

I.O. Komarevtseva, V. Ye. Kazakov, Ye. Yu. Verbytskyi, Yu. A. Chernykh<sup>1</sup>, K. V. Balabanova<sup>2</sup>,  
V. N. Komarevtsev, R. V. Cherednichenko<sup>3</sup>  
Lugansk State Medical University, Rivne, <sup>1</sup>National Cancer Institute, Kyiv  
<sup>2</sup>Center for nursing development of the MOH of Ukraine, Kyiv  
<sup>3</sup>Starobilsk's multiprofile hospital, Dnipro

## PSYCHOMETRIC PROPERTIES OF SCREENING FOR POST-TRAUMATIC STRESS DISORDER IN UKRAINIAN REFUGEES IN THE CONTEXT OF THE RUSSIAN-UKRAINIAN WAR DURING THE OUTBREAK OF COVID-19

e-mail: kialdmu@ukr.net

It happened so that the war began in the midst of the COVID-19 pandemic. However, the effects of COVID-19 in war-time internally displaced persons have been understudied. The purpose of the study was to examine post-traumatic stress disorder symptoms among internally displaced persons in Ukraine who contracted COVID-19 during the 2022–2023 Russian invasion. In the study, we used stress tests to assess the level of perceived stress, resistance to stress and the presence of depression in internally displaced persons who recovered from COVID-19. Our study demonstrated that Primary Care Screening Scale-5 can be applied as a reliable screening measure of post-traumatic stress disorder symptoms in internally displaced participants during COVID-19.

**Key words:** internally displaced persons, COVID-19, post-traumatic stress disorder symptom.

I.O. Комаревцева, В.Є. Казаков, Є.Ю. Вербицький, Ю.А. Черних, К.В. Балабанова,  
В.М. Комаревцев, Р.В. Чередниченко

## ПСИХОМЕТРИЧНІ ВЛАСТИВОСТІ СКРИНІНГ У ПОСТТРАВМАТИЧНОГО СТРЕСОВОГО РОЗЛАДУ В УКРАЇНСЬКИХ БІЖЕНЦІВ У КОНТЕКСТІ РОСІЙСЬКО-УКРАЇНСЬКОЇ ВІЙНИ ПІД ЧАС СПАЛАХУ COVID-19

Так сталося, що війна почалася в розпал пандемії COVID-19. Проте наслідки COVID-19 для внутрішньо переміщених осіб під час війни вивчені недостатньо. Метою дослідження було вивчити симптоми посттравматичного стресового розладу серед внутрішньо переміщених осіб в Україні, які перехворіли на COVID-19 під час російського вторгнення у 2022–2023 роках. У дослідженні ми використовували стрес-тести для оцінки рівня відчуття стресу, стійкості до стресу та наявності депресії у внутрішньо переміщених осіб, які одужали від COVID-19. Наше дослідження продемонструвало, що Primary Care Screening Scale-5 можна застосовувати як надійний скринінг симптомів посттравматичного стресового розладу у внутрішньо переміщених учасників під час COVID-19.

**Ключові слова:** внутрішньо переміщені особи, COVID-19, симптом посттравматичного стресового розладу.

*The study is a fragment of the research project "Development of new highly economical methods of biomarker diagnostics and prediction of the course and complications of COVID-19 and community-acquired pneumonia in military personnel and civilians", state registration No. 0123U101246.*

Russia's invasion of Ukraine has triggered one of the largest humanitarian crises in Europe since World War II. The Russian-Ukrainian war has forced tens of millions of Ukrainians to change their place of residence, with around five million of them crossing the border for temporary refuge, 6.5 million of internally displaced people [4, 5]. Previous research has demonstrated that refugees have a higher risk of poor mental health, both as a consequence of adverse or traumatic premigration experiences and as a result of post-migration difficulties. Post-traumatic stress disorder (PTSD) and other mental disorders affect at least one in three refugees. In a meta-analysis, prevalence of posttraumatic stress disorder was 31.46 % (95 % CI 24.43–38.5 %) amongst refugees and asylum seekers [3, 10].

It so happened that the war began in the midst of the COVID-19 pandemic. And many displaced people literally survived COVID-19 "on their feet" during the evacuation from the combat zone. There was a summation of two stress factors on the mental health of internally displaced persons. COVID-19 has been a major global socioeconomic and health problem comparable to what could be caused by a large-scale war [12]. The COVID-19 pandemic was characterized by some relevant features that increase the risk of PTSD, such as an often-unpredictable course of the disease, high mortality rates. Recent studies have highlighted the significant occurrence of PTSD among individuals affected by COVID-19 [6, 9, 11, 15].

However, the effects of COVID-19 in war-time internally displaced persons have been understudied. Furthermore, we know of no studies that have examined PTSD symptoms among refugees during an ongoing invasion.

**The purpose** of the study was to examine post-traumatic stress disorder symptoms among internally displaced persons in Ukraine who contracted COVID-19 during the 2022–2023 Russian invasion.

**Materials and methods.** The survey of internally displaced persons was (IDPs) carried out from December 2, 2023, to December 30, 2023, in Rivne approximately 2 year following Russia's invasion of Ukraine. In accordance with the provisions of the Declaration of Helsinki by the World Medical Association of the last revision (1964–2013) and informed consent was obtained in all patients prior to inclusion in the study. Research permission was obtained from the Bioethics Committee of the Lugansk State Medical University (Rivne, Ukraine, number 01.09.2023). The criteria for the inclusion of subjects were those internally displaced persons who fell ill with COVID-19 during the war ( 30 women and 15 men ), including 10 pregnant women. The comparison group consisted of internally displaced persons who did not suffer from COVID-19 (12 women and 11 men).

The study used the DSM-5 Primary Care Screening Scale for PTSD (PC-PTSD-5). The PC-PTSD-5 Screening Scale for PTSD in Primary Care Settings is an instrument designed to identify individuals with probable PTSD. Available evidence suggests that the PC-PTS-5 screening result should be considered “positive” if the respondent answered “yes” to any 3 of the following questions [7].

The PSS-10 is a widely-used 10-item self-report measure with established reliability and validity in measuring levels of current stress. A review of the psychometric evidence of the PSS-10 showed that the PSS-10 is an easy-to-use questionnaire with established acceptable psychometric properties. Results from the PSS-10 were used to explore the relationship between current stress level and scores of the PC-PTSD-5 in the sample population [7].

The CD-RISC-25 is a 25-item self-report measure used to assess resilience defined as the ability to cope with adversity. Results from the PSS-10 were also used to explore the relationship of resilience and scores of the PC-PTSD-5 in the sample population [7].

To assess the presence of depression, we used the Beck's Depression Inventory (BDI). This is one of the first tests with high relevance and specificity created for use in clinical practice to diagnose and assess the level of depressive disorders. The questionnaire includes 21 categories of symptoms and complaints. Each category consists of 4–5 statements that correspond to specific manifestations/symptoms of depression. These statements are ranked as the specific contribution of the symptom to the overall severity of depression increases. According to the degree of severity of the symptom, each item is assigned values from 0 (the symptom is absent or minimally expressed) to 3 (the maximum severity of the symptom). Some categories include alternative statements of equivalent weight [1].

Table 1

**Scores of the PC-PTSD-5 (possible range 0–5) and PSS-10 (possible range 0–40) in internally displaced persons (IDPs) in Ukraine who contracted COVID-19 during the 2022–2023 Russian invasion**

Groups	Valid N	Mean	SEM	Observed range	p-value
Control-PC-PTSD-5-women IDPs	12	1.25	0.13	1–2	
Control-PC-PTSD-5-men IDPs	11	1.45	0.15	1–2	p=0.3256180
PC-PTSD-5-women IDPs after COVID-19	20	3.7	0.25	2–5	p=0.0000001*
PC-PTSD-5-men IDPs after COVID-19	15	3.8	0.26	2–5	p=0.0000001# p=0.7883070
PC-PTSD-5- pregnant women IDPs after COVID-19	10	4.6	0.22	3–5	p=0.0000001* p=0.029158**
Control-PSS-10-women IDPs	12	10.08	0.51	7–12	
Control-PSS-10-men IDPs	11	10.9	0.72	7–15	p=0.3548950
PSS-10-women IDPs after COVID-19	20	18.3	2.47	7–37	p=0.0000001*
PSS-10-men IDPs after COVID-19	15	26.9	2.25	7–37	p=0.0000004# p=0.0176270
PSS-10- pregnant women IDPs after COVID-19	10	34.4	1.86	24–40	p=0.0000001* p=0.000191**

Notes: @ – the samples were collected within 24 hours before delivery. Data are means  $\pm$  SEM for Gaussian variables Intergroup by the T-test Students. \* – p – significant differences between control (women) and test groups (women) \*\* – p – between women IDPs after COVID-19 and test other groups (women) # – p – between control (men) and test groups (men) ## – p – between men IDPs after COVID-19 and test other groups (men) 0 – p – between groups women and test groups men

**Data Processing.** Statistical and graphical analyses were done using STATISTICA 7.0 (StatSoft Inc. USA, version 7.0) and MedCalc Version 20.218 64 bit (MedCalc Software, Ostend, Belgium). Parametric data were summarized as mean (standard error) (Mean $\pm$ SEM). Kolmogorov–Smirnov test was applied to examine the normality of data distribution. To evaluated classification accuracy further, receiver

operating characteristic (ROC) analyses were conducted for the PC-PTSD-5. Recommended cut-offs of ~90 % specificity were calculated for the PC-PTSD-5 to minimize false positive misclassifications. Summarizing classification accuracy through a single numeric value was examined by calculating the Youden Index value ( $J = \text{sensitivity} + \text{specificity} - 1$ ). Perfect accuracy is defined as  $J = 1$  whereas  $J = 0$  suggests agreement purely due to chance. A p-value below 0.05 was considered statistically significant [7].

**Results of the study and their discussion.** Data from 68 valid questionnaires were used for the analysis. The sample was majority female (61.8 %). The age group in the sample was from 18 to 64 years. Baseline characteristics, PC-PTSD-5 scores, and PSS-10 scores of the 68 participants are summarized in Tabl. 1.

Internally displaced participants who did not suffer from COVID-19 had an average total score of  $1.25 \pm 0.13$  (women) and  $1.45 \pm 0.15$  (men) for the PC-PTSD-5. Internally displaced persons in Ukraine who contracted COVID-19 during the 2022–2023 Russian invasion had an average total score of  $3.7 \pm 0.25$  (women),  $4.6 \pm 0.22$  (pregnant women), and  $3.8 \pm 0.26$  (men) for the PC-PTSD-5, that is, exceeded the recommended cut-off score of 3 for the standard diagnosis of PTSD.

An analysis of variance on data from internally displaced persons who recovered from COVID-19 showed that the PSS-10 score varied significantly by gender (men > women,  $26.9 \pm 2.25$  and  $18.3 \pm 2.47$  respectively), with the exception of pregnant women ( $34.4 \pm 1.86$ ), which indicates the high current stress level. Means, standard errors, minimum, and maximum values for the CD-RISC-25 and the Beck's Depression Inventory are shown in Table 2.

Table 2

**Scores of the CD-RISC-25 (possible range 0–100) and the Beck's Depression Inventory (possible range 0–62) in internally displaced persons (IDPs) in Ukraine who contracted COVID-19 during the 2022–2023 Russian invasion**

Groups	Valid N	Mean	SEM	Observed range	p-value
Control-CD-RISC-25 -women IDPs	10	93.0	1.87	84–100	
Control-CD-RISC-25-men IDPs	10	84.3	3.2	64–96	p=0.0306510
CD-RISC-25-women IDPs after COVID-19	20	79.9	3.77	27–100	p=0.025130*
CD-RISC-25-men IDPs after COVID-19	15	78.3	4.47	35–97	p=0.337556# p=0.7897200
CD-RISC-25- pregnant women IDPs after COVID-19	10	63.8	4.73	32–84	p=0.00002* p=0.016428**
Control-BDI-women IDPs	12	7.67	0.84	4–14	
Control-BDI-men IDPs	11	8.73	0.89	4–14	p=0.3937890
BDI-women IDPs after COVID-19	20	11.75	1.41	4–27	p=0.044910*
BDI-men IDPs after COVID-19	15	14.73	1.77	6–29	p=0.012071# p=0.1925590
BDI- pregnant women IDPs after COVID-19	10	11.3	0.88	7–16	p=0.007493* p=0.832937**

Notes: @ – the samples were collected within 24 hours before delivery. Data are means  $\pm$  SEM for Gaussian variables Intergroup by the T-test Students \* – p – significant differences between control (women) and test groups (women) \*\* – p – between women IDPs after COVID-19 and test other groups (women) # – p – between control (men) and test groups (men) ## – p – between men IDPs after COVID-19 and test other groups (men) 0 – p – between groups women and test groups men

The mean scores on the CD-RISC 25 in internally displaced participants who did not suffer from COVID-19 were  $93.0 \pm 1.87$  (women) and  $84.3 \pm 3.2$  (men), respectively (p=0.030651), which indicates greater stress resistance in female refugees. Having experienced COVID-19 reduces stress resistance in both refugee women ( $79.9 \pm 3.77$ ), especially pregnant women ( $63.8 \pm 4.73$ ), and men ( $78.3 \pm 4.47$ ).

As our data showed, in internally displaced participants who did not suffer from COVID-19, both women ( $7.67 \pm 0.84$ ), and men ( $8.73 \pm 0.89$ ), had no depressive symptoms. Internally displaced persons who recovered from COVID-19 were in a state of subdepression according to the BDI score: women IDPs after COVID-19 –  $11.75 \pm 1.41$ ; pregnant women IDPs after COVID-19 –  $11.3 \pm 0.88$ ; men IDPs after COVID-19 –  $14.73 \pm 1.77$ .

Receiver operating characteristic (ROC) analyses were performed to calculate the sensitivity and specificity of the PC-PTSD-5, PSS-10, CD-RISC-25, BDI total scores. The analysis was performed to establish the optimal cut-off score for the PC-PTSD-5 for internally displaced participants who had COVID-19 and was determined by calculating the maximum area under the curve (AUC). According to the result of ROC analysis for Scores of the PC-PTSD-5 shown in Fig. 1.

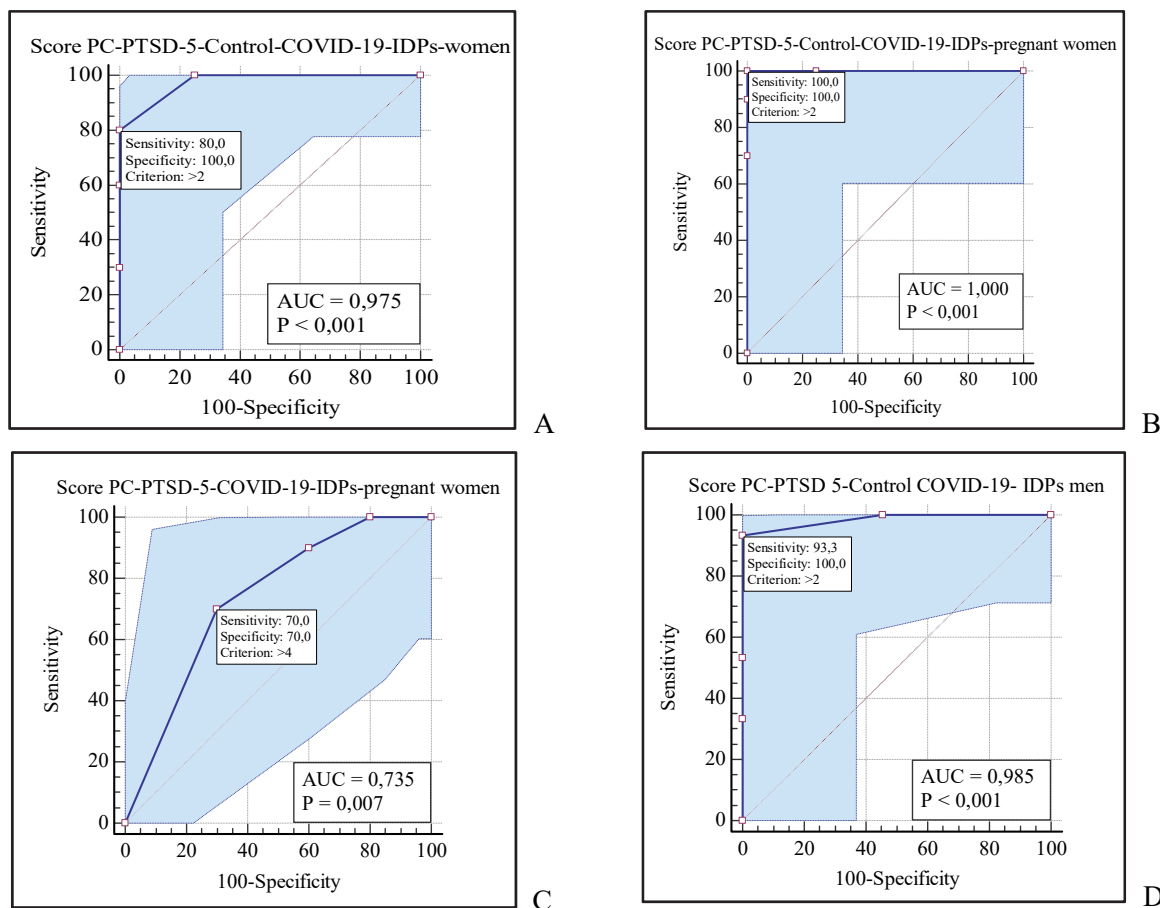


Fig. 1. ROC analysis: receiver operating characteristic (ROC) curves for Scores of the PC-PTSD-5 in A – control-IDPs-COVID-19-women; B – control-IDPs-COVID-19-pregnant women; C – IDPs-COVID-19-nonpregnant women; D – control-IDPs-COVID-19-men. Note: Here and in the following figures:  $p < 0.001$  – calculated by univariate logistic regression analysis.

The area under the curve (AUC) obtained for the PC-PTSD-5 was: women IDPs after COVID-19 – 0.975 (95 % CI: 0.848–1.000;  $p < 0.0001$ , optimal cut-off values  $> 2$ ) with a sensitivity of 80.0 % (95 % CI 56.3–94.3) and specificity of 100.0 % (95 % CI 73.5–100.0); pregnant women IDPs after COVID-19 in relation to the control-women IDPs group – 1.000 (95 % CI: 0.846–1.000;  $p < 0.0001$ , optimal cut-off values  $> 2$ ) with a sensitivity of 100.0 % (95 % CI 69.2–100.0) and specificity of 100.0 % (95 % CI 73.5–100.0); pregnant women IDPs after COVID-19 in relation to the nonpregnant women IDPs after COVID-19 group – 0.735 (95 % CI: 0.543–0.878;  $p = 0.0067$ , optimal cut-off values  $> 4$ ) with a sensitivity of 70.0 % (95 % CI 34.8–93.3) and specificity of 70.0 % (95 % CI 45.7–88.1); men IDPs after COVID-19 – 0.985 (95 % CI: 0.841–1.000;  $p < 0.0001$ , optimal cut-off values  $> 2$ ) with a sensitivity of 93.3 % (95 % CI 68.1–99.8) and specificity of 100.0 % (95 % CI 71.5–100.0).

ROC analysis curves for Scores of the PSS-10 are shown in Fig. 2.

As shown in Fig. 2, the AUC of the PSS-10 was 1.000 (95 % CI: 0.846–1.000;  $p < 0.0001$ , optimal cut-off values  $> 12$ ) with a sensitivity of 100.0 % (95 % CI 69.2–100.0) and specificity of 100.0 % (95 % CI 73.5–100.0) in pregnant women IDPs after COVID-19 in relation to the control women IDPs group; in pregnant women IDPs after COVID-19 in relation to the nonpregnant women IDPs after COVID-19 group – 0.880 (95 % CI: 0.709–0.969;  $p < 0.0001$ , optimal cut-off values  $> 31$ ) with a sensitivity of 80.0 % (95 % CI 44.4–97.5) and specificity of 85.0 % (95 % CI 62.1–96.08); in men IDPs after COVID-19 – 0.894 (95 % CI: 0.710–0.980;  $p < 0.0001$ , optimal cut-off values  $> 15$ ) with a sensitivity of 86.67 % (95 % CI 59.5–98.3) and specificity of 100.0 % (95 % CI 71.5–100.0), which indicated that the PSS-10 has a high degree of discriminatory power in these groups. For ROC analysis, AUCs  $> 0.71$  is considered to have large effect sizes [7]. Our ROC analysis found that total scores on the PSS-10 had a large effect, except for the group of women IDPs after COVID-19, with an AUC of 0.656 (95 % CI: 0.468–0.814,  $p > 0.05$ ).

ROC analysis did not confirm the significant diagnostic accuracy of CD-RISC-25 and BDI.

The most significant studies of post-traumatic stress disorder among refugees were studied in Ukraine by Boiko D.I. et al. [4, 5]. Their findings show that those displaced inside or outside Ukraine during the measurement period reported higher levels of PTSD symptoms in comparison to those not displaced. There were no significant differences in PTSD between those displaced within and outside their

home country as a result of the invasion. This suggests that even evacuation from battered or besieged cities to other parts of Ukraine results in mental health problems (i.e., PTSD symptoms) [4, 5].

There now exists evidence of the impact of the COVID-19 pandemic on mental health and overall psychological functioning among different segments of the population, with documented increases in the levels of depression, anxiety, and PTSD and endorsements of anger and fear [11, 12]. PTSD related to COVID-19 has been reported in healthcare workers and the general public, including perinatal women [11, 12].

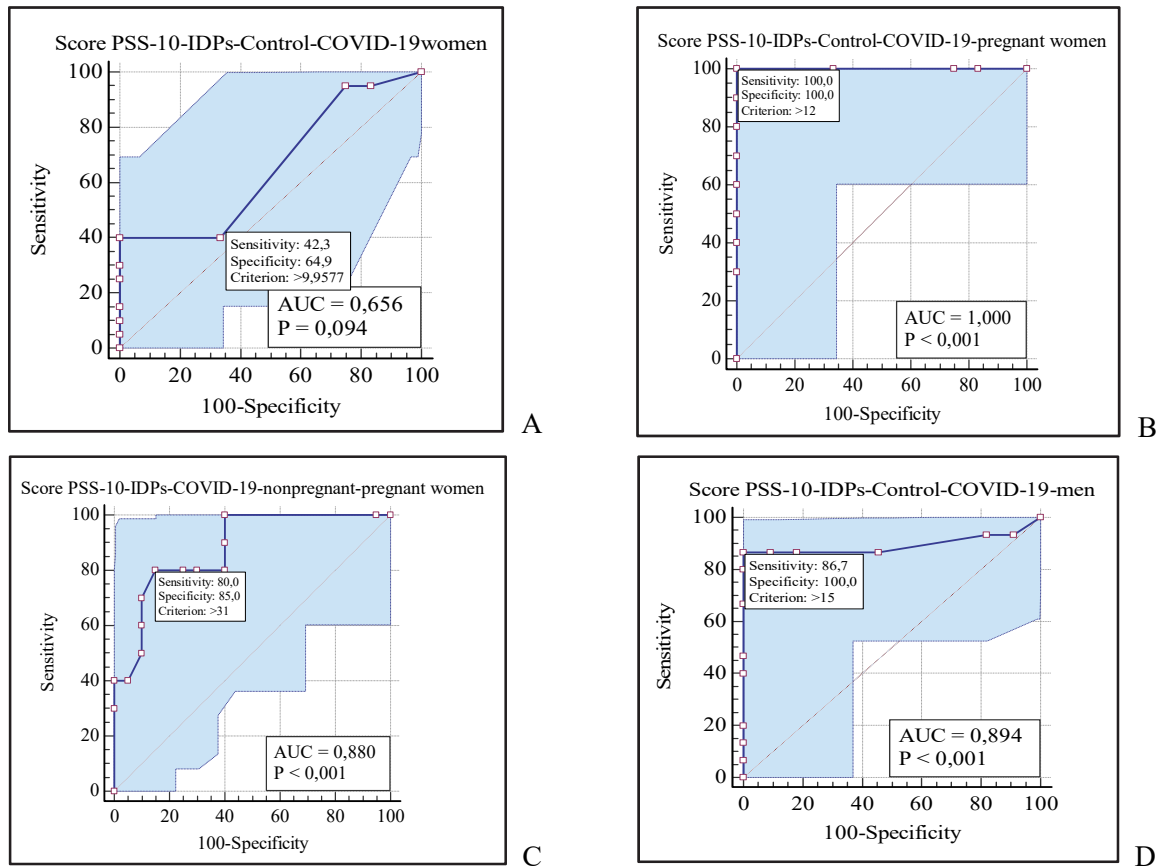


Fig. 2. ROC analysis: receiver operating characteristic (ROC) curves for Scores of the PSS-10 in A – control-IDPs-COVID-19-women; B – control-IDPs-COVID-19-pregnant women; C – IDPs-COVID-19-nonpregnant women-pregnant women; D – control-IDPs-COVID-19-men.

Note: Here and in the following figures:  $p < 0.001$  – calculated by univariate logistic regression analysis.

In this work, we considered the possible impact of the COVID-19 pandemic on the mental health of the population, especially for internally displaced persons in Ukraine. Internally displaced persons in Ukraine who contracted COVID-19 during the 2022–2023 Russian invasion had an average total score of  $>3$  for the PC-PTSD-5, that is, exceeded the recommended cut-off score of 3 for the standard diagnosis of PTSD. An analysis of variance on data from internally displaced persons who recovered from COVID-19 showed that the PSS-10 score varied significantly by gender (men  $>$  women), with the exception of pregnant women, which indicates the high current stress level. According to other authors, women had an increased risk of PTSD and severe PTSD, which show that women are more susceptible to changes caused by the coronavirus [2, 12]. An additional stress factor, such as war, changed the gender orientation of PTSD towards men, as our study showed.

As our data showed, in internally displaced participants who did not suffer from COVID-19 had no depressive symptoms. Internally displaced persons who recovered from COVID-19 were in a state of subdepression according to the BDI score. But in men, these indicators were maximum and approached a state of moderate depression.

Among those vulnerable to the stress effects from the COVID-19 pandemic are pregnant women and women who recently gave birth [11]. As our research has shown, the conditions of the COVID-19 pandemic create additional stress for internally displaced perinatal women. They had a mean overall PC-PTSD-5 score of 1.5-fold higher, according to PSS-10 – 3-fold higher, according to BDI – also 3-fold higher than in non-pregnant women. At the same time, as follows from the Scores of the CD-RISC-25, their resistance to stress was almost 3-fold reduced compared to non-pregnant women.

We used ROC analysis to find the best cutoff score that provided the highest degree of sensitivity and specificity for diagnosing PTSD. Maintaining a specificity of 0.90 is commonly accepted as the minimum required for use in psychological assessment [7], that suggestive of excellent accuracy in identifying possible PTSD in our sample. A range of cut-off scores was tested to effectively discriminate possible PTSD among our sample. The calculated Youden index showed that 2 points is the optimal threshold value, as in the work of Cheng P. et al. [7]. Previous studies by other authors [13] have shown that the recommended cut-off score for PC-PTSD-5 is 3. In our sample, the optimal cut-off score was 4 points among internally displaced pregnant women who had recovered from COVID-19.

Research in a large sample in National Center for PTSD of U.S. Department of Veterans Affairs primary care patients found that a cut-point of 4 ideally balanced false negatives and false positives for the overall sample and for men. Because performance parameters will change according to sample, clinicians should consider sample characteristics and screening purposes when selecting a cut-point [14].

As recommended by Chang et al. ultimately the choice of appropriate cut-off value should be determined based on the goal of assessment. If using the PC-PTSD-5 as a screening measure to determine the necessity for further follow-up and treatment, sensitivity would be of greater importance to ensure the highest percentage of at-risk individuals was captured [7].

### Conclusions

1. Our study demonstrated that PC-PTSD-5 can be applied as a reliable screening measure of PTSD symptoms in internally displaced participants during COVID-19.
2. The diagnostic utility analysis of the PC-PTSD-5 identified a recommended cutoff score of 2, based on an optimal balance of sensitivity and specificity in internally displaced women and men who did not suffer from COVID-19 and who have had COVID-19. In internally displaced pregnant women who recovered from COVID-19, the optimal cut-off score was 4 points on the PC-PTSD-5 scale.

### References

1. Lemak MV, Petryshe VYu. *Psikhologu dlya roboty: Diagnostychni metodyky*. Uzhgorod. 2011. [in Ukrainian].
2. Adams RE, Hu Y, Figley CR, Urosevich TG, Hoffman SN, Kirchner HL, et al. Risk and protective factors associated with mental health among female military veterans: results from the veterans' health study. *BMC Womens Health*. 2021 Feb 8;21(1):55. doi: 10.1186/s12905-021-01181-z.
3. Ben-Ezra M, Goodwin R, Leshem E, Hamama-Raz Y. PTSD symptoms among civilians being displaced inside and outside the Ukraine during the 2022 Russian invasion. *Psychiatry Research*, 2023; 320 (115011). <https://doi.org/10.1016/j.psychres.2022.115011>
4. Boiko DI, Rahman MH, Kachala VV, Zehravi M, Shkodina AD, Kundu MK, et al. A pilot study of stress coping and anxiety among internally displaced people in Russian-Ukrainian war who experienced stress-related disorders. *Psychiatry Res*. 2023;324. doi:10.1016/j.psychres.2023.115191
5. Boiko DI, Shyrai PO, Mats OV, Karpik ZI, Rahman Md H, Khan AA, et al. Mental health and sleep disturbances among Ukrainian refugees in the context of Russian-Ukrainian war: A preliminary result from online-survey. *Sleep Med*. 2024;113:342–348. doi:10.1016/j.sleep.2023.12.004
6. Boiko DI, Skrypnikov AM, Shkodina AD, Hasan MM, Rahman Md H, Ashraf GM. Circadian rhythm disorder and anxiety as mental health complications in post-COVID-19. *Environmental science and pollution research*. 2022; 29: 28062–28069.
7. Cheng P, Jasinski N, Zheng W, Yadava A, Wang L, Li L et al. Psychometric Properties of the Primary Care PTSD Screen for DSM-5: Findings From Family Members of Chinese Healthcare Workers During the Outbreak of COVID-19. *Front Psychiatry*. 2021 Sep 14; 12:695678. doi: 10.3389/fpsy.2021.695678.
8. Gebreyesus A, Niguse AT, Shishay F, Mamo L, Gebremedhin T, Tsegay K, et al. Prevalence of depression and associated factors among community hosted internally displaced people of Tigray; during war and siege. *BMC Psychiatry*. 2024 Jan 2;24(1):3. doi: 10.1186/s12888-023-05333-3.
9. Kaseda ET, Levine AJ. Post-traumatic stress disorder: a differential diagnostic consideration for COVID-19 survivors. *Clin Neuropsychol*. 2020; 34:1498–514. doi: 10.1080/13854046.2020.1811894
10. Kurth ML, Witzel DD, Segerstrom SC, Choun S, Aldwin PhD CM. Cohort Differences in PTSD Symptoms and Military Experiences: A Life Course Perspective. *Gerontologist*. 2024;64(2). doi:10.1093/geront/gnad129
11. Liu CH, Erdei C, Mittal L. Risk factors for depression, anxiety, and PTSD symptoms in perinatal women during the COVID-19 pandemic. *Psychiatry Res*. 2021; 295:113552. doi: 10.1016/j.psychres.2020.113552
12. Mejia CR, Serna-Alarcón V, Vilela-Estrada MA, Armada J, Ubillus M, Beraún-Barrantes J, et al. Prevalence of post-traumatic stress disorder risk post-COVID-19 in 12 countries in Latin America: a cross-sectional survey. *Front Public Health*. 2023; 11: 1302694. doi: 10.3389/fpubh.2023.1302694
13. Prins A, Bovin MJ, Smolenski DJ. The Primary Care PTSD Screen for DSM-5 (PC-PTSD-5): Development and Evaluation Within a Veteran Primary Care Sample. *J Gen Intern Med*. 2016; 31(10):1206–1211. doi:10.1007/s11606-016-3703-5
14. PTSD: National Center for PTSD. Primary Care PTSD Screen for DSM-5 (PC-PTSD-5). <https://www.ptsd.va.gov/professional/assessment/screens/pc-ptsd.asp>
15. Sakib N, Akter T, Fatematuz Zohra AKM, Bhuiyan I, Mamun MA, Griffiths MD. Fear of COVID-19 and depression: a comparative study among the general population and healthcare professionals during COVID-19 pandemic crisis in Bangladesh. *Int J Ment Heal Addict*. 2023; 21:976–92. doi: 10.1007/s11469-020-00477-9.

Стаття надійшла 23.01.2023 р.