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THE IMPACT OF TRAUMA ON MENTAL HEALTH AND VIOLENCE IN UKRAINE¹

During the past couple of years, Ukrainians have been experiencing major traumatic and stressful events, including the Russian annexation of Crimea and the war against Ukraine that started in 2014 and is ongoing. Moreover, in 2020, the whole world faced another disaster – the COVID-19 pandemic. Undoubtedly, such cumulative adverse events negatively influence life outcomes of this vulnerable population. Prior research has shown that pandemic and war-related stress can affect mental health and violent behaviour. However, there is a gap in the literature focusing on how various contemporary traumatic events, including war exposure and associated stressors, shape mental health and violence among Ukrainians. This study uses survey data recently collected among adults in Ukraine, which is a part of the larger project “A Cross-National Study of the Global Pandemic, Deviance and Health,” and conducts a series of regression analyses. It draws on two major theoretical perspectives in criminology and medical sociology, to examine how traumatic conditions, including exposure to war and pandemic-related stressors (contracting the virus and daily problems) influence depression and violence among Ukrainian people. First, using regression models, we found a significant relationship between reporting exposure to disasters (e.g., war, genocide) and depressive symptoms. Additionally, we found that those who experienced health stress (i.e., have contracted the virus) were more likely to report depressive symptoms. Further, Ukrainians reporting more family problems and financial issues experienced higher levels of depression. Next, we found that reporting frequent family problems and financial issues increased the likelihood of violent behaviour among Ukrainian residents. On the other hand, health stress and war exposure reports were not significantly associated with violence, which could potentially be attributed to stress reaching a ceiling effect, where Ukrainians may feel “numb” to traumatic conditions they experience routinely. Finally, we provide suggestions for future research and discuss implications for policy and practice.

Keywords: stress, trauma, depression, violence, war, Russian invasion, pandemic, Ukraine.

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ВПЛИВ ТРАВМИ НА ПСИХОЛОГІЧНЕ ЗДОРОВ'Я ТА НАСИЛЬСТВО В УКРАЇНІ

Протягом останніх кількох років українці пережили серйозні травматичні та стресові події, зокрема російську анексію Криму та війну проти України, яка розпочалась у 2014 р. та досі триває. Крім того, у 2020 р. весь світ зіткнувся з ще однією проблемою – пандемією COVID-19. Такі кумулятивні несприятливі події негативно впливають на життя українського населення. Попередні дослідження показали, що стрес, пов'язаний з пандемією та конфліктом, може впливати на психологічне здоров'я та насильницькі дії. Проте в літературі наявна прогалина щодо того, як різноманітні сучасні травматичні події (катастрофи та пов'язані з ними стресори тощо), впливають на психологічне здоров'я та насильство серед українців. У цьому дослідженні використовуються дані опитування серед повнолітніх українців, яке є частиною більшого проєкту “Міжнаціональне дослідження глобальної пандемії, девіантних поведінок і здоров'я”, і проводиться серія кількісних регресійних аналізів. Це дослідження спирається на дві теорії в кримінології та медичній соціології, щоб дослідити, як травматичні умови (зокрема, вплив війни) і стресові фактори, пов'язані з пандемією (зараження вірусом і щоденні проблеми), впливають на депресію та насильство серед українців. Використовуючи регресійні моделі, ми виявили зв'язок між повідомленнями про вплив катастроф (наприклад, війни, геноциду) та симптомами депресії. Особи, які пережили стрес щодо їхнього здоров'я (заразились вірусом), частіше повідомляють про симптоми депресії. Крім того, українці, які повідомляють про більший рівень сімейних проблем і фінансових проблем, відчувають більший рівень депресії. Виявлено, що наявність сімейних і фінансових проблем підвищує ймовірність насильницької поведінки серед жителів України. Водночас стрес щодо здоров'я та повідомлення переживання війни не пов'язані з насильством. Це потенційно можна пояснити тим, що стрес, можливо, досягає “ефекту стелі”, коли українці відчувають себе “онімілими” до травматичних умов, які вони переживають регулярно. Надаємо пропозиції щодо майбутніх досліджень і обговорюємо ідеї для вирішення проблем, пов'язаних зі стресом і травмою.

Ключові слова: стрес, травма, депресія, насильство, війна, російське вторгнення, пандемія, Україна.

Ukraine has experienced numerous traumatic and stressful conditions for the past couple of years. In 2014, Russia invaded Ukraine's Crimean Peninsula and started a war against Ukraine [1; 2]. This war displaced about 1,5 million people and tens of thousands of deaths and injuries².

As the war of Russia against Ukraine continued, Ukraine faced a global public health emergency – the COVID-19 pandemic. In addition to its negative health impact, the global pandemic has changed people's daily routines, instilled constant stress, and even affected violent and deviant behaviours [3]. In Ukraine, the pandemic had a “magnifying” effect (in

² Council on Foreign Relations. (2021). Global Conflict Tracker. URL: <https://www.cfr.org/global-conflict-tracker/conflict/conflict-ukraine>; With barely enough money for food, conflict-displaced Ukrainians struggling to survive – UN. (2017). United Nations. URL: <https://news.un.org/en/story/2017/05/557412-barely-enough-money-food-conflict-displaced-ukrainians-struggling-survive-un>

addition to war) on the health and well-being of the population [4]. Unfortunately, the Ukrainian healthcare system has been underfinanced and lacked resources to fully address the physical and mental health needs of Ukrainians [5].

Most recently, on February 24, 2022, the war escalated into a full-scale Russian invasion of Ukraine that involved mass killings and continuous missile attacks across Ukraine. According to United Nations official data, as of September 11, 2023, the full-scale invasion has caused the death of over 27,000 civilians³. An estimated 6,2 million people had to flee Ukraine, and 5,1 million have been internally displaced [6]. Research has found that individuals in Ukraine experience continuous victimization and various daily challenges, including financial issues, family conflict, prejudice, and others [7; 8]. Moreover, due to destroyed or overcrowded hospitals, many individuals currently cannot receive medical attention [9].

Recent research has emphasized the detrimental effects of war and violence exposure on mental and physical health, beliefs, and behaviours among combatants and veterans [1; 10; 11]. However, little is known about the behavioural consequence of war exposure among civilians in contemporary war-torn societies [11]. Moreover, studies on how multiple traumatic and stressful experiences shape mental health and violent behaviour among Ukrainian civilians during the most recent Russian full-scale invasion are practically non-existent. We use data from a recently launched international survey, “*A Cross-National Study of the Global Pandemic, Deviance and Health*” and draw on two major criminological and medical sociology perspectives, general strain theory and the stress-process paradigm, to analyze how major traumatic and stressful life events such as war exposure and pandemic-related stress – have shaped mental health and violent behaviour among civilians in Ukraine. Understanding the risk factors for health and behavioural issues will allow us to develop more nuanced and theoretically- and evidence-based programs and policies assisting this vulnerable population.

The stress process model: stress and mental health. Pearlin and colleagues developed the stress process model, which outlines the relationship between major stressful events and mental health outcomes [12]. This model suggests that adverse life events and conditions such as economic issues, family conflict and others can be conceptualized as stressors that restructure daily lives and negatively influence individuals’ mental and physical health [12; 13]. Consistent with this paradigm, war and pandemic exposures can be understood as major stressors that tend to restructure people’s daily routines and instil additional aversive conditions [14; 15]. For example, during both war and the pandemic, people feel constant threat to health and safety and may experience numerous daily hassles ranging from individual frustrations to major life-threatening events.

Prior research has supported the link between the COVID-19 pandemic and mental health issues, including depression, anxiety, psychological distress, and worsening psychiatric conditions [16; 17]. In addition, studies have found that exposure to war negatively affects mental health and depression in particular [15; 18; 19]. Importantly,

³ Ukraine: Civilian casualty update 11 September 2023. (2023). UNHR. URL: <https://www.ohchr.org/en/news/2023/09/ukraine-civilian-casualty-update-11-september-2023>

however, there is a gap in the literature empirically assessing how war exposure and pandemic-related stress shape depression among Ukrainians during the ongoing full-scale Russian invasion of Ukraine.

The general strain theory: stress and violence. The General Strain Theory (GST) in criminology suggests that people can experience strain/stress when exposed to major adverse events, which, in turn, may lead to negative emotions and crime/violence as a coping strategy [20; 21]. Consistent with GST, individuals in Ukraine, a country that suffers from war and the global pandemic, can experience various strains such as the inability to receive education or find employment (i.e., failure to achieve positively valued stimuli), family conflict and financial issues (i.e., presentation of negative stimuli), and loss of loved ones or property (i.e., removal of positive stimuli). Together, these experiences can push individuals to try to “fix” strain or emotions associated with it, and violent outbursts can be one such coping strategy [21]. Violent behaviour to cope with stress is especially likely if individuals can not engage in normative behavioural strategies like seeking social support [21].

Recent research has linked war exposure and violent behaviour [22; 23]. For example, Timmer and colleagues have conducted the first study addressing the war exposure-violence link among civilians in Ukraine [23]. They have found that direct (e.g., being present at a war site) and indirect (e.g., watching the news) war exposure increases the likelihood of violence in Lviv and Kharkiv. Focusing on another global disaster, the COVID-19 pandemic, several studies have found that pandemic-related stress (physical, social, and economic stressors) increases intimate partner violence among adults in the United States [24; 25]. Research has also shown that domestic and intimate partner violence has increased in Ukraine during the pandemic likely due to individuals spending more time at home, where they can become more vulnerable to their abusers [26]. Additionally, different kinds of violence have increased during the war against Ukraine as individuals have been limited in their ability to escape, contact their loved ones, or reach the necessary government organizations to get help [27]. However, there are still gaps in the literature addressing empirically how important trauma-related predictors, including perceptions of war exposure and pandemic stressors, influence violent behaviour in Ukraine.

Present study and hypotheses. This study focuses on how major stressors related to multiple disasters in Ukraine shape important health and behavioural life outcomes. Specifically, **this study aims** to assess how traumatic conditions, including exposure to war and pandemic-related stressors (contracting the virus and daily problems), influence depression and violence. Overall, the study tests the following hypotheses:

Hypotheses 1-4. Contracting the COVID-19 virus (1), experiencing higher levels of family problems (2) and financial problems (3), and reporting exposure to war (4) are associated with higher levels of depression.

Hypotheses 5-8. Contracting the COVID-19 virus (5), experiencing higher levels of family problems (6) and financial problems (7), and reporting exposure to war (8) are associated with higher levels of violent behaviour.

Data and Methods. The research team used data from the international online survey “*A Cross-National Study of the Global Pandemic, Deviance and Health*” to test the hypotheses mentioned above. This study aimed to better understand important health and behavioural

outcomes among adults cross-nationally during the COVID-19 pandemic. This study took place between November 2021 and September 2022 and involved surveying anonymously online via Google Forms adults across six countries: Ukraine, Guatemala, the United States, Denmark, the Netherlands, and Pakistan. The study's authors are professors from Sam Houston State University and California State University, Northridge. In addition to the primary team, Socioinform, a reputable Ukraine-based research organization, was contracted to assist with sharing and distributing the survey online among Ukrainian respondents⁴. Respondents were asked about their experiences in public health emergencies, violence, health-related outcomes, beliefs, and other essential domains of life. The questionnaire included items used and validated in prior research in Ukraine [14; 15; 23] and new measures not comprehensively operationalized in past research.

The US Institutional Review Board (IRB) reviewed and approved this research. Those 18 years old or older who resided anywhere within Ukraine were eligible to participate in the study. The questionnaire was written in English and then translated into Ukrainian by researchers fluent in both languages. The survey was pretested among Ukrainian adults and then revised based on those pretests prior to launching the full-scale study. The team used non-randomized and snowball sampling techniques to collect data; importantly, however, the researchers took steps to ensure that participants from different age groups, genders, and other demographics were included in the study, as well as that their demographics were relatively similar to census population characteristics of Ukraine. The research team advertised and shared the survey via group emails, messaging, social media, posters, and other similar means. The total analytic sample consisted of 773 respondents in Ukraine.

Measures and analytic strategy. *Dependent variables.* Our dependent variables of interest are depression and violent behaviour. *Depression* was measured using the commonly used scale [28]. Respondents were asked to report the extent to which they experienced any of the following in the past two weeks: 1) little interest or pleasure in doing things; 2) feeling low, depressed or hopeless; 3) trouble falling or staying asleep or sleeping too much; 4) feeling tired or having little energy; 5) poor appetite or overeating; 6) feeling bad about themselves – or that they are a failure or have let themselves or their family down; 7) trouble concentrating on things, such as reading the newspaper or watching television; 8) moving or speaking so slowly that other people could have noticed, or the opposite – being so fidgety or restless that they have been moving around a lot more than usual; and 9) thoughts that they would be better off dead, or hurting themselves in some way. Response ranged from 1 (not at all) to 4 (a very great degree) and were added together into an index, where higher scores indicated higher levels of depression ($\alpha = 0,90$). *Violent behaviour* was measured by asking respondents the frequency of engaging in three violent acts since the pandemic started: 1) hitting another person when being emotional; 2) threatening to harm another person; 3) physically harming another person. Responses ranged from 0 (never) to 4 (very often) and were added together to represent the index of violent behaviour ($\alpha = 0,84$).

Independent variables. We incorporated several variables reflecting commonly experienced traumatic or stressful conditions since the pandemic. First is *health stress*,

⁴ Socioinform. URL: <https://socioinform.com/en>

measured by asking respondents whether they have contracted the COVID-19 virus (1 = yes; 0 = no). Further, *family problems* were measured by asking respondents about the frequency of having problems with family members since the start of the COVID-19 pandemic, and *financial issues* were measured by asking respondents about the frequency of having financial problems since the start of the COVID-19 pandemic. Responses for both items ranged from 1 (never) to 5 (very often). Finally, *disaster exposure* was measured by asking respondents whether they had experienced a human disaster before, such as war, genocide, earthquake, flood, or another major disaster (1 = yes, 0 = no).

Control variables. We included various sociodemographic factors as control variables. *Gender* was recoded to 1 = male and 0 = female; age was measured in years. We also controlled for *marital status*, where 1 = married and 0 = another situation; *employment*, where 1 = employed full-time and 0 = another situation, and *education level*, which ranged from 1 (incomplete high school/secondary education) to 5 (graduate degree). Finally, *socioeconomic status (SES)* was measured by asking respondents to rate their financial status compared to others. Responses ranged from 1 (much worse off) to 5 (much better off).

Analytic strategy. First, we used ordinary least squares (OLS) regression to examine the influence of our predictors of interest on depression. Further, given violent behaviour has a skewed distribution, we used the commonly applied negative binomial regression in models predicting violence [23; 29]. Variance inflation factors (VIFs) in all the models were less than 2, which ruled out multicollinearity [30].

Results. Descriptive statistics of the study variables are presented in Table 1. Our sample consists of 44,6% male participants. The average age is roughly 44 years old. The majority of our respondents are married (51,1%) and employed (75,3%). Further, most respondents indicated that they received at least a technical/vocational educational degree (mean = 3,929) and have overall similar socioeconomic status as others (mean = 2,916). Over 80% of Ukrainians reported exposure to disasters (e.g., war, genocide) and 56,9% reported contracting the COVID-19 virus.

Table 1

Descriptive statistics of study variables (N=773)

Variable	Mean or %	SD	Min	Max
Depression	15,677	5,355	9	36
Violent behaviour	0,700	1,472	0	10
Health stress (contracted the virus)	56,9%	0,496	0	1
Family problems	2,335	1,023	1	5
Financial issues	2,781	1,018	1	5
Disaster exposure	80,1%	0,400	0	1
Male	44,6%	0,497	0	1
Age	43,722	16,020	18	82
SES	2,916	0,602	1	5
Employed	75,3%	0,432	0	1
Education	3,929	0,946	1	5
Married	51,1%	0,500	0	1

Figures in Models 1–4 in Table 2 represent the OLS coefficients that predict depression. Model 1 reveals that health stress or having contracted the COVID-19 virus is significantly and positively associated with depression. Specifically, depressive symptoms are stronger among those who contracted the virus ($b = 1,767, p < 0,001$). Further, Models 2 and 3 show that experiences of family and financial problems are significantly associated with depression, with a unit increase in family problems resulting in 1,412 units increase in depression ($p < 0,001$), and a unit increase in financial issues resulting in 1,454 units increase in depression ($p < 0,001$). Finally, figures in Model 4 reveal that depression is higher among Ukrainians who reported disaster exposure ($b = 1,153; p < 0,05$). Together, these results provide support for Hypotheses 1–4. Additionally, findings show that men, those with higher SES, and married individuals experience lower levels of depression compared to their counterparts (Model 1, Table 2).

Models 5–8 in Table 2 reflect the incident rate ratios (IRRs) derived from negative binomial regression predicting violent behaviour. First, results reveal that health stress or having contracted the virus is not significantly associated with violence, and thus, Hypothesis 5 is not supported. On the other hand, both family problems and financial issues are significantly and positively associated with violent behaviour. Specifically, the incident rate ratios (IRRs) indicate that a unit increase in family problems is estimated to result in a 56,2% increase in the likelihood of engaging in violent behaviour ($p < 0,001$), and a unit increase in financial issues is estimated to result in a 28,4% increase in the likelihood of engaging in violent behaviour ($p < 0,01$). These findings provide support for Hypotheses 6 and 7. On the other hand, disaster exposure is not significantly associated with violence, providing no support for Hypothesis 8. In addition, men and those with lower socioeconomic status are more likely to engage in violent behaviour (Model 5 in Table 2).

Table 2

OLS and negative binomial regression predicting depression and violent behaviour among Ukrainian adults (N = 773)

<i>Predictors</i>	<i>a. Depression</i>			
	Model 1	Model 2	Model 3	Model 4
	Coef. (SE)	Coef. (SE)	Coef. (SE)	Coef. (SE)
Health stress	1,767*** (0,375)			
Family problems		1,412*** (0,196)		
Financial issues			1,454*** (0,188)	
Crises exposure				1,153* (0,457)
Male	-1,257** (0,376)	-1,188** (0,367)	-1,234** (0,365)	-1,325*** (0,379)
Age	-0,000 (0,012)	-0,006 (0,012)	-0,006 (0,012)	-0,005 (0,012)
SES	-1,334*** (0,369)	-1,044** (0,357)	-0,631 (0,359)	-1,236** (0,371)
Employed	-0,184 (0,456)	-0,049 (0,452)	-0,068 (0,456)	-0,071 (0,466)

Education	-0,199 (0,201)	-0,106 (0,196)	-0,169 (0,198)	-0,103 (0,206)
Married	-0,975* (0,385)	-0,789* (0,371)	-0,545 (0,372)	-0,777* (0,387)
<i>Predictors</i>	<i>b. Violent behavior</i>			
	Model 5	Model 6	Model 7	Model 8
	IRR (SE)	IRR (SE)	IRR (SE)	IRR (SE)
Health stress	1,238 (188)			
Family problems		1,562*** (0,115)		
Financial issues			1,284** (0,106)	
Crises exposure				0,918 (0,173)
Male	1,981*** (0,299)	2,180*** (0,346)	2,075*** (0,312)	1,955*** (0,295)
Age	0,989* (0,005)	0,987** (0,005)	0,988* (0,005)	0,988* (0,005)
SES	0,718* (0,097)	0,759* (0,095)	0,797 (0,108)	0,729* (0,100)
Employed	1,018 (0,202)	0,958 (0,217)	0,976 (0,205)	1,023 (0,206)
Education	0,858 (0,070)	0,852 (0,083)	0,875 (0,077)	0,872 (0,073)
Married	1,069 (0,171)	1,119 (0,180)	1,138 (0,181)	1,081 (0,171)

* $p < 0,05$; ** $p < 0,01$; *** $p < 0,001$. Robust standard errors are in parentheses.

Discussion and conclusion. Since 2014, Ukraine has been experiencing major traumatic events, including the annexation of Crimea by Russia and the full-scale Russian invasion. Moreover, in 2020, Ukraine was affected by a public health emergency – the spread of the COVID-19 pandemic. Together, these major events continuously instil stress and trauma among Ukrainians. Yet, limited studies comprehensively assess the consequences of such cumulative trauma. Thus, it is important to better understand how life conditions and events associated with multiple disasters shape important life outcomes of the Ukrainian people.

This study aimed to fill gaps in the literature by analyzing how pandemic-related stressors and exposure to disasters such as war shaped mental health and behaviour among Ukrainians. First, we find that individuals experiencing health stress (i.e., having contracted the COVID-19 virus) report higher levels of depression. Exposure to additional daily hassles, such as family problems and financial issues, further increases depressive symptoms among Ukrainians. These findings are consistent with the stress process paradigm and recent research on the pandemic-related stressors and mental health links [12; 13; 16; 17]. Furthermore, in line with prior studies on the war-health relationship [15; 18; 19], our findings reveal that Ukrainians who reported experiencing exposure to disasters (e.g., war and genocide) were significantly more likely to experience depressive symptoms. These findings underscore the need to address the ongoing and cumulative stressors in a vulnerable society to reduce mental health issues of the population.

Next, drawing on the General Strain Theory (GST) in criminology, our study assessed whether stressful and traumatic events influenced violent behaviour in Ukraine [19; 20].

Consistent with GST, results reveal that family and financial issues are stressors that push individuals to engage in violent outbursts, likely to “fix” the stress or negative emotions associated with it. However, experiencing health stress is not significantly associated with violence among Ukrainians, which contrasts with prior research in the United States showing the link between pandemic-related stress and certain violent outcomes [24; 25]. It is possible that Ukrainians may be “numb” to certain stressors as they experience different forms of trauma routinely and in large numbers [31]. Finally, exposure to war and genocide also does not serve as a significant predictor of violence. This contrasts with the study among those exposed to the war in Donbas conducted in 2017 [23]. As such, it is possible that the impact of the full-scale invasion on behaviour is different than that of the war that started in 2014, and more studies are needed to assess those differences.

While this study contributes to the literature by showing the influence of numerous stressful and traumatic events on important life outcomes, it is not without limitations. First, due to the cross-sectional nature of the data, we cannot firmly establish the causal order of the variables. Yet, we are generally confident in it as our proposed relationships were theoretically informed. Furthermore, like all self-reported data, our data can include exaggerating, telescoping (i.e., inaccurate memory about the occurrence of certain events), and other issues associated with self-reports. Finally, given we used convenience/snowball sampling, we cannot confidently generalize our findings across Ukraine.

Notwithstanding these limitations, our study contributes to the literature by illustrating how important traumatic and stressful life conditions and events contribute to mental health and violent behaviour. Future studies should continue this line of research and examine under which conditions stress, and trauma are more or less likely to lead to mental illness and violence. In addition, our findings have important implications for policy and practice. Policymakers and relevant stakeholders should develop new strategies to help Ukrainians address their trauma and stress. For example, free resources and counselling should be available in vulnerable societies like Ukraine, guiding how to manage stress, violent behaviour, and depressive symptoms. Interactive apps could also be developed, providing Ukrainians with different tools to manage stress, including guided meditations, mindfulness, and others.

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