpatients or in the Day Hospital for Adolescents and have not fulfilled criteria for depressive disorder. Eleven adolescents from this group had panic disorder (10.89%), 6 social phobia (5.94%), 4 obsessive-compulsive disorder (3.96%), 1 conversion disorder (0.99%), 2 generalized anxiety disorder (1.98%) and 6 adjustment disorder (5.94%). The study group consisted of high-school and college students. The non-clinical control group had involved randomly chosen 30 high school students from one high school, who were never psychiatrically treated. The exclusion criteria were previous or current psychotic symptoms, bipolar disorder, mental retardation and substance abuse.

The groups were equal in relation to gender (Chi-square=0.469, p=0.791) and place of living (Belgrade and surroundings), but were different in relation to age and birth order. Healthy controls were younger than participants with other psychiatric disorders (F=5.319, p=0.006; Turkey HSD test intergroup difference: difference in mean scores 1.8 age, p=0.004), and had later birth order (F=6.231, p=0.003) compared to the group of depressed adolescents (Turkey HSD test intergroup difference: difference in mean scores 0.519, p=0.004) and to those in the group of other psychiatric disorders (Turkey HSD test intergroup differences: difference in mean scores 0.467, p=0.018).

Once the informed consent was signed (adult participants personally, for minors the parents gave consent), adolescents were interviewed by clinicians and filled out the questionnaires. The study was approved by the Ethics Committee and was conducted according to good research practice.
Assessment

The following instruments were used:

1. General demographic questionnaire, developed for the purpose of this research, which explored socio-demographic characteristics of adolescents, as well as the data about previous psychological difficulties and psychiatric treatment.

2. Structured Clinical Interview for DSM-IV, SCID-I [20]. It is a semi-structured interview developed for the assessment of psychiatric disorders according to DSM-IV classification. Depressive disorders included major depression (depressive episode, recurrent depressive disorder), dysthymic and other depressive disorders.

3. Beck Depression Inventory, BDI [21] is a questionnaire developed for the measurement of severity of depressive symptoms. It consists of 21 items with 4 degree scale (from 0 to 3), and the depression score is gained as a sum of scores on each item.

4. Sense of Coherence – Orientation to Life Questionnaire (SOC) [11, 18]. It consists of 29 items with 7 degree scale, that examines participant's sense of understanding of life events, possibility of management of life events, and meaningfulness of life events, through three scales: comprehensibility (Cc), manageability (Cmn), and meaningfulness (Cme), as well as through the total score of sense of coherence. With the reverse coding of certain items, scores are gained as a sum, and the higher score represents the higher sense of coherence.

5. Negative Life Events Inventory, by Wills et al. 1996 [22], is a list of 20 negative life events adjusted for adolescents. It is expected that participant marks in each item whether the stated events happened within the previous year. The inventory includes 11 events in relation to family members and 9 events that might have happened directly to adolescents.

Statistical analysis

Data were analysed with partial correlation and the co-variance analyses (ANCOVA and MANCOVA methods; covariates – gender, age, birth order), with the use of Turkey HSD test for the analysis of post-hoc inter-group comparisons.

Results

Adolescents with depressive disorders had significantly more negative life events (M = 5.24) compared to the non-psychiatric control group (M = 3.20), with the control of gender, age, and birth order. Average number of negative life events in the group of adolescents with other psychiatric disorders was smaller compared to the participants with depressive disorder, but
higher compared to non-clinical control group, but these differences were not significant (Figure 1).

![Negative Life Events](image)

**Figure 1.** Negative life events in the group of adolescents with depressive disorder (D), other psychiatric disorders (P) and non-clinical group (N)

*Note: ANCOVA (covariates – gender, age, birth order): F=6.981 p=0.001
Significance Turkey HSD intergroups differences: **p<0.01*

Adolescents with depressive disorders had significantly lower sense of coherence in all three dimensions (MCc = 34.51; MCMn = 35.65; MCme = 32.17) compared to adolescents in control groups (MCc = 46.60; MCMn = 48.33; MCme = 42.16), while the group of adolescents with other psychiatric disorder had lower sense of coherence in two dimensions (comprehensibility and meaningfulness; MCc = 40.93; MCme = 36.90) compared to non-clinical control group, with the control of gender, age, and birth order (Figure 2).
**Figure 2.** Sense of coherence „comprehensibility” (Cc), „manageability” (Cmn) and „meaningfulness” (Cme) in the group of adolescents with depressive disorders (D), other psychiatric disorders (P) and non – clinical group (N).

**MANCOVA (covariates – gender, age, birth order):** 1) Cc  $F=11.522$  $p=0.000$

Significance Turkey HSD intergroup differences: *$p<0.05$, **$p<0.01$; Cmn  $F=13.178$  $p=0.000$Significance Turkey HSD intergroup differences: **$p<0.01$; Cme  $F=9.669$  $p=0.000$

Significance Turkey HSD intergroup differences: *$p<0.05$, **$p<0.01$

Higher score of depressive symptoms was significantly correlated with higher prevalence of negative life events and with lower sense of coherence in all three dimensions, with the control of gender, age and birth order (Table 1).

**Table 1.** Partial correlation of number of negative life events with dimensions of sense of coherence with Beck's score for depression (controlled variable-gender, age, birth order)

<table>
<thead>
<tr>
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<th>Number of negative life events</th>
<th>Comprehensibility</th>
<th>Manageability</th>
<th>Meaningfulness</th>
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<tbody>
<tr>
<td></td>
<td>0.510</td>
<td>-0.480</td>
<td>-0.670</td>
<td>-0.654</td>
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<td>0.000</td>
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**Discussion**

Our findings have shown that adolescents with depressive disorders had more negative life events compared to healthy controls which significantly correlated with the intensity of depressive symptoms. These findings
are in accordance with data from the literature that address the important role of stressful life events in the onset of depression [9,10,18,23]. Some authors have shown that in the group of younger adolescents negative life events in the past six months were correlated with more depressive symptoms [24]. Similar relation was found in the population of mid-adolescence and early adulthood, that negative life events could be considered as predisposing factor for depression and anxiety disorders, thus being a specific risk factor for comorbidity of depression and anxiety [25].

As for the group of adolescents with other mental disorders our findings have shown that the number of negative life events was in the range between the number in the group of depressive adolescents and the number in the non-clinical population, but without statistically significant difference. Assuming that these differences might reach statistical significance in larger sample, this findings could be consistent a study on adult population [26], which has shown that the effects of negative life events are significant in depression, compared to anxiety disorders and controlling the socio-demographic, clinical, and personality traits.

Our findings have shown that the sense of coherence was lower in all three dimensions in the group of adolescents with depressive disorders, compared to adolescents in both control groups. Also, the lower the sense of coherence was, there was a more subjective experience of depressive symptoms. This means that depressive adolescents had a tendency to less understand life events, as something that makes no sense and is not worth their involvement. The results are in line with the data shown of other authors on the adult population, which have shown that among people with lower sense of coherence the depressive symptoms are more pronounced, and that the lower score on the scale of meaningfulness was the best predictor of the development of depressive symptoms [13]. The degree of sense of coherence is one of the factors that could explain why some people fall ill under stress and others remain healthy, which especially refers to mental health problems [12]. Furthermore, the higher sense of coherence is connected with a higher quality of life [27]. Our results are in line with the studies on adolescent population. A review of studies [14] shows that adolescents with lower sense of coherence are more prone to depression, anxiety and psychosomatic problems, while the adolescents with higher sense of coherence have better quality of life, as well as lower frequency occurrence of psychiatric disorders.

The study conducted among non-clinical group of students has shown that the sense of coherence had significant mediating and moderating effects when depressive symptoms were considered [18]. Furthermore, Henje Blom et al. [19] have shown the correlation between the score on Beck's Depression Inventory and the sense of coherence in the non-clinical as well as in the clinical sample that included depression and anxiety disorders. Our results, however, show a lower sense of coherence in the group of adolescents with depressive disorders, not only compared to non-clinical group, but also com-
pared to the group of adolescents with other psychiatric disorders, to which we have not found a parallel in the current literature. Furthermore, our results have also shown a certain gradation when it comes to sense of coherence, suggesting that it is the lowest among depressed adolescents, slightly higher in the group of adolescents with other psychiatric disorders, and the highest in the non-clinical group, which may be a confirmation of the specific role that this phenomenon in adolescent depression.

Our study had certain limitations. First, the small number of participants could affect the statistically significant correlations. Also the cross-section study design did not allow analysis of the directions of obtained correlations. Then, the clinical group of subjects with other psychiatric disorders was heterogeneous, unlike the homogeneous group of patients with depressive disorders. Finally, information on negative life events was obtained through retrospective self-assessment questionnaire, thus the memories of these events could be influenced by current symptoms and depressive cognitive style. However, by including two control groups, our study provided a picture of specific correlation between adolescent depression, negative life events and the sense of coherence, not only in comparison to non-clinical group of adolescents, but also compared to other psychiatric disorders.

**Conclusion**

Our findings have shown that the depression among adolescents and post-adolescents is significantly correlated with higher number of experienced negative life events and lower sense of coherence, regardless of gender, age or birth order. The findings also indicate a possible existence of gradation, especially when it comes to the degree of sense of coherence, where the lowest degree in all three dimensions characterizes depressed patients, higher degree (in comprehensibility and meaningfulness domain) the patients with other psychiatric disorders, and the highest degree the non-clinical group of adolescents. These findings could be important for planning targeted therapeutic interventions aimed at strengthening the sense of coherence, especially for depressed adolescents with higher incidence of adverse life events.
DEPRESIJA U ADOLESCENCIJI, NEGATIVNI ŽIVOTNI DOGAĐAJI I OSEĆAJ KOHERETNOSTI

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Ključne reči: adolescencija, depresija, negativni životni događaji, doživljaj koherentnosti
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