

Resilience and professional identity of medical students during wartime: The Ukrainian experience

Kateryna O. Hololobova, Lesya V. Lymar, Volodymyr S. Tytykalo, Olena I. Kefeli- Ianovska, Ganna S. Trepet, Tetyana V. Kolomiets

BOGOMOLETS NATIONAL MEDICAL UNIVERSITY, KYIV, UKRAINE

ABSTRACT

Aim: To conduct an empirical analysis of resilience self-assessment and professional intentions among medical students and PhD students in Ukraine under the conditions of full-scale war, and to determine the impact of crisis conditions on the formation of their professional identity.

Materials and Methods: The study is based on the results of an anonymous cross-sectional survey (2025) conducted among students at Bogomolets National Medical University (N=214). Statistical data processing included the calculation of proportions and the margin of error (MOE) for a 95% confidence interval. Empirical data were supplemented by a content analysis of 39 relevant publications from the PubMed and Scopus databases (2022-2026).

Results: The sample exhibited a distinct gender imbalance (75.2% female). Despite significant psychological pressure, a high level of resilience was recorded: 63.1% of respondents rated their adaptability above average (over 51%). Strong professional loyalty was observed, with 65.4% of participants planning to continue their activities in Ukraine. Conversely, 26.6% of students remain «undecided», indicating the vulnerability of human capital due to the erosion of traditional social support mechanisms. The war has accelerated professional maturation through engagement in volunteering and tactical medicine, signaling processes of post-traumatic growth.

Conclusions: The full-scale war has transformed the professional «ego» of future physicians toward practical readiness and social responsibility. Continuity of education in crisis conditions requires the integration of flexible distance models with enhanced psychosocial mentorship. The results underscore the necessity of institutional support for students to preserve the human capital of the Ukrainian healthcare system.

KEY WORDS: resilience, medical students, wartime, soft skills

Wiad Lek. 2026;79(6):1286-1291. doi: 10.36740/WLek/222578 DOI

INTRODUCTION

On February 24, 2022, the Russian Federation escalated the military actions ongoing in Ukraine since 2014 into a full-scale military invasion. The Ukrainian healthcare system, which had only recently begun to recover from the global COVID-19 pandemic, was immediately confronted with severe, multi-dimensional challenges: the systematic destruction of medical facilities, the displacement of healthcare professionals, and an instantaneous surge in demand for trauma, emergency, and rehabilitative services [1].

The war has resulted in widespread collective trauma, affecting the psychological condition of the entire nation [2]. The younger generation, specifically «Generation Z» represented by medical students, was particularly ill-prepared for such cataclysmic shifts [3]. Many medical students and PhD students suffered direct exposure to violence, loss of personal property due to hostilities

and looting, and the tragic loss of family members [4]. Nevertheless, the majority of students demonstrated remarkable fortitude, resumed their studies through adapted digital platforms, and even engaged extensively in volunteer activities, often on the front lines of humanitarian aid [5].

The impact of the full-scale war on medical educational institutions was profound and required an immediate pedagogical transformation. Universities were compelled to transition back to distance learning, which they had only recently moved away from post-COVID-19 –and rapidly adapt their curricula to address the clinical realities of wartime [6]. Some institutions suffered severe property damage, which led to subsequent power outages and internet disconnections that interfered with the educational process. International students were evacuated, with a low probability of resuming their studies given the volatile military situation [7].

Cumulatively, these factors led to increased anxiety regarding life, health, and property, alongside documented difficulties in concentration and a decrease in academic performance [8]. Traditional social mechanisms, such as peer support and clinical rotations, were disrupted, necessitating the emergence of new pathways for professional identity development [5].

Professional identity in medicine is regarded as a complex construct of characteristics: skills and functions; knowledge, values, and ethics; personal identity; and group identity [9]. The development of professional identity is a process through which individuals integrate medical knowledge and attitudes into their professional «ego» [10]. This process commences in medical school and continues throughout professional life, making a person part of the medical community. The full-scale war disrupted the routine mechanisms of this formation, requiring robust resilience for successful adaptation [11].

Resilience, the capacity to maintain or regain psychological well-being in the face of adversity, is a central concept in understanding how individuals cope with extreme stress [12]. Resilience theory emphasizes that it is a dynamic process involving the interaction of individual characteristics, social support systems, and environmental factors. In medical education, the scope of resilience extends beyond the management of academic stress to the maintenance of professional integrity under crisis conditions [12].

AIM

The aim of this study is to conduct an empirical analysis of resilience self-assessment and professional intentions among medical students and PhD students in Ukraine under the conditions of full-scale war, and to determine the relationship between crisis conditions and the process of professional identity formation.

MATERIALS AND METHODS

This study is based on the results of a cross-sectional questionnaire survey conducted in 2025 among students and PhD students of Bogomolets National Medical University (N=214). The survey was administered anonymously via Google Forms and disseminated through official university channels. Participation was strictly voluntary. Before completing the questionnaire, respondents were informed about the study's aim and the general purpose of data collection. Statistical processing included the calculation of proportions (%) and the margin of error (MOE) for a 95% confidence interval ($Z=1.96$). The theoretical framework of the study

was supplemented by a content analysis of 39 relevant publications (2022–2026) from the PubMed and Scopus databases to provide a comparative analysis of the empirical data obtained.

ETHICS

The study was conducted in accordance with the ethical standards outlined in the Declaration of Helsinki. All participants provided informed consent. The survey was entirely anonymous; no personal data identifying individuals was collected. Results were processed in a de-identified and aggregated format. Official permission for the survey was obtained from the Department of Science and the Bioethical Commission at Bogomolets National Medical University.

FRAMEWORK

The study was conducted within the framework of a research project of the Bogomolets National Medical University: 0124U001087 «Effective teaching techniques in postgraduate medical education»; 01.2024– 12.2026.

RESULTS

The full-scale war has fundamentally altered the perception of professional identity among medical students. While military aggression on Ukrainian territory began in 2014, and medical students have participated in defence efforts since then [13], the 2022 invasion shifted this participation from a voluntary, localised choice to a national professional imperative [10]. Despite severe disruptions, the majority of Ukrainian medical students have maintained their commitment to medical practice within Ukraine. Research by Kuchyn et al. found that 85% of medical PhD students planned their future careers as physicians or educators within Ukraine [4]. This reflects a profound sense of professional identity acting as a motivation to serve the country.

A distinct trend observed is the emphasis on clinical and tactical medical competencies. Medical institutions have adapted curricula towards primary care, emergency medicine, and wartime trauma management [5, 15]. These shifts necessitated a reconsideration of educational paradigms in both medical and military educational institutions [16].

To determine the resilience self-assessment of medical students and PhD students, a cross-sectional survey was conducted at Bogomolets National Medical University. A total of 214 responses were analysed. The sample was predominantly female: 161 respondents (75.2%), while

Table 1. Analysis of Resilience Self-Assessment and Future Intentions (N=214)

Data Analysis Categories	Number (n)	Proportion (%)	Margin of Error (±%)
Resilience Self-Assessment			
- Low (less than 25%)	21	9.8%	3.98%
- Moderately Low (25–50%)	58	27.1%	5.96%
- Moderately High (51–75%)	71	33.2%	6.31%
- High (more than 75%)	64	29.9%	6.13%
Intentions Regarding Work/Study in Ukraine			
- Definitely yes	67	31.3%	6.21%
- More yes than no	73	34.1%	6.35%
- Undecided	57	26.6%	5.92%
- More no than yes	13	6.1%	3.21%
- Definitely no	4	1.9%	1.83%

Source: compiled by the authors of this study

Table 2. Correlation Between Resilience Self-Assessment Levels and Professional Intentions

Resilience Self-Assessment Level	Plan to Remain in Ukraine (N, %)	Undecided / Planning to Leave (N, %)	Total (N)
High / Moderately High (>50%)	108 (80.0%)	27 (20.0%)	135
Low / Moderately Low (≤50%)	32 (40.5%)	47 (59.5%)	79
Total	140	74	214

Source: compiled by the authors of this study

53 (24.8%) were male; no participants selected the “another” option. Regarding age, the largest group consisted of respondents aged 20+ (128; 60.0%), followed by those under 20 (62; 28.9%). Smaller proportions were represented by categories 30+ (8; 3.7%), 40+ (12; 5.6%), and 50+ (4; 1.8%). This indicates a primarily younger student population, as expected in a university setting. However, age labels such as «20+», «30+», and «40+» should be interpreted cautiously, as they formally overlap; clearer age bands would improve precision in future surveys.

Curriculum changes have direct implications for professional identity formation. Students adopted professional roles from the earliest days of the invasion, performing clinical duties and providing first aid [6]. Persistent study, including self-directed learning, functioned as a means of purpose and a distraction from war-related chaos [17]. Our survey of 214 students provided a detailed demographic and psychological profile. The sample was predominantly female: 161 respondents (75.2%), reflecting the typical student body structure of medical universities. Regarding age, the largest group was respondents aged 20+ (128; 60.0%), followed by those under 20 (62; 28.9%) (Table 1).

RESILIENCE

A statistically significant majority of respondents (63.1% when combining the «51–75%» and «over 75%» groups)

rate their adaptability as above average. The margin of error for these key groups is approximately ±6%, which is acceptable for socio-psychological studies of this scale.

PROFESSIONAL INTENTIONS

The cumulative proportion of individuals with a positive ambition toward staying in Ukraine (65.4%) significantly exceeds the proportion of those with negative intentions (8.0%). The “undecided” group (26.6% with a margin of error of ±5.92%) represents the primary reserve for psychological and institutional support aimed at retaining human capital potential.

Responses to the question about future intentions in Ukraine also reveal an important trend. The most frequent answers were “more yes than no” (73; 34.1%) and “definitely yes” (67; 31.3%). Together, this means that 140 respondents (65.4%) showed an overall positive orientation toward staying and studying or working in Ukraine. At the same time, 57 students (26.6%) remained undecided, 13 (6.1%) answered “more no than yes,” and only 4 (1.9%) selected “definitely no.” Thus, although a considerable proportion of students are uncertain, explicitly negative intentions were rare. This may suggest that, despite the ongoing war and instability, many students still see their academic and professional future as linked to Ukraine. The relatively

large undecided group, however, reflects the continuing impact of insecurity, social strain, and possible concerns about educational and career prospects.

Comparative analysis of the data (Table 2) revealed a direct correlation between the respondents' psychological resilience and their future professional intentions in Ukraine. Among students with a high level of resilience, the vast majority (80.0%) expressed readiness to continue their studies and work in their home country. Conversely, in the low-resilience group, the proportion of «undecided» individuals or those planning to emigrate increases significantly to 59.5%. This supports the hypothesis that resilience functions not only as a psychological defence mechanism but also as a critical factor in retaining human capital within the medical field during wartime.

Beyond cognitive factors, the war created practical barriers: academic disruptions, power and internet outages, financial hardships, and the infrastructural crisis of winter 2025/26 under severe frosts. Despite these challenges, Ukrainian medical students demonstrated remarkable resilience. Their medical training and professional responsibility fostered an analytical approach to the wartime situation. Peer networks and family connections remained vital coping resources, while faculty increasingly adopted mentor roles [5].

DISCUSSION

This study, supplemented by our empirical data, reveals a complex landscape of medical education during wartime in Ukraine, characterized by severe psychological challenges alongside remarkable resilience and adaptation [17]. Data demonstrate that the war has triggered a mental health crisis among students, with high rates of stress, anxiety, and depression [8, 18].

The high variability in responses within the 20+ age group (MOE ± 6.56 %) reflects the diverse coping mechanisms of young specialists transitioning to professional responsibility under fire. A critical finding is the high level of self-assessed resilience. Despite the psychological toll, 63.1% of respondents rate their adaptability as above average. These results suggest

that “Generation Z” medical students are undergoing a process of post-traumatic growth [17]. The wartime environment has transformed their professional «ego», shifting it toward practical clinical readiness and a proactive volunteer mindset.

The data regarding professional intentions provide a strategic outlook for the healthcare system. The cumulative proportion of students with positive intentions to remain in Ukraine (65.4%) far exceeds those with negative intentions (8.0%). This high level of professional loyalty, even amidst infrastructural catastrophes, proves that with adequate support, students can develop robust professional identities.

However, the «undecided» group (26.6%) highlights a significant vulnerability. This segment represents a primary reserve for human capital; their uncertainty is likely linked to the erosion of support systems and academic disruptions [8]. Medical education must transition from simple continuity to trauma-informed mentorship. As faculty members themselves navigate wartime stress [21], the development of digital and psychosocial interventions [22] becomes paramount to shield the professional identity of students from long-term erosion.

CONCLUSIONS

The full-scale war has accelerated the professional maturation of medical students, transforming their professional «ego» towards practical readiness, volunteerism, and high social responsibility.

Statistical analysis confirmed that 63.1% of respondents rate their resilience as high or moderately high, which indicates significant potential for post-traumatic growth. The majority of surveyed students (65.4%) plan to connect their future with Ukraine, demonstrating steadfast commitment despite security instability.

Approximately 26.6% of students remain «undecided» regarding their future, reflecting a vulnerability that requires targeted institutional support to preserve the nation's human capital. Continuity of medical education in wartime is possible only through a combination of flexible distance-learning models and intensified practical training in disaster medicine.

REFERENCES

1. Koshak BO, Smiyan SI, Bilukha AV. Medical Education in the Context of War in Ukraine. *Acad Med.* 2025;100(4):407. doi: 10.1097/ACM.0000000000005956. [DOI](#)
2. Frolova N, Silver RC. A sudden but prolonged collective trauma: The Ukrainian experience. Montague-Cardoso K, editor. *PLOS Ment Health.* 2024;1(1):e0000056. doi: 10.1371/journal.pmen.0000056. [DOI](#)
3. Grad M, Luțai R. Security, safety, and freedom in Romania: an analysis of Generation Z perception in the context of the war in Ukraine. *Studia Securitatis.* 2022;16(2):217–231. <https://magazines.ulbsibiu.ro/studiasecuritatis/wp-content/uploads/Studia-Securitatis-No.-2-2022-217-231.pdf> [Accessed 31 March 2026]

4. Kuchyn I, Bielka K, Lymar L, Puljak L. Academic performance, perceptions, and motivations of medical PhD students in Ukraine during wartime: a mixed methods study. *BMC Med Educ.* 2024;24(1):1421. doi: 10.1186/s12909-024-06400-3. [DOI](#)
5. Mayer A, Yaremko O, Shchudrova T et al. Medical education in times of war: a mixed-methods needs analysis at Ukrainian medical schools. *BMC Med Educ.* 2023;23(1):804. doi: 10.1186/s12909-023-04768-2. [DOI](#)
6. Khaniukov OO, Smolianova OV, Shchukina OS. Distance learning during the war in Ukraine: experience of internal medicine department (organisation and challenges). *Art of Medicine.* 2022;3(23):134–138. doi:10.21802/artm.2022.3.23.134. [DOI](#)
7. Turkmen S, Kahal S, Majed K et al. Influence of Ukraine war on the foreign medical students. *Qatar Medical Journal.* 2024;2024(4). doi:10.5339/qmj.2024.66. [DOI](#)
8. Karasevska T, Fiialkovska O, Mostbauer H et al. Medical students' mental health after the first year of war in Ukraine: A cross-sectional study. *J Health Psychol.* 2025;30(12):3222–3237. doi:10.1177/13591053251328916. [DOI](#)
9. Sattar K, Yusoff MSB. Unveiling the interplay of medical professionalism, mental well-being and coping in medical students: a qualitative phenomenological study. *BMC Med Educ.* 2025;25(1):12. doi:10.1186/s12909-024-06595-5. [DOI](#)
10. Kasyanova O, Razumna A. Actualizing existential effect of professional identity as upbringing factor for the future physicians personality under the wartime in Ukraine. *GoS.* 2022;(17):301–307. doi:10.36074/grail-of-science.22.07.2022.055. [DOI](#)
11. Dunn LB, Iglewicz A, Moutier C. A conceptual model of medical student well-being: promoting resilience and preventing burnout. *Academic Psychiatry.* 2008;32(1):44–53. doi: 10.1176/appi.ap.32.1.44. [DOI](#)
12. Ogorenko VV, Nikolenko AY, Shusterman TY, Kokashynskiy VO. The integrative model of resiliency in higher education seekers in war conditions. *Med perspekt.* 2023;28(3):94–109. doi:10.26641/2307-0404.2023.3.289204. [DOI](#)
13. Halushka AM, Savytskyi VL, Zhakhovsky VO, Livynskiy VG. Role and contribution of Ukrainian military medical academy in medical supply of Armed Forces of Ukraine under the ATO. *UJMM.* 2020;1(3):19–28. doi:10.46847/ujmm.2020.3(1)-019. [DOI](#)
14. Nagl JA, Crombe K. A call to action: lessons from Ukraine for the future force. Carlisle Barracks, PA: USAWC Press. 2024, p.359. <https://press.armywarcollege.edu/monographs/968> [Accessed 31 March 2026]
15. Vitchenko A. Military and pedagogical science in Ukraine: state, problems and priorities of innovation development. VO NUOU. 2026. doi: 10.33099/2617-1783/2025-52/45-60. [DOI](#)
16. Lavrysh Y, Lytovchenko I, Lukianenko V, Golub T. Teaching during the wartime: Experience from Ukraine. *Educational Philosophy and Theory.* 2025;57(3):197–204. doi: 10.1080/00131857.2022.2098714. [DOI](#)
17. Takoutsing BD, Găman MA, Puyana JC, Bonilla-Escobar FJ. The silent casualties: war's impact on medical students and medical education. *Int J Med Stud.* 2023;11(4):254–258. doi:10.5195/ijms.2023.2476. [DOI](#)
18. Korda M, Shulhai A, Shevchuk O. Psychological well-being and academic performance of Ukrainian medical students under the burden of war: a cross-sectional study. *Front Public Health.* 2025;12:1457026. doi: 10.3389/fpubh.2024.1457026. [DOI](#)
19. Shulhai AG, Fedchyshyn NO, Shulgai IM. Syndrom vyhorannya studentiv-medykiv pid chas viyny ta chynnyky, yaki yoho vyznachayut'. [Syndrome of burnout of medical students under the wartime and its determining factors]. *Medychna osvita.* 2023;(3):104–111. doi: 10.11603/m.2414-5998.2023.3.14276. (Ukrainian) [DOI](#)
20. Scripnikov A, Khomenko A, Napryeyenko O, for the GINDEM-NP Study Group. Effects of Ginkgo biloba Extract EGb 761® on neuropsychiatric symptoms of dementia: findings from a randomised controlled trial. *Wien Med Wochenschr.* 2007;157(13–14):295–300. doi: 10.1007/s10354-007-0427-5. [DOI](#)
21. Hololobova KO, Hrytsenko OA, Kucherenko II. Motivating academic integrity: utilizing information resources in medical education. *Wiad Lek.* 2005;(5):1091–1098. doi: 10.36740/WLek/205376. [DOI](#)
22. Terentiyk VH, Mykytenko PV, Vlasenko OM et al. Formation of digital competence in the medical educational environment. *Wiad Lek.* 2005;(5):1106–1111. doi: 10.36740/WLek/205381. [DOI](#)

CONFLICT OF INTEREST

The Authors declare no conflict of interest

CORRESPONDING AUTHOR

Kateryna O. Hololobova

Bogomolets National Medical University
13 Shevchenko Blvd, 01601 Kyiv, Ukraine
e-mail: k.hololobova@nmu.ua

ORCID AND CONTRIBUTIONSHIP

Kateryna O. Hololobova: 0000-0003-3343-5978 [A](#) [B](#) [E](#)

Lymar V. Lesya: 0000-0002-9407-1066 [A](#) [D](#) [F](#)

Volodymyr S. Tytykalo: 0000-0001-9461-5521 **E** **F**
Olena I. Kefeli-Ianovska: 0000-0003-1326-2424 **B** **D**
Ganna S. Trepet: 0000-0001-8300-7117 **D**
Tetiana V. Kolomiets: 0000-0002-5335-7789 **B** **D**

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

RECEIVED: 10.02.2026

ACCEPTED: 02.06.2026

