

Wiadomości Lekarskie Medical Advances



VOLUME LXXVI, ISSUE 8, AUGUST 2023

Official journal of Polish Medical Association has been published since 1928

ISSN 0043-5147
E-ISSN 2719-342X



Memory of
dr Władysław
Biegański

Wiadomości Lekarskie is abstracted and indexed in: PUBMED/MEDLINE, SCOPUS, EMBASE, INDEX COPERNICUS,
POLISH MINISTRY OF EDUCATION AND SCIENCE, POLISH MEDICAL BIBLIOGRAPHY

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The journal Wiadomości Lekarskie is cofinanced under Contract No.RCN/SN/0714/2021/1
by the funds of the Minister of Education and Science



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Grzegorz Sztank fajne.work

Publisher:

ALUNA Publishing
ul. Przesmyckiego 29,
05-510 Konstancin – Jeziorna
www.wydawnictwo-aluna.pl
www.wiadomoscilekarskie.pl
www.wiadlek.pl

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COPING STRATEGIES AND PSYCHOLOGICAL ADJUSTMENT TO THE COVID-19 PANDEMIC AMONG THE UKRAINIAN STUDENTS' YOUTH

DOI: 10.36740/WLek202308116

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ABSTRACT

The aim: Establishment of emotional and behavioral ways of student response to the coronavirus pandemic, the assessment of dominant coping strategies, and the prevalence of neurotic states and stress among students.

Materials and methods: The research used a specially developed questionnaire and a block of psychodiagnostic methods for diagnosing manifestations of neurotic conditions in students (Clinical questionnaire for the detection and assessment of neurotic conditions by K.K. Yakhin, D.M. Mendelevich), the level of psychological stress (Psychological Stress Scale PSM-25) and basic coping strategies (R. Lazarus' "Coping Strategies" questionnaire). The sample consisted of 213 respondents (119 girls, and 94 boys).

Results: Among Ukrainian students, the dominant reactions to the pandemic are depressive disorders, anxiety, and fears, a third of students self-reported autonomic disorders. The stress level is moderate. Girls react to the pandemic situation with more serious mental health disorders compared to boys. The use of all coping strategies was recorded at a high level of stress, which suggests that students have already exhausted their adaptation potential and are maladapted to the current conditions.

Conclusions: The study confirms the negative impact of the pandemic on the mental health of young people. The relationship between the type of response to the pandemic and the severity of neurotic disorders and stress was established. Available mental resources to cope with a difficult situation are exhausted, so students prefer to avoid and ignore stressful information. This creates the need for psychological support and educational activities regarding healthcare techniques.

KEY WORDS: pandemic, COVID-19, youth, mental health, coping

Wiad Lek. 2023;76(8):1813-1818

INTRODUCTION

During the coronavirus pandemic, there is a deterioration in the mental health of the population, especially among patients with the coronavirus, their relatives, and medical workers who constantly work under stressful conditions. The coronavirus affects the mental state of patients in two ways: it directly affects the nervous system [1], causing disorders of the psyche, emotions, cognition, and consciousness, as well as indirectly - through the influence of stressful information about the spread of coronavirus disease, mortality, complications, thus causing psychogenic disorders [2-6].

Of course, most of the attention during the coronavirus pandemic is on physical health and the negative consequences of the disease for the body. However, over time, there are more and more studies of mental

and emotional states that occur during self-isolation, negative reactions to quarantine restrictions, fear of getting sick, and the consequences of illness on mental health [7, 8].

The COVID-19 pandemic and quarantine in many countries led to intense and general distress, and the development of several mental disorders: anxiety, depression, burnout [7, 9], acute stress disorder, post-traumatic stress disorder [10, 11], obsessive-compulsive disorder [10]. In Italy, negative consequences for mental health among the population were found 3 weeks after the adoption of isolation measures against COVID-19: signs of post-traumatic stress disorder were found in 37%, depression in 17.3%, increased anxiety in 20.8%, impaired sleep in 7.3%, severe stress in 21.8% and adaptation disorders in 22.9% [11].

Even before the pandemic, high baseline levels of stress and mental health problems among students at higher education institutions were demonstrated. [12]. William E. Copeland from the University of Vermont found that college freshmen during the COVID-19 pandemic had an increase in “externalizing problems” (aggression or behavior that affects others), and attention deficit disorder [13].

A relatively new concept is deprivation stress, which occurs in response to self-isolation and quarantine restrictions introduced by the governments of various countries given the seriousness of the situation [2]. Quarantine measures can vary from minor (closing entertainment facilities or limiting the number of people in them) to stopping traffic and banning people from leaving the house. A remote form of work or study also leads to a change in the daily routine, nutrition, and a decrease in physical activity and social interaction. Although various online platforms are coming as a substitute for direct personal communication, they are only temporary and imperfect surrogates that cannot compensate for the lack of “live” communication.

Also, isolation at home increases anxiety and depression and can provoke physical violence. As reported by French researchers [14], the psychological consequences of self-isolation include mood disorders, anxiety, panic disorders, addictive behavior, and suicide attempts.

THE AIM

The purpose of the study was to establish the emotional and behavioral ways students respond to the coronavirus pandemic and to diagnose dominant coping strategies and the prevalence of neurotic states and stress among students.

MATERIALS AND METHODS

With the help of psychodiagnostic methods, the level of severity of neurotic states in students was investigated (Clinical questionnaire for the detection and assessment of neurotic states by K.K. Yakhin, D.M. Mendelevich), the level of psychological stress (Psychological Stress Scale PSM-25) and the main coping strategies, which were used by respondents (R. Lazarus’ “Coping Strategy” questionnaire).

Research progress: 1. using a questionnaire to diagnose the type of response to the pandemic (indifference, anger, helplessness, fear). 2. using psychodiagnostic techniques to establish the level of neurotic states, stress, and dominant coping strategies among students during the pandemic. 3. to establish the severity of stress and neurotic disorders in students depending

on their type of response to the pandemic (one-factor variance analysis). 4. establish connections between coping strategies and neurotic states and stress levels (correlation analysis).

Correlation analysis (Pearson’s test), comparison of groups using univariate variance analysis, and Student’s t-test were used to process the obtained results.

Sample: 213 people took part in the research, of which 44.1% were men, 55.9% were women, aged 17 to 23, students of the 1st-4th year of the NAU (specialty Aerospace faculty and Psychology), Taras Shevchenko Kyiv National University (specialty “Psychology” and “Military Service”), National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”.

RESULTS

The use of psychodiagnostic methods allowed us to assess the manifestations of neurotic disorders in young people (anxiety, depression, asthenia, hysterical type of response, obsessive-phobic states, and autonomic disorders) as well as the level of stress.

Analyzing empirical data, let us characterize the mental reactions of Ukrainian students to the coronavirus pandemic. Thus, 34.5% of respondents demonstrated a fairly high level of anxiety, which can be interpreted as a neurotic disorder. 45.5% responded with a depressive disorder, 41% had a phobic type of response, and 35.5% of respondents noted a high level of vegetative disorders. Similar results are presented in studies by authors from different countries [10, 11]. Instead, the majority were found to have a low level of stress (64%), an average level of stress 30.5% and a high level of stress only 5.5%. Perhaps this is because, at the time of testing, there were no strict quarantine restrictions, and most students adapted to all changes in social activity, including online learning.

It is worth noting that the sample as a whole showed a high intensity of all coping strategies. The tension is recorded in the range of 50-66%, which indicates a significant amount of effort that students spend on them for the active application. Young people spend a maximum of mental energy using coping mechanisms that the latter cease to be adaptive. Thus, being in the conditions of a pandemic for more than a year, students have already exhausted their adaptation potential and are maladapted to the current conditions. Data on maladaptation are consistent with data presented in studies [11].

It is important to note that, based on the results of comparing the data of boys and girls using the Student’s t-test, we can say that girls have a significantly higher level of stress than boys (Table I). In girls, symptoms of

Table I. Comparison of the level of stress and neurotic disorders among boys and girls

Indexes	Average		Significance of the Student criterion
	Girls, n=119	Boys, n=94	
Stress	102,7	71,4	0,001
Anxiety	-0,8	3,33	0,001
Neurotic depression	-2,4	1,16	0,001
Asthenia	0,33	5,07	0,001
Hysteria	-1,3	2,6	0,001
Obsessive-phobic states	-1,9	1,5	0,001
Vegetative disorders	-2,06	7,4	0,001

Table II. Indicators of neurotic disorders in groups of students with different types of emotional response to the pandemic

	Group 1 (indifference)	Group 2 (malice)	Group 3 (impotence)	Group 4 (fear)
Stress	74,38	91,34	105,08	90,74
Anxiety	3,47	0,37	-1,22	0,19
Neurotic depression	1,62	-1,69	-3,72	-0,72
Asthenia	4,91	2,09	-0,63	1,85
Hysteria	2,78	-0,01	-2,36	-0,33
Obsessive-phobic states	1,60	-0,58	-2,14	-1,78
Vegetative disorders	6,87	1,52	-3,02	0,05

Table III. Significant correlation between coping strategies, stress and neurotic disorders in student youth

Scales	Anxiety	Neurotic depression	Asthenia	Hysterical type of reaction	Obsessive-phobic states	Vegetative disorders	Stress
Confrontational coping	-0,254**	-0,214**	-0,203**	-0,299**	-0,219**	-0,225**	0,351**
Distancing	-0,156*	-0,184*	-	-0,213**	-0,211**	-0,232**	0,306**
Self-control	-	-0,165*	-0,182**	-	-0,193**	-0,181**	0,214**
Avoidance	-0,509**	-0,524**	-0,514**	-0,537**	-0,466**	-0,525**	0,657**
Planning problem solving	-	0,205**	-	-	-	-	-
Positive reassessment	-	-	-	-0,170*	-0,183**	-0,167*	0,198**
Acceptance of responsibility	-0,356**	-0,298**	-0,420**	-0,294**	-0,364**	-0,361**	0,411**

*- Correlation relevant for level 0.05 (2-side)

** - Correlation relevant for level 0.01 (2-side)

anxiety and neurotic depression are also significantly more pronounced, as well as hysterical reactions and asthenia. Girls also more often notice obsessive-phobic and vegetative disorders in themselves compared to boys. The fact that the pandemic situation has a worse effect on women's mental health is confirmed by research [15].

To establish the type of response of students to the pandemic, they were offered a questionnaire. To the question "What feelings does the pandemic situation cause you?" we received the following distribution of answers: 28.8% - indifference; 27.4% - anger, irritation due to restrictions; 17.2% - helplessness, depressed mood; 17.2 - fear, anxiety, concern. The other 9.4% gave the following answers: anxiety for close elderly

relatives, upset, anger at people who ignore quarantine restrictions, etc.

Based on the answer to this question, the respondents were divided into four groups. Using univariate analysis of variance (ANOVA), it was established which neurotic disorders prevail in each of them (Table II). We immediately note that the most psychologically healthy group was the group of respondents who answered that the situation of the pandemic causes them indifference, in this group no pronounced neurotic disorders were recorded.

In the group of respondents who named anger as the dominant emotion, violations on the scale of neurotic depression were the most pronounced, and manifestations of asthenia were the least characteristic of them.

Neurotic disorders on almost all scales were found in the group of “helpless respondents”. They showed symptoms of depression, and hysteria and confirmed the most autonomic disorders (sleep disorders, heart pain, etc.). For the group of respondents who answered that they feel fear, obsessive-phobic disorders were the most pronounced.

With the help of correlation analysis using Pearson and Spearman criteria, we planned to find out the relationship between coping strategies with neurotic disorders and stress in students during the pandemic. It was established that the coping strategies used by young people are associated with the development of neurotic disorders (Table II). When analyzing these data, it is worth taking into account the peculiarities of the calculation of points according to the method of assessment of neurotic states by K.K. Yakhina, D.M. Mendelevich (the higher the score on the scales, the higher the level of mental health, the lower the score, the more pronounced the corresponding disorder).

While analyzing correlations, we are taking into account the maladaptive level of coping. Judging by the inverse correlations presented in the table, we can say that the more mental health deteriorates, anxiety, depression, and fears increase and autonomic disorders manifest, the more young people try to apply various coping strategies with greater or lesser effectiveness. We would like to pay special attention to the fact that the strongest connection is manifested between the avoidance strategy and all types of neurotic disorders. In order not to worry, and to protect themselves from fears and depression, young people choose to deny the seriousness of the problem of the disease, to divert their attention to other matters, etc. Neurotic disorders are exacerbated by the use of confrontational coping and distancing. Also, significant relationships were established between neurotic disorders and the strategy of accepting responsibility. Excessive responsibility can likely cause feelings of guilt, increase anxiety and cause neurotic disorders.

Let us analyze the correlations between coping strategies and the level of stress. The more students are under the influence of stressful factors, the more they resort to various coping strategies. It is obvious to pay attention to the fact that to overcome stress, they may resort to impulsive reactions, conflicts, or manifestations of hostility. In the conditions of a pandemic, the Internet and social networks, where one can engage in verbal disputes with other users, can become a platform for confrontation. Also, students use avoidance and acceptance of responsibility as effective coping methods.

Summarizing the results of the correlation analysis, it can be said that young people resort to various coping strategies to improve their mental state, but the high level of intensity of coping indicates their maladaptive nature.

DISCUSSION

Even at the beginning of the coronavirus pandemic, surveys showed the deterioration of the mental health of the population and the appearance of clinically significant symptoms of anxiety and depression [16]. However, the situation with mental disorders is complicated by the duration of the pandemic and its uncertainty: the population is tired of fearing for their health and the safety of their relatives, fatigue accumulates over time, and irritation increases due to quarantine restrictions and distance education. Studies indicate the predominance of a negative assessment of the pandemic and its consequences and the prevalence of depressive, anxious, hysterical-phobic reactions among students. Even though the vast majority of our respondents did not suffer from coronavirus or suffered from the disease in a mild form, the level of neurotic disorders in them is quite high. If Rettie, & Daniels report that about a quarter of the study participants showed significantly increased anxiety and depression, with 14.8% reaching the clinical threshold of health anxiety [10], then in our sample 34.5% of respondents showed a level of anxiety, which can be interpreted as a neurotic disorder. Numerous studies have confirmed the impact of the coronavirus pandemic on distress, the development of several mental disorders, mood deterioration [10], increased anxiety [10, 11], and depression [8, 10, 11].

The results of our study indicate higher rates of stress and neuropsychological disorders in girls, which is consistent with Keckojević's data [15]. Rossi et al. indicate that women and youth were one of the most vulnerable population groups [11]. Women report significantly higher levels of fear related to COVID-19, more severe depressive symptoms, sleep disturbances, and higher levels of intolerance of uncertainty [8].

28.8% of students marked indifference as the main reaction to the situation with the coronavirus pandemic, which, in our opinion, may indicate denial of the existing problem and indicates an avoidance reaction quite typical for youth. Most respondents experience expressed negative emotions: anger, irritation, fear, anxiety, helplessness, and low mood. As noted by Sandín et al, the high level of the emotional impact of the pandemic is reflected in fear of the coronavirus, sleep problems, and emotional symptoms (worry, distress, hopelessness, depression, nervousness, and anxiety) [6].

CONCLUSIONS

The study of the reaction of student youth to the COVID-19 pandemic established the most common emotional and behavioral reactions, the severity of stress, neurotic disorders, and coping strategies. It has been established that the experience of helplessness provokes the most pronounced neurotic disorders, while an indifferent attitude to the threats of the pandemic preserves mental health and reduces the level of stress. The high

level of intensity of coping strategies determines their close connection with neurotic disorders: a long period of the pandemic leads to exhaustion of the ability to cope with problems, ineffective coping, and maladaptation. The significant prevalence of anxiety, depressive, and hysterical-phobic disorders indicates the need to pay more attention to their prevention and to develop adaptive coping strategies in students, to provide them with psychological support during the pandemic.

REFERENCES

1. Josephson SA, Kamel H. Neurology and COVID-19. *Jama*. 2020; 324 (12): 1139-1140.
2. Palamar SP, Gruzjeva TS, Nezhyva LL et al. Study of neuroticism and extraversion as predictors of the syndrome of emotional burnout (EBS) in students. *Wiadomości lekarskie*. 2022; 75 (11): 2624-2631.
3. Tukaiev SV, Vasheka TV, Palamar BI et al. Alexithymia formation as an adaptation to everyday stress is determined by the properties of the nervous system. *Wiadomości lekarskie*. 2020;73(11):2461-2367. doi:10.36740/WLek202011123.
4. Pogorilska NI, Synelnykov RY, Palamar BI et al. Features of psychological experiences in severe quarantine during the COVID-19 pandemic: the role of tolerance for uncertainty. *Wiadomości lekarskie*. 2021; 74 (6): 1312-1317.
5. Galea S, Merchant RM, Lurie N. The mental health consequences of COVID-19 and physical distancing: the need for prevention and early intervention. *JAMA internal medicine*. 2020;180(6):817-818.
6. Sandín B, Valiente RM, García-Escalera J et al. Psychological impact of the COVID-19 pandemic: Negative and positive effects in Spanish population during the mandatory national quarantine. *Journal of Psychopathology and Clinical Psychology/Revista de Psicopatología y Psicología Clínica*. 2020; 25 (1): 1-21.
7. Di Monte C, Monaco S, Mariani R et al. From Resilience to Burnout: psychological features of Italian General Practitioners during COVID-19 emergency. *Frontiers in Psychology*. 2020; 11: 2476. doi:10.3389/fpsyg.2020.567201.
8. Parlapani E, Holeva V, Nikopoulou VA et al. Intolerance of uncertainty and loneliness in older adults during the COVID-19 pandemic. *Frontiers in psychiatry*. 2020; 11: 842. doi: 10.3389/fpsyg.2020.00842.
9. Sumner RC, Kinsella EL. Grace Under Pressure: Resilience, Burnout, and Wellbeing in Frontline Workers in the United Kingdom and Republic of Ireland During the SARS-CoV-2 Pandemic. *Frontiers in Psychology*. 2021;11:3757. doi:10.3389/fpsyg.2020.576229.
10. Rettie H, Daniels J. Coping and tolerance of uncertainty: Predictors and mediators of mental health during the COVID-19 pandemic. *American Psychologist*. 2020; 8 (2): 118-121. doi: 10.1037/amp0000710.
11. Rossi R, Soggi V, Talevi D et al. COVID-19 pandemic and lockdown measures impact on mental health among the general population in Italy. *Frontiers in psychiatry*. 2020; 11: 790. doi:10.3389/fpsyg.2020.00790.
12. Tukaiev SV, Vasheka TV, Dolgova OM. The Relationships Between Emotional Burnout and Motivational, Semantic and Communicative Features of Psychology Students. *Procedia-Social and Behavioral Sciences*. 2013;82:553-556. doi:10.1016/j.sbspro.2013.06.308.
13. Copeland WE, McGinnis E, Bai Y et al. Impact of COVID-19 Pandemic on College Student Mental Health and Wellness. *Journal of the American Academy of Child & Adolescent Psychiatry*. 2021; 60 (1): 134-141. doi:10.1016/j.jaac.2020.08.466.
14. Corruble E. A viewpoint from Paris on the COVID-19 pandemic: a necessary turn to telepsychiatry. *The Journal of clinical psychiatry*. 2020; 81(3): 0-0.20com13361. doi:10.4088/JCP.20com13361.
15. Kecejevic A, Basch CH, Sullivan M, Davi NK. The impact of the COVID-19 epidemic on mental health of undergraduate students in New Jersey, cross-sectional study. *PloS one*. 2020;15(9): e0239696. doi: 10.1371/journal.pone.0239696.
16. Chi, X, Becker B, Yu Q et al. Prevalence and psychosocial correlates of mental health outcomes among chinese college students during the coronavirus disease (covid-19) pandemic. *Frontiers in psychiatry*. 2020; 11: 803. doi:10.3389/fpsyg.2020.00803.

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Conflict of interest:

The Authors declare no conflict of interest.

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Received: 13.11.2022

Accepted: 26.06.2023

A - Work concept and design, **B** – Data collection and analysis, **C** – Responsibility for statistical analysis, **D** – Writing the article, **E** – Critical review, **F** – Final approval of the article



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