Bogutska Nataliia, Khilchevska Victoria. The prevalence and dynamics of the test anxiety in foreign students before and within COVID-19 pandemic in Ukraine. Journal of Education, Health and Sport. 2023;47(1):59-68. eISSN 2391-8306. DOI
http://dx.doi.org/10.12775/JEHS.2023.47.01.005
https://apcz.umk.pl/JEHS/article/view/46098
https://zenodo.org/record/8312803

The journal has had 40 points in Ministry of Education and Science of Poland parametric evaluation. Annex to the announcement of the Minister of Education and Science of 17.07.2023 No. 32318.
Has a Journal's Unique Identifier: 201159. Scientific disciplines assigned: Physical Culture Sciences (Field of Medical sciences and health sciences); Health Sciences (Field of Medical Sciences and Health Sciences).
Punkty Ministerialne z 2019 - aktualny rok 40 punktów. Załącznik do komunikatu Ministra Edukacji i Nauki z dnia 17.07.2023 Lp. 32318. Posiada Unikatowy Identyfikator Czasopisma: 201159.
Przypisane dyscypliny naukowe: Nauki o kulturze fizycznej (Dziedzina nauk medycznych i nauk o zdrowiu); Nauki o zdrowiu (Dziedzina nauk medycznych i nauk o zdrowiu).

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Received: 29.07.2023. Revised:21.08.2023. Accepted: 28.08.2023. Published: 29.08.2023.

УДК: 616.89-008.441-039.13:616.98:578.834

THE PREVALENCE AND DYNAMICS OF THE TEST ANXIETY IN FOREIGN STUDENTS BEFORE AND WITHIN COVID-19 PANDEMIC IN UKRAINE

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Abstract

Test anxiety (TA) is a psychological condition of a person's distress before, during, or after a test or other assessment. The prevalence and dynamics of TA before and after COVID-19 pandemic in foreign graduate medical students in Bukovinian State Medical University (Ukraine) was investigated. After receiving informed consent 6 year foreign students: 234 on the eve of COVID-19 pandemic and 74 students in spring 2023 anonymously filled in the TA questionnaire (Sarason I.G., 1980), total points ≥ 12 signified presence of TA. The average level of TA before COVID-19 pandemic was 6,3±2,8 points, while later in 2023 it increased significantly to 8,0±3,8 points, $p<0,01$. In 2023 more than 70% of students answered that they "feel very panicky when they have to take a surprise exam" and more than 30% of graduates when taking tests, find that "their emotional feelings interfere with their performance". More than 48% of students answered, that they "find themselves thinking of the consequences of

failing during test". Physical manifestations of TA included positive answer for the question "I sometimes feel my heart beating very fast during important examinations" in 74% of students and in 38% of cases students struggle with excessive perspiration. Around 30% of students "usually get depressed" or deal with any gastrointestinal problems after important tests. Totally in 2023 34% of examined students demonstrated borderline or present TA as compared to 15% before ($p<0,02$). Thus, TA causing somatic and/or psychological distress is present in every third medical foreign student and has significantly increased within COVID-19 pandemic period in Ukraine, that's why it deserves more attention.
Key words: medical education; graduates; test anxiety; COVID-19 pandemic; academic performance.

Introduction. A substantial percentage of medical students deal with problematic test anxiety (TA) at different grades of education. TA is a psychological condition in which a person experiences distress before, during, or after a test or other assessment to such an extent that TA causes poor performance or interferes with learning process and normal well-being [2].

COVID-19 was declared a pandemic by the World Health Organization, the introduction of the strict measures in order to prevent spread of the disease had a profound impact on the education sector and medical graduates was a group who have been seriously affected by the changes in educational process [5] especially due to final exams [6]. The anxiety that has emerged during the pandemic has unique features due to reduced opportunity for social development, decrease in physical activity etc, and recent research has shed new light on test anxiety as a factor affecting students' academic test performance [18]. The COVID-19 pandemic has had a significant influence on medical education, with the introduction of many new educational methods in medical schools with both advantages and drawbacks [12]. All aspects of medical education were affected by the COVID-19 pandemic, including the delivery of medical education and testing [8]. On the eve of quarantine, Ukraine has become one of the biggest host country for international students primarily from Asia, and COVID-19 crisis has become challenging for national medical education, pandemic period caused serious transformation in national higher medical education [13]. A cross-sectional study conducted in Saudi universities by distributing exam anxiety survey electronically to bachelor has shown that both female and male student have high anxiety levels, COVID-19 might had generated a high exam anxiety level, especially in female students [3]. It was

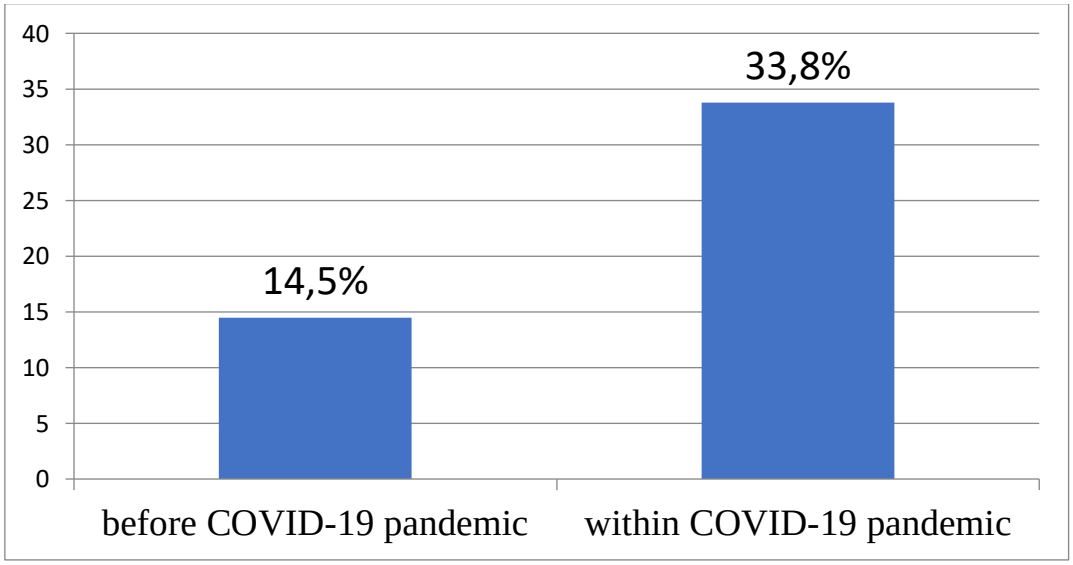
shown, that the COVID-19 lockdown affected pain, exam anxiety and general anxiety in students preparing for university exam [4].

The current study may help to reveal the risk group of students who could benefit from the help of psychological support due to combined test and pandemic related anxiety [2].

Aim of the research. The prevalence and dynamics of test anxiety before COVID-19 pandemic and within COVID-19 pandemic in foreign students in Ukrainian medical educational institution, as well as hypothetic anxiety contributing pandemic factors in foreign graduate medical students were investigated.

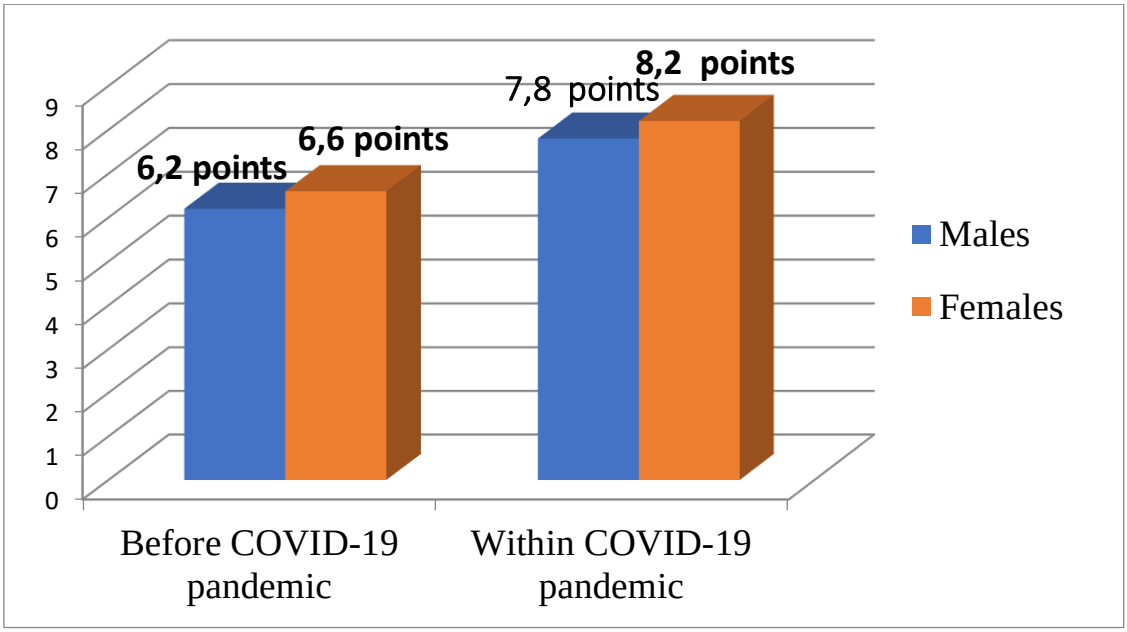
Material and methods. After receiving informed consent 6 year foreign students anonymously filled in the short test anxiety questionnaire which included some sociodemographic data (Sarason I.G., 1980). The total number of answers at 10-11 points tells about doubtful results of TA, equal or above 12 points (max – 16) signifies presence of test anxiety and less than 10 points – absent test anxiety. 234 6-year students filled in a paper questionnaire on the eve of COVID-19 pandemic and 74 students answered the same questions in a Google form variant of questionnaire and some additional questions about their academic performance within COVID-19 pandemic (with significant male predominance in both groups).

Results and discussion. In 2023 33,8% of examined students demonstrated borderline or present TA as compared to only 14,5% before COVID-19 pandemic ($p<0,02$) (see pic.1). Similar results were obtained and it was shown that the large majority of students presented high level of anxiety and scores depended significantly on gender and year of study [7].



Pic.1. Bordeline (≥10 points) or present (≥12 points) TA (% of all respondents) before and within COVID-19 pandemic

The average level of TA before COVID-19 pandemic was 6,3±2,8 points (6,2±2,9 in males and 6,6±2,6 points in females), while later it increased significantly both in males and females to average 8,0±3,8 points (7,8±3,7 in males and 8,2±3,9 points in females), $p<0,01$ (see pic.2), similar female gender predominance associated with higher anxiety level was found in other studies [1,3,7,11] .



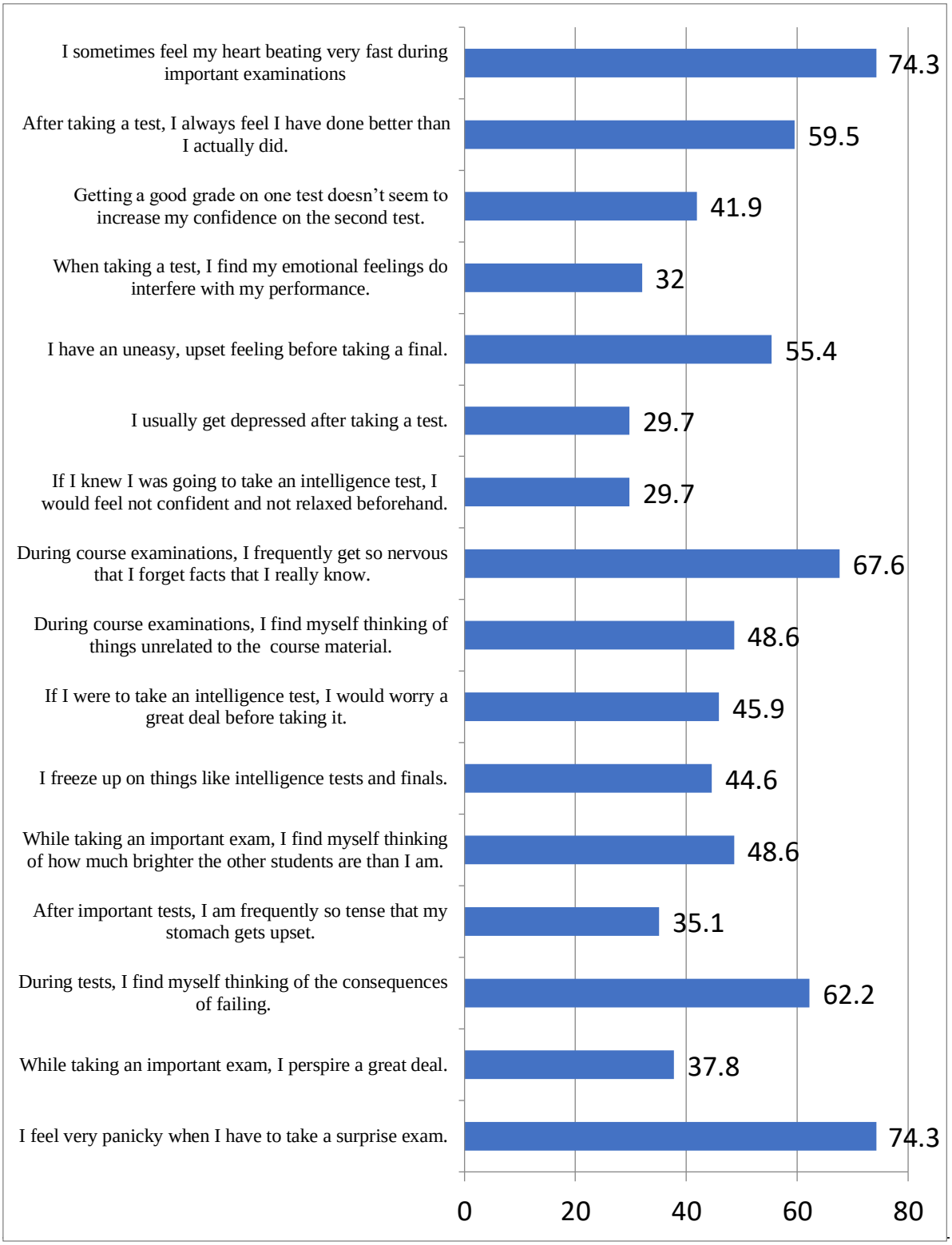
Pic. 2. Test anxiety (in points, min-max 0-16) depending on sex

TA consists of two components, mental (all the thoughts and worries about tests) and physical (feelings, sensations, and tension). In 2023 around 74,3% of students answered that they "feel very panicky when they have to take a surprise exam", 48,6% - "they find themselves thinking of how much brighter the other students are", 67,6% - "frequently get so nervous that they forget facts that they really know" and 48,6% - "find themselves thinking of things unrelated to the course material" (see pic.3).

More than 30% of graduates when taking tests find that "their emotional feelings interfere with their performance". More than 60% of students answered, that they "find themselves thinking of the consequences of failing during test". Somatic manifestations of TA included positive answer for the question "I sometimes feel my heart beating very fast during important examinations" in 74,3% of students and in 37,8% of cases students struggle with excessive perspiration. Fortunately only around 30% of students "usually get depressed" or deal with any gastrointestinal problems after important tests (see pic.3).

Fear might have negative effects at the brain architecture of memory and learning, students who confront persistent fearful experiences may worsen their learning capacities due

to which they demonstrate either poorer academic achievements or lower learning performance [15, 20].

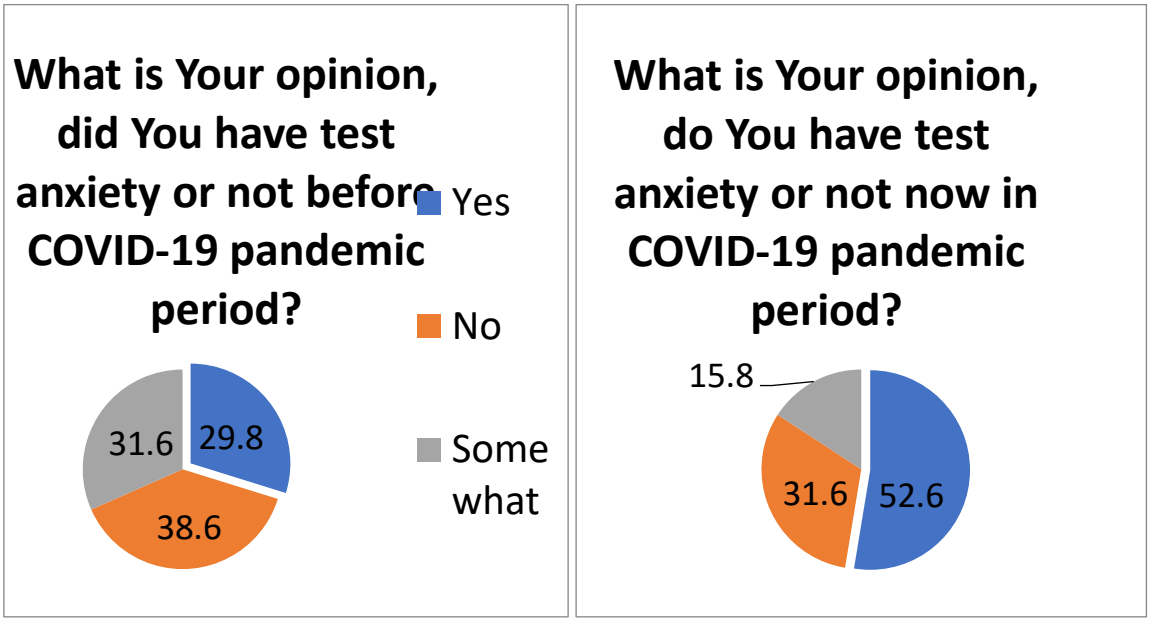


Pic. 3. Test anxiety points of the questionnaire – positive answers, % of all

In similar cross-sectional study (2020-2021) in order to investigate the medical students' test anxiety toward remote online tests during the COVID-19 pandemic using self-reported online Sarason's test anxiety questionnaire (the same we have used) there was shown that the prevalence rates of mild, moderate, and severe test anxiety were 27.9%, 36.9%, and 35.2%, respectively, the female students' test anxiety was more than that of male students similar to our findings, and participants over 20 years old had higher test anxiety scores [11].

Similar to obtained results there was revealed that examination stress among medical students has increased during COVID-19 period, 30% of students reported decrease in performance due to stress, 27% of students reported unhealthy anxiety [14]. There was demonstrated that the identification of high anxiety score prevalence may help improve the academic performance of medical students [16].

After assessing test anxiety further questions in questionnaire were aimed at identifying the relationship between fear and students' coping strategies to improve academic achievements in pandemic time [9,10]. 29,8% of students considered that they have had test anxiety (while giving exams) before pandemic period and 52,6% of students answered, that they have test anxiety (while giving exams) currently in pandemic period (see pic.4).



Pic. 4. Self-assessment by students of presence of TA in dynamics, % of all

Only 15,8% of students answered that they were completely ready to final exam this year and 19,3% were not ready at all. The thoughts of the possibility of cancellation of final test exam affected students' training behavior: 7% stopped to prepare, 22,8% of students were preparing less and only 22,8% were preparing as usual. 49,1% of students considered that

living and studying within COVID-19 pandemic might influence at their test anxiety and 38,6% don't consider any such influence. 71,9% of students consider if not the pandemic period their academic score would be better and only 8,8% didn't consider any possible influence.

Students consider, that the worst issues contributing to their effectiveness to prepare for final tests are general fears of pandemic period and war time (57,1%) (similar results were obtained [17]), problems with concentration or lack of habit of daily schedule and planning activities (51,8%), fear of possible worsening of the situation (48,2%), sleeping issues or lack of good quality internet and/or electricity (46,4%) or their mental health issues (42,9%). In 80% of cases own students' efforts help them most to adapt to the situation and to prepare better to exams and tests as well as family (57,9%) and friends support (59,6%). 33,3% of students have changed their priorities and were studying harder within COVID-19 pandemic, similar to [14,19].

These findings revealed that the pandemic hazards badly influenced students' mental preparedness to achieve learning objectives and the COVID-19 pandemic and other contributers like negative psychotraumatic experience may influence at students' mental health and cause poorer academic scores.

Conclusions. Test anxiety causing possible somatic and/or psychological distress is present in every third medical foreign student and has significantly increased within COVID-19 pandemic period in Ukraine. Test anxiety badly influenced students' mental preparedness to achieve learning objectives and such psychotraumatic experience may cause poorer academic scores. That's why test anxiety deserves more attention as it might contribute to students' lower academic performance and impaired psychological well-being.

Author's contribution

Conceptualization, Nataliia Bogutska, and Victoria Khilchevska; methodology, Nataliia Bogutska; software, Victoria Khilchevska; check, Nataliia Bogutska; formal analysis, Nataliia Bogutska, and Victoria Khilchevska; investigation, Nataliia Bogutska; resources, Victoria Khilchevska; data curation, Nataliia Bogutska; writing - rough preparation, Nataliia Bogutska; writing - Victoria Khilchevska; visualization, Nataliia Bogutska; supervision, Nataliia Bogutska. All authors have read and agreed with the published version of the manuscript.

Funding

This research received no external funding.

Institutional Review Board Statement

The study was conducted in accordance with the Declaration of Helsinki and approved by the Bioethics Committee of the Bukovinian State Medical University (#5/2023, 16 February 2023).

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study while anonymous filling in paper variant or Google form variant of questionnaire.

Data Availability Statement

The data presented in this study are available on request from the corresponding author.

Acknowledgments

The authors would like to thank graduate student Bhalani Happy R. for her assistance in students' involvement to this study.

Conflicts of Interest

The authors declare no conflict of interest.

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