

The structure of affective fluctuations in a non-clinical sample

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ABSTRACT

Aim. To study the structure of mood fluctuations at the preclinical stage based on the findings of screening methods.

Materials and methods. A total of 129 students participated in the study. The average age was 18.95 ± 0.08 years. We used the clinical and psychopathological method, the Mini-International Neuropsychiatric Interview (MINI), and screening methods, such as the diagnostic questionnaire for bipolar disorder (Hypomania Checklist-32 (HCL-32)), and Hamilton Depression Scale (HAMD-17).

Results. Upon a clinical and psychopathological examination according to ICD-10 criteria, class V, mental and behavioral disorders (F00-F99), including affective pathology, were not detected. According to the findings of the HCL-32 screening technique, 61.2% ($n = 79$) of respondents had a cumulative score above the threshold. Analysis of individual items on the HCL-32 scale across the entire sample revealed that the majority of examinees positively assessed the impact of mood elevations on the family sphere (63.57%; $n = 82$), social activities (68.99%; $n = 89$), work (75.19%; $n = 91$), and recreational sphere (82.17%; $n = 106$). Positive (36.43%; $n = 47$; 95% confidence interval (CI) 28.13–44.74) and neutral (37.21%; $n = 48$; 95% CI 33.35–50.37) assessments of mood elevations were also detected by the respondents' immediate circle, which, in general, significantly complicates recognition of hypomania symptoms and delays seeking specialized care. In the structure of mood elevation episodes irritability ($r = -0.684$), conflict ($r = -0.665$), risk-taking behavior ($r = -0.550$), increased sexual desire ($r = 0.527$), increased energy and activity ($r = 0.431$), distractibility ($r = -0.467$), stimulant use ($r = -0.467$), and decreased need for sleep ($r = 0.408$) dominated. These signs are very similar to the clinical manifestations of a hypomanic episode in bipolar II disorder.

Signs of mild depression revealed according to the HAMD-17 scale in 34.8% ($n = 45$) of respondents included sleep disorders ($r = 0.693$), decreased ability to work ($r = 0.520$), depressive mood ($r = 0.579$), hypochondria ($r = 0.466$), general somatic symptoms ($r = -0.508$), and gastrointestinal disorders ($r = 0.513$). These signs did not result in chief complaints and were not the reason for seeking specialized care.

Conclusion. In the non-clinical sample, in the structure of mood swings, mood elevations dominated, which were not subjectively identified as illness symptoms and did not appear as complaints in clinical and psychopathological examinations. Low mood was accompanied by general somatic symptoms, which may indicate subsequent formation of comorbid pathology. The identified subsyndromal signs of hypomania and depression in the non-clinical sample in the absence of complaints and psychiatric care-seeking are of clinical significance as predictors of a bipolar affective disorder and require further clinical and dynamic monitoring.

Key words: hypomania, subdepression, bipolar affective disorder, screening methods.

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Структура аффективных колебаний в неклинической выборке

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РЕЗЮМЕ

Цель. Изучение структуры колебаний настроения на доклиническом этапе по результатам скрининговых методов.

Материалы и методы. В исследовании приняли участие 129 студентов. Средний возраст $18,95 \pm 0,08$ лет. Применялись клинко-психопатологический метод, краткий международный нейропсихиатрический опросник Mini-International Neuropsychiatric Interview [34], а также скрининговые методы: диагностический опросник по биполярному расстройству (Hypomania Checklist (HCL-32)), шкала депрессии Гамильтона (HAM-D-17).

Результаты. При клинко-психопатологическом исследовании в соответствии с критериями МКБ-10, класс V: психические расстройства и расстройства поведения (F00-F99) психические расстройства, в том числе аффективная патология выявлены не были. По результатам скрининговой методики HCL-32, у 61,2% ($n = 79$) респондентов суммарный балл превышал пороговое значение. Анализ отдельных пунктов шкалы HCL-32 на всей выборке выявил, что большинство исследуемых положительно оценивали влияние подъемов настроения на семейную сферу (63,57%; $n = 82$), общественную деятельность (68,99%; $n = 89$), работу (75,19%; $n = 91$), сферу досуга (82,17%; $n = 106$). Положительная (36,43%; $n = 47$; 95%-й ДИ 28,13–44,74) и нейтральная (37,21%; $n = 48$; 95%-й ДИ 33,35–50,37) оценка подъемов настроения также выявлена со стороны ближайшего окружения респондентов, что в целом существенно затрудняет распознавание гипоманиакальных симптомов и задерживает обращение за специализированной помощью. В структуре эпизодов подъемов настроения преобладали раздражительность ($r = -0,684$), конфликтность ($r = -0,665$), рискованное поведение ($r = -0,550$), усиление сексуальных побуждений ($r = 0,527$), повышение энергии и активности ($r = 0,431$), отвлекаемость ($r = -0,467$), употребление стимулирующих веществ ($r = -0,467$), снижение потребности во сне ($r = 0,408$). Эти признаки во многом сходны с клиническими проявлениями гипоманиакального эпизода при биполярном расстройстве II типа. Выявленные по шкале HAM-D-17 у 34,8% ($n = 45$) респондентов признаки легкой депрессии были представлены нарушениями сна ($r = 0,693$), снижением работоспособности ($r = 0,520$), депрессивным настроением ($r = 0,579$), ипохондрией ($r = 0,466$), общесоматическими симптомами ($r = -0,508$), нарушением функции желудочно-кишечного тракта ($r = 0,513$). Данные признаки не носили характер активных жалоб и не служили поводом для обращения за специализированной помощью.

Выводы. В неклинической выборке в структуре колебаний настроения преобладали подъемы, которые субъективно не идентифицировались как болезненные симптомы и не выступали в качестве жалоб при клинко-психопатологическом исследовании. Сниженный фон настроения сочетался с общесоматическими симптомами, что может указывать на последующее формирование коморбидной патологии. Выявленные субсиндромальные признаки гипомании и депрессии в неклинической выборке при отсутствии активных жалоб и обращений за психиатрической помощью представляют клиническую значимость как предикторы аффективной патологии биполярного спектра и требуют дальнейшего клинко-динамического наблюдения.

Ключевые слова: гипомания, субдепрессия, биполярное аффективное расстройство, скрининговые методы.

Конфликт интересов. Авторы декларируют отсутствие явных и потенциальных конфликтов интересов, связанных с публикацией настоящей статьи.

Источник финансирования. Авторы заявляют об отсутствии финансирования при проведении исследования.

Соответствие принципам этики. До включения в исследование у всех участников было получено письменное информированное согласие. Исследование одобрено этическим комитетом Смоленского государственного медицинского университета (протокол № 3 от 02.12.2018).

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INTRODUCTION

Bipolar disorder (BD) is a relapsing, chronic, and disabling disease. Risk prediction and early diagnosis and treatment for this disorder have been the main clinical and research goals over the past decades [1–10].

Since the first manifestations of the disease are detected before the age of 18 in almost two thirds of patients [1, 2], efforts for early recognition and treatment should be focused specifically on adolescent and juvenile age [1, 3–8].

The fact that bipolar disorder, as well as schizophrenia, has a prodromal phase that can be identified before the full clinical presentation of the disease has developed, is becoming more recognized. Unlike schizophrenia, where the presence of a prodrome is confirmed by criteria predicting the onset of psychosis from six months to three years in 10–40% of cases [9, 11], the existence of a specific prodrome for BD that would allow for targeted therapeutic intervention requires further investigation [2, 5–11].

In most cases, an early onset of the disease is associated with longer treatment delays, which are risk factors for an adverse outcome of bipolar disorder in adults [12, 13].

The typology of clinical BD includes a considerably larger number of variants than presented in international classifications of diseases [14, 15].

The classification of mental disorders by the American Psychiatric Association (DSM-IV-TR (APA), 2000; DSM-V (APA), 2013) highlights two main variants of the course of bipolar disorder: bipolar I disorder and bipolar II disorder [16, 17]. Bipolar I disorder is diagnosed in a patient when at least one manic or mixed episode is detected. In bipolar II disorder (296.89 – DSM-V, APA, 2013), at least one hypomanic episode and at least one episode of major depressive disorder (current or in history) are required. In 2019, the World Health Organization approved the

ICD-11 project that also includes division of BD into types I and II [18].

In the Russian Federation, diagnosis of bipolar II disorder in accordance with ICD-10 (class V: mental and behavioral disorders (F00-F99)) is complicated by the absence of diagnostic criteria for this disorder. There is an instruction to include bipolar II disorder in the heading F31.8 within the category “Other bipolar affective disorders”, thus complicating identification and statistical accounting of this BD variant in the Russian Federation [19].

The problems of early BD diagnosis in adolescent and juvenile age are largely associated with atypical clinical presentation of subdepressive, depressive, hypomanic, manic, and mixed episodes, as well as with polymorphism and incompleteness of the clinical presentation due to characteristics of the developing adolescent psyche [20, 21]. This leads to the fact that a significant part of adolescents suffering from BD do not receive timely adequate treatment or do not come to the attention of a psychotherapist or psychiatrist at all. The study by K.R. Merikangas et al. [22] noted that patients with the onset of BD in childhood on average remain untreated for more than 16 years.

Significant issues in bipolar II disorder diagnosis are hypomanic episodes that are difficult to recognize both by patients themselves and their relatives. Most patients do not consider such conditions as illness and, consequently, do not seek medical help [23]. This is especially true of adolescents who may like the state of elevated mood and increased energy. They may exacerbate this condition by taking psychoactive substances followed by risky behavior [24].

It should also be noted that in the temporal aspect of BD dynamics, depressive episodes are predominant, and their differentiation from recurrent unipolar depression poses a clinical problem [25]. Depression is initially considered unipolar in over 40% of patients who are later diagnosed with bipolar disorder [36]. There is also evidence that diagnosis and adequate

treatment of BD are delayed by 6–8 years or more, especially with the onset of the disease in adolescence [26–29].

An early onset of the disease is also associated with a high suicidal risk, the addition of a comorbid pathology, and a quick-cycle course [30–32].

Timely diagnosis and treatment of BD play an important role in slowing down the development of mood disorder episodes, which will enable to reduce the likelihood of cognitive impairment and deterioration in the quality of life, as well as to prevent premature mortality caused by suicide and cardiovascular diseases [33].

The aim of this study was to analyze the structure of affective fluctuations in a non-clinical sample using screening methods.

MATERIALS AND METHODS

The study involved 129 students enrolled in academic programs of higher education at a medical university. The average age was 18.95 ± 0.08 years. The students included 25.6% of men ($n = 33$), and 74.4% of women ($n = 96$). All the respondents had previously given their written informed consent to participate in this study. The clinical and psychopathological method and the Mini-International Neuropsychiatric Interview (MINI) were used in the study [34]. The Hypomania Checklist-32 (HCL-32) for BD was used to diagnose hypomania [35, 36]. The Hamilton Rating Scale for Depression (HAM-D-17) was used to assess the severity of depression [37].

Statistical processing of the data was carried out by methods of descriptive statistics. The 95% confidence interval (CI) was constructed according to the formula for fractions and frequencies by the Wald test. To study the factorial structure of the episodes of mood swings according to the HCL-32 and the HAM-D-17 scales, factor analysis (principal component analysis) was applied. The decision regarding the number of factors was made based on the most profound explanation of the sample variance. Statistical analysis of the results was performed in Microsoft Excel 16 using the Data Analysis and AtteStat 12.0.5 add-ins.

RESULTS

During the clinical and psychopathological examination of the respondents with application of the MINI, mental disorders, including affective pathology, were not identified. When using the HCL-32 questionnaire, the corresponding recommendations of the developer (J. Angst 2005) were taken into account to

confirm the tendency to hypomania (total score ≥ 14). In the studied sample, the mean value according to the HCL-32 scale was 14.80 ± 0.44 (min = 4, max = 30). The total score in 79 respondents (61.2%; 95% CI 52.83–69.65) exceeded the threshold value.

Analysis of separate items on the HCL-32 scale across the entire sample revealed that when comparing their condition with that of other people, 44.9% ($n = 58$; 95% CI 36.38–53.55) of the respondents called their condition stable; 27.13% ($n = 35$; 95% CI 19.46–34.80) of the respondents noted the alternation of ups and downs in their mood. Analysis of separate items on the HCL-32 scale across the entire sample revealed that most of the participants positively assessed the effect of mood elevations on the family sphere (63.57%; $n = 82$), social activities (68.99%; $n = 89$), work (75.19%; $n = 91$), and leisure (82.17%; $n = 106$). Additionally, the subjective assessment of the reaction of others to the mood elevation episodes was, in most cases, interpreted by the respondents as positive (36.43%; $n = 47$; 95% CI 28.13–44.74) and neutral (37.21%; $n = 48$; 95% CI 33.35–50.37). Only 3.18% ($n = 17$; 95% CI –0.55–7.21) of the respondents reported negative assessment of their mood elevation episodes by people around them.

The subjective assessment of the duration of mood elevation episodes ranged from 1 month ($n = 5$; 3.88%; 95% CI 0.55–7.21) to 1 day ($n = 30$; 23.26%; 95% CI 15.97–30.59). 23.26% ($n = 30$; 95% CI 15.97–30.53) of the respondents were unable to estimate the duration of a mood elevation episode. The presence of mood elevation episodes over the last 12 months was reported by all the respondents (100%; 95% CI 100.0–100.0).

The next stage of the study was aimed at investigating the structure of mood elevation episodes according to the HCL-32 questionnaire using factor analysis among the respondents ($n = 79$), whose total score exceeded the screening threshold (≥ 14 points). In total, 11 factors were identified in the structure of the mood elevation episode, the aggregate variance percentage of which was equal to 66.9%. The most significant values were noted in 8 factors. The first factor (Factor I) was formed by the following scales presented in Table 1:

Table 1

The structure of Factor I according to the HCL-32 questionnaire findings in the non-clinical sample		
Scale No.	HCL-32 items	Factor I
9.	In everyday life, I take risks more often	–0.550
21.	I'm more easily distracted	–0.467

Table 1 (continued)

Scale No.	HCL-32 items	Factor I
25.	I am more impatient and / or irritated faster	-0.684
26.	I can be tiresome and irritating	-0.585
27.	I find myself in conflict situations more often	-0.665

Table 1 shows that the parameters associated with irritability ($r = -0.684$), conflict behavior ($r = -0.665$), risky behavior ($r = -0.550$), and increased distraction ($r = -0.467$) had the most significant values in Factor I.

Significant values of Factor II parameters are presented in Table 2.

Table 2

The structure of Factor II according to the HCL-32 questionnaire findings in the non-clinical sample		
Scale No.	HCL-32 items	Factor II
2.	I'm more energetic and active	0.556
16.	I have an increased interest in sex and / or increased sexual desire	0.527
18.	I am more talkative	0.468
20.	In conversations, I often joke and pun	0.418
28.	I'm in high spirits and more optimistic	0.481
29.	I drink more coffee	0.514

Factor II showed significant values for such parameters as increased energy and activity ($r = 0.556$), increased sexual desire ($r = 0.527$), drinking more coffee ($r = 0.514$), elevated mood ($r = 0.481$), and increased talkativeness ($r = 0.468$).

Factor III with its significant values is presented in Table 3.

Table 3

The structure of Factor III according to the HCL-32 questionnaire findings in the non-clinical sample		
Scale No.	HCL-32 items	Factor III
3.	I'm more self-confident	0.509
4.	I enjoy my work more	0.540
11.	I make more plans and projects	0.528
12.	I have more creative ideas	0.511
22.	I find many new activities to do	0.506
32.	I take more medications (sedatives, anxiolytics, stimulants)	0.444

The contribution of Factor III is associated with getting more pleasure in the performed activities ($r = 0.540$), emergence of plans and projects ($r = 0.528$), creative ideas ($r = 0.511$), parameters of increased self-confidence ($r = 0.509$), and the use of stimulating substances ($r = 0.444$).

The contribution of factor IV included the following parameters: an increase in the number of trips associated with the desire to travel ($r = 0.535$), risky driving style ($r = 0.523$), racing thoughts ($r = -0.480$), and spending large amounts of money ($r = 0.441$).

Factor V is represented by a parameter associated with increased swiftness and ease of performing habitual activities ($r = 0.441$). In Factor VI, parameters of increased physical activity ($r = 0.668$) and decreased need for sleep ($r = 0.668$) had the most significant values. The significant value ($r = 0.539$) of Factor VIII is represented by the parameter associated with a desire to dress brightly and extravagantly.

The Hamilton Scale (HAMD-17) was used to study depressive mood swings. In the studied sample, the mean value on the scale was 6.51 ± 0.39 (min = 0, max = 13), indicating the absence of depression symptoms in the general sample. For 84 respondents (65.1%), the total score did not exceed the threshold values and ranged from 0 to 7. 45 respondents (38.4%) scored from 8 to 13 points.

The next stage of the study was analyzing the structure of mood drop episodes according to the HAMD-17 scale using factor analysis among the respondents ($n = 45$), whose total score exceeded the normal values and ranged from 8 to 13 corresponding to manifestations of mild depression. While identifying the maximum number of the factors, taking into account the Kaiser criterion, the structure of depressive states was represented by 6 factors and explained 60.99% of the variance of the sample features. The factor analysis of the structure of depression episodes is presented in Table 4.

Table 4

Factor analysis of the structure of depressive mood according to the HAMD-17 scale (factor loadings; variance)						
HAMD-17 factors	Factor I	Factor II	Factor III	Factor IV	Factor V	Factor VI
Depressive mood	-0.367	-0.356	0.161	0.579	0.103	0.102
Feeling of guilt	0.209	-0.504	0.287	-0.191	-0.475	0.014
Suicidal tendencies	-0.082	0.682	0.257	0.281	0.130	0.305
Early insomnia (difficulty with falling asleep)	0.693	0.028	0.050	0.010	-0.025	-0.253
Middle-of-the-night insomnia (interrupted sleep)	0.663	0.292	0.085	0.190	-0.021	-0.190
Late insomnia (early awakenings)	0.537	0.030	0.115	0.028	0.272	0.249
Work and interests	-0.388	0.112	0.290	0.520	-0.252	-0.214

Table 4 (continued)

HAMD-17 factors	Factor I	Factor II	Factor III	Factor IV	Factor V	Factor VI
Inertia	–0.299	0.154	–0.247	0.053	–0.524	–0.041
Tension	–0.378	0.032	–0.642	–0.362	0.401	0.069
Somatic symptoms in the gastrointestinal tract	0.001	0.513	0.164	–0.158	–0.185	0.644
General somatic symptoms	–0.050	0.415	–0.508	–0.160	–0.143	–0.411
Genital disorder	–0.290	–0.068	–0.098	–0.153	–0.484	0.403
Hypochondria	0.010	–0.453	–0.359	0.466	0.114	0.142
Weight loss	–0.447	0.399	0.194	0.245	0.238	–0.363
Criticism of the disease	0.266	0.315	–0.326	0.229	–0.099	0.180
% of accumulated variance	60.99					

The four factors contributed the most to the overall variance. Parameters associated mainly with dyssomnia had significant Factor I values: difficulty with falling asleep ($r = 0.693$), interrupted sleep ($r = 0.663$), and early awakening ($r = 0.537$).

Factor II had significant values in terms of guilt feelings ($r = -0.504$), suicidal tendencies ($r = 0.682$), general somatic and gastrointestinal dysfunction symptoms, hypochondria and weight loss.

The contribution of Factor III is associated with the tension parameter ($r = -0.642$) and general somatic symptoms ($r = -0.508$). The contribution of Factor IV to the total variance was 9.73% and included the following: decreased performance ($r = 0.520$), depressive mood ($r = 0.579$), and hypochondria ($r = 0.466$).

DISCUSSION

Diagnosis of hypomanic and subdepressive states at the preclinical stage presents difficulties associated with the subjective assessment of the condition by the respondents themselves and with the interpretation of their state by their immediate circle. The subclinical mood elevations identified in 61.2% ($n = 79$) of the respondents were, in most cases, assessed by the respondents and their immediate circle as positive and advantageously affecting family relationships, social activities, and leisure. A qualitative analysis showed that the structure of mood elevation episodes was dominated by such signs of hypomania as increased energy and general activity, irritability, risky behavior, decreased need for sleep, use of stimulating substances, increased sexual desire, and increased talkativeness, which are identical to the clinical manifestations of a BD hypomanic episode.

J. Angst et al. (2020) conducted a comparative analysis of diagnostic criteria for BD using the DSM-V (APA, 2013) and the ICD-11 Project Plan. They noted that, unlike the DSM-IV-TR and ICD-10, in the DSM-V and the ICD-11 Project Plan, the main

criteria of the diagnosis of a hypomanic episode, in addition to changes in mood (euphoria, irritability), emphasize constantly increasing activity, a surge of strength, and a subjective feeling of energy increase. This, according to the authors, is essential for describing more complete and accurate clinical presentation of the disorder [38].

Low mood and associated manifestations of dyssomnia, general somatic symptoms, mental and somatic anxiety, as well as deterioration in working capacity were detected in 34.8% of the subjects only upon careful questioning in the absence of active complaints from the respondents and corresponded to the degree of mild depression according to the HAMD-17 Scale. Moreover, the detected signs of depressive conditions at the preclinical stage tended to be associated with general somatic symptoms, which can indirectly indicate formation of comorbid pathology. The chronological sequence study of the occurrence of comorbid conditions in BD can also facilitate early diagnosis and timely treatment. According to many authors, most comorbid disorders occur long before the onset of the underlying disease.

Studies by E. A. Frazier, J. I. Hunt et al. (2020) addressed comorbid disorders preceding BD. It was found that alcohol and cannabis abuse in men preceded bipolar I disorder, while anxiety and eating disorders were more often identified before the onset in women. According to the authors, timely treatment of comorbid disorders preceding the BD onset can act as a measure of secondary prevention of the underlying disease [39].

The findings are consistent with the concept of subthreshold depression, which has high prevalence in adolescent age and is associated with concomitant somatic pathology and functional impairment. In a study of 2,022 Chilean adolescents in grades 9–11, it was found that subthreshold depression in girls, apart from low mood, manifested itself through sleep problems. Boys, on the other hand, showed more pronounced

anhedonia, impaired concentration, and psychomotor retardation or agitation [40].

The studies by A.R. van Meter et al. (2019) identified prodromal symptoms preceding the first episode of mood disorder. In more than half of the participants (51%), the affective episode was preceded by a symptom of increased energy. The researchers identified more than 40 different prenosological symptoms, which generally indicated heterogeneity of premorbid manifestations. This study also showed that the onset of BD was gradual [41].

The existing data on the presence of more than one prodromal symptom in the majority of patients may further help to identify more accurate clusters of signs that could serve as convincing criteria for the prognosis, prevention, and early intervention in bipolar disorder.

CONCLUSION

During this clinical and psychopathological study, in accordance with the criteria of ICD-10 (class V: mental and behavioral disorders (F00–F99)), affective pathology was not identified. According to the HCL-32 screening technique, 61.2% ($n = 79$) of the respondents exceeded the threshold value with their total score. Analysis of individual items on the HCL-32 scale across the entire sample revealed that most of the subjects positively assessed the influence of mood elevations on the family sphere (63.57%; $n = 82$), social activities (68.99%; $n = 89$), work (75.19%; $n = 91$), and leisure (82.17%; $n = 106$). Positive (36.43%; $n = 47$) and neutral (37.21%; $n = 48$) assessments of mood elevations were also reported by respondents' immediate circle, which, in general, significantly complicates recognition of hypomanic symptoms and delays seeking specialized care.

The structure of mood elevation episodes was represented by 11 factors, with the largest contribution to the total variance made by such signs as irritability ($r = -0.684$), conflicts ($r = -0.665$), risky behavior ($r = -0.550$), increased sexual desire ($r = 0.527$), increased energy and activity ($r = 0.431$), distraction ($r = -0.467$), use of stimulants ($r = -0.467$), and decreased need for sleep ($r = 0.408$), which are similar to the clinical manifestations of a hypomanic episode in bipolar II disorder.

The signs of mild depression identified by the HAMD-17 scale in 34.8% ($n = 45$) of the respondents were represented by sleep disorders ($r = 0.693$), decreased performance ($r = 0.520$), depressive mood ($r = 0.579$), hypochondria ($r = 0.466$), general so-

matic symptoms ($r = -0.508$), and gastrointestinal dysfunction ($r = 0.513$), were not active complaints in nature, and did not serve as a reason for seeking specialized care.

Therefore, in terms of mood swings within the non-clinical sample, elevations that were not subjectively identified as illness symptoms and did not take the form of complaints during the clinical and psychopathological examination prevailed. Low mood was accompanied by general somatic symptoms, which may indicate subsequent formation of comorbid pathology. The identified subsyndromal signs of hypomania and depression in the non-clinical sample in the absence of active complaints or psychiatric help-seeking are of clinical significance as predictors of bipolar affective pathology and require further clinical and dynamic monitoring for early diagnosis and timely therapeutic intervention.

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