UDC 613.955:159.99:37.09 DOI https://doi.org/10.32782/pub.health.2024.2.1

Hozak Svitlana Viktorivna,

Doctor of Medical Sciences, Head of the Laboratory the Social Determinants of Population Health of the State Institution "Marzieiev Institute for Public Health of the National Academy of Medical Sciences of Ukraine" ORCID: https://orcid.org/0000-0002-6379-7331

Yelizarova Olena Tarasivna,

MD, PhD in Medical Sciences, Leading Researcher of the Laboratory the Social Determinants of Population Health of the State Institution "Marzieiev Institute for Public Health of the National Academy of Medical Sciences of Ukraine" ORCID: https://orcid.org/0000-0002-2860-9059

Stankevych Tetiana Valeriivna,

PhD in Medical Sciences, Leading Researcher of the Laboratory the Social Determinants of Population Health of the State Institution "Marzieiev Institute for Public Health of the National Academy of Medical Sciences of Ukraine" ORCID: https://orcid.org/0000-0003-3998-3748

Lynchak Oksana Vasylivna,

Doctor of Biological Sciences, Professor, Bila Tserkva Institute of Continuous Education of State Higher Educational Institution "University of Educational Management" ORCID: https://orcid.org/0000-0002-2026-384X

Lebedynets Natalia Vitaliivna,

PhD in Biological Sciences, Associate Professor at the Department of Biology, Dragomanov Ukrainian State University ORCID: https://orcid.org/0000-0003-1339-3387

Parats Alla Mykolaivna,

PhD in Medical Sciences, Leading Researcher of the Laboratory the Social Determinants of Population Health of the State Institution "Marzieiev Institute for Public Health of the National Academy of Medical Sciences of Ukraine" ORCID: https://orcid.org/0000-0003-4301-5336

Rudnytska Olga Petrivna,

PhD in Medical Sciences, Head of the Scientific-Coordination Department, State Institution "Marzieiev Institute for Public Health of the National Academy of Medical Sciences of Ukraine" ORCID: https://orcid.org/0000-0002-5065-3152

THE EFFECTIVENESS AND CHALLENGES OF IMPLEMENTING PSYCHOLOGICAL TOOLS IN THE EDUCATIONAL PROCESS DURING WARTIME

Topicality. For two consecutive academic years, psychological tools known as "psychological minutes" were extensively integrated into the educational system in Ukraine. The Ministry of Education of Ukraine recommends these approaches and involves various techniques and exercises to support students' mental health.

This study **aimed** to assess the implementation of "psychological minutes" in the educational process and the impact of psychological tools on teachers' mental health during martial law.

Materials and methods. A randomized survey of 920 teachers from all regions of Ukraine was conducted at the end of the 2022/2023 and 2023/2024 academic years. The teachers provided informed consent and completed a specially designed questionnaire. Symptoms of anxiety and depression were assessed using the GAD-2 and PHQ-2 questionnaires.

Research results. The share of persons with anxiety symptoms among teachers was $38.9\pm1.7\%$ and with depressive symptoms – $45.6\pm1.7\%$. At the same time, there were no statistically significant differences depending on the year of observation. However, the share of women experiencing symptoms of depression was higher than among men by 13.8% (p<0.05). 95.7% of teachers of grades 1–4, 86.4% of teachers of grades 5–9, 54.6% of teachers of grades 10–11 integrated psychological tools into the educational process. In 2023/2024, nearly 70% of teachers reported that breathing exercises and art therapies such as isotherapy and music therapy were most effective. Calculated logistic regression models taking into account age, gender, place of residence, form of education, subject, and grade did not show significant differences in the probability of developing symptoms of anxiety and depression depending on whether teachers spent "psychological minutes" or not.

Conclusions. The results of this study indicate the need to revise approaches to the implementation of psychological support programs for teachers in schools and also indicate the need for further monitoring of participants in the educational process during the war to improve future mental health support strategies.

Key words: mental health, teachers, psychological tools, "psychological minutes", educational process.

Гозак С. В., Єлізарова О. Т., Станкевич Т. В., Линчак О. В., Лебединець Н. В., Парац А. М., Рудницька О. П. Ефективність та проблеми впровадження психологічних інструментів у навчально-виховний процес під час воєнного часу

Актуальність. Два навчальних роки поспіль в Україні у навчальний процес інтенсивно впроваджувались психологічні інструменти під назвою «психологічні хвилинки». Ці підходи рекомендовані МОН України і передбачають використання різних технік та вправ для підтримки ментального здоров'я учнів.

Мета цього дослідження — оцінити особливості впровадження «психологічних хвилинок» в освітній процес та вплив використання психологічних інструментів на ментальне здоров'я вчителів під час воєнного стану.

Матеріали та методи. Наприкінці 2022/2023 та 2023/2024 навчальних років було проведене рандомізоване опитування 920 (820 жіночої статі) вчителів з усіх регіонів України. Середній вік респондентів становив 45,5±0,4 року. Вчителі надали інформовану згоду і заповнили спеціально розроблений опитувальник. Симптоми тривоги та депресії визначали за допомогою опитувальників GAD-2 та PHQ-2.

Результати дослідження. Частка осіб з тривожними симптомами серед учителів становила 38,9±1,7%, а з депресивними – 45,6±1,7%. При цьому не було статистично достовірних відмінностей залежно від року спостереження, хоча серед жінок частка осіб, які відчувають симптоми депресії, була вищою, ніж серед чоловіків на 13,8%. 95,7% вчителів 1–4 класів, 86,4% вчителів 5–9 класів, 54,6% вчителів 10–11 класів інтегрували психологічні засоби в освітній процес. У 2023/2024 році майже 70% вчителів повідомили, що найефективнішими були дихальні вправи та такі засоби арт-терапії, як ізотерапія та музикотерапія. Розраховані логістичні регресійні моделі з урахуванням віку, статі, місця проживання, форми навчання, предмета та класу викладання не показали достовірних відмінностей імовірності розвитку симптомів тривоги та депресії залежно від того, проводили вчителі «психологічні хвилинки» чи ні.

Висновки. Результати цього дослідження вказують на необхідність перегляду підходів до впровадження програм психологічної підтримки вчителів у закладах загальної середньої освіти, а також свідчать про необхідність подальшого спостереження за учасниками освітнього процесу під час війни з метою удосконалення майбутніх стратегій підтримки ментального здоров'я.

Ключові слова: ментальне здоров'я, вчителі, психологічні інструменти, «психологічні хвилинки», навчальний процес.

Introduction. Applying psychological tools in education involves using various psychological strategies and interventions to support students and teachers [1]. These tools may include trauma-informed practices, mental health counseling and support, stress management techniques, resilience-building interventions, and psychoeducational interventions [2]. Integrating such approaches into the educational process during various challenges makes it possible to meet students' and teachers' social, emotional, and psychological needs and support mental wellbeing under challenging conditions. It is necessary to approach the introduction of new approaches in the educational process of children and adolescents, who bear the burden of war on an equal basis with adults, especially carefully and meticulously.

The research results on increasing the resilience of children in the conditions of military conflicts testify to the leading role of the influence of parents, schools, and society as a whole. At the same time, emphasizes the role of the school as a significant source of reducing the level of psychological stress of children and adolescents during the war [3]. During crisis events, there is an increase in empathy between students and teachers in schools [4]; therefore, to ensure the mental well-being of all participants in the educational process, it is necessary to conduct controlled interventions aimed at both students and teachers. Moreover, according to scientific studies conducted during the pandemic and in countries where hostilities took place, the level of anxiety and depression among teachers was higher than the average in the population since teachers are responsible for the safety of students [5-7].

Scientific studies have shown that implementing psychological interventions in schools significantly affects the mental health of schoolchildren both at the time of implementation and in the future [8; 9]. Therefore, taking into account the positive experience of such implementations, on the one hand, and the significant negative pressure of war factors - on the other, in 2022, the Ministry of Education of Ukraine recommended the implementation of measures for the regular use of psychological tools in the educational process under the name "psychological minutes" [10; 11]. Implementing these measures is ongoing, and monitoring of this process is necessary for their further use. However, in the available publications, we did not find information on the study of the specifics of implementing these measures at the population level. Therefore, the study aimed to assess the features of implementing "psychological minutes" in the educational process and the impact of these psychological tools on teachers' mental health during martial law.

Materials and methods. At the end of the 2022/2023 and 2023/2024 academic years, we conducted surveys with teachers from 102 publicly owned general educational institutions across various regions of Ukraine, including Kyiv, Zhytomyr, Ivano-Frankivsk, Chernivtsi, Lviv, Vinnytsia, Odesa, Mykolaiv, and Dnipropetrovsk regions. The schools were selected using a random number generator, and the survey link was sent out through the Departments of Education. Additionally, the questionnaire links were shared on the Facebook page of the State Institution "Marzieiev Institute for Public Health of the National Academy of Medical Sciences of

Ukraine". The survey was anonymous, and the teachers were provided with information about the study and asked to sign an informed consent. We considered the teachers' qualifications, teaching experience, subject of teaching, age, and place of residence. The PHQ-9 and GAD-2 questionnaires were also used to assess their depressive and anxiety symptoms. 920 teachers, 89.1% of whom were female, participated in the survey, with an average age of 45.5 ± 0.4 years.

In addition to general information and a survey about mental health, teachers answered three questions about "psychological minutes":

1. Do you use "psychological minutes" in the educational process? (Yes, No, Other)

2. If so, which elements do you consider most effective? (breathing exercises, body-oriented therapy, exercises for the development of interhemispheric interaction, drawing (art therapy), music (art therapy), other means of art therapy, other).

3. What recommendations do you follow when conducting "psychological minutes"? Teachers could write their arbitrary answers in this field.

We used crosstabulation tables to describe the features of conducting "psychological minutes", as well as correlation analysis (Spearman's coefficient) to determine the relationships of such indicators as conducting "psychological minutes", qualification, place of residence, features of migration and indicators of teachers' mental health. To calculate the odds, we used logistic regression models with indicators of anxiety and depression as dependent variables. The indicator "psychological minutes" was the predictor, and the above indicators were covariates. Calculations were made using the SPSS 26.0 program.

Results and discussion. In the study, 920 teachers participated, with 89.1% female. The average age of the participants was 45.5 years, and their average length of experience was 21.7 years (Table 1). There were no significant differences between the groups of research participants in 2023 and 2024 in terms of status, age, qualification categories, and teaching experience (p>0.1). Additionally, 77.5% of the participants lived in cities, aligning with the distribution of the Ukrainian population.

The respondents were distributed across different age groups as follows: 399 (43.4%) teachers aged 18 to 44, 397 (43.1%) teachers aged 45–59, and 124 (13.5%) teachers aged 60 and over. These teachers taught grades 1–4, 5–9, 10–11, and grades 1–9, 5–11, and 1–11. It was observed that among those who taught or conducted corrective and developmental classes in grades 1–4, the proportion of women was

Table	1
Table	

			Age groups							
Academic year	Sex	18-44 years old		45-59	years old	60 years	and older	experience,		
		n	%	n	%	n	%	years		
2022/2023	Male	21	63.6	9	27.3	3	9.1	11.7±2.2		
	Female	114	43.7	120	46.0	27	10.3	20.5±0.8		
	Total	135	45.9	129	43.9	30	10.2	19.5±0.8		
2023/2024	Male	35	52.2	20	29.9	12	17.9	18.5±1.8		
	Female	229	41.0	248	44.3	82	14.7	23.3±0.5		
	Total	264	42.2	268	42.8	94	15.0	22.8±0.5		
All sample		399	43.4	397	43.1	124	13.5	21.7±0.4		

Age and gender distribution of study participants for the years 2023-2024

higher than that of men. Conversely, among teachers of grades 5–11, 10–11, and 1–11, the proportion of men was higher ($\chi 2=39.4$; p<0.001) (Fig. 1).

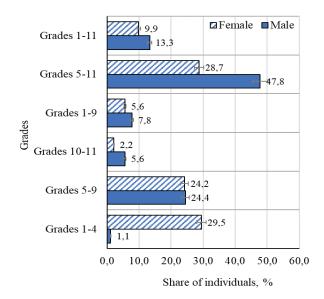


Fig. 1. Distribution of research participants' teaching by grade, %

Since many teachers taught several subjects, we grouped specialties according to respondents' answers. If the teacher taught biology, the basics of health, and geography, we assigned him to the group Biology, Chemistry, Basics of Health, Geography, Learning about Nature, and Ethics. According to the subject of teaching, the respondents were divided as follows: Primary school teacher 21.4±1.4%, Mathematics, Algebra, Geometry, Informatics, Physics, Technology 15.7±1.2%, Ukrainian language and literature, Foreign literature 14.7±1.2%, Foreign language 11.0±1.0%, Biology, Chemistry, Basics of health, Geography, Getting to know nature, Ethics 11.0±1.0%, Not specified 6.0±0.8%, Art 5.8±0.8%, Physical education, Defense of Ukraine 5.2±0.7%,

teacher's assistant, GPA educator, remedial and developmental classes $4.8\pm0.7\%$, History, Fundamentals of jurisprudence $4,6\pm0.7\%$.

It was established that during the 2022/2023 and 2023/2024 academic years, 84.4±1.4% of the teachers of the examined cohort implemented "psychological minutes" in the educational process, and no statistically significant differences were found between the data of 2022/2023 and 2023/2024 academic years ($\chi^2=0.2$; p=0.607). However, it was established that among female teachers (Fig. 2), the share of persons who introduced these methods into the educational process was significantly higher than among male teachers ($\chi^2=27.6$; p<0.001). This may be due to a more significant share of women among teachers of grades 1-4 and 5-9, who actively introduced "psychological minutes" into the educational process, which will be discussed in more detail below. According to the subject of teaching and place of residence, no statistically significant differences in the implementation of "psychological minutes" were found.

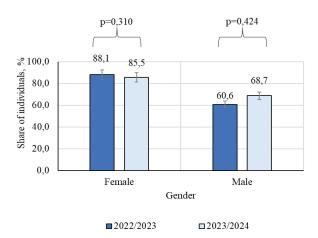


Fig. 2. The percentage of individuals who implemented "psychological minutes" into the educational process in the 2022/2023 and 2023/2024 academic years, %

It was established that "psychological minutes" were most often conducted by teachers of grades 1-4 and 5-9 and least often by teachers of grades 10-11 $(\chi 2=39.6; p<0.001)$. Thus, 95.7±1.3% of teachers of grades 1-4 and 86.4±2.5% of teachers of grades 5-9 used the integration of psychological tools in the educational process, and among teachers of grades $10-11 - 54.6 \pm 10.6\%$. Among those who taught in grades 1–9, 1–11, and 5–11, the share of those who used psychological approaches ranged from 83.3 to 84.3%. The research discovered a positive connection between the length of teaching experience and the use of "psychological minutes" among teachers (r=0.22; p < 0.001). This correlation was not impacted by the teachers' qualification category (r=0.1; p=0.178), location of residence (r=0.05; p=0.139), form of education (r=0.01; p=0.552), or mental health status (r=0.05; p=0.116 for signs of anxiety and r=0.02; p=0.533 for signs of depression).

We organized the teachers' responses and identified their goals for incorporating "psychological minutes" into their teaching practices and their methods to achieve this (Fig. 3). We categorized the responses into three interconnected blocks. The first block focuses on creating a calm and comfortable atmosphere in the classroom by using relaxation techniques to help students rest and better concentrate on their learning. The second block of responses aims to foster a positive attitude towards learning in the classroom by addressing the needs of the students, considering their thoughts and emotional state, and interacting with them with respect and care. The third block aims to divert children's attention from war-related events, calm them, and create a safe environment to develop stress resistance and empathy through personal experiences. In summary, teachers strive to establish a secure environment in the classroom to reduce stress levels and enhance students' performance, as recommended.

In the 2023/2024 academic year, teachers found breathing exercises and art therapy tools such as isotherapy and music therapy to be the most effective (Table 2). Teachers frequently used exercises to enhance interhemispheric interaction and art therapy methods like mandala therapy and fairy-tale therapy. Art therapy approaches were more common in the education of elementary and middle school students while talking for emotional support was more frequent with students in grades 10–11. Regarding gender differences, the most significant disparities in the use of psychological techniques were observed in the utilization of isotherapy by men and women (Table 2).

In the 2023/2024 academic year, teachers made significant changes in evaluating the effectiveness of the tools they used for their practice compared to the previous year. In the 2022/2023 academic year, 24.0±2.7% of teachers couldn't name practical tools for conducting "psychological minutes" and marked the field "other" without explanation. However, in the 2023/2024 academic year, only 2.1±0.6% of teachers marked the "other" box without comment. The frequency of individuals considering breathing exercises to be effective increased by 8.4%, and the frequency of individuals considering art therapy tools to be effective doubled. Additionally, the percentage of teachers relying solely on conversations to maintain students' emotional state decreased significantly. It is important to note that Table 3 data does not add up to 100%, as teachers could choose multiple answer options and write additional comments.

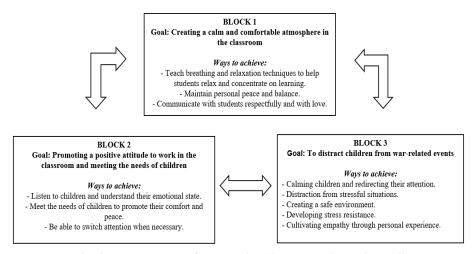


Fig. 3. The purpose of conducting "psychological minutes" and ways to achieve it according to teachers, 2023–2024

2023/2024 academic year, 70									
Tools		S	~~ ²						
	Fem	ale	Mal	e	X	р			
Breathing exercises	67.4	2.1	65.2	7.0	0.09	0.767			
Music therapy	60.3	2.2	45.7	7.3	3.70	0.055			
Isotherapy	52.9	2.3	28.3	6.6	10.22	0.001			
Body-oriented therapy	25.5	2.0	19.6	5.8	0.79	0.372			
Interhemispheric interaction	20.5	1.8	17.4	5.6	0.25	0.616			
Other means of art therapy	12.6	1.5	10.9	4.6	0.11	0.741			
Psychogymnastics, kinesiotherapy, self-training	10.5	1.4	10.9	4.6	0.01	0.931			
Conversations, emotional support	5.2	1.0	6.5	3.6	0.14	0.710			
Other	1.7	0.6	6.5	3.6	4.80	0.029			

Effectiveness Rating of psychological tools during "psychological minutes", 2023/2024 academic year, %

Table 3

Comparative analysis of the effectiveness of psychological intervention tools in the educational process based on teachers' opinions for the academic years 2022/2023 and 2023/2024, %

Academic year Breathing exercises		Body-oriented therapy		Art therapy		Conversations, emotional support		Other		
	%	m	%	m	%	m	%	m	%	m
2022/2023	58.8	3.1	22.0	2.6	38.0	3.1	42.4	3.1	24.0	2.7
2023/2024	67.2	2.1	25.0	1.9	78.2	1.8	5.3	1.0	2.1	0.6
χ^2	5.2		0.8		122.8		162.4		97.4	
p	0.023	.023 0.361		361			0.001		0.001	

Teachers have reported that in implementing "psychological minutes", they follow methodological recommendations from the Ministry of Education of Ukraine and engage in courses on endorsed platforms. For instance, they utilize tools and methods from the resources mentioned in the Ministry of Education's letter dated 02.08.2022 No. 1/8794-22 concerning the psychological service's activities in the education system for the 2022/2023 academic year, the "On Lesson" online project, "Vseosvita", the HAPPY MIND psychological simulator, and the "Psychological minute" educational guide. One in every ten teachers also adhered to the school psychologist's recommendations.

In light of the challenges and stress associated with teaching, especially during wartime, we aimed to investigate whether using psychological techniques in teaching impacts teachers' mental health. We examined the frequency of anxiety and depressive symptoms among teachers and used a logistic regression model to compare the likelihood of developing these symptoms between groups that use "psychological minutes" and those that do not. Table 4 shows the incidence of anxiety symptoms among teachers was $38.9\pm1.7\%$, and depressive symptoms were $45.6\pm1.7\%$. There were no statistically significant differences by observation year, though the rate of depressive symptoms in women was notably higher than in men ($\chi 2=5.8$; p=0.016), and the rate of anxiety symptoms did not significantly vary by gender ($\chi 2=3.3$; p=0.066).

Although most teachers incorporate psychological tools into the educational process, the prevalence of anxiety and depressive symptoms among teachers remains high. By the end of the 2023/2024 academic year, $27.4\pm5.7\%$ of male teachers and $39.9\pm1.8\%$ of female teachers showed clinically significant symptoms of anxiety. The corresponding values for depressive symptoms were $30.7\pm5.9\%$ for male teachers and $46.9\pm1.8\%$ for female teachers. However, our study indicated a decrease in the percentage of teachers experiencing symptoms of anxiety and depression in the 2023/2024 academic year compared to the 2022/2023 academic year, especially among male teachers.

We created logistic regression models that took into account age, gender, place of residence, level of education, subject taught, and grade level. The findings did not reveal any variations in the probability of experiencing anxiety and depression symptoms based on whether teachers conducted "psychological minutes" or not. Only gender and grade level of teaching were found to be significant for depression (Table 5).

Table 4

Percentage of teachers experiencing anxiety and depressive symptoms, categorized by gender and academic year, %

Sex	A	A	nxiety symj	ptoms	De	Depression symptoms			
	Academic year	n	%	m	n	%	m		
	2022/2023	8	36.4	10.3	9	40.9	10.5		
	2023/2024	17	27.4	5.7	19	30.7	5.9		
Male	Total	25	29.8	5.0	28	33.3	5.1		
	χ^2	0.62			0.77	0.77			
	р	0.431			0.380				
	2022/2023	90	40.5	3.3	110	49.5	3,4		
	2023/2024	216	39.6	2.1	250	45.9	2,1		
Female	Total	306	39.9	1.8	360	46.9	1,8		
	χ^2	0.05	0.05			0.86			
	p	0.816			0.355				
All participants		331	38.9	1.7	388	45.6	1.7		

Table 5

Likelihood of developing anxiety and depression symptoms among teachers during wartime, based on spatiotemporal factors, age, gender, and professional attributes

	Depr	ession syn	iptoms		Anxiety symptoms			р
Predictors and covariates	OR	Confidence interval		р	OR	Confidence interval		
Year	0.83	0.60	1.15	0.262	0.84	0.60	1.17	0.294
"Psychological minutes"	1.15	0.74	1.77	0.536	1.52	0.96	2.42	0.074
Form of education	1.06	0.89	1.25	0.524	0.98	0.83	1.17	0.839
Grade	1.10	1.01	1.20	0.032	1.11	1.02	1.21	0.015
Subject	1.00	0.95	1.06	0.929	0.99	0.93	1.05	0.680
Place of residence	0.99	0.71	1.39	0.971	1.21	0.86	1.70	0.280
Sex	1.92	1.18	3.14	0.009	1.63	0.98	2.70	0.058
Age groups	0.82	0.67	1.01	0.064	1.00	0.81	1.23	0.973

Since we did not find any differences in the likelihood of teachers developing symptoms of anxiety and depression based on whether they use "psychological minutes" in the educational process, it is essential to review and update psychological support programs for this group. Regular monitoring of mental health indicators and exploring new approaches are necessary to prevent trauma and burnout.

The importance of understanding one's mental health state and integrating self-help strategies into teacher training programs is emphasized by Granada-López et al. [12]. However, there is currently insufficient scientific research on supporting the mental health of school teachers [13]. It is crucial to emphasize certain aspects that could enhance the support for teachers' mental health. In training teachers with psychological tools, the focus should be on competencies that preserve their resources. Prioritizing mental health support is essential to prevent resource depletion and mitigate burnout risk, mainly as many teachers show signs of anxiety and depression. Educational institutions ought to implement mental health screenings for everyone in the educational process, considering the resources at hand and the feasibility of using psychological assessment tools.

Conclusions. In summarizing our research findings, it is observed that most teachers employ "psychological minutes" to stabilize the emotional states of school-aged children amidst the war. Teachers adhere to the Ukrainian Ministry of Education's recommendations and engage in specialized courses and training. Teachers of grades 1–4 tend to utilize psychological tools more frequently than those teaching grades 5–11, independent of their place of residence. Additionally, teachers with more experience are more likely to

use psychological tools. Over 70% of the surveyed teachers consider breathing exercises the most effective method for stabilizing the emotional states of children and adolescents.

The study found no significant differences in anxiety or depressive symptoms among teachers based on their use of psychological tools. This suggests a need to reevaluate the approaches to psychological support programs for teachers in general secondary education. It is also necessary to continue monitoring the mental health of educational process participants during martial law to improve future mental health support strategies.

Conflict of interest. The authors declare that they have no conflicts of interest.

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