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SCREENING INVESTIGATION OF DISTRIBUTION OF MOOD DISORDERS IN ADOLESCENCE AND PECULIARITIES OF THEIR CURRENCY

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ABSTRACT

Introduction:. The problem of mood disorders in adolescents has recently become acute due to the high frequency of encounter and social significance.

The aim: To investigate the screening of anxiety and depressive disorders and their manifestations in adolescent children to determine risk factors and to develop measures for their prevention.

Materials and methods: The study was attended by 189 students aged 16-17 years of the educational institutions of the Khmelnytskyi region. For study it was used: Spielberger questionnaire in adaptation A. Andreeva and questionnaire for child depression M. Kovacs, 1992.

Results: A high level of personal anxiety was detected in 44 adolescents (23,3%) and situational in 76 (40,2%) adolescents. In 48 (25,4%) adolescents there were signs of depression, in 11 (5,8%) - severe depression. The level of depression in girls was significantly higher compared to boys (95% Cl, 2,6-8,8) (p<0,0004), which was manifested in the form of aggressive behavior (95% Cl, 3,3-9,4) (p<0,0001) and anhedonia (95% Cl, 1,7-7,0) (p<0,001). Signs of depression more often were appeared in adolescents who had an incomplete family (95% Cl, 0,7-8,5) (p<0,02) and manifested in the form of aggressive behavior (95% Cl, 0,6 (p<0,02), anhedonia (95% Cl, 0,7-7,3) (p<0,01) and negative self-esteem with the presence of suicidal thoughts (95% Cl, 0,3-7,5) (p<0,03).

Conclusions: Mood disorders are quite common among adolescents and require timely detection and correction in order to improve their social adaptation and prevent suicidal behavior. The main factors of mood disorders in adolescents can be an incomplete family and a female.

KEY WORDS: anxiety, depression, adolescents, mood, diagnosis

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INTRODUCTION

According to WHO statistics, depression is one of the most common forms of mental illness today [1]. Child and adolescent depression has become one of the most popular themes of psychological research in the last 4 decades. First of all, this is due to the fact that more children and adolescents begin to suffer from depressive manifestations along with adults [2].

Depressive disorders are especially dangerous in the teenage period, when the subtle structures of the child's personality are unprotected to the destructive power of depression, which can have negative consequences in the form of asocial behavioral manifestations, the formation of unwanted character traits, deep internal conflicts, problems in communication, studying, personal self-determination and self-realization etc. [1].

Depressive disorders in adolescence can lead to the formation of bad habits (alcoholism, smoking) and even to encourage the use of narcotic substances. The development of depression at this age has a rather high risk of developing other mental disorders in adulthood [3, 4]. However, the most dangerous consequence of depression is a suicide. Suicide is one of the main causes of death among young people associated with depression, more than half of which occurs in the puberty period [5].

Suicidal behavior of adolescents, who has recently been increasingly threatening is most often due to internal-family circumstances, relationships with peers in school [6]. Suicide is the second leading cause of death in adolescents in Europe, so suicide prevention in these countries is a key public health goal [7].

Cluster analysis of depression symptoms in the age aspect allowed to establish that in the adolescents aged 15 years and older, anxiety (59,8%), apathy (20,8%) and behavioral (19,4%) variants of depression were formed [8].

Stresses of private life rank first among the factors that affect the mental state of adolescents [9]. Among other key risk factors for depression, women's gender, heredity, other mental and physical disorders as well as obesity should be noted [4, 10].

Anxiety negatively affects not only the emotional state of a person but also further violates the functional capabilities of the psyche, inhibiting its development as a personality and in most cases into pathopsychological disorders [11].

Anxiety disorders are quite common disorders of the psychics in children, which, according to literature, occur in 9% and 32% of children and adolescents [12].



Fig. 1. Levels of anxiety in adolescents by the questionnaire of Spielberger's anxiety modified by A. Andreeva.

It should also be noted that anxiety is an independent risk factor for the development of cardiovascular events in adolescents. High body mass index (50,8%), high blood pressure (50,8%) and physical inertia (50,0%) were the most common cardiovascular risk factors [13].

The presence of subclinical depressive symptoms and adolescence as a factor in the future risk of depression, as well as the negative effect of these symptoms on social adaptation indicates the importance of evaluating depressive symptoms in adolescence [14]. The American Academy of Pediatrics Bright Futures recommends an annual check of children and adolescents for emotional and behavioral abnormalities [4, 10].

Therefore, the mental health of adolescents requires careful monitoring and research that will help respond in a timely manner, detect and prevent and if necessary treat and detect emotional disorders that have an important social significance.

THE AIM

To investigate the screening of anxiety and depressive disorders and their manifestations in adolescent children for the identification of risk factors and the development of measures for their prevention.

MATERIALS AND METHODS

The study was attended by 189 students aged 16-17 years of the educational institutions of the Khmelnytskyi region. The study used Spielberger Test Questionnaire (STPI), modified by A. Andreeva (1988) and the Children's Depression Inventory, M. Kovacs, 1992.

The Spielberger test questionnaire was modified by A. Andreeva, which reveals the level of cognitive activity, anxiety and anger as an existing condition and as a personality trait. The scale consists of two parts. The minimum score for each scale is 10 points, the maximum is 40 points [15].

The Children's Depression Inventory was developed by Maria Kovacs (1992) and adapted by the staff of the Clinical Psychology and Psychiatry Laboratory. The method is intended for the study of children and adolescents 6-17 years and allows to appreciate the affective and cognitive symptoms of depression, somatic complaints, social problems and behavioral problems. The overall normal index for CDI can vary from 0 to 54, 50 is a critical value, after which the depth of symptoms increases [16]. The results were processed using Student's criterion to construct a 95% confidence interval (CI) for the difference in mean.

RESULTS AND DISCUSSION

Our screening research on the presence of anxiety in adolescents both in general and in individual groups showed the presence of anxiety symptoms in children and its dependence on individual factors.

In general, according to the questionnaire of anxiety, in the study of the whole quantity of adolescents (n=189), the personal anxiety was 23,1 \pm 3,8 points and situational (reactive) anxiety was 22,4 \pm 3,5 points which is its average level. Such data testify to the need for a more detailed examination of this category of adolescents in school establishments to investigate and identify the main causes of its occurrence, as there are significant risks for the development of such anxiety disorders in the future such as panic disorder, obsessive-compulsive disorder, somatoform disorder, and others which has an important social significance.

We also separately counted the number of adolescents who had a high general score on the anxiety questionnaire indicating a high level of anxiety (Fig. 1).

The presence of elevated anxiety levels in a significant percentage of adolescents is associated with the study of E.A. Mikhailova et al. (2015), which revealed a significant increase in the alarming version of depression as the child

Spielberger Questionnaire Modified by A. Andreeva (M $\pm \sigma$)								
	n	Anxiety		Cognitive Activity		Negative emotional experiences		
		Usual	Reactive	Usual	Reactive	Usual	Reactive	
City	82	23,0±3,5	21,8±3,1	25,7±3,6	24,9±3,3	23,3±5,0	17,7±5,0	
Village	107	23,1±4,0	22,9±3,9	25,7±4,0	25,2±3,6	22,9±4,7	17,9±4,7	
р		>0,05	<0,05	>0,05	>0,05	>0,05	>0,05	
Girls	53	23,9±4,5	21,5±3,6	25,0±3,6	24,9±3,9	23,1±4,9	18,2±4,9	
Boys	136	23,1±3,5	22,8±3,3	26,0±3,9	25,0±3,6	23,1±4,9	17,6±4,8	
р		>0,05	<0,05	>0,05	>0,05	>0,05	>0,05	
Smoking	47	23,1±3,3	22,2±3,1	25,7±3,5	24,7±2,3	23,9±4,9	18,1±4,8	
Non-smoking	142	23,2±4,1	22,5±3,5	25,8±3,9	25,2±3,7	22,2±4,8	17,9±4,7	
р		>0,05	>0,05	>0,05	>0,05	<0,05	>0,05	
Incomplete family	31	22,7±4,2	21,6±3,3	26,0±4,3	24,9±3,1	26,2±4,2	17,7±4,4	
Complete family	158	23,3±3,8	23,1±3,2	25,7±3,7	25,2±3,5	22,7±4,9	17,6±5,1	
р		>0,05	<0,01	>0,05	>0,05	<0,0001	>0,05	
Successful in studying	59	23,2±4,4	22,4±3,4	26,7±2,8	25,1±3,8	24,3±5,3	17,9±5,2	
Unsuccessful in studying	130	23,1±3,4	22,4±3,5	25,4±3,9	24,8±3,5	22,6±4,5	17,8±4,4	
р		>0,05	>0,05	<0,02	>0,05	<0,02	>0,05	

Table I. Indicators of anxiety	of adolescents in normal life and during	the study	vina	I
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grows, which is most pronounced in children older than 15 years and constitutes a significant percentage (59,8%) compared with non-alarming manifestations of depression [8].

A high level of personal anxiety was detected in 44 people (23,3%) and situational anxiety in 76 (40,2%) persons, which are quite high indicators for this category of children because they are a risk group for the development of emotional disorders and comorbid them depression The average level of personal anxiety was found in 131 (69,3%) and the average level of situational anxiety was in 99 (52,4%) persons, which constituted the vast majority of adolescents. And only in a small number of adolescents the level of both personal and reactive anxiety was low and accounted for 14 (7,4%) persons respectively.

Also the level of anxiety in adolescents was determined depending on sex, place of residence, fullness of the family, the presence of bad habits and the success of the school (Table I).

Thus, the level of situational anxiety was higher in rural adolescents (95% CI, 0,1-2,2) (p<0.05), which can be due to a lower level of education and adaptability than adolescents, who studied and lived in the city. The level of situational anxiety was also higher in boys than in girls (95% CI, 0,1-2,3) (p<0,05), that can be due to less successful and boys' activity in learning and, accordingly increasing anxiety in the process of studying the material and its control. It was found that the level of situational anxiety was clearly higher in adolescents who lived in a full family compared with adolescents living in an incomplete family (95% CI, 0,3-2,7) (p<0,01) In adolescents who lived in an incomplete family according to different circumstances they did not have a father in 19 (61,3%) and mother - in 12 (38,7%) ado-

lescents. A higher level of situational anxiety in adolescents with full-family can be attributed to the greater responsibility and concentration of these adolescents over studying outcomes and possibly greater control by parents over the learning process. In adolescents with incomplete families have probably less attention due to life circumstances and less control over their personal life and education, which respectively, causes less anxiety.

Personality negative emotional experiences in general also had an average level of severity. However, they were clearly higher in children who smoked compared to adolescents who did not have this harmful habit (95% CI, 0,1-3,3) (p<0,05). Expressed personality anxiety is likely to induce adolescents to develop harmful habits as a means of possibly influencing anxiety.

The personal negative emotional experiences were quite pronounced and high in children living in an incomplete family compared with adolescents living in complete families, and overall had an average negative emotional experience (95% CI, 1,6-5,3) (p<0,0002). Thus it can be noted that the absence of one of the parents under different circumstances can lead to the formation of expressed negative emotional experiences that can affect the success of studying, social adaptation of the child in society, the emergence of bad habits, lead to the development of anxiety and depressive reactions. Such adolescents need special attention from the side of society as risk groups for the development of deviant behavior, the propensity to abuse drugs and the development of depressive reactions with their consequences in the form of suicide.

It should be noted that personal negative emotional experiences were clearly higher in adolescents who were



Fig. 2. Depressive symptoms were identified in adolescents according to the questionnaire for childhood depression (Maria Kovacs, 1992).

successful in the study (95% CI, 0,2–3,2) (p<0,02). Possibly, personal attitude to studying, more preoccupancy and mental stress and increased responsibility of such adolescents can be a reason for their negative emotional experiences. Such adolescents need have a look at the day's regime with more time for rest and reduction of mental load. At the same time the situational negative emotional experiences in these children had an average level of severity and did not differ from other groups of adolescents.

Pre-clinical manifestations of depression can accompany a child or adolescent for months and sometimes for years, causing devastating effects on intercourse with peers, studying and other life spheres. Therefore, high rates of repression even at the clinical level deserve close attention. The CDI method, developed by M. Kovach, is most commonly used worldwide for the diagnosis of repression in children and adolescents who are not diagnosed with depression (actually aimed at studying subclinical manifestations of depression) [2].

Our screening study on the presence of depressive symptoms in adolescents both in general and in individual groups showed the presence of depressive symptoms in adolescents and its dependence on individual factors.

In general in the study of the entire number of children (n=189) the total score on the CDI questionnaire was $50,5\pm10,1$, which according to the interpretation of the questionnaire is a critical level in which it is possible to diagnose minimal depressive disorders and after which the depth of symptoms significantly is growing.

We also separately counted the number of adolescents, where the total score in the questionnaire exceeded the upper limit of the average of 55 points, their number was 48 (25,4%) persons (Figure 2).

Namely in 25,4% of all adolescents we examined showed clear signs of depression. In the general structure of adolescents signs of severe depression were found in 11 (5,8%) persons whose data significantly exceeded the average, that is, 70 and above points (maximum 84), which is quite

substantial and requires appropriate attention, since they are precisely those the greatest risk of developing suicidal behavior.

Thus, the level of depressive symptoms practically did not differ among adolescents in rural areas from adolescents living in the city (Table II).

The overall level of depressive symptoms in girls was significantly higher in comparison with boys (95% CI, 2,6-8,8) (p<0,0004) and exceeded the critical level of indicators for the diagnosis of depression. According to the data of the subscale A, which characterizes the decrease in mood, in general, the girls tended to decrease while in boys it did not exceed the critical value and in general was within the norm (95% CI, 0,3-7,4) (p<0,03). In general the highest rate was observed in girls under the subclass B $(59,4\pm11,4)$ compared to boys, clearly exceeding the critical values that can characterize the manifestations of depression in them, mainly in the area of interpersonal problems, negativism and aggressive behavior (95% CI; 3,3-9,4) (p<0,0001). In the subscales C, which characterizes the level of insecurity and inefficiency in the learning process, girls also showed a significant prevalence over the indicators in boys, who in general were within the normal range (95% CI, 3,9-9,6) (p<0,0001), that can indicate a significant influence of depressive symptoms on the effectiveness of teaching and relation with teachers and peers as shown in Table. 2

It should be noted that girls have a predominance of indicators on the subchapter D, which reached a critical level and indicated the presence of anhedonia (95% CI, 1,7-7,0) (p<0,001). Anemia is one of the key symptoms of depression and is characterized by a decrease or loss of satisfaction and therefore it is important in terms of detecting it from adolescents as a possible sign of depression in them.

A significant predominance of depressive disorders in girls over boys was also found in other studies that determined the female sex as a risk factor for the development of depression [7, 17].

Quite interesting were the data when analyzing the

Child Depression Questionnaire (Maria Kovacs, 1992) (M $\pm \sigma$)								
	n	Α	В	С	D	E	General	
City	82	50,7±11,6	54,8±9,23	48,5±7,9	50,1±9,4	49,4±9,8	50,9±10,4	
Village	107	50,2±10,9	55,2±10,4	49,9±10,3	47,5±6,7	49,0±9,2	50,4±9,8	
р		>0,05	>0,05	>0,05	<0,03	>0,05	>0,05	
Girls	53	53,1±12,7	59,4±11,4	54,3±11,8	52,5±8,5	50,0±9,3	54,5±11,0	
Boys	136	49,3±10,4	53,1±8,7	47,6±7,4	48,1±8,2	48,6±9,3	48,8±9,1	
р		<0,03	<0,0001	<0,0001	<0,001	>0,05	<0,0004	
Smoking	47	47,2±8,0	53,2±8,5	46,8±6,5	47,7±8,4	47,9±7,9	47,8±7,5	
Non-smoking	142	51,7±11,8	55,1±10,3	50,2±9,9	50,3±8,7	49,7±9,8	51,7±10,6	
р		<0,01	>0,05	<0,03	>0,05	>0,05	<0,02	
Incomplete family	31	52,2±10,4	58,3±13,7	53,0±12,1	52,9±9,4	52,5±10,5	54,5±10,8	
Complete family	158	49,8±10,9	53,8±8,8	48,7±8,6	48,8±8,4	48,5±9,0	49,9±9,7	
р		>0,05	<0,02	<0,02	<0,01	<0,03	<0,02	
Successful in studying	59	52,8±12,3	55,5±12,0	50,3±9,2	52,2±8,5	50,1±9,3	52,6±10,7	
Unsuccessful in studying	130	48,7±10,2	53,4±8,9	48,6±8,5	48,0±8,1	49,0±9,5	49,0±9,2	
р		<0,01	>0,05	>0,05	<0,001	>0,05	<0,02	

Table II. In	ndicators of s	vmptoms of de	pression in adolesce	ents
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scales of adolescents who have harmful habits, including smoking tobacco. In general signs of depressive symptoms were not observed in adolescents who smoked (47,8±7,5 points), compared to those who did not smoke (95% CI, (0,5-1,7) (p<0,02), whose indicators though were within the norm, however, reached critical values (51,7±10,6 points). Adolescents who do not smoke had a greater pronounced decrease in mood on the subchapter A compared with those who smoked (95% CI, 0,8-1,8) (p<0,01) and the level of uncertainty and inefficiency in the training of the underclass C (95% CI, 0,3-6,4) (p<0,03). However, according to preliminary data, teenagers who smoke are more likely to be more anxious than non-smokers (95% CI, (0,1-3,3) (p<0,05), which is likely to induce adolescents to the emergence of bad habits, as a means of possible effects on increased anxiety and possibly depression as a comorbid anxiety pathology.

In the study of adolescent depression a large number of internal correlations and external connections with anxieties in adolescents deprived of parental care have been identified [9].

Property divisions, social inequality, poverty and unemployment, marginalization and political alienation of the general population, the disintegration of family and group ties - these are the underlying preconditions for the formation of inadequate family relationships, provoking lack of attention to the adolescent, intense family atmosphere, deviant behavior of parents, etc.. These factors violate the social adaptation of adolescents and become the basis of suicidal behavior [6].

According to A. Consoli et al. (2013), 16,2% of adolescents who had depression reported suicidal thoughts over the past 12 months and 8,2% reported suicide attempts. The key factors that were associated with these conditions in adolescents were family factors and intra-family relationships [7].

In our observation according to the questionnaire there were signs of depression in adolescents who for various reasons had an incomplete family or orphanhood. The general meanings of depressive symptoms in such adolescents were significantly higher and the critical values over which depression was determined than in peers who lived in complete families (95% CI, 0,7-8,5) (p<0,02). In such adolescents there were manifestations of interpersonal problems, negativism, and aggressive behavior under the subscales B (95% CI, 0,6-8,2) (p<0,02) increased level of uncertainty and inefficiency in the process of training under the C (95% CI, 0,6-7,8) (p<0,02), the presence of anhedonia with the subscales D (95% CI, 0,7-7,3) (p <0,01). In adolescents living in a full family the relevant data on these subscales did not reach the critical level of such violations and were practically within the normal limits. It should be noted that it was precisely in adolescents from single-parent families that for the first time the critical level reached the value under the subscales E, which characterizes the presence of negative self-esteem and possible suicidal thoughts (95% CI, 0,3-7,5) (p<0,03).

Thus, the problem of an incomplete family has a very important social significance and requires a comprehensive study of social impact and education among the adult population as a pledge of prevention and prevention of the possible development of mental disorders in adolescents and their consequences, the formation of such children in society, the formation of stereotypes of behavior in adult life and their relation to family values.

The general level of the questionnaire's indices in adolescents with sufficient educational success was higher than that of adolescents who had low educational success (95% CI, 0,5-6,5) (p<0,02). A similar tendency was observed in the subscales. Thus, for the subscales A, which characterizes the decrease in mood, in general, adolescents who had sufficient success in study there was a tendency to decrease it (95% CI, 0.7 - 7.5) (p <0.01).

It should also be noted that the prevalence of adolescents who were successful in studying, subscales D reached a critical level, indicating the possible presence of anhedonia (95% CI, 1,6-6,7) (p<0,001). According to other subscales there was no significant difference in the indicators. The obtained data is in agreement with the data in the study of anxiety in this group of adolescents.

It is possible that such emotional disturbances can arise on the basis of the characteristics of these teenagers and their upbringing, which forms a special attitude to studying, increased responsibility, integrity and diligence, which requires a separate study. It is also possible that such emotional disturbances can be generated as a result of excessive mental and emotional overload.

CONCLUSIONS

In general among all the studied adolescents there was an average level of personal $(23,1\pm3,8 \text{ points})$ and situational $(22,4\pm3,5 \text{ points})$ anxiety. A high level of personal anxiety was found in 44 (23,3%), and situational anxiety in 76 (40,2%) adolescents, indicating the widespread anxiety among this category of children who need special attention and should be a risk group for the development of emotional violations and comorbid depression.

Personality negative emotional experiences were more pronounced in adolescents who smoke (95% CI, 0,1-3,3) (p<0,05) and were living in an incomplete family (95% CI, 1,6-5,3) (p<0,0002). Consequently, the presence of a incomplete family as well as other social factors is likely to violate the social adaptation of adolescents and become grounds for the development of anxiety and bad habits.

In the 48 (25,4%) among all studied adolescents there were clear signs of depression, of where 11 (5,8%) outlined signs of severe depression, indicating its widespread prevalence among this number of adolescents. Such adolescents need timely detection and special attention, as they should form a risk group for the development of suicidal behavior and other mental disorders, need timely help.

The overall level of depressive symptoms in girls was significantly higher in comparison with boys (95% CI, 2,6-8,8) (p<0,0004), which can indicate a female gender as one of the key risk factors for developing depression in adolescents. Depressive symptoms in girls were mainly manifested in the form of interpersonal problems, negativism, aggressive behavior (95% CI, 3,3-9,4) (p<0,0001) and anhedonia (95% CI, 1,7-7,0) (p<0.001).

Signs of depressive disorders were observed in adolescents who for various reasons had an incomplete family (95% CI, 0,7-8,5) (p<0,02). In such adolescents depressive disorders manifested in the form of interpersonal problems, negativism, aggressive behavior (95% CI, 0,6-2,8) (p<0,02), as well as anhedonia (95% CI, 0,7-7,3) (p<0,01) and negative self-esteem with the presence of suicidal thoughts (95% CI, 0,3-7,5) (p<0,03), which in any case was not observed in other subgroups of adolescents. Consequently, as in anxiety situations the presence of an incomplete family is one of the key factors in the development of depression and possible suicidal behavior in adolescents.

Given the high incidence of anxiety and depressive disorders in adolescents, their impact on social adaptation and behavior, periodic compulsory testing of children using simple questionnaires for the presence of emotional disorders should be introduced in order to detect and correct their correction in a timely manner, especially in children with existing factors risk (female sex, incomplete family), which will prevent further severe mental disorders, promote social adaptation and quality of life of the child.

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According to the order of the Authorship.

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The Authors declare no conflict of interest.

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