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Abstract:

This study examines the mental health of students from Kyiv universities, considering the context of 21 months of war in Ukraine. Our primary dataset is derived from an online survey. Employing Ordinary Least Squares (OLS) regression, we analyze two key facets of mental health: anxiety levels and safety perception. Our findings reveal that anxiety levels among students are primarily shaped by the frequency of contemplation regarding the ongoing war and their emotional responses to war-related news. Similarly, obsessive thoughts about the war negatively impact safety perception, a trend that, however, tends to diminish for students studying abroad during the conflict. Conversely, for students who remain in Ukraine, the absence of psychological support from the university exacerbates the situation, contributing to a significant decrease in the sense of safety.

Keywords: Anxiety, safety perception, mental health, wartime, Ukraine

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War exerts diverse effects on individuals, prominently manifesting negative repercussions on mental health. This impact is particularly pronounced among the youthful demographic, notably students, who bear a dual burden of stress. These individuals not only struggle against the permanent threat of missile attacks but are also expected to persist in their educational pursuits. This dual demand places them in a challenging position as they endeavor to cope with the adversities of war while simultaneously laying the groundwork for their future careers and the collective skill reservoir of the nation.

This study examines mental health within the student population in Kyiv during November 2023. Our primary objective is to define which young individuals bear a greater impact from the ongoing conflict in Ukraine. Additionally, our analysis aims to identify the primary predictors influencing students' mental health and ascertain whether the mode of study plays a role in causing mental issues amidst the backdrop of war.

Previous investigations into the influence of military conflicts on mental well-being have established that war induces multifaceted effects on individuals. War is usually associated with the upheaval of daily routines, reallocation, disruption of social networks, and exposure to death that contribute to a spectrum of mental health challenges. Consequently, those directly exposed to the experience of war tend to exhibit elevated levels of anxiety, depression, stress, and symptoms related to trauma. Moreover, these repercussions tend to be more severe for individuals who were already predisposed to anxiety and depression or had even mild pre-existing mental health issues.

Recent studies concentrating on the Russian invasion have validated the aforementioned findings for the case of Ukraine (Osokina et al. 2023). Furthermore, local research has expanded its scope by juxtaposing the mental health outcomes of individuals fleeing Ukraine with those who opted to remain within the country. Intriguingly, this research concludes that individuals who chose to stay

in Ukraine exhibited notably lower levels of anxiety, depression, stress, and trauma-related symptoms in comparison to their counterparts who relocated abroad.

Finally, a subset of scholars posits that warfare introduces an additional adverse influence on young individuals by compelling a shift towards online learning as opposed to traditional offline modalities. Their findings primarily show that remote learning proves less efficacious for students when contrasted with face-to-face learning, with these repercussions being particularly pronounced for students in the initial stages of their academic pursuits (Wang 2023). The mental challenges arise from the fact that young individuals often struggle to adapt and communicate effectively in a novel social environment, while online forms of studies hinder the development of trusting interpersonal relationships with peers and educators (Wang 2023).

Despite the wealth of prior research, several gaps still persist, particularly in the context of Ukraine. Previous studies predominantly focused on Ukraine before the full-scale invasion, neglecting to account for the war implications on young individuals when the conflict extends across the entire territory, as opposed to being localized as was the case in 2013. This study seeks to address this gap by conducting an analysis of the current mental health status among students in Kyiv universities, taking into consideration both the direct impact of war through exposure to news and the indirect impact associated with the transition to online forms of study.

Our primary data for this analysis come from an online survey conducted and administered by the authors in November 2023. The sampling strategy relied on voluntary participation, affording interested students the opportunity to contribute. Overall, 184 students participated in this survey. We recognize that there may be a selection bias in our sample, given that participants may be more self-aware of their mental health issues than non-participants. The sampled individuals ranged in age from 18 to 25, with a mean age of 18.6 years. The gender distribution indicated that 70.3 percent of respondents were female, while 29.7 percent were male. Additionally, half of the respondents were students of the Kyiv School of Economics, reflecting the authors' affiliation with this university and their facilitated access to the study population.

Our dependent variable is mental health, operationalized through two measures: anxiety levels and feelings of safety. Participants express their anxiety level and perceived safety by selecting a value from a range of 1 to 10, where higher values indicate increased anxiety or a heightened sense of safety.

Our primary independent variables include the following measures:

1. Emotional impact of war news (1 = yes, 0 = no): Indicates whether individuals feel emotionally affected by war-related news.
2. Obsession with thoughts about war: Captures the extent to which individuals feel consumed by thoughts related to the war.
3. Location change after February 2022 (1 = location is now different from pre-war, 0 = location remains the same): Indicates whether there has been a change in the individual's location since the escalation of the conflict.
4. Current location (1 = abroad, 0 = in Ukraine): Specifies whether the student is currently situated abroad or within Ukraine.
5. University-provided shelters (1 = yes, 0 = no): Indicates whether the university offers shelters for students.
6. University-provided psychological support (1 = no, 0 = yes): Specifies whether the university provides psychological support services.

Changes in study forms are captured by a relative dummy variable, indicating whether the current form of study differs from the pre-war form. The constant form of study, irrespective of whether it was online, offline, or mixed, serves as the reference category. Lastly, we include control variables for the student's year of study, gender (1 = male, 0 = female), and living arrangements (1 = living alone, 0 = not living alone). These controls help account for potential confounding factors in our analysis.

We are utilizing an Ordinary Least Squares (OLS) regression to examine the impact of selected predictors on anxiety and safety among Kyiv students, given that both dependent variables are measured on a ten-point scale. The findings, as outlined in Table 1, reveal noteworthy insights.

In summary, exposure to war-related news is found to be a significant factor contributing to increased anxiety levels among young individuals. However, intriguingly, this exposure does not exhibit a discernible association with perceptions of safety. While the presentation of war in the news raises awareness of potential dangers, it does not appear to directly influence the perceived safety levels of young individuals. By contrast, individuals who frequently contemplate thoughts about war tend to exhibit elevated levels of anxiety and a diminished sense of safety. This suggests that the internalization and persistent consideration of war-related thoughts contribute significantly to the mental well-being of students. These nuanced findings emphasize the importance of distinguishing between external exposure to war-related information and the internal cognitive processes individuals engage in when contemplating such events.

The phenomenon of displacement, denoting the relocation to another region following the full-scale invasion, exhibits no significant correlation with either anxiety or safety among young individuals. This absence of any association may be attributed to the inherent high adaptability of young people to new environments, suggesting that relocation does not exert a substantial negative impact on their mental health (Reupert 2020). By contrast, students currently residing abroad express a heightened sense of safety compared to their counterparts in Ukraine. Contrary to prevailing research, those abroad do not demonstrate elevated anxiety levels, potentially reflecting the ease with which young individuals navigate new environments, framing the experience as positive rather than detrimental.

Furthermore, anxiety levels among Ukrainian students appear unaffected by the access to psychological support at the place of study. However, the presence of psychological services at the university does influence their perception of safety. Students whose universities lack such services report feeling less safe. Conversely, the availability of shelters at the place of study does not impact anxiety or safety perception. This could be explained by the prevailing trend in Ukraine, where missile attacks no longer drive people to seek shelter but rather disrupt their daily routines.

The change in the form of study does not seem to influence safety perception among students in Kyiv universities. However, transitioning from online to a mixed form appears to correlate with

decreased anxiety. The mixed form of study offers increased opportunities for socializing and participation, fostering a sense of belonging that may mitigate anxiety levels and counteract the feelings of isolation associated with online studies. Conversely, a shift from a fixed form to offline studies is associated with increased anxiety levels. These findings diverge from prior research, suggesting that the impact of the study format during war conditions differs from that observed during the COVID-19 pandemic. The disruption of routines, economic paralysis, and transportation challenges during war make offline studies more stressful, especially in regions facing daily attacks.

Additionally, our results reveal that master's students, particularly those in their second year, experience higher levels of anxiety compared to bachelor students. The heightened anxiety may stem from the increased uncertainty surrounding job prospects created by the ongoing conflict. These effects are also mirrored in safety perception, indicating that first-year master's students feel less safe than their first-year bachelor counterparts. Additionally, third-year bachelor students also exhibit lower safety levels than first-year students, while fourth-year bachelor students show no significant difference in safety perception compared to first-year bachelor students, most likely due to a small number of such students in our sample. This suggests that as students approach the conclusion of their studies, even at the bachelor's level, they may experience a decrease in safety perception.

Lastly, our results suggest that male students demonstrate lower anxiety levels and a heightened sense of safety compared to their female counterparts. This observation is consistent with existing research indicating that females tend to be more emotionally responsive and less resilient to stressors (Verma et al. 2011). It is noteworthy that this gender-related difference in mental health resilience among males persists even in the context of wartime, where there is a constant risk of conscription into the military for men.

Overall, our findings indicate that anxiety levels among the young population engaged in educational pursuits in times of war are primarily influenced by the frequency of thinking about war and, to a certain extent, by their emotional response to war-related news. For instance, anxiety levels of students who think about war only once a week are, on average, 2.226 units lower than

among students who are obsessed with such thoughts on a constant basis. Similarly, students influenced by war-related news exhibit anxiety of 0.943 units higher than their counterparts unaffected by such news. Furthermore, students tend to experience an escalation in anxiety towards the conclusion of their studies. Master's students, in particular, report anxiety levels approximately two units higher compared to first-year bachelor students. Additionally, anxiety tends to be 2.17 units higher among females than males.

Persistent obsessive thoughts about war are also associated with a negative impact on safety perception. For example, individuals who constantly contemplate war exhibit safety perception measures that are 2.772 units lower compared to those who think about war only once a day. As students approach the end of their studies, there is a trend of declining safety perception, with master's students feeling approximately 1.1 to 1.7 units less secure than first-year bachelor students. However, students studying abroad during the conflict experience an increase in safety perception, reporting safety of 2.08 units higher than students located in Ukraine. Conversely, for students remaining in Ukraine, the absence of psychological support from the university exacerbates the situation, contributing to a decrease in safety perception by about 1.063 units. Lastly, males demonstrate a greater resilience to the impacts of war and consequently report, on average, safety levels of 1.288 units higher than females. These impacts can be considered essential, given that both anxiety and safety are measured from 1 to 10.

We summarize the effects of statistically significant predictors in Figure 1. The reported coefficients are directly comparable since all the variables in the model are binary. Our research findings suggest several policies to enhance the mental health of students during the ongoing war in Ukraine.

Firstly, we recommend that universities provide psychological support services to assist students in coping with the mental strain induced by war-related thoughts. Engaging with specialists to discuss obsessive thoughts about war can be therapeutic, aiding students in navigating challenging circumstances. Furthermore, integrating psychological services within universities may alter student perceptions, fostering a more positive attitude towards seeking psychological support.

Therefore, legislation mandating the establishment of such services at universities could contribute to minimizing the adverse mental health effects of the ongoing conflict on young individuals.

Secondly, we propose the provision of job-search support programs for students nearing graduation, addressing the heightened uncertainty they face in securing employment during wartime. By offering targeted support, universities can mitigate the stress associated with job search in conflict conditions, thereby contributing to the preservation of the overall health and psychological well-being of the young population. The establishment of placement offices for youth, organized by universities, can reduce uncertainty in accessing labor market opportunities and facilitate the retention of young, highly qualified individuals within the country.

Lastly, we recommend developing tailored policies to address the distinct impact of war conditions on female students. Recognizing and responding to their heightened vulnerability to stress can support their resilience in the face of challenges and contribute to their overall well-being during the ongoing conflict. For instance, there can be trauma-informed counseling and support centers within or in close proximity to educational institutions in conflict zones, exclusively for female students. In addition, universities can employ counselors to understand and address the unique psychological and emotional challenges that female students may experience during wartime.

The proposed policies may create a supportive environment for students, acknowledging the diverse challenges they face during wartime. By addressing mental health needs through targeted interventions, universities can play a crucial role in fostering the well-being and resilience of the young population in Ukraine.

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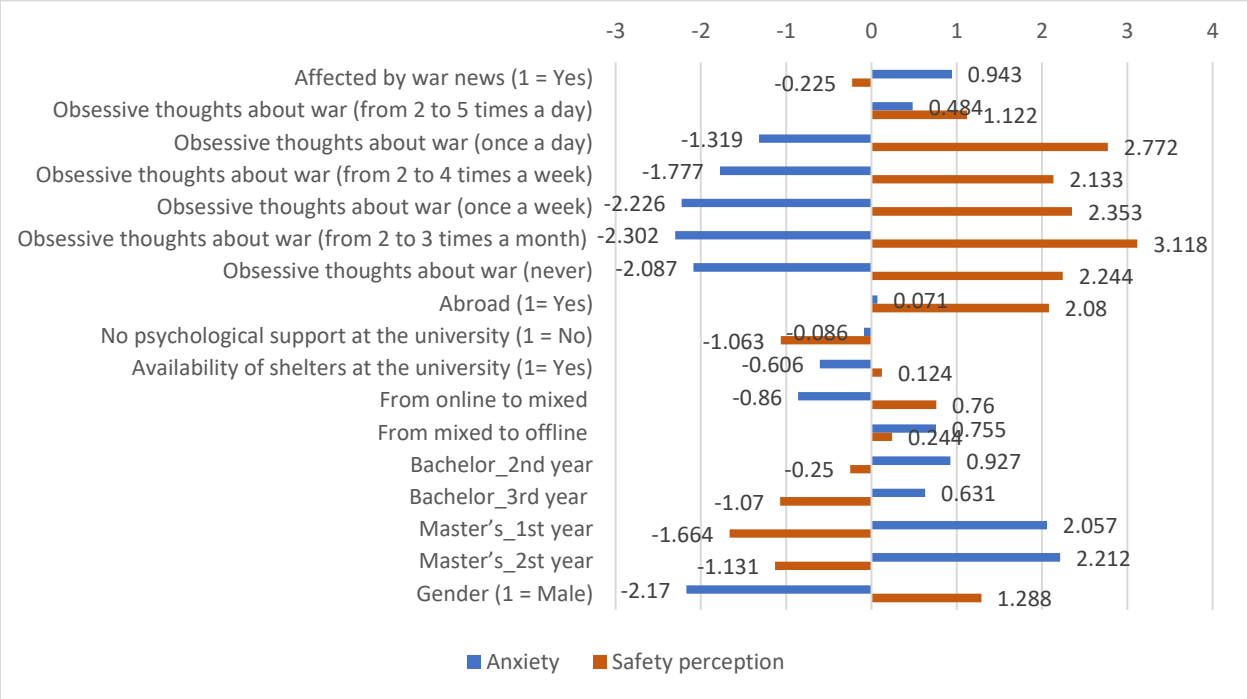
Figure 1: Coefficients on statistically significant predictors.



Notes: *Only coefficients that have been statistically significant for at least one of the dependent variables (anxiety or safety perception) are presented in the visualization.*

Table 1. The summary of regression analysis results

	Dependent variables:	
	Anxiety	Safety perception
Affected by war news (1= Yes)	0.943***	-0.225
	(0.330)	(0.321)
Frequency of obsessive thoughts about war		
Constantly	Reference category	Reference category
2 to 5 times a day	0.484	1.122
	(0.997)	(0.967)
Once a day	-1.319*	2.772***
	(0.743)	(0.721)
2 to 4 times a week	-1.777**	2.133***
	(0.754)	(0.732)
Once a week	-2.226***	2.353***
	(0.747)	(0.725)
2 to 3 times a month	-2.302***	3.118***
	(0.701)	(0.680)
Never	-2.087***	2.244***
	(0.789)	(0.765)
Community change (1= Yes)	0.312	0.016
	(0.361)	(0.350)
Abroad (1= Yes)	0.071	2.080***
	(0.536)	(0.520)
No psychological support at the university	-0.086	-1.063**
	(0.543)	(0.527)
Availability of shelters at the university (1= Yes)	-0.606	0.124
	(0.620)	(0.602)
Change in study format		
No change	Reference category	Reference category
From online to offline	0.442	0.093
	(0.452)	(0.439)
From offline to online	2.959	1.430
	(2.059)	(1.998)

From online to mixed	-0.860*	0.760
	(0.483)	(0.469)
From offline to mixed	-1.186	0.408
	(1.137)	(1.104)
From mixed to online	-0.224	-1.315
	(0.948)	(0.920)
From mixed to offline	0.755*	0.244
	(0.436)	(0.423)
Year of study		
Bachelor_1st year	Reference category	Reference category
Bachelor_2nd year	0.927**	-0.250
	(0.469)	(0.455)
Bachelor_3rd year	0.631	-1.070***
	(0.412)	(0.400)
Bachelor_4th year	-0.285	-1.122
	(0.702)	(0.681)
Master's_1st year	2.057**	-1.664*
	(0.942)	(0.914)
Master's_2st year	2.212**	-1.131
	(1.115)	(1.082)
Gender (1 = Male)	-2.170***	1.288***
	(0.347)	(0.336)
Live (1 = Alone)	-0.119	-0.452
	(0.334)	(0.324)
Constant	7.001***	4.047***
	(1.017)	(0.987)
Observations	184	184
R^2	0.409	0.363
Adjusted R^2	0.320	0.267
Residual Std. Error (df = 159)	1.953	1.895
F Statistic (df = 24; 159)	4.585***	3.778***

Notes: *** p<0.01, ** p<0.05, * p<0.1.