

**Ministry of Education and Science of Ukraine
National University of Kyiv-Mohyla Academy**

**Faculty of Social Sciences and Social Technologies
School of Public Health**

Master Thesis

**Topic: “MENTAL DISORDERS IN THE UKRAINIAN HEALTHCARE
WORKERS EXPERIENCING WAR-RELATED STRESS:
CROSS-SECTIONAL STUDY AND RECOMMENDATIONS FOR THE
RELEVANT INTERVENTIONS”**

Thesis is accepted by:
(Head of the Department signature)

Submitted by:
Second-year student
Olha Kostetska
Specialty 073 “Management”
Master program “Management in Health Care”

Scientific Supervisor:
Tetiana Yurochko, PhD, Head of NaUKMA School
of Public Health

Reviewer: _____

Master Thesis Defense Grade

“ _____ ”

Examination Committee Secretary

“ ” _____ 2023

Kyiv 2023

TABLE OF CONTENTS

LIST OF ABBREVIATIONS.....	4
INTRODUCTION.....	5
CHAPTER I. LITERATURE REVIEW	10
1.1. Approach to literature selection.....	11
1.2. Scientific evidence on post-traumatic stress disorder, depression, and anxiety in the general population	12
1.2.1. Post-traumatic stress disorder.....	12
1.2.2. Depressive disorders	13
1.2.3. Anxiety disorders	14
1.3. Mental disorders among healthcare professionals: occurrence rates, risk factors, and impact of specific stressful settings	15
1.4. Evidence on interventions aimed at increasing psychological resilience and mental well-being of the healthcare personnel.....	24
Conclusions for Chapter I	30
CHAPTER II. STUDY DESIGN AND METHODOLOGY OF THE RESEARCH.....	31
2.1. Study design and the methodology of the research.....	31
2.2. Sampling approach.....	32
2.3. Data collection mode	36
2.3.1. Post-traumatic stress disorder: PCL-5.....	37
2.3.2. Depression: Patient Health Questionnaire (PHQ-9)	37
2.3.3. Anxiety: Generalized Anxiety Disorder Assessment (GAD-7).....	38
2.4. Approach to data analysis.....	38
2.5. Study strengths and limitations.....	39
2.6. Ethical considerations relevant to the study	41
CHAPTER III. WAYS TO SUSTAIN PSYCHOLOGICAL RESILIENCE OF THE HEALTHCARE PERSONNEL	43
1.1. Study results.....	43
1.2. Discussion of the results	55

1.3. Recommendations on measures to sustain psychological resilience of the healthcare personnel	59
1.3.1. National-level interventions	62
1.3.2. Workplace-level interventions	65
1.3.2.1. <i>Informational support to the healthcare personnel</i>	68
1.3.2.2. <i>Organizational arrangements to minimize stress at a workplace</i>	69
1.3.2.3. <i>Access to psychological support and mental health services</i>	71
Conclusions to Chapter III	76
CONCLUSIONS	77
APPENDIXES	91
Appendix A. Questionnaire used for the survey on the mental health of the healthcare professionals during the full-scale war in Ukraine (in Ukrainian)	91

LIST OF ABBREVIATIONS

CBT – cognitive behavioral therapy

CMU – Cabinet of Ministers of Ukraine

DSM – Diagnostic and Statistical Manual of Mental Disorders

EU – European Union

GAD – generalized anxiety disorder

GoU – Government of Ukraine

ICD – International Classification of Diseases

IDP – internally displaced person

MoH – Ministry of Health of Ukraine

NHSU – National Health Service of Ukraine

PHQ – Patient Health Questionnaire

PTSD – post-traumatic stress disorder

WHO – World Health Organization

INTRODUCTION

Although the invasion of the Russian Federation in Ukraine started in 2014 with the hostilities of varying intensity having been localized in certain regions, on February 24, 2022, the full-scale war affecting the whole territory of the country began. This war became the largest armed conflict in Europe since the WWII. Respectively, the impact of the war has been pervasive and unprecedented with all the spheres of society and state functioning being significantly affected. The healthcare system of Ukraine is no exception as aside from tremendous physical damage inflicted upon it by the Russian army, which is well-documented elsewhere, the system has faced the consequences of severe psychological damage to the healthcare personnel.

It is the civilian healthcare personnel, who, along with the other essential workers, bears the responsibility of providing medical aid and other related services to all the population in need. Work during the war has been significantly complicated by a range of circumstances, including threat to the personnel's physical integrity due to artillery shelling and missile attacks across the whole territory of the country, as well as other war-related dangers, concerns for safety of their families and close persons, increased

workload, logistical constraints due to the supply shortages and the outflow of personnel, need to treat severely wounded patients – both military men and the civilians who suffered from the Russian indiscriminate attacks. These stressors cumulatively affect mental health of the healthcare workers considerably increasing their risk of developing mental disorders, especially those associated with stress, such as PTSD, depression, and anxiety. There is consistent evidence indicating that the mentioned mental disorders are often associated with comorbidities, and / or impairment of a person's professional and social functioning. For instance, healthcare professionals with PTSD, depression, or anxiety are much more likely to develop burnout than those who do not have the mentioned disorders. In turn, burnout is significantly correlated with medical errors and poor quality of patient care, which, among other things, lays considerable financial burden on the healthcare system thus compromising its efficiency. Besides, the mentioned disorders, as well as burnout among the healthcare staff are positively correlated with the increased risk of suicide, and substance abuse, which may ultimately disturb the healthcare system causing increased turnover of the personnel, early retirement, poor health outcomes etc.

Therefore, coordinated governance and management approach is needed to prevent the Ukrainian healthcare system from deterioration in consequence of the mentioned challenges. To ensure that the healthcare professionals, who encounter unprecedented stress and trauma, maintain psychological resilience and do not suffer from poor mental health outcomes, evidence-based multi-level interventions shall be implemented. The interventions shall be developed based on the best practices implemented by other countries to support mental well-being of healthcare and other essential workers during the crisis periods. Understandably, most of the available studies focusing on such interventions refer to the experience of dealing with COVID-19, when the healthcare systems worldwide faced tremendous burden of mental health deterioration of the healthcare personnel actively involved in dealing with the pandemic. Although the interventions so applied do not necessarily account for the unique Ukrainian experience,

they shall be analyzed and tailored to meet the outstanding needs of the Ukrainian healthcare system.

Hence, the relevance and urgency of the present study are informed by the unprecedented, and incomparable challenges faced by the Ukrainian healthcare personnel and the system as a whole.

The study is based on the large number of works containing evidence on mental disorders occurring in the healthcare professionals in stressful settings as well as highlighting evidence-based recommendations to mitigate negative consequences of such disorders. In particular, we rely on the papers providing the most relevant and up-to-date scientific data on the disorders investigated herein both among the general population and among the healthcare professionals as a specific sub-group of the population, including the occurrence rates, risk, and resilience factors for such disorders, as well as on the available data on the policy interventions applied across countries under various conditions to increase psychological resilience of the healthcare professionals. The papers referred to in this study are almost exclusively foreign ones as there has been no relevant Ukrainian studies identified. This confirms both the lack of the up-to-date evidence on the situation with mental disorders among the healthcare professionals in Ukraine and the lack of the national academic contributions to the whole issue of mental health of the healthcare workers as a specific group. The detailed literature review is laid down in Chapter 1 of this study.

The object of this study is the functioning of the healthcare system during the crisis period as related to war, while the subject of the study is mental disorders occurring in the healthcare professionals as a specific study group in result of their encounter with war-related stressors during their work in Ukraine as well as the interventions to build their psychological resilience.

The present study is aimed at exploring the prevalence of symptoms of certain mental disorders among healthcare workers exposed to war-related stress in Ukraine to recommend policy interventions necessary for sustaining the healthcare system.

The following tasks shall be achieved to attain the set aim of the study:

- 1) To establish the prevalence of certain mental disorders (PTSD, depression, and anxiety) in healthcare workers exposed to war-related stress during their work.
- 2) To establish a correlation between the risk of developing the mentioned disorders and various individual and professional factors (*i.e.* to identify risk factors for healthcare professionals).
- 3) To demonstrate the key problems faced by the Ukrainian healthcare system during the full-scale war which may have an impact on mental health of the personnel.
- 4) To develop recommendations for interventions to build on the resilience of healthcare practitioners based on the study findings.

The following three hypotheses have been formulated for the present study:

- 1) Healthcare workers exposed to war-related stress would have higher rates of mental disorders as compared to the general population (based on the common reference rates for the general population).
- 2) Prevalence of mental disorders would be higher for healthcare workers employed in the hospitals located in the territories close to frontline as compared to other healthcare workers.
- 3) Hardships faced by the healthcare system during the war would increase the risk of healthcare workers' developing mental disorders.

This study is a cross-sectional one allowing to investigate the problem at a particular point in time, yet it may be further followed and expanded by a longitudinal study to monitor trend developments. The study has been carried out based on the quantitative

strategy. Under this strategy, an electronic survey was carried out in eight hospitals of Ukraine located in the four different regions and included into the study based on the specific inclusion criteria. The results of the study are expected to provide primary insights into and establish rather general trends related to the problem of mental disorders among the healthcare professionals to lay ground for policy recommendations as well as further research. The collected data has been subject to statistical analysis. The detailed information on the study design and the methodology of research is laid down in Chapter 2 hereof.

The present study has considerable public health significance and application as it is a first of its kind study investigating the problem of mental disorders among the civilian healthcare professionals working during the full-scale war in Ukraine. As there are no previous research evidence of the existence of such a problem as well as of its scale, this study provides important insights into the situation as well as establishes background for follow-up research, including the longitudinal studies which would allow to observe lasting effects of war on mental health of medical practitioners, as well as respective trend developments. Besides, this study is practically applicable as it not only discusses the mentioned problem but also suggests very specific recommendations for policy interventions aimed at supporting the Ukrainian healthcare system through building up psychological resilience of healthcare practitioners. The suggested recommendations may be applied by respective decision makers and may as well be used by various actors working on the development of guidelines, concept papers etc. who seek to support the healthcare system in Ukraine through data-informed instruments. Finally, this research makes a valuable academic contribution to the limited number of studies investigating mental health of healthcare professionals in various stressful settings, including wars and armed conflicts. The key findings, analysis thereof, as well as the recommendations for the interventions to strengthen psychological resilience of the healthcare workers to support the healthcare system in Ukraine are discussed in Chapter 3 hereof.

CHAPTER I. LITERATURE REVIEW

Mental health of healthcare personnel has been subject of a considerable number of studies since medical workers are often exposed to a variety of stressors even under normal circumstances not speaking of extraordinary situations. Such “ordinary” stressors include but are not limited to patients’ deaths, critical trauma cases, occupational violence, extreme workload etc. In turn, extraordinary stressors may emerge under various circumstances to put medical personnel under increased risk of mental disorders, which include PTSD, depression, anxiety, and other pathological conditions. According to Bentz et al. (2021), such conditions are usually followed by suicidal thoughts, alcohol, drug or medication abuse or addiction, occurrence of comorbidities, burnout, and loss of professional engagement. Besides, traumatic, or stressful experiences may negatively affect quality of care provided by healthcare staff, lead to compassion fatigue, reduced productivity, and medical errors (D’Ettorre et al., 2020). In view of this, policy interventions to minimize respective risks and mitigate negative consequences at all the levels of healthcare systems have as well been vividly discussed. Even though neither of the available recommendations are exactly relevant for Ukraine as the latter’s experience is incomparable with that of any other country, such recommendations should be investigated to form the Ukrainian unique strategy for overcoming the consequences of war and preserving mental health of the Ukrainian medical personnel.

1.1. Approach to literature selection

A large number of studies have been used as a background for this work, in particular, to define the research question, set the research objectives, formulate accurate hypotheses, test them, and ensure consistency of the findings with the available scientific evidence. First, we relied upon authoritative sources to present the most relevant and up-to-date scientific data on the disorders investigated herein—namely, PTSD, anxiety, and depression. We focused on occurrence rates, risk factors, risk of comorbidities, as well as the most common negative consequences associated with respective disorders in the general population. Further on, we reviewed available studies concerning occurrence rates and risk factors for PTSD, anxiety, and depression among healthcare professionals as the specific study population. Particular attention was paid to specific stressful settings and circumstances which often put medical workers under increased risk of psychological distress and respective pathologies. Such specific stressful settings covered by this overview include largescale disease outbreaks (such as COVID-19 pandemic), various violence-associated emergencies (terrorist attacks, bombings, shootings etc.), and armed conflicts. Research findings related to the former two categories of settings are laid down to consistently demonstrate negative impact of traumatic and stressful experiences upon mental health of medical workers. These studies have also informed the design of this research and recommendations for policy interventions. The third category of works, which concern the impact of armed conflicts upon mental health of medical workers are directly relevant to this study. They are heavily relied upon in the matters concerning the research design and approach to data collection and analysis. Respective studies also allowed us to ensure consistency of our findings with the previously collected evidence, as well as to substantiate the choice of recommendations for policy interventions aimed at addressing mental health issues of medical personnel in Ukraine. Brief overview of the available data on such policy interventions applied across countries under various conditions as well as on their reported efficacy is as well presented herein below.

1.2. Scientific evidence on post-traumatic stress disorder, depression, and anxiety in the general population

1.2.1. Post-traumatic stress disorder

According to ICD-11, PTSD is a psychiatric disorder which may occur if a person has been exposed to an extremely threatening or horrific event or series of events. Such events may be of any nature including direct exposure to natural or human-made disasters, combat, serious accidents, torture, sexual violence, terrorism, assault, or acute life-threatening illness. DSM-5 indicates that exposure may mean either directly experiencing an event, witnessing an event occurring to others, learning that an event occurred to a close person, or experiencing repeated or extreme exposure to aversive details of an event. Typically, onset of PTSD occurs three months after an exposure, however, even several-year delays may take place. According to ICD-11, PTSD is usually characterized by: 1) re-experiencing traumatic event or events in the present in the form of vivid intrusive memories, flashbacks, or nightmares; 2) avoidance of thoughts and memories of the event or events, or avoidance of activities, situations, or people reminiscent of the event(s); and 3) persistent perceptions of heightened current threat which may be indicated by hypervigilance or an enhanced startle reaction to stimuli such as unexpected noises.

According to WHO, lifetime prevalence of PTSD in upper-middle income and lower-middle income countries is 2.3% and 2.1% respectively (Koenen et al., 2017). Figures are higher in the United States, where lifetime prevalence of PTSD is estimated between 6-8%, while lower estimates are seen in Europe and most Asian, African, and Latin American countries, clustering around 0.5% - 1% (“Post-Traumatic Stress Disorder Can Develop”, n.d.). PTSD is prevalent among women almost twice as much as among men. According to DSM-5, veterans, and other persons who are often exposed to traumatic events due to their occupation (*e.g.* police, firefighters, medical personnel) are at a higher risk of developing PTSD. Survivors of military combat and captivity demonstrate the highest rates of PTSD amounting to one half of the exposed. At the same

time, exposure to stressful events does not necessarily cause the development of PTSD as many people experience stressful situations without developing the disorder. There are a lot of pre-traumatic, peritraumatic and post-traumatic risk factors which may influence the development of PTSD, including previous record of mental disorders, education, socio-economic status, availability of social support, type and intensity of trauma, coping strategies used in its aftermath etc.

As stated by ICD-11, PTSD is usually associated with significant impairment in personal, family, social, educational, occupational, or other important areas of functioning. People suffering from this disorder display poor social and family relationships, absenteeism from work, lower income etc. Besides, according to DSM-5, individuals with PTSD are 80% more likely to develop at least one other mental disorder or comorbid substance use disorder as compared to people with no PTSD.

1.2.2. Depressive disorders

According to ICD-11, depressive disorders are characterized by depressive mood or loss of pleasure accompanied by other cognitive, behavioral, or neurovegetative symptoms that considerably affect individual's ability to function. Depressive disorders are further sub-classified into single episode depressive disorder, recurrent depressive disorder, dysthymic disorder, mixed depressive and anxiety disorder. Although a bit different classification of depressive disorders is used, DSM-5 suggests the list of risk factors which may influence the development of depression. Such risk factors include neuroticism, adverse childhood experiences, stressful life events, genetic factors, previous record of mental disorders, destructive coping strategies, lack of social support etc.

According to WHO, 3.8% of the world population have depressive disorders, including 5.0% among adults and 5.7% among adults older than 60 years. Lifetime prevalence of depressive disorders is approximately twice as high for women than it is for men (WHO, 2021).

Depressive disorders are associated with the increased risk of suicide. They may cause impairment ranging from very mild to complete incapacity, which renders depressed individuals unable to attend to basic selfcare needs. Besides, depression usually leads to the occurrence of comorbidities, which include substance-related disorders, panic disorder, obsessive-compulsive disorder, anorexia nervosa, bulimia nervosa, and borderline personality disorder.

1.2.3. Anxiety disorders

According to ICD-11, GAD, which is commonly referred to as anxiety, is a mental disorder characterized by symptoms of anxiety that persist most of the time through several months with an individual feeling either general apprehension or excessive worry focused on multiple everyday events. As compared to nonpathological anxiety, symptoms of GAD are excessive and typically interfere with psychosocial functioning of a person. Besides, GAD manifestations are accompanied by other symptoms which include muscular tension or motor restlessness, sympathetic autonomic over-activity, subjective experience of nervousness, difficulty maintaining concentration, irritability, or sleep disturbance.

According to Ruscio (2017), average lifetime prevalence of GAD in the general population is 3.7%, and 12-month prevalence is 1.8%, with the disorder being significantly more prevalent and impairing in high-income countries than in low- or middle-income countries. This is consistent with DSM-5 which states that the 12-month prevalence for the disorder worldwide ranges from 0.4% to 3.6%, while it is 2.9% in the United States. Lifetime prevalence of GAD is approximately twice as high among women than it is among men.

Similar to PTSD and depression, GAD symptoms cause considerable distress and seriously impact individual's personal, family, social, occupational, and other important areas of life.

Therefore, the available evidence on the prevalence, risk factors, and the consequences of PTSD, depression, and GAD among the general population shall be taken into account when studying the healthcare professionals as a specific group for which these disorders may have certain specific characteristics.

1.3. Mental disorders among healthcare professionals: occurrence rates, risk factors, and impact of specific stressful settings

A number of meta-analyses and reviews suggest that healthcare workers are under increased risk of developing PTSD and other mental health disorders associated with trauma and stress as compared to the general population.

According to Sendler et al. (2016), PTSD occurrence rate among healthcare professionals amounts to 14.8% ranging between as low as 4.4% and as high as 28% depending on the intensity of stress faced by healthcare staff.

Findings of another systematic ten-year review of literature on PTSD in healthcare workers which was published in 2020 are generally consistent with the above figures. It was established that PTSD constituted a major concern in healthcare settings as the prevalence of PTSD symptoms among medical personnel was considerably higher than in the adult general population worldwide—the occurrence rates ranging between 2.2% and 24% (D’Ettorre et al., 2020). Such a wide margin is explained by different definitions of PTSD applied, as well as the differences in hospital settings being investigated. For instance, those studies where all the criteria for PTSD as defined by DSM-5 were applied established lower rates of work-related PTSD occurrence, while higher occurrence rates were established in the studies which did not apply criterion A for PTSD according to DSM-5 (Van Steijn et al., 2019). According to D’Ettorre et al. (2020), particularly high rates of work-related PTSD are found in the following hospital settings: emergency departments (up to 92%); trauma surgery departments (up to 40%); inpatient psychiatric departments (up to 17%). Besides, D’Ettorre et al. (2020) states that 20% of the healthcare

workers who suffered from workplace violence in hospital settings developed PTSD symptoms (p. 7).

D'Ettorre et al. (2020) also reviews the research findings on the risk factors contributing to the development of PTSD among medical personnel. The most common organizational pre-trauma risk factors for PTSD include heavy workload, poor training on dealing with traumatic events in hospital settings, low cohesiveness among colleagues (D'Ettorre et al., 2020, p. 3). For instance, one of the reviewed studies established that trauma surgeons who operated more than 15 cases per month had more than seven call duties per month, and less than four hours of rest per day were significantly more prone to developing PTSD symptoms than their colleagues with moderate workload (Joseph et al., 2014). As regards individual pre-trauma factors which were found to increase the risk of PTSD development, they are as follows: increased years of service, older age (>40), previous exposure to violence, previous record of mental disorders, lower level of education (non-graduates). In turn, post-traumatic factors identified by this systematic review included lack of social support from the management and colleagues, lack of debrief following traumatic episodes, negative coping strategies, burnout, and depression (D'Ettorre et al., 2020, p. 6).

A few studies are also available to investigate occurrence rates for depression and anxiety among healthcare workers. Same as with PTSD, study findings consistently demonstrate increased rates of depression and anxiety among healthcare professionals as compared to the general population.

For instance, a 2015 systematic review and meta-analysis established 28.8% rate of depressive symptoms in resident physicians worldwide, the symptoms ranging from 20.9% to 43.2% in individual studies depending on the scale used (Mata et al., 2015). Another systematic review and meta-analysis investigated depression among healthcare workers in the Eastern Mediterranean Region (Abraham et al., 2021). Abraham et al. (2021) found 33% pooled depression prevalence rate among medical personnel in the

region between 2005 and 2020 with the emergency department personnel being more prone to depressive symptoms (p. 11). A nationwide study conducted in France in public and private healthcare facilities in 2021 also identified similarly high rates of depression in all the medical workers (29 – 32%) (Fond, 2022, p. 7).

Aziz et al. (2022) investigated prevalence and determinants of depression among primary healthcare workers in Jeddah, Saudi Arabia. For this purpose, the study covered ten primary healthcare centers to find out that the rate of moderately severe-to severe depression according to PHQ-9 constituted 19.1%, while the rate of moderate-to severe depression amounted to 36.3%. According to Aziz et al. (2022), the most reported stressors provoking depressive symptoms include work (52.7%), social (30.5%), and health stressors (19.9%). Depression rates were found to be higher in the female practitioners than in their male colleagues. Besides, healthcare professions directly involved in patient care also demonstrated higher rates of depression, *e.g.* dentists (47.1%), nurses (41.1%), and physicians (37.0%) as compared to other medical workers (19.6%).

There is little evidence on anxiety rates among healthcare professionals. Yet a few studies focused on anxiety levels in emergency department healthcare personnel all indicating increased rates of anxiety as compared to the general population (Adriaenssens et al., 2011; Belayneh et al., 2021; Pajonk et al. (2021). For instance, Alharthy et al. (2016) explored anxiety level of emergency healthcare workers using GAD-7 tool. The survey found out that nearly 52% of emergency medical workers had varying levels of anxiety, with women being more prone to anxiety than men. The highest rates were observed among emergency paramedics and physicians. These findings may be attributed to the latter's duties associated with stress such as: debriefing patients, providing pre-hospital care, high patient flow, emergency crowding and severity of cases, intense workload schedules (Alharthy et al., 2016). This is consistent with the findings indicating that

anxiety and depression are the most common psychiatric disorders among emergency healthcare personnel (Weinberg & Creed, 2000).

Therefore, the reviewed studies allow us to conclude that healthcare workers who experience stressful events at the workplace demonstrate increased levels of PTSD, depression, and anxiety with various occupational and individual factors contributing to the risk of developing respective disorders. Below we lay down the available evidence on the development of the investigated disorders among the healthcare professionals working in stressful settings, namely: during large scale infectious disease outbreaks, when dealing with violence-related emergencies, and during war periods.

Even though epidemics are different from war conditions which are of interest for the purposes of this research, they often pose comparable challenges for medical workers' mental health. Healthcare personnel fighting pandemics have been called "frontline staff" for a reason. Such an analogy with military men at war emphasizes severe burden of stress and trauma faced by healthcare workers actively involved in the efforts to curb pandemics. A sudden outbreak of an unknown disease with a high mortality rate is likely to seriously affect mental health of healthcare personnel (Marvaldi et al., 2021, p. 253). Research findings consistently prove that infectious disease outbreaks, including the outbreaks of SARS, MERS, H1N1 influenza, and H7N9 influenza caused serious psychological distress for healthcare workers who were actively involved in treating patients with the mentioned diseases (Bai et al., 2004; Lee et al., 2018; Tang et al., 2017). According to Xiao et al. (2020), positive correlation exists between serious stress experienced by medical personnel in the context of epidemics and high levels of PTSD, depression, anxiety, and other mental disorders. There is also consistent evidence to establish that serious and pervasive impact of large-scale disease outbreaks upon mental health of medical personnel leads to the occurrence of psychological and psychosomatic problems ranging from sleep disturbance, somatization symptoms, to anxiety, depression, PTSD, and burnout (Busch et al., 2021).

In this context, a bulk of research is focused on the impact of COVID-19 upon mental health of medical personnel highlighting the importance of prioritizing their psychological resilience and well-being. There is consistent evidence indicating that healthcare workers suffered serious increase in PTSD, depression, and anxiety rates during COVID-19 pandemic. Among others, D’Ettorre et al. (2021) conducted systematic review to establish that the risk of developing PTSD ranged between 2.1% to 73.4% among healthcare workers dealing with COVID-19. Such a wide margin in the findings has been attributed to different timing of the studies and to the differences in healthcare settings under investigation. Particularly high prevalence of respective symptoms among healthcare workers was noticed in the peak periods of the pandemic and in inpatient settings, where healthcare personnel directly dealt with the infected patients, including at emergency departments. A few other recent systematic reviews and meta-analyses also attributed varying figures for the pooled prevalence of mental disorders among the healthcare workers involved in the efforts to curb COVID-19 pandemic—they constituted 21.7% – 49% for PTSD, 16.1% – 40% for anxiety, and 13.4% - 37% for depression (Saragih et al., 2021; Hill et al., 2022). This large variation in the results again demonstrates that figures are highly contextual and depend upon the specific settings investigated.

A number of studies also identified the risk profile of healthcare workers who were at risk of developing mental disorders in the midst of COVID-19 pandemic. Both organizational and individual factors were respectively reported. D’Ettorre et al. (2021) identified the following pre-trauma risk factors: female gender, young age, low work experience, living alone, and lack of training, while post-traumatic risk factors were found to be mainly related to low social support at work, heavy workload, working in unsafe settings, passive coping, anxiety, and burnout (pp. 10-11). Some studies also found that nurses were more prone to psychological distress in the context of COVID-19 pandemic as compared to physicians since the latter were normally better educated on the nature and

specificity of the virus (Khanal et al., 2020). Besides, levels of stress, anxiety, and depression were significantly higher in the frontline than in the second-line medical and administrative personnel (Antonijevic et al., 2020).

As regarding other emergencies, research findings demonstrate that first responders, including healthcare workers, face higher risk of stress-related mental disorders as compared to the general population due to traumatic experiences they come across in course of work (Berger et al., 2012; Fullerton et al., 2004). According to Wilson (2015), up to 22% of the first responders suffer from PTSD following encounter with emergencies. In this context, a range of studies examine the impact of emergencies resulting from terrorist attacks, bombings, sniper shootings, and other man-made violence upon psychological state of medical care providers involved in the incidents (Firth-Cozens et al., 1999; Grieger et al., 2003; Kerasiotis & Motta, 2004; Luce et al., 2002). As an example, Bentz et al. (2021) found out that hospital staff who provided care to the victims of the 2016 Nice terrorist attack displayed symptoms of severe psychological distress more than a year after the attack. Almost one third of the professionals involved (27.1%) had symptoms of PTSD (Bentz et al., 2021). Besides, the exposed medical staff reported difficulty to concentrate, sleep disorders, fatigue which might have complicated their job performance and compromised quality of care (Bentz et al., 2021, pp. 13-14). In another study, Gregory et al. (2019) established that the physicians who provided care to victims of 2015 Paris terrorist attack reported symptoms of mental distress. In particular, 12.4% of the respondents had symptoms of PTSD, 11.2%—of anxiety, 2.4%—of depression, these scores being higher than those reported by the non-exposed staff (Gregory et al., 2021). According to Luce et al. (2002), healthcare workers who are involved in emergency incidents both professionally and in their private capacity (as civilians) demonstrate the highest levels of psychological symptoms of distress. Besides, first respondents, including medical staff, are under increased risk of suicide due to traumatic experiences they come across (Stanley et al., 2016).

Impact of armed conflicts upon mental health of various categories of population has been actively explored. Such categories include civilians (further categorized as women and children, refugees and temporarily displaced persons, other vulnerable groups, etc.), active military personnel, and veterans. These categories usually have different war experience and thus their psychological well-being is as well differently affected. What concerns medical personnel defined as a specific sub-category on the basis of professional occupation, most of the available studies are focused on mental health of the deployed military medical personnel exposed to combat, *i.e.* army physicians, paramedics. However, considering direct participation in hostilities, experience of the deployed medical personnel is not, in fact, comparable to the one of civilian healthcare workers operating during the periods of armed conflicts. Literature on the latter category is quite scarce even though it is established that civilian healthcare professionals working in conflict settings are subject to many dangers and hardships which lead to the deterioration of their mental health (Bou-Karroum et al., 2019). In the recent systematic mapping, Bou-Karroum et al. (2020) confirmed the paucity of primary studies on psychological state of healthcare workers operating in conflict settings as well as of baseline and routine data on violence against healthcare workers (p. 11). Lim et al. (2013) as well found that medical personnel working outside combat areas yet in close proximity to them were under increases risk of developing mental disorders—especially those associated with stress (p. 2). Although scarce and quite limited, the studies mentioned below provide certain insights into the matter and are worth brief overview for the purposes of this research.

One of the first available studies investigated prevalence of PTSD among family medicine physicians in Bosnia and Herzegovina during the 1992–1995 conflict (Hodgetts, 2003). It was found that 18% of the physicians who experienced or witnessed a traumatic event during the conflict had PTSD symptoms. Interestingly, this rate was significantly lower than in the general population suffering from the conflict, as 45-75% of the respondent refugees manifested symptoms of PTSD. Besides, the authors found it

impossible to decide whether conflict-related or any other traumas caused PTSD in the physicians. Also, no correlation between the increased risk of developing PTSD and age, sex, or practice of medicine during the war was established.

The Israeli experience is particularly relevant for exploring the impact of prolonged armed conflicts upon mental health of medical personnel. For more than 30 years, the Israeli healthcare workers have been exposed to a range of traumatic events which include terrorism and war casualties. In this context, Ben-Ezra et al. (2007) examined the relationship between exposure to war-related stress and posttraumatic symptoms among nurses and physicians who worked at the hospital suffering from missile attacks and war casualties during the war between Lebanon and Israel. Almost a quarter (23.4%) of the hospital staff was found to have symptoms of PTSD rising to the level of clinical concern with nurses manifesting a higher occurrence rate in comparison to physicians (Ben-Ezra et al., 2007, p. 265). Such findings might have been attributed to the cumulative effect of trauma, where treating seriously injured patients along with personal safety concerns affected mental health of medical workers. In the follow-up study, Ben-Ezra et al. (2011) confirmed that exposure to war-related stress influenced mental health of hospital physicians in a way leading to certain psychosomatic symptoms. This follow-up study also presented important finding showing that the difference in the occurrence rate and intensity of such symptoms between exposed and unexposed physicians emerged not during the period of the conflict but in the aftermath thereof. This may be explained by compensatory mechanisms activated under stressful conditions and allowing to maintain due performance with the negative consequences being respectively delayed (Ben-Ezra et al., 2011, p. 174).

Lim et al. (2013) explored psychological distress of the community health workers in eastern Myanmar during an armed conflict. It was found that almost half of the screened personnel (45%) manifested non-specific psychiatric symptoms, which may be attributed to PTSD, depression, and anxiety (Lim et al., 2013). Qualitative part of the study revealed

that the most common distress factors included difficulty in retaining personnel, hardships in treating patients, lack of medical supplies, separation from family for a long time and inability to support family, proximity to combat area, acts of violence against medics, and other security risks (Lim et al., 2013, p. 6). At the same time, resilience factors which helped medics to manage distress were mainly related to peer group interactions, various coping mechanisms (both constructive and destructive ones), as well as helping their communities through their work (Lim et al., 2013, p. 9). In line with this, Gungor, A., & Uçman (2020) found that feeling of meaning in life had mitigating effect upon depression which was common among healthcare personnel serving in 2018 in the southern cities of Turkey where they were negatively affected by the Syrian civil war.

Finally, in the cross-sectional study, Elhadi et al. (2020) examined cumulative effect of COVID-19 and civil war upon mental health of medical workers in Libya. The research shown that 56.3% of physicians had depressive symptoms. The scores were higher for those medical professionals who worked in surgery, emergency, and intensive care departments, while living alone and young age were as well positively correlated with the intensity of depressive symptoms (Elhadi et al., 2020, p. 3). Besides, 46.7% of the respondents reported symptoms of anxiety which were statistically associated with age, department, years of experience, working hours per week, internal displacement, stigmatization, living in a conflict zone, and verbal abuse (Elhadi et al., p. 4.)

Besides, Rija et al. (2022) carried out a narrative review to examine the impact of violence on healthcare workers' mental health amidst COVID-19 pandemic in conflict-based settings, namely in Afghanistan, Lebanon, Palestine, Syria, and Yemen. The review found that violence against healthcare workers was widespread in conflict settings and included both physical and non-physical manifestations such as verbal abuse and threats. This seriously affected medical professionals' mental health, job performance, and job satisfaction (Rija et al., 2022, p. 4). Besides, the reviewed studies established that, in addition to violence and physical threats, healthcare workers operating during the periods

of armed conflicts encountered the overall weakness of the healthcare system including extremely long working hours, poor equipment or lack thereof, shortage of other resources including personal protective equipment during COVID-19 pandemic. These factors led to the deterioration of sleep, increased anxiety, and depression. Besides, healthcare practitioners reported symptoms of severe and generalized stress disorders, as well as of burnout (Rija et al., 2022, pp. 5-7).

Findings of the latter two studies are extremely relevant for Ukraine given that the Ukrainian situation resembles the investigated setting described as “two-in-one-crisis” which means simultaneous occurrence of an armed conflict and COVID-19 pandemic. All the other abovementioned findings are also very important for this research as they consistently demonstrate that civilian healthcare workers operating under conditions of armed conflicts are under severe burden of trauma and stress, often suffer from the associated mental disorders, and need targeted interventions to build up resilience and improve their psychological state.

1.4. Evidence on interventions aimed at increasing psychological resilience and mental well-being of the healthcare personnel

Since healthcare professionals are at risk of developing mental disorders as indicated above, a range of studies discuss interventions aimed to address such issues—particularly, during the periods of crises. Understandably, COVID-19 pandemic triggered most vivid discussions of the ways to build up the resilience of healthcare professionals. Even though existing recommendations are not completely relevant for the situation currently unfolding in Ukraine, they should be studied and relied upon given the paucity of the studies specifically aimed at addressing war-induced mental health issues among the healthcare professionals.

Zace et al. (2021) carried out a systematic review to summarize the interventions implemented to address mental health issues of the healthcare professionals during

infectious diseases outbreaks. Four basic categories of interventions were identified: informational support, instrumental support, organizational support, and emotional and psychological support (Zace et al., 2021). Although discussed in context of COVID-19, all the interventions may be adjusted for application in the context of war and the related circumstances.

According to Zace et al. (2021), informational support refers to any measures aimed at educating healthcare workers on the stressors they encounter, *e.g.* the nature, peculiarities, treatment and preventive measures for COVID-19 in the context of the pandemic. Practical trainings for the staff as well as the development of hospital guidelines have been reported to significantly decrease anxiety levels of the healthcare personnel involved in the treatment of patients with highly contagious diseases (Zace et al., 2021; Chen et al., 2006; Maunder et al., 2003, Cheung et al., 2020; Hong et al., 2020; Sockalingam et al., 2020; Zhou et al., 2020). Interestingly, even passive training methods (such as distributing information through emails, websites, leaflets) turned out to be effective in reducing post-traumatic stress symptoms among healthcare workers (D’Ettorre et al., 2021). Consistent with these findings, Caillet et al. (2020) established that the lack of appropriate training constituted an independent risk factor for the development of mental issues among healthcare workers dealing with infectious diseases. Besides, according to D’Ettorre et al. (2020), information and trainings on evidence-based anticipatory methods for coping with stressful events effectively reduce the risk of developing PTSD and other disorders.

Instrumental support foresees interventions aimed at ensuring physical safety for healthcare workers mostly in relation to personal protective equipment and disinfection measures when it comes to dealing with infectious disease outbreaks. Studies demonstrate that, if taken appropriately, safety measures may increase psychological resilience of medical staff by positively influencing the latter’s anxiety, depression levels and sleep quality (Zace et al. 2021; Chen et al., 2006). Relevant protection measures at the hospital

level as well decrease healthcare practitioners' worries about their families' safety and health (Hong et al., 2020). Although discussed in the context of COVID-19 pandemic, these findings are relevant and shall be extrapolated to the war-induced stressful situation in Ukraine.

Organizational support refers to any intervention focused on the improvement of working environment, management of work tasks and working hours with the aim to help healthcare professional better cope with stressful events. Findings of various studies consistently demonstrate that organizational measures which ensure flexible working hours and proper rest for healthcare professionals are efficient in building up their psychological resilience during the crisis periods (Zace et al., 2021; Muller et al., 2020). For instance, in the midst of COVID-19 outbreak, WHO recommended rotating workers from higher- to lower-stress roles, partnering experienced and less experienced workers, monitoring mandatory breaks, and ensuring flexible schedules (WHO, 2020). Besides, research findings consistently demonstrate that supportive work environment plays significant role in healthcare workers' resilience and their ability to cope with stressful situations (D'Ettorre et al., 2020). In addition, emphatic, and anticipatory leadership style is an important factor to support healthcare workers in their living through traumatic events and minimizing the latter's negative consequences. Such leadership approach shall necessarily promote good team spirit and interpersonal communication, where staff members are free to express their concerns including in respect to stress and traumas they encounter (D'Ettorre, 2020). Study findings also demonstrate that clear and transparent crisis communication by managers and supervisors is as well necessary for addressing staff members' psychological distress (Busch et al., 2021).

Finally, emotional, and psychological interventions specifically target psychological state of healthcare workers. Such interventions may comprise a variety of measures. First, psychoeducation and training on mental health issues have been implemented by many hospitals to prepare healthcare workers to dealing with stressful

situations during COVID-19 pandemic and the preceding disease outbreaks (Zace et al., 2021; Yang et al., 2003). Such trainings usually covered stress response, psychological first aid, coping strategies, personal and organizational resilience factors with the information being delivered in form of audio- or video-lectures, printed fact sheets and notes, or during in-person sessions (Yang et al., 2010). For instance, during the Ebola epidemic, trainings aimed at creating individual resilience plans were conducted for medical personnel to explain the nature and impact of anticipated stressors (Schreiber et al., 2019). Besides, posters with wellness tips as well as daily mailing of positive self-affirmation techniques were commonly used across healthcare facilities in Italy and the US during the COVID-19 pandemic (Zace et al., 2021).

The latter category of emotional and psychological interventions also includes professional mental health support, peer support, and counselling. All these interventions have been commonly used to prevent and mitigate deterioration of mental health of healthcare workers. For instance, professional mental health teams consisting of psychiatrists, social workers, and psychological counselors provided support to hospital staff in a range of countries during the COVID-19 pandemic, including those most affected by the outbreak. Besides, peer support has been widely practiced in various forms including chats and in-person groups where healthcare professionals could discuss their emotions and share concerns (Zace et al., 2021). Speaking of professional mental health support, CBT has been recognized efficient in dealing with destructive behaviors of individuals affected by trauma and stress especially if paired with psychological first aid principles (Callus et al., 2019). CBT has been offered at a range of hospitals dealing with Ebola and COVID-19 outbreaks to healthcare workers who experienced anxiety and depression (Waterman et al., 2018; Geoffroy et al., 2020). Besides, available studies indicate that various mindfulness practices as well as art-based interventions (including music, creative, arts classes, poetry therapy, movement practices etc.) are quite efficient

in supporting mental health of essential workers by strengthening their resilience and reducing stress (Callus et al., 2019).

Overall, the existing studies emphasize that healthcare organizations should be primarily responsible for ensuring psychological support to their staff as peer support plays crucial role in building up the resilience of healthcare professionals. This is confirmed by the Opinion on supporting mental health of health workforce and other essential workers during COVID-19 outbreak of the EU Expert Panel on Effective Ways of Investing in Health (EXPH) (“**EU Report**” and “**EU Expert Panel**” respectively) which highlights the importance of workplace- and societal-level interventions to support healthcare workers’ psychosocial well-being. The interventions applied at a hospital level should cover all the employees but not only the frontline staff (*e.g.* emergency department) in order to prove efficient. Besides, it is important to ensure the continuum of support, where initial assessment, provision of help, as well as further monitoring are implemented to identify and cope with long-term effects of trauma. The interventions should also provide ability to identify at-risk healthcare workers who may be predisposed to stress due to various personal and professional characteristics decreasing their resilience.

It is worth noting that the reviewed literature proves efficiency and applicability of various digital solutions which might be used to streamline the provision of psychosocial support services to healthcare professionals (Zace et al., 2021). Such digital tools have been widely used during the COVID-19 pandemic to prevent and address stress reactions among the healthcare workers. The tools included mobile apps, special websites with useful resources as well as mental health hotlines providing confidential consultations and facilitating referral to additional counselling in case symptoms of distress were identified (Schreiber et al., 2019; Mira et al., 2020). The use of such digital solutions shall be continued and extended including in respect of the situation in Ukraine.

Finally, a recently published Cochrane review identified the most common barriers which might hinder the implementation of efficient interventions to support psychological

well-being of healthcare personnel, namely: lack of awareness among the healthcare professionals and management, lack of equipment, qualified personnel, time, or skills needed for interventions (Pollock et al., 2020). Besides, the literature highlights that healthcare professionals are quite reluctant to seek psychological help due to stigma and discrimination. For instance, during COVID-19 pandemic in China, front-line nurses refused psychological help and did not recognize any mental problems although they manifested symptoms thereof (Chen et al., 2020). This is an important factor to be considered in process of developing interventions to support healthcare professionals as interventions where the latter are expected to ask for help may turn out ineffective (Zace et al., 2021).

Conclusions for Chapter I

The literature review confirms that serious stress faced by the healthcare workers leads to significant deterioration of their mental health and thus negatively affects quality of care, leads to compassion fatigue, reduces productivity, and results in medical errors. To prevent such negative consequences for the healthcare system, it is necessarily to timely detect the problem and take specific risk prevention and mitigation measures.

The issue of mental health of the healthcare workers operating in stressful settings has been widely explored worldwide. Studies on the impact of COVID-19 pandemic formed a specific bunch of evidence on the occurrence rates, risk factors, and resilience strategies for the healthcare personnel facing serious occupational stress. Even though the context of war in Ukraine is very specific, respective evidence shall be taken into account when considering the problem and elaborating measures to mitigate its consequences. In particular, the reviewed studies, including those related to psychological status of the healthcare workers operating during the periods of large-scale outbreaks of infectious diseases, dealing with various emergencies, as well as working during the armed conflicts, allowed us to establish the average occurrence rates for the PTSD, depression, and anxiety among the medical staff during the crisis periods to compare these rates with those established in Ukraine during the full-scale war with the Russian Federation. Besides, the studies we rely upon demonstrated the most common risk factors one should pay particular attention to when assessing the risks related to the development of mental disorders among the healthcare workers. Finally, the available studies equipped us with the evidence-based

approaches which have been used by various countries to overcome the consequences of unprecedented crises for the healthcare systems through implementing measures to enhance psychological resilience of the healthcare personnel.

CHAPTER II. STUDY DESIGN AND METHODOLOGY OF THE RESEARCH

The present chapter describes methodological issues of the research, including the study design, approach to sampling, data collection and data analysis instruments, as well as the strengths and limitations of the study and the ethical considerations related thereto.

2.1. Study design and the methodology of the research

The present study is a cross-sectional study as it foresees observation of the sample at one point of time.

Quantitative strategy has been selected as an instrument to collect and analyze data to understand the scale of the problem being investigated (*i.e.* the prevalence of mental disorders among the healthcare professionals practicing during the full-scale war) as well as the peculiarities of this phenomenon, and the associated trends. Due to the limitations of the study dictated by the requirements to and format of master theses, qualitative component has not been included into the research methodology. However, the study may be further continued and expanded by qualitative component which would provide a more holistic understanding of the investigated matter. For instance, qualitative strategy may foresee carrying out in-depth interviews with the selected respondents to better understand risk and resilience factors impacting the development of mental disorders. In particular, in-depth interviews will be helpful for distinguishing mental disorders which developed during the full-scale war from those previously existing in healthcare workers, as well as for identifying mental disorders which occurred due to the impact of professional but not personal factors. Besides, such an approach may ensure more diagnostic accuracy as

concerning the scores received from self-assessment instruments. Hence, the optimal strategy for this research, if the latter is expanded *e.g.* under the PhD degree, is to supplement the quantitative component with the qualitative one in order to ensure more in-depth understanding of the problem.

The present study is survey research which has been carried out with the use of the questionnaire as described in detail in sub-para 2.2 hereof and lay down in Appendix 1 hereto.

2.2. Sampling approach

For the purposes of this study, a combination of convenience and purposive sampling has been used. Such an approach to sampling has been selected given that the aim of this pilot study is the reconnaissance of the situation with mental health among healthcare professionals under conditions of the full-scale war. The results of the study are expected to provide primary insights and establish rather general trends related to the matter to lay ground for policy recommendations as well as further research. Besides, one of the key aims of the study was to investigate situation in the healthcare facilities working under different conditions during the war, hence, the facilities were respectively selected based on the criteria and in accordance with the approach described below.

Eight hospitals located in four different regions of Ukraine have been included into the study, namely: Zakarpattia, Poltava, Dnipropetrovsk, and Donetsk regions. Selection of the regions was informed by their proximity to the areas of active hostilities and the impact of the full-scale war on their population and healthcare infrastructure. In particular, Donetsk region has been the area of active hostilities even before the beginning of the full-scale invasion with the hostilities having significantly intensified since 2022. At the moment of this study, healthcare infrastructure in Donetsk region was overwhelmed with the great number of wounded soldiers and civilians thus suffering unprecedented workload while simultaneously being under direct attacks of the russian army.

Dnipropetrovsk region is quite unique as it is the closest one to the regions of the most active hostilities with no hostilities having taken place on its territory. In view of its location, the region has become a large logistical hub for all the army, volunteer, and other personnel moving back and forth between the frontline and hinterland. Healthcare infrastructure of the Dnipropetrovsk region has respectively taken on a tremendous burden of providing medical care to both civilian population fleeing areas of active combat as well as the great number of wounded soldiers, especially those in need of specialized medical care. Donetsk and Dnipropetrovsk regions are thus classified as “frontline regions” for the purposes of the study.

Poltava region is in the central part of Ukraine with no hostilities having taken place on its territory. Therefore, the region has been considered relatively safe as compared to those suffering direct impact of hostilities closer to the frontline. Still, the region hosts quite many internally displaced persons (“IDPs”) mostly fleeing from the regions suffering or being at risk of suffering from hostilities and occupation. Besides, the region is impacted by all the other indirect consequences of war such as logistical and supply hindrances, as well as the outflow of medical staff leaving Ukraine or moving further to its Western parts. Finally, Zakarpattia region is the farthest one from active hostilities as it is located at the extreme West of the country. Although geographically distant from active combat, the region has experienced a great flow of IDPs placing considerable burden on its infrastructure, including the healthcare one. Besides, Zakarpattia is constantly under the risk of missile attacks at the civilian objects same as any other regions in Ukraine. Hence, Poltava and Zakarpattia regions are respectively classified as “distant from the frontline / other regions” for the purposes of the study.

The selection of hospitals in the mentioned regions was based on the following criteria: i) willingness and capability to participate in the study; ii) geographic location in one of the four selected regions; iii) valid contract with the National Health Service of Ukraine; iv) providing basic outpatient & inpatient services (including surgery); v) active

involvement in treatment of casualties of war and / or IDPs. Based on these criteria, the following hospitals have been included into the study:

- 1) Kramatorsk Primary Medical Care Center (code in the register of legal entities 37944301) hereinafter referred to as “**Kramatorsk PMC**”;
- 2) Kramatorsk City Hospital No. 3 (code in the register of legal entities 01990810) hereinafter referred to as “**Kramatorsk SMC**”;
- 3) Pavlohrad Primary Medical Care Center (code in the register of legal entities 37735597) hereinafter referred to as “**Pavlohrad PMC**”;
- 4) Synelnykove Primary Medical Care Center (code in the register of legal entities 01111701) hereinafter referred to as “**Synelnykove PMC**”;
- 5) Velyka Bahachka Primary Medical Care Center (code in the register of legal entities 38396564) hereinafter referred to as “**Velyka Bahachka PMC**”;
- 6) Velyka Bahachka Central Hospital (code in the register of legal entities 01999201) hereinafter referred to as “**Velyka Bahachka SMC**”;
- 7) Mukachevo Primary Medical Care Center (code in the register of legal entities 40390032) hereinafter referred to as “**Mukachevo PMC**”;
- 8) Mukachevo Hospital of Saint Martin (code in the register of legal entities 01992831) hereinafter referred to as “**Mukachevo SMC**”.

Representatives of the hospitals were instructed to ensure participation of healthcare professionals working at the different positions, including managers, physicians, nurses, interns, and other staff. Besides, representation of different departments was welcome and encouraged to make the sample representative of the study population.

Sample size constitutes 454 respondents which have been included into analysis following data cleansing (18 responses have not been included into analysis due to essential data missing). The requirement for the sample size (response rate) was to comprise not less than 10-20% of healthcare workers working in the hospitals included in

the study based on the inclusion criteria as described below. The ultimate average response rate constitutes 26.5% as demonstrated in Table 2.1 below. We understand that the response rate has been influenced by numerous war-related and other factors which made it difficult for the hospital managers to mobilize their personnel to participate in the study. Besides, academic nature of the study with no direct benefits foreseen for the participants might have as well contributed to their reluctance to participate considering *inter alia* their extreme workload.

Table 2.1

Response rate among the hospitals included in the study

Hospital	No. of personnel employed in the hospital¹	No. of responses received from the hospital	Response rate
Kramatorsk PMC	412	86	20.9%
Kramatorsk SMC	560	15	2.7%
Pavlohrad PMC	50	21	42%
Synelnykove PMC	101	14	13.8%
Velyka Bahachka SMC	154	35	22.7%
Velyka Bahachka PMC	35	12	34.2%
Mukachevo PMC	230	142	61.7%
Mukachevo SMC	930	129	13.9%
Average response rate			26.5%

¹ Data on the number of personnel employed in Pavlohrad PMC and Synelnykove PMC are tentative as it have been taken from the publicly accessible online sources due to the lack of a response from the hospital managers

2.3. Data collection mode

For the purposes of this research, data has been collected through an electronic survey. In particular, the questionnaire has been provided to the respondents as a google-form with the accompanying instructions and the information on the study. Google form was preferred by all the hospitals over any other suggested formats, including various electronic survey forms and in-person survey. All the respondents have had sufficient time to fill in the questionnaire (not less than two weeks).

The questionnaire consisted of the four parts, namely: socio-demographic profile, professional characteristics of the respondents, description of working conditions during the full-scale war, and mental health assessment part.

Socio-demographic profile included questions on sex and age of the respondents since no other data had been considered relevant for the purposes of the study.

Professional characteristics block included questions on the respondents' positions at their place of work, medical specialty (if any), as well as the years of working experience. This information was regarded sufficient to form the respondents' professional profile given the research aims.

The third part of the questionnaire related to working conditions of the healthcare professionals during the full-scale war. In particular, respondents were asked on the number of working hours per day and the number of working days per week during the war. Besides, this part of the questionnaire included inquiry on whether healthcare professionals experienced physical threats / personal unsafety (missile attacks, artillery shelling, proximity to combat etc.), treated severely wounded patients (including due to war casualties), dealt with large numbers of IDPs, shortage of medical personnel, supplies or hospital beds at the healthcare facility, performed job duties beyond the primary

medical specialty. Besides, the respondents were asked to rate their perceived increase in the workload during the full-scale war (0 – 10).

To assess the respondents' mental health, the following validated screening self-reporting instruments have been used.

2.3.1. Post-traumatic stress disorder: PCL-5

PCL-5 questionnaire has been developed at Veteran Affairs National Center for PTSD in the US and is available for general use. This instrument is intended for use by qualified health professionals and researchers.

The PCL-5 is a 20-item self-report measure that assesses the 20 DSM-5 symptoms of PTSD. The PCL-5 has a variety of purposes, including screening individuals for PTSD and / or making a tentative PTSD diagnosis. It takes approximately five to ten minutes to complete the questionnaire. Interpretation of the PCL-5 should be made by a clinician; however, it may also serve for research purposes which do not foresee the involvement of clinicians.

For the purposes of this research, a total symptom severity score under PCL-5 (range - 0-80) has been obtained by summing the scores for each of the 20 items. According to the official recommendations on the use of PCL-5, a cutoff score between 31-33 has been used as indicative of a tentative PTSD diagnosis. However, when analyzing the results received, we took into account the fact that characteristics of the respondents' settings as well as the goal of assessment might have had an impact on the tentative diagnosis.

2.3.2. Depression: Patient Health Questionnaire (PHQ-9)

The Patient Health Questionnaire (PHQ) is a self-report measure designed to screen individuals for depressive symptoms. The PHQ-9 scores each of the nine DSM-IV criteria of depression as "0" (not at all) to "3" (nearly every day). The screening instrument has been validated for use at the primary care facilities (Cameron et al., 2008). The

questionnaire has demonstrated its validity for making a tentative diagnosis even when it is used through remote means of communication (Pinto-Meza et al., 2005).

The questionnaire takes one to five minutes to complete and roughly the same amount of time for a clinician / researcher to review the responses.

As concerning the interpretation of results, 5-9 points indicate mild depression, 10-15 points – moderate depression, 15 – 19 points – moderately severe depression, and 20 – 27 points – severe depression. These cut-off scores have been used to interpret the results under this study.

2.3.3. Anxiety: Generalized Anxiety Disorder Assessment (GAD-7)

The Generalized Anxiety Disorder Assessment (GAD-7) is a seven-item instrument that is used to measure or assess the severity of generalized anxiety disorder (GAD). The GAD-7 is a useful tool for identifying possible cases of GAD in course of preliminary screening (Spitzer et al., 2006). The GAD-7 has been validated for primary care patients, general population, and adolescents with GAD (Mossman et al., 2018).

The GAD-7 is a self-administered patient questionnaire which takes about two minutes to complete.

Based on a recent meta-analysis, experts recommend using a cut-off of 8 points to make a tentative diagnosis of GAD (Plummer et al., 2016).

2.4. Approach to data analysis

First, for the purposes of the analysis, the data received from the respondents has been cleaned to eliminate incorrect, incorrectly formatted, duplicate, or incomplete data from the dataset. This has been done manually in Excel program. Following data cleansing, dataset comprised 454 unique responses.

As the next step, the cleaned data has been quantified, *i.e.* numerical values have been assigned to all the variables. For some variables (such as professional occupation / specialty), quantitative coding has been applied to reduce a wide variety of items of information to a more limited set of attributes composing a variable. It has been ensured

that code categories are both exhaustive and mutually exclusive. A codebook has been developed to describe the variables and the assignments of codes to the attributes composing the variables. The coded data has been entered into the Excel spreadsheet to be imported into SPSS program for analysis.

Statistical analysis of the data has been carried out in SPSS computer program. The two basic analysis forms have been used: univariate analysis (frequency distribution), and bivariate analysis (chi-squared test).

Within univariate analysis, cases have been described in terms of a single variable (e.g. sex, age, place of work, years of experience etc.). To present univariate data, all the individual cases have been reported, that is, attributes were listed for each case in terms of the variable in question. Beyond simply reporting the overall distribution of values, mean indicator has been used for a couple of variables: age, perceived increase in the workload).

Within bivariate analysis, correlation between variables has been established. Bearing in mind the goals of the research as well as the hypotheses set, correlation was investigated between various variables (age, sex, place of work, hardships encountered during the full-scale war) and the occurrence of mental disorders (at least one disorder, PTSD, depression, anxiety). Based on the results of the analysis, contingency tables have been developed and laid down in Chapter 3 hereof.

2.5. Study strengths and limitations

Strengths and limitations of the present study are informed by its design, methodology, as well as the resources available for carrying out the research.

The present study has the following strengths:

- 1) *First-of-a-kind findings in Ukraine providing basic insights into the investigated matter.* The study is the first-of-a-kind in Ukraine investigating the issue of psychological well-being of healthcare professionals working under conditions of the full-scale war. The research findings are unique and provide

preliminary insights into the situation with mental health of healthcare professionals. These findings may be used both for further research and for the development of interventions aimed at sustaining the healthcare system by building up psychological resilience of the health workforce.

2) *Practical application of the study findings.* The study provides practical recommendations which may be implemented by decision makers and / or integrated into framework of the technical assistance currently provided to the Ukrainian decision-makers by international technical projects and other non-governmental organizations.

3) *Appropriate study design which allows to achieve the set research purposes.* The design of the study, including sampling approach and the use of survey method, made it feasible to cover quite a large sample. This is important in terms of both descriptive and explanatory analyses allowing to extrapolate study findings to the study population and make respective conclusions. Besides, study design ensured flexibility and allowed to collect the data which was deemed exactly relevant for the purposes of the research.

Still, the following limitations of the study have been identified and shall be taken into account when considering study findings and / or planning follow-up research, or implementing the suggested recommendations for interventions:

1) *Recruitment limitations and non-random sampling of survey subjects.* The selected approach to sampling, which foresees relying on purposive and convenience sample, limits the generalizability of study results on the population.

2) *Absence of longitudinal study to observe trend developments.* Cross-sectional design of the study only allows to investigate the matter at a particular point of time. Such a study design does not provide a possibility to monitor the investigated trends during a longer period. This would be of particular

importance for the problem investigated within this study as the existing literature shows that significant changes in mental health of healthcare professionals may occur after immediate danger or stressor reside (*i.e.* after the end of the war). Hence, a follow-up longitudinal study may be warranted to continue and expand this research and provide follow-up assessments of psychological well-being of the respondents.

- 3) *Reliance on self-reporting and potential inadequacy of symptomatic criteria of the used screening tools.* Reliance on self-reporting approach and the lack of verification of results by a licensed medical practitioner only allow preliminary screening and tentative diagnoses. Still, no definitive diagnoses may be made without professional verification in a situation where self-reporting may lead to certain inaccuracy of the results given that the respondents might have misunderstood certain questions and / or have been distracted, or limited in time to properly answer all the questions etc. This limitation has been taken into account at the stage of the result interpretation.
- 4) *Limitations of the result interpretation dictated by the study design.* There is no possibility to differentiate symptoms of the disorders identified in course of this study from the previously existing disorders as it was not foreseen by the design of the study. Besides, the present study does not allow to conclude whether the identified disorders have been caused by occupational stressors or other stressors, including personal factors (*e.g.* living in the context of war irrespective of professional occupation). To specify the causes of the disorders identified in this study, a qualitative component in form of in-depth interviews with respondents may be added as described in sub-para 2.1 hereof.

2.6. Ethical considerations relevant to the study

The Committee of Ethics for Scientific Studies of the National University of Kyiv-Mohyla Academy has considered the study protocol and approved the study.

The design of the study, including approaches to sampling, data collection, and data analysis, ensures that all the applicable ethical considerations are properly addressed.

Respondents' participation in the study is voluntary and well-informed. Prior to taking part in the survey, study participants received full information on the purposes of the study, its academic nature, social importance as well as all the measures taken to ensure confidentiality of information they provided. Besides, study participants have been included in the study only provided they were willing to do so, had sufficient time and explicitly consented to participate. The principle of no harm to participants has been fully complied with due to the latter's informed consent to participation in the study as well as the measures taken to eliminate any risks the participants might have encountered in relation to the study.

Confidentiality of information provided by the respondents has been guaranteed as their responses have been processed and the data analyzed on a depersonalized basis. All the identifying information has been removed from the dataset immediately after the data cleaning stage. Hence, the data subject to analysis was depersonalized. In result, there is no possibility to identify a respondent in the results of the study which are published, discussed, or shared.

Besides, ethical considerations are followed not only in regard of the study participants but also as concerning the scientific community. All the study findings, including negative ones, as well as study limitations have been properly reported and described, while all the previous study findings and conclusions are duly cited with no plagiarism allowed.

CHAPTER III. WAYS TO SUSTAIN PSYCHOLOGICAL RESILIENCE OF THE HEALTHCARE PERSONNEL

1.1. Study results

We obtained responses from 472 healthcare professionals, 18 of which were excluded in the process of data cleaning due to missing or incomplete information which did not allow to consider a response as a unique one. Hence, the dataset subject to analysis comprised 454 unique responses. Of these, 402 (88,5%) are women, and 52 (11,5%) – men. The mean age of the participants is 44 years old. Nurses constitute the majority of the respondents (57,9%) as followed by physicians (32,2%). Managers (5,9%), interns (1,1%), and other staff (2,9%) are represented by significantly smaller shares. 66,5% of the respondents did not specify their specialty. General practitioners account for 17,7% of the respondents, while other specialties are represented by small shares. Most of the respondents (79,3%) have considerable professional experience having worked for more than ten years, while 13,4% are young professionals who have worked for less than five years.

All the basic socio-demographic and professional characteristics of the respondents, including the distribution of responses as per the participants' place of work (hospitals), are laid down in Table 3.1 below.

Table 3.1

Socio-demographic profile and professional characteristics of the respondents (N = 454)

Variable	Frequency	Percent
<i>Sex</i>		

Male	52	11,5
Female	402	88,5
Age		
Years, mean	44	
Place of work (hospital)		
Kramatorsk PMC (Donetsk region)	86	18,9
Kramatorsk SMC (Donetsk region)	15	3,3
Pavlohrad PMC (Dnipropetrovsk region)	21	4,6
Synelnykove PMC (Dnipropetrovsk region)	14	3,1
Velyka Bahachka PMC (Poltava region)	12	2,6
Velyka Bahachka SMC (Poltava region)	35	7,7
Mukachevo PMC (Zakarpattia region)	142	31,3
Mukachevo SMC (Zakarpattia region)	129	28,4
Position		
Manager	27	5,9
Physician	146	32,2
Nurse	263	57,9
Intern	5	1,1
Other	13	2,9
Specialty		
General practitioner	78	17,2
Pediatrics	12	2,6
Neurology	6	1,3
Internal diseases (therapy)	7	1,5
Anesthesiology	7	1,5
Obstetrics and gynecology	5	1,1
Surgery	10	2,2
Cardiology	7	1,5
Nephrology	1	0,2
Radiology	7	1,5
Urology	2	0,4
Blood transfusion	1	0,2
Traumatology	1	0,2

Infectious diseases	2	0,4
Endoscopy	2	0,4
Gastroenterology	1	0,2
Pulmonology	1	0,2
Oncology	1	0,2
Ophthalmology	1	0,2
No answer	302	66,5
<i>Years of experience</i>		
Less than 5 years	61	13,4
5 – 10 years	33	7,3
More than 10 years	360	79,3

When asked on their working conditions during the full-scale war, 28,2% of all the respondents specified that they worked 8-12 hours, while 16,7% of the respondents worked for more than 12 hours per day. Besides, 77,3% of the respondents worked for 5-6 days per week, yet 7% of the respondents worked 6-7 days per week.

23,6% of all the respondents reported that they experienced physical threat / personal unsafety due to missile attacks, artillery shelling, proximity to combat etc. in course of their work. 17% of the respondents treated severely wounded patients, including due to war casualties, while 56,6% had to deal with a large number of IDPs. Besides, 29,5% of study participants reported that they experienced shortage of medical personnel at a healthcare facility, 12,8% - experienced shortage of supplies, 22,2 – shortage of hospital beds. 17,4% of all the respondents had to perform job duties beyond their primary specialties during the war.

Finally, the respondents assessed increase in their workload during the full-scale war as amounting to 6 out of 10 in average. Information on the working conditions of the respondents during the full-scale war is laid down in general in Table 3.2 and specified by regions in Table 3.3 below.

Table 3.2

Working conditions during the full-scale war (N = 454)

Variable	Frequency	Percent
-----------------	------------------	----------------

<i>Working hours per day</i>		
Less than 8 hours	246	54,2
8 – 12 hours	128	28,2
More than 12 hours	76	16,7
<i>Working days per week</i>		
1 – 4 days	70	15,4
5 – 6 days	351	77,3
6 – 7 days	32	7,0
<i>Experience of physical threat / personal unsafety (missile attacks, artillery shelling, proximity to combat etc.)</i>		
No	324	71,4
Yes	107	23,6
Difficult to answer	20	4,4
<i>Experience of treating severely wounded patients (including due to war casualties)</i>		
No	355	78,2
Yes	77	17,0
Difficult to answer	22	4,8
<i>Experience of dealing with large numbers of IDPs</i>		
No	167	36,8
Yes	257	56,6
Difficult to answer	29	6,4
<i>Experience of shortage of medical personnel at the healthcare facility</i>		
No	293	64,5
Yes	134	29,5
Difficult to answer	25	5,5
<i>Experience of shortage of supplies at the healthcare facility</i>		
No	372	81,9
Yes	58	12,8
Difficult to answer	22	4,8
<i>Experience of shortage of hospital beds for the patients arriving at the healthcare facility</i>		
No	284	62,6
Yes	101	22,2
Difficult to answer	68	15,0

<i>Experience of performing job duties beyond the primary medical specialty</i>		
No	351	77,3
Yes	79	17,4
Difficult to answer	21	4,6
<i>Perceived increase in the workload during the full-scale war (0 – 10)</i>		
Mean		6,0

Table 3.3

Working conditions during the full-scale war (by regions) (N = 454)

<i>Experience of physical threat / personal unsafety (missile attacks, artillery shelling, proximity to combat etc.)</i>		
	Frontline regions (N = 134)	Other regions (N = 317)
No	33 (24,6%)	291 (91,8%)
Yes	92 (68,7%)	15 (4,7%)
Difficult to answer	9 (6,7%)	11 (3,5%)
<i>Experience of treating severely wounded patients (including due to war casualties)</i>		
	Frontline regions (N = 136)	Other regions (N = 318)
No	100 (73,5%)	255 (80,1%)
Yes	23 (16,9%)	54 (17%)
Difficult to answer	13 (9,6%)	9 (2,8%)
<i>Experience of dealing with large numbers of IDPs</i>		
	Frontline regions (N = 135)	Other regions (N = 318)
No	63 (46,7%)	104 (32,7%)
Yes	57 (42,2%)	200 (62,9%)
Difficult to answer	15 (11,1%)	14 (4,4%)
<i>Experience of the shortage of medical personnel at the healthcare facility</i>		

	Frontline regions (N = 135)	Other regions (N = 317)
No	59 (43,7%)	234 (73,8%)
Yes	69 (51,1%)	65 (20,5%)
Difficult to answer	7 (5,1%)	18 (5,7%)
<i>Experience of the shortage of supplies at the healthcare facility</i>		
	Frontline regions (N = 135)	Other regions (N = 317)
No	100 (74%)	272 (85,8%)
Yes	27 (20%)	31 (9,8%)
Difficult to answer	8 (5,9%)	14 (4,4%)
<i>Shortage of hospital beds for the patients arriving at the healthcare facility</i>		
	Frontline regions (N = 135)	Other regions (N = 318)
No	73 (54%)	211 (66,3%)
Yes	35 (25,9%)	66 (20,7%)
Difficult to answer	27 (20%)	41 (12,9%)
<i>Experience of performing job duties beyond the primary medical specialty</i>		
	Frontline regions (N = 133)	Other regions (N = 318)
No	91 (68,4%)	260 (81,7%)
Yes	36 (27%)	43 (13,5%)
Difficult to answer	6 (4,5%)	15 (4,7%)

Based on the scores received from self-administered screening instruments, 37% of all the respondents have symptoms of at least one of the following disorders: PTSD, depression, or anxiety. 14,5% of all the respondents have symptoms of anxiety, while 10,4% have symptoms of PTSD. Depression is found to be the most widespread disorder among the respondents, the number of study participants who have symptoms of depression amounting to 35,7%. Among these, mild depression symptoms prevail (67,9%)

and are followed by moderate (19,4%) and moderately severe (9,2%) depression symptoms; only 3,7% of the respondents with symptoms of depression have demonstrated severe depression. Information on the occurrence of mental disorders among the respondents is presented in Table 3.4 below.

Table 3.4

Occurrence of mental disorders among the respondents (N = 454)

	Frequency	Percent
<i>Occurrence of at least one disorder</i>		
No	285	62,8
Yes	168	37
<i>Occurrence of PTSD</i>		
No	406	89,4
Yes	47	10,4
<i>Occurrence of depression</i>		
No	291	64,1
Yes	162	35,7
<i>Severity of depression</i>		
Mild	110	67,9
Moderate	31	19,4
Moderately severe	15	9,2
Severe	6	3,7
<i>Occurrence of generalized anxiety disorder</i>		
No	387	85,2
Yes	66	14,5

Position at a healthcare facility, professional experience, encounter with physical threat (personal unsafety), experience of treating severely wounded patients, dealing with large number of IDPs, shortage of medical personnel and supplies as well as the necessity

to perform job duties beyond the primary specialty are found to be significantly associated with the occurrence of symptoms of at least one disorder (p-value < 0,05). However, sex, number of working hours per day and working days per week, as well as shortage of hospital beds had no statistically significant association with the occurrence of the disorders (p-value > 0,05).

As concerning the occurrence of PTSD, it is significantly associated (p-value < 0,05) with the position at a healthcare facility, encounter with physical threats (personal unsafety), dealing with large number of IDPs, shortage of medical personnel, supplies, and hospital beds, as well as the necessity to perform job duties beyond the primary specialty.

Occurrence of depression is significantly associated (p-value < 0,05) with the position at a healthcare facility, professional experience, encounter with physical threats (personal unsafety), experience of treating severely wounded patients, dealing with large number of IDPs, shortage of medical personnel and supplies, as well as performing job duties beyond the primary specialty.

Finally, occurrence of anxiety has been found significantly associated (p-value < 0,05) with the years of professional experience, encounter with physical threat (personal unsafety), experience of treating severely wounded patients, dealing with large number of IDPs, shortage of medical personnel, as well as performing job duties beyond the primary specialty.

Managers and physicians are almost equally prone to the risk of developing a disorder demonstrating the highest occurrence rates – 46,2% and 47,3% respectively. Besides, it is young healthcare practitioners with little experience (who worked less than five years) who have demonstrated the highest occurrence rates of mental disorders – 59%. Women have been found to be more prone to the risk of depression and anxiety, and men have been found to be more at risk of developing PTSD. Yet these findings are not statistically significant (p-value > 0,05).

Encounter with any of the work-related stressors included in the questionnaire led to the increased risk of developing mental disorders. For instance, 46,2% of the healthcare professionals who experienced physical threat (personal unsafety) during the work had symptoms of at least one disorder. The same is true for almost half of the respondents who treated severely wounded patients, dealt with many IDPs, experienced shortage of medical personnel or supplies, and had to perform job duties beyond their primary medical specialty. At the same time, there has been no significant increase in the risk of developing mental disorders due to longer working hours or more working days per week.

As concerning the occurrence of mental disorders depending on the regions respondents work in (frontline or other regions), the occurrence rates are considerably higher in the frontline regions. For instance, occurrence of anxiety is twice as high in the frontline regions, while occurrence of depression is almost three times as high. Still, the correlation between the place of work and the risk of occurrence of mental disorders was not found statistically significant ($p\text{-value} > 0,05$) except for PTSD ($p\text{-value} < 0,05$). Among the healthcare facilities which are close to the frontline, the highest occurrence rates were found in Kramatorsk SMC hospital (except for PTSD rate which is higher in Synelnykove PMC center). Among the hospitals which are far from the frontline, occurrence rates for the disorders vary. For instance, PTSD rate is the highest in Velyka Bahachka SMC hospital, while depression rate is higher in Mukachevo PMC center, and anxiety – in Mukachevo SMC hospital.

All the findings relating to the correlation of the variables included into the questionnaire with the risk of occurrence of mental disorders (risk factors) are laid down in Table 3.5 herein below.

Table 3.5

Correlation of variables and the risk of occurrence of mental disorders (risk factors)
(N = 454)

Variable	Disorder occurrence rate			
	At least one disorder	PTSD	Depression	Anxiety
Sex	<i>p-value 0,316</i>	<i>p-value 0,208</i>	<i>p-value 0,488</i>	<i>p-value 0.056</i>
Male	16 (30,8%)	8 (15,4%)	16 (31,4%)	3 (5,8%)
Female	152 (37,9%)	39 (9,7%)	146 (36,3%)	63 (15,7%)
Position	<i>p-value 0,006</i>	<i>p-value 0,005</i>	<i>p-value 0,005</i>	<i>p-value 0,762</i>
Manager	12 (46,2%)	5 (18,5%)	12 (46,2%)	4 (14,8%)
Physician	69 (47,3%)	25 (17,1%)	67 (45,9%)	24 (16,6%)
Nurse	84 (31,9%)	16 (6,1%)	80 (30,4%)	37 (14,1%)
Intern	0 (0,0%)	0 (0,0%)	0 (0,0%)	0 (0,0%)
Other	3 (23,1%)	1 (7,7%)	3 (23,1%)	1 (7,7%)
Years of experience	<i>p-value 0,001</i>	<i>p-value 0,713</i>	<i>p-value 0,001</i>	<i>p-value 0,024</i>
Less than 5 years	36 (59,0%)	8 (13,3%)	35 (57,4%)	14 (23,0%)
5 – 10 years	12 (36,4%)	3 (9,1%)	12 (36,4%)	8 (24,2%)
More than 10 years	120 (33,4%)	36 (10,0%)	115 (32,0%)	44 (12,3%)
Place of work	<i>p-value 0,113</i>	<i>p-value 0,044</i>	<i>p-value 0,136</i>	<i>p-value 0,523</i>
Kramatorsk PMC	37 (43,0%)	14 (16,3%)	35 (41,2%)	13 (15,3%)
Kramatorsk SMC	10 (66,7%)	3 (21,4%)	10 (66,7%)	4 (26,7%)
Synelnykove PMC	5 (38,5%)	4 (28,6%)	5 (35,7%)	3 (21,4%)
Pavlohrad PMC	5 (23,8%)	2 (9,5%)	5 (23,8%)	2 (9,5%)
Frontline regions	43,0%	18,95%	41,85%	18,2%
Velyka Bahachka PMC	3 (25,0%)	0 (0,0%)	3 (25,0%)	0 (0,0%)
Velyka Bahachka SMC	11 (31,4%)	4 (11,4%)	10 (28,6%)	3 (8,6%)
Mukachevo PMC	56 (39,4%)	9 (6,3%)	53 (37,3%)	20 (14,1%)
Mukachevo SMC	41 (31,8%)	11 (8,5%)	41 (31,8%)	21 (16,3%)

<i>Regions distant from the frontline</i>	31,9%	6,55%	30,7%	9,75%
<i>Working hours</i>	<i>p-value 0,833</i>	<i>p-value 0,990</i>	<i>p-value 0,849</i>	<i>p-value 0,642</i>
Less than 8 hours	89 (36,2%)	26 (10,6%)	85 (34,7%)	32 (13,1%)
8 – 12 hours	48 (37,5%)	13 (10,2%)	48 (37,5%)	21 (16,4%)
More than 12 hours	30 (40,0%)	8 (10,7%)	28 (36,8%)	12 (15,8%)
<i>Working days</i>	<i>p-value 0,863</i>	<i>p-value 0,075</i>	<i>p-value 0,935</i>	<i>p-value 0,370</i>
1 – 4 days	24 (34,3%)	3 (4,3%)	24 (34,3%)	10 (14,3%)
5 – 6 days	132 (37,7%)	38 (10,8%)	127 (36,3%)	54 (15,4%)
6 – 7 days	12 (37,5%)	6 (18,8%)	11 (34,4%)	2 (6,3%)
<i>Experience of physical threat / insecurity (missile attacks, artillery shelling, proximity to combat etc.)</i>	<i>p-value 0,015</i>	<i>p-value 0,001</i>	<i>p-value 0,024</i>	<i>p-value 0,496</i>
No	108 (33,3%)	22 (6,8%)	105 (32,4%)	45 (13,9%)
Yes	49 (46,2%)	21 (19,8%)	46 (43,4%)	19 (17,9%)
Difficult to answer	11 (55,0%)	4 (20,0%)	11 (55,0%)	2 (10,0%)
<i>Experience of treating severely wounded patients (including due to war casualties)</i>	<i>p-value 0,011</i>	<i>p-value 0,172</i>	<i>p-value 0,024</i>	<i>p-value 0,012</i>
No	121 (34,2%)	32 (9,0%)	117 (33,1%)	44 (12,4%)
Yes	33 (42,9%)	11 (14,5%)	32 (41,6%)	15 (19,5%)
Difficult to answer	14 (63,6%)	4 (18,2%)	13 (59,1%)	7 (33,3%)
<i>Experience of dealing with large numbers of IDP</i>	<i>p-value 0,002</i>	<i>p-value-0,003</i>	<i>p-value 0,003</i>	<i>p-value 0,050</i>

No	45 (26,9%)	7 (4,2%)	44 (26,3%)	16 (9,6%)
Yes	107 (41,8%)	37 (14,5%)	102 (39,8%)	46 (17,9%)
Difficult to answer	15 (51,7%)	3 (10,3%)	15 (51,7%)	3 (10,3%)
<i>Experience of the shortage of medical personnel at the healthcare facility</i>				
	<i>p-value 0,019</i>	<i>p-value 0,018</i>	<i>p-value 0,007</i>	<i>p-value 0,003</i>
No	94 (32,2%)	22 (7,5%)	89 (30,4%)	31 (10,6%)
Yes	62 (46,3%)	22 (16,5%)	61 (45,9%)	31 (23,1%)
Difficult to answer	10 (40,0%)	3 (12,0%)	10 (40,0%)	3 (12,0%)
<i>Experience of the shortage of supplies at the healthcare facility</i>				
	<i>p-value 0,001</i>	<i>p-value 0,001</i>	<i>p-value 0,001</i>	<i>p-value 0,134</i>
No	123 (33,1%)	28 (7,5%)	118 (31,7%)	48 (12,9%)
Yes	30 (52,6%)	13 (22,4%)	29 (50,9%)	10 (17,2%)
Difficult to answer	13 (59,1%)	6 (27,3%)	13 (59,1%)	6 (27,3%)
<i>Shortage of hospital beds for the patients arriving at the healthcare facility</i>				
	<i>p-value 0,106</i>	<i>p-value 0,048</i>	<i>p-value 0,079</i>	<i>p-value 0,097</i>
No	95 (33,5%)	23 (8,1%)	90 (31,8%)	34 (12,0%)
Yes	45 (45,0%)	17 (16,8%)	44 (43,6%)	21 (20,8%)
Difficult to answer	27 (39,7%)	7 (10,3%)	27 (39,7%)	10 (14,7%)
<i>Experience of performing job duties beyond the</i>				
	<i>p-value 0,002</i>	<i>p-value 0,001</i>	<i>p-value 0,001</i>	<i>p-value 0,003</i>

<i>primary medical specialty</i>				
No	114 (32,6%)	26 (7,4%)	109 (31,1%)	41 (11,7%)
Yes	42 (53,2%)	18 (22,8%)	41 (52,6%)	21 (26,6%)
Difficult to answer	10 (47,6%)	3 (14,3%)	10 (47,6%)	3 (14,3%)

1.2. Discussion of the results

As a number of studies consistently demonstrate that healthcare practitioners who work under stressful conditions are under the risk of developing mental disorders, the main aim of this survey was to establish the scope of this problem in Ukraine during the period of full-scale war to develop respective practical recommendations.

Of the 454 study participants, more than one third (37%) have demonstrated symptoms of either PTSD, depression, or anxiety. This confirms the hypothesis that healthcare practitioners exposed to war-related stress would have higher rates of mental disorders as compared to the general population (the average reference rates for the mentioned disorders among the general population are laid down in para. 1.2 of the study). Besides, we found that 10,4% of the respondents manifested symptoms of PTSD, which is in line with the findings of previous studies exploring the impact of war-related and other stressors on mental health of healthcare personnel. Namely, such studies found that the occurrence rate of PTSD among healthcare professionals amounted to 14.8% ranging between as low as 4.4% and as high as 28% depending on various factors (Sendler et al., 2016). The occurrence rates of depression (35,7%) and anxiety (14,5%) established among the healthcare professionals within this study also correspond to the figures presented in the literature. For instance, approximately one third of healthcare professionals prone to various stressors manifested depressive symptoms according to a range of studies (Mata et al., 2015; Abraham et al., 2021; Fond, 2022; Aziz et al., 2022).

It is worth noting that although the predominant number of the respondents of our study allegedly have mild depression (67,9%), almost 13% of them have symptoms of moderately severe or even severe depression which indicates the seriousness of the problem and requires respective interventions.

The survey has as well confirmed our second hypothesis suggesting that the prevalence of mental disorders would be higher for healthcare workers employed in the hospitals located in the regions close to frontline as compared to the healthcare workers practicing in other regions. All the investigated disorders were found to be considerably more widespread among the healthcare personnel working at the hospitals in the frontline regions as compared with those employed in relatively safe regions of Ukraine. For instance, occurrence of anxiety is twice as high in the frontline regions, while occurrence of depression is almost three times as high. One should pay particular attention to the fact that the highest occurrence rates for depression and anxiety were found in Kramatorsk SMC hospital which may be explained by the fact that it is the frontline specialized medical care facilities which take on the primary responsibility for treating patients with severe casualties and work under extreme conditions in very dangerous settings close to the battlefield.

Our study as well aimed to consider the risk factors impacting the development of mental disorders among the healthcare workers. In line with the previous relevant studies, we found that women are more prone to this risk (with the only exception of PTSD). The fact that these findings are not statistically significant may be due to the specificity of the sample and shall not be considered decisive for the purposes of interpreting the results.

Statistically significant correlation has been established between the position of healthcare professionals and their risk of developing mental disorders. Since managers and physicians demonstrated considerably higher rates of mental disorders, we assume that the occurrence risk may be related to the scope of professional responsibility, *i.e.* the more responsibility a practitioner bears, the higher risks of developing a disorder he / she

is prone to. It is worth noting that these findings do not correspond to the findings of the other previous studies which demonstrated that nurses were usually under higher risk of mental disorders than physicians (Khanal et al., 2020; Ben-Ezra et al., 2007). Such a difference may be due to the peculiarities of the investigated settings, as the current situation in Ukraine may place distinctively heavy burden on managers and physicians who are responsible for the overall organization of healthcare services provision in the crisis period.

Besides, young healthcare professionals have been found considerably more prone to the risk of developing mental disorders than their more experienced colleagues – more than half of young professionals manifested symptoms of at least one disorder. These findings are consistent with the existing research evidence, as a number of works included young age to the list of the risk factors for mental disorders among healthcare professionals (D’Ettorre et al., 2021; Elhadi et al., 2020). This is explained by the fact that younger practitioners may have fewer coping strategies and less experience of overcoming crises than their more experienced colleagues.

Encounter with war-related stressors during the work has been found to significantly increase the risk of developing mental disorders among the healthcare practitioners. Approximately half of the healthcare workers who encountered one of the investigated stressors (such as physical unsafety, shortage of personnel, supplies, or hospital beds, treating wounded patients, or admitting large number of IDPs etc.) manifested symptoms of at least one mental disorder. This confirms our third hypothesis stating that hardships faced by the healthcare system during the war would increase the risk of healthcare workers’ developing mental disorders. Besides, this is demonstrative of the fact that the current conditions in Ukraine have considerable impact on the psychological well-being of medical personnel. Based on the existing research evidence, we assume that the prevalence of mental disorders will only increase after the end of the war as currently respondents are mobilizing their resources to cope with the immediate

stressors. After such immediate stressors reside, healthcare workers may find themselves in even more dire mental health condition. This is a serious issue to consider in terms of strengthening resilience of the whole healthcare system.

At the same time, we found no correlation between the increased workload (as assessed in a number of working days per week and a number of working hours per day) and the risk of developing mental disorders. We assume that such kind of resilience under conditions of the increased workload may be due to the experience of dealing with COVID-19 when the extreme burden was placed on the healthcare system. Hence, healthcare workers in Ukraine might have become considerably more resistant to the increased workload and do not perceive it as a serious stressor.

In a broader context of the resilience of the Ukrainian healthcare system during the war period and in its aftermath, it is also instructive to observe the hardships faced by the system as they directly impact its functional capacity to withstand the challenges and should inform respective policy interventions. Our study has shown that admitting a large number of IDPs and the need to respectively provide them with medical care is the most common challenge faced by the healthcare facilities across Ukraine. There is no surprise that hospitals in the Central and Western parts of Ukraine faced this challenge more often than hospitals in the frontline region – 62,9% and 42,2% of healthcare practitioners in respective regions confirmed this. Another challenge occurring during the full-scale war is the lack of medical personnel, supplies, and hospital beds at the hospitals. Almost one third of all the healthcare staff included into the study felt the lack of personnel, supplies or beds during the war period. Remarkably, all of these shortages are considerably more common in the frontline regions than in the relatively safe regions which might be explained by respective increase of patient admittance rates as coupled with logistical and supply problems in the hospitals close to the combat areas. Besides, while 17,4% of the respondents had to occasionally perform functions beyond their primary medical specialty, this figure is twice as high in the frontline regions (27% as compared to 13,5%)

which may be another demonstration of the extreme workload and the lack of qualified staff operating in the hospitals close to the battlefield. Also, 17% of all the respondents had to treat severely wounded patients, including due to war casualties, this rate being almost identical for frontline and other regions. This is due to the fact that seriously wounded patients are normally first stabilized at the hospitals close to the battlefield to receive further specialized medical care (including surgery), and rehabilitation services at the specialized facilities in the regions far from the frontline.

Finally, the study participants assessed the increase in their workload during the war period to amount to 6 out of 10 in average which is demonstrative of quite serious burden placed on the medical personnel working under the war conditions in Ukraine.

Overall, the study findings confirm all the hypotheses formulated for the research and are mostly in line with the existing literature on mental health of the healthcare practitioners working under stressful conditions.

1.3. Recommendations on measures to sustain psychological resilience of the healthcare personnel

The above findings highlight the problems the Ukrainian healthcare system faces during the full-scale war in terms of healthcare workers' mental health. Respectively, certain measures shall be taken to ensure that the system is capable of dealing with this challenge and will continue to function properly through the end of the war and in the post-war period. As mentioned above, such measures are primarily necessary to prevent and / or mitigate the risks associated with the deterioration of the healthcare professionals' mental health which may result in the increased burnout rates, alcohol and / or drug misuse, medical errors etc. Qualified and resilient healthcare personnel is one of the most valuable assets and the key to the efficiency of the healthcare system, hence, proper care shall be ensured to support the personnel in the times of the crisis.

The recommendations presented herein below are based on the study findings which indicate the risk factors influencing mental health of medical practitioners during the full-scale war in Ukraine as well as on the best practices applied by various countries to increase psychological resilience of healthcare personnel during various crises. Given that Ukraine is moving towards membership in the EU, particular attention has been paid to the latter's approach to supporting essential workers' psychological well-being. Namely, to ensure that the Ukrainian policy development efforts are in line with the EU standards, recommendations presented in this chapter rely *inter alia* on the 2021 Opinion of the Expert Panel on effective ways of investing in Health (EXPH) on supporting mental health of health workforce and other essential workers (“**EU Report, 2021**”). It is crucial to develop the Ukrainian policy on supporting mental health of healthcare personnel within the framework of the EU agenda on management of work-related psychosocial risks as *inter alia* reflected in the EU Strategic Framework for Health and Safety at Work (2021- 2027) and other initiatives related to mental health at work and addressing psychosocial occupational issues. Of course, the interventions developed in line with the EU agenda shall be tailored to account for the peculiarities of the situation in Ukraine, including the outstanding challenges faced by the healthcare system, the Ukrainian regulatory system, modes of healthcare financing and governance etc.

All the recommendations presented in this chapter may be tentatively distinguished into the two groups: 1) interventions to be applied at the national, and 2) those to be applied at the workplace level. Still, it is important to understand that only comprehensive integrated approach ensuring coordination between the interventions applied at the different levels may prove efficient to deal with the issue at a systemic level (EU Report, 2021, 35).

Besides, it is important to ensure that the interventions be consistently provided at the whole continuum of the changing mental health needs, *i.e.* starting from pre-crisis to post-crisis stage. For instance, preparing the involved personnel to job-related challenges

reduces the risk of mental health problems (Liu et al., 2011), while availability of support during and after the crises may be a decisive factor in the resilience of personnel and the system as a whole (Walton et al., 2020). Hence, primary, secondary, and tertiary prevention interventions are recommended to maintain mental well-being of the healthcare professionals (EU Report, 2021, 31). In this regard, primary prevention strategies refer to the prevention from exposing individuals to the known risk factors, as well as to increasing the individuals' resilience and ability to cope with stressors. Secondary prevention efforts should take place before stressors cause detrimental effect to an individual's mental well-being to slow the progression of his / her preclinical conditions, including detection and early treatment of symptoms of disorders to prevent their further development and deterioration. Finally, tertiary strategies mostly concern rehabilitation which shall reduce the negative impact of stressors and ensure treatment of mental conditions to resume an individual's ability of normal daily functioning, socializing, and performing job duties. At this final stage, it is important to provide access to rehabilitation, relapse prevention, qualified support, as well as to ensure opportunities to reintegrate to the workforce (EU Report, 2021, 31).

Any of the interventions to be developed and applied should be holistic by their nature to ensure that all the groups of the healthcare workers in need of psychological support receive it in a proper manner. Among other matters, it is essential to pay specific attention to people with pre-existing mental conditions as they are most vulnerable to the risk of further mental deterioration. Still, one shall consciously design respective interventions to prevent any stigma or discrimination of such groups with pre-existing mental conditions as well as to ensure full confidentiality and compliance with ethical and legal considerations (LaMontagne et al., 2014). Besides, when designing and implementing interventions, one shall bear in mind that the healthcare practitioners are quite reluctant to seek and receive support due to the risk of stigma and / or overconfidence

in their resilience. Hence, it is important to ensure that any of the interventions are easily accessible with all the confidentiality guarantees in place.

Also, greater use of digital solutions to deliver interventions to healthcare practitioners is strongly recommended as such digital tools are proved to increase the efficiency of workplace interventions (Carolan et al., 2017). Besides, short-term interventions which contain elements of self-monitoring and provide for a possibility of personalization are as well recommended for use as they demonstrate high compliance by healthcare staff (EU Report, 2021, 34).

1.3.1. National-level interventions

Although the GoU as well as the First Lady Office have already put considerable effort to promote mental health agenda as well as to expand access to respective services for the population in the context of the full-scale war, no specific recommendations and / or policies have been developed to address the issue of mental health of healthcare professionals or other essential workers. At the same time, as demonstrated by the findings of this study, the problem of mental disorders among the healthcare personnel is already in place and is likely to deteriorate in the future. Therefore, a comprehensive framework for specific interventions to prevent future risks and address the issue is already needed at the national level.

First, it is recommended that *the MoH elaborate a comprehensive strategy on ensuring mental well-being and providing mental health support to the healthcare professionals operating under conditions of the full-scale war in Ukraine*. Integration of interventions and strategies into larger national-level mental health frameworks is supported by the recent studies encouraging comprehensive approach to solving respective issues (Major et al., 2021). The Australian national framework “Every Doctor, Every Setting” is referred to as an example of the document aiming at coordination of actions to address mental health issues among the healthcare personnel and prevent

suicidal behavior and burnout (EU Report, 2021, 36). Such a national strategy for Ukraine may either be developed as a stand-alone document or integrated into some other strategic documents addressing outstanding mental health issues. The document shall clearly define the responsibilities of each of the actors involved into the development, implementation and promotion of respective policies and interventions to avoid accountability gaps or overlaps. The MoH as the government body responsible for policy development in the field of healthcare along with the Mental Health Coordination Center recently established under the CMU shall lead the whole process, yet the NHSU, academic, expert institutions, civil society organizations, and other interested parties shall be involved into the multi-stakeholder dialogue on the document and in the process of its practical implementation. The strategy shall not only lay down the basic principles and pillars of the approach to maintaining mental well-being of the healthcare professionals but shall necessarily outline the action plan, indicators to measure efficacy of the interventions, as well as the description of the process of monitoring and reporting. In case the development of a separate document to lay down the framework for supporting mental health of healthcare professionals and other essential workers is not deemed feasible in the nearest future, respective provisions should be integrated into the Concept on the Development of Mental Health in Ukraine by 2030 (CMU Resolution No. 1018-p as of December 27, 2017). Besides, the action plan for the implementation of the Concept expires in 2023, hence, it is high time the development of the new action plan for the following period. Such a new action plan shall include respective provisions on strengthening psychological resilience of the healthcare professionals and other essential workers who suffer from the impact of the war with the Russian Federation. Whatever form the national strategy takes, it is crucial that it accounts for the various risk factors impacting mental health of healthcare personnel across the country. Such risk factors should be established based on thorough research, for which this study may constitute a basis to proceed from.

Second, the national decision-making authorities should provide guidance on “mentally protective” workplaces to be implemented by the healthcare facilities concerned (EU Report, 2021, 56). Such a guidance may be released in a form of a handbook containing recommendations and instructions for organizing internal processes to support the healthcare practitioners at their workplaces. Particular focus should be made on preventing stigma and discrimination at the healthcare facilities, as well as on providing support to the personnel with pre-existing mental health conditions considering all the applicable legal and ethical considerations. The handbook may be developed through the collaborative effort of a range of stakeholders and issued by the MoH in collaboration with the newly established Mental Health Coordination Center. It should be regularly revised and updated to be based on the latest evidence.

Third, in addition to providing the guidance as described above, the national authorities should take part in preparing healthcare facilities and their managers to meeting psychosocial needs of the personnel. For instance, the EU Expert Panel recommends training organizations’ management to foster positive mental well-being at the workplace with focus on long-term thinking instead of emergency reactions. Such training should necessarily include algorithms on preparing healthcare personnel to working under stressful conditions, as well as on dealing with the most common disorders such as depression, anxiety, PTSD, burnout. In Ukraine, this recommendation can be operationalized through expanding training opportunities with the involvement of the NHSU, as well as of international organizations and technical assistance projects.

Additionally, at the national level, it is as well important *to develop reliable screening tools for self-assessment and organizational assessment to enable healthcare professionals as well as their managers to assess mental well-being status and the degree of impairment, if any.* Such tools shall be based on the officially recommended screening instruments such as those used for the purposes of the survey as described in Chapter 2 of this study. The tools shall be validated and piloted in Ukraine to ensure that they are

tailored to duly address the outstanding challenges, including the war-related ones. Screening tools should be used for identifying cases where specific help is needed to maintain a person's mental well-being based on the indicators established. Besides, the data should be accumulated for further use on an anonymous basis for the analysis of the mental health situation on the national level to ensure continuous monitoring of the efficiency of interventions. Respective screening instruments should be approved and recommended for use by the MoH. Besides, to harmonize the use of such screening tools and the interpretation of results, it is important that the key concepts such as mental well-being etc. be defined and that indicators for measuring mental well-being, including among the healthcare professionals, be established at the national level. Such unified concepts and indicators are needed to ensure that all the healthcare facilities as well as any other organizations engaged in providing support to the healthcare personnel use the same approaches to data collection, measurement, and analysis.

Finally, it is at the national level where conditions for effective and innovative workplace interventions shall be established. Among other things, the national decision-making bodies are responsible for allocating funds and promoting research to build reliable evidence base necessary to implement cost-effective interventions. Of course, coordination with other national, local, and international stakeholders is recommended.

1.3.2. Workplace-level interventions

Although the overall policy framework for supporting mental health of the healthcare practitioners shall be laid down at the national level, most interventions will be designed and implemented at the healthcare institutions since the experience of similar efforts during large-scale epidemic outbreaks demonstrate that workplace interventions are the most efficient tools to support mental health of the health workforce (Kisely et al., 2020).

By the workplace interventions, one should understand the efforts taken within a particular organization to ensure that proper communication, training, supply provision, workload management, psychological and personal support for employees is available to ensure the latter's mental well-being, especially in times of crises. As explained in Chapter 1 of this study, workplace interventions may concern various occupational factors and foresee informational, organizational, and psychological support. Recommendations on how to implement such interventions to support psychosocial well-being of the healthcare personnel in Ukraine are respectively laid down herein below.

First, certain general considerations on the design and implementation of such interventions should first be highlighted.

It is important to ensure that any interventions applied at hospitals in Ukraine are tailored to the particular circumstances such hospitals operate in. On practice, this means slightly different approaches and different tools to be used by hospitals close to the frontline and other hospitals as, according to our study findings, they face different set of challenges which differently impact mental health of their personnel.

Second, any workplace interventions to be applied in Ukraine would require continuous monitoring and regular evaluation to adjust and re-orient them based on the changing environment, nature and intensity of risks, trends in mental health status of the personnel etc. The EU Expert Panel in its 2021 report specifically emphasizes adaptability of interventions as the latter should account for individual and professional factors and characteristics of persons they are aimed at. For instance, a hospital should ensure that the tools it elaborates and applies to support mental health of its personnel are easily adjustable to meet the needs of both a nurse and a physician from the emergency department as well taking into account their personal factors influencing psychosocial status (*e.g.* years of experience, current living arrangements, worrying for family members etc.). Active involvement of employees in the design, implementation, monitoring, and

evaluation of the interventions implemented at their respective workplaces will considerably increase their adaptability and, hence, efficiency (EU Report, 2021, 44).

Third, hospital management or persons responsible for the development and implementation of the workplace interventions aimed at supporting mental health of the health personnel shall thoroughly *comply with the legal and ethical considerations relevant to mental health programs*. Given that respective considerations are uniform across the country, it is recommended that the guidelines are adopted at the national level and followed by healthcare organizations.

Fourth, emphasis on prevention is recommended over the treatment when designing the interventions. Therefore, it is assumed that low-intensity interventions will be more commonly applied across the hospitals with professional mental health services used only if such a need be.

Fifth, integration of all the interventions into the NHSU's packages and the overall agenda is very important to ensure their continuity and durable effect for the Ukrainian healthcare system. The NHSU may be involved through the whole continuum of mental support provided at the hospital level, including in the development of instruments to assess mental health status of the personnel, establishing respective indicators, collecting depersonalized assessment reports from hospitals to carry out the national-wide analysis of the situation in Ukraine, advising the MoH on the need to act on a situation though *e.g.* amending the effective strategy on mental well-being of healthcare personnel, training mental health specialists or non-specialists in particular interventions, reimbursing the mental health services etc.

Finally, workplace interventions can be efficiently implemented only provided that *the support from the local authorities exercising ownership over the healthcare facilities is ensured*. Among other things, local authorities shall be responsible for financial support of the local healthcare facilities along with the centralized financing. Besides, they should

as well expand training opportunities for managers of healthcare facilities as regarding the issues which concern mental health of the medical personnel.

Below the key components of the support to be provided to the healthcare professionals at their workplaces are laid down.

1.3.2.1. *Informational support to the healthcare personnel*

As the experience of various crises, including COVID-19 pandemic, demonstrates, easy access to the necessary information constitutes a resilience factor for healthcare professionals. This includes both situational awareness, such as understanding of the existing risks and of the work priorities, as well as awareness of the concepts related to mental health, understanding of the potential problems and knowledge of the tools to resolve them. Therefore, it is the responsibility of the hospital management in Ukraine to ensure that their staff members receive regular situation updates regarding the changing risks, security, and other environment changes during the war in Ukraine. Depending on the situation, such updates may be provided on either daily, or weekly basis in a format convenient for the team, including during in-person meetings or by e-mails.

Additionally, managers should establish clear and regular communication on the relevant protocols, standards, and other resources the healthcare professionals shall rely on when providing medical aid to patients. This is especially relevant for the frontline hospitals with high rates of admitting severely wounded patients who may need medical services which have not been commonly provided by the hospital staff before the war. As regarding the hospitals located far from the frontline, they may be reoriented to provide specialized medical aid and / or rehabilitation services which extend beyond the services such hospitals were providing in peaceful times. Hence, additional practical trainings and guidance as well as updates on the applicable medical standards should be provided to the personnel. Such trainings and updates may be organized with the involvement of external

consultants, including through the technical assistance provided by the international projects working in the field of healthcare in Ukraine.

Besides, psychoeducation, *i.e.* increasing healthcare personnel's awareness of the importance of their mental well-being as well as familiarizing them with the tools to prevent or mitigate respective risk factors, is among the key priorities for enhancing psychological resilience of healthcare practitioners. Based on the experience of implementing such interventions during the COVID-19 pandemic, there are numerous tools to inform and educate healthcare practitioners on mental health issues. Distributing printed or digital materials as well as organizing brief sessions or seminars on respective topics may be a good starting point. Among other matters, such materials and / or sessions shall necessarily provide information on various symptoms of the most common mental disorders (PTSD, acute stress, depression, anxiety, burnout etc.), warning signs which indicate the need for a person to pay attention to his / her psychological status as well as on the available ways to receive psychological support. Each hospital shall decide on the most convenient and feasible format of such informational support to be provided to the staff.

Finally, the EU Expert Panel also highlights the importance of praise and acknowledgement of staff working under unprecedented and exceptional circumstances to ensure that they feel valued and needed (EU Report, 2021, 36). The existing literature confirms that the sense of meaning may serve as a resilience factor preventing or mitigating the risk of developing mental disorders, especially depression (Gungor, A., & Uçman, 2020). Hence, hospital management shall ensure that the relevant gratitude and acknowledgement are made known to the staff.

1.3.2.2. Organizational arrangements to minimize stress at a workplace

A range of quite feasible organizational arrangements are proved to have positive impact on mental well-being of the healthcare personnel during the crisis periods.

Although our study findings do not establish correlation between the occurrence of mental disorders and increased workload, providing personnel with opportunities to balance workload and manage fatigue should still be one of the key priorities for hospital management. Assuring rest and limiting working time periods have been practiced by a range of countries during the COVID-19 pandemic to prevent healthcare staff from burnout (Kisely et al., 2020). It is recommended to schedule work shifts in a way allowing for sufficient rest (as much as it is possible given the increased workload and the lack of personnel during the war) as well as to ensure that hospital staff has opportunity to take breaks during the working time. Depending on the feasibility of such an option for particular hospitals, the latter may even provide for the monitoring of working hours and shift schedules to prevent overload for certain staff members. Besides, hospital management should work on defining clear role expectations for the personnel given that the study findings indicate that a lot of healthcare professionals have to perform job duties beyond their primary specialty during the full-scale war. It is also advisable to reduce non-critical tasks, such as administrative errands, to decrease the workload for the personnel and allow them to focus on their key functions.

Also, hospital management in the frontline regions should take responsibility for providing food and, ideally, ensuring safe transportation and accommodation for their staff, if need be. Given the damage to civil infrastructure inflicted by the Russian army in the frontline regions, such measures may be among the essential needs for the hospital personnel. Such simple interventions may bring a considerable relief to healthcare professionals and decrease their level of stress and anxiety.

Besides, given that the study results demonstrate that many hospitals in Ukraine currently face the lack of supplies or hospital beds, respective managerial decisions are needed to manage resources. It is recommended that hospital managements proactively address the issue of the lack of resources at their facilities and collaborate with respective local authorities who own the hospitals to develop operational plans on the use of the

available resources as well as seeking additional sources of supply. Additional financial allocations will likely be needed for this purpose. At the same time, shortage of the healthcare personnel which as well constitutes a common issue for a great number of hospitals in Ukraine is a systemic problem which is unlikely to be resolved in a short-term perspective as a variety of factors (including emigration) impacts the situation. Still, it is advisable that local authorities along with the management of the leading local healthcare facilities consider the options of integrating healthcare personnel coming to their respective regions as IDPs, if any, into the local health workforce. For the frontline regions though, more systemic decisions are needed, including elaboration of the national-level strategies to encourage healthcare personnel to work at respective regions on a rotational basis for additional benefits.

Finally, the role and value of responsible leadership is crucial given the unprecedented circumstances the Ukrainian healthcare system is operating under. Hospital managers shall aim at flexible and humane approach, including through the establishment of open communication and empowering their teams to deal with the challenges. Given the prolonged nature of the conflict, it is also important to seek a possibility for a kind of rotation of the leadership roles at the facilities as the study findings demonstrate direct correlation between the risk of occurrence of mental disorders and a larger responsibility at work.

1.3.2.3. Access to psychological support and mental health services

The EU Expert Panel recommends that healthcare providers should treat the promotion of mental well-being among their personnel as one of the major occupational safety aspects (EU Report, 2021, 52). Given the unprecedented circumstances in Ukraine, we recommend that hospitals approach this matter in a complex manner and put an effort to establish psychologically safe environment for the personnel. Healthcare facilities shall ensure the whole continuum of mental health support to be provided to the healthcare

staff, including promotion of resilience and coping strategies, early detection of warning signals, eliminating occupational risk factors, where possible, as well as ensuring access to the necessary psychological services and support.

First, it is highly recommended that all the healthcare practitioners working under the war-related stress in Ukraine receive training in psychological first aid. The training is recommended by the WHO for crisis situations to ensure that people are capable of providing immediate support to those being under extreme stress. The skills to be learned through the training include meeting basic needs of the affected people, comforting them, assisting with access to the necessary specialized services, referrals etc. The training normally takes a few hours and is taught by certified mental health specialists. To organize a session, hospitals may reach out to either WHO or other available providers in Ukraine. The more extensively the staff is covered by the psychological first aid skills, the more ready these people are to prevent serious deterioration of mental health of their colleagues who may face a traumatic situation.

Second, relying on the experience of a number of countries during COVID-19 pandemic, hospitals in Ukraine have to distribute information and organize trainings on evidence-based anticipatory methods for coping with stressful events which are proved to considerably reduce the risk of developing PTSD and other disorders. Such trainings may highlight normal stress response mechanism, coping strategies, personal resilience methods, relaxation techniques etc. Same as with the psychological first aid training, such trainings may be conducted by certified mental health specialists. It is the responsibility of hospital management to ensure that such trainings and events regularly take place to reach all the hospital staff. It is also recommended to assess pre- and post-training knowledge of the issues covered to make sure that respective skills are integrated and will be properly applied. Besides, hospital management should ensure that their personnel have sufficient opportunities to access information on mental health, warning symptoms, coping strategies, wellness tips etc. This information may be provided *e.g.* through

posters, regular mailings, leaflet distribution or by other means available at and cost-efficient for a particular hospital.

Further, it is important to focus on early detection and prevention rather than treatment of the disorders for reasons of cost-effectiveness. Thus, hospitals in Ukraine should monitor psychological status of their personnel using assessment instruments and uniform indicators as adopted at the national level. It is recommended that such monitoring be carried out on a regular mandatory basis to ensure that early symptoms of mental health deterioration or burnout are identified. For those staff members who demonstrate such symptoms, proper referral system must be in place so that a person can easily access the necessary support services. Based on the experience of other countries, such services may include both peer support as well as specialized mental health aid provided by the qualified specialists.

Peer support shall be an important component of the hospital strategies to ensure well-being of their personnel as it helps to develop trust among co-workers. De-briefs, preparedness sessions, resilience workshops, group problem solving, other in-person or online meetings where healthcare professionals can freely discuss their feelings and share concerns with their colleagues working under the same conditions should be regularly organized. Such meetings may be facilitated by the qualified specialists either appointed from among the hospital staff or specifically invited as an external facilitatoris, however, the main priority for such interventions is to provide comfortable environment for the hospital staff to support each other throughout the crisis.

Besides, as demonstrated by the available evidence and the experience of other countries during the crises affecting healthcare professionals, the latter, if encountering serious trauma or stress, may need specialized psychological support. Whether a person needs such specialized psychological interventions and whether other mentioned instruments would do not suffice to improve his / her resilience and mental well-being, shall be established based on the assessment of psychological state carried out in

accordance with the internal procedures established at the hospital. Hence, the necessity of a proper referral system within a hospital is reaffirmed. Specialized support should include various evidence-based services which proved effective in reducing stress and strengthening psychological resilience of essential workers, including *inter alia* CBT, which is one of the most efficient approaches to dealing with healthcare professionals' stress and trauma, as well as for treating depression and anxiety. Besides, along with the more "classic" psychotherapy techniques, a range of contemporary evidence-based methods for dealing with stress may be applied, including mindfulness techniques, acceptance and commitment therapy, dialectical behavioral therapy, motivational interviewing, music, and art therapy etc. Besides, mental health specialists should facilitate psychological preparedness sessions and mandatory de-briefs to be organized for the healthcare professionals encountering serious stress during their work.

The above mentioned specialized services shall be provided by the qualified and certified specialists who are well informed on the context, settings, and the nature of stressors faced by healthcare professionals. In this regard, it is recommended that hospitals consider an option of forming their own mental health teams consisting of psychiatrists, psychologists, and specialized nurses. Such teams, if established, may provide counselling and mental health services to all the hospital personnel in need. The forms of service provision may vary, including *inter alia* individual and group sessions, in-person or online. This approach has been successfully applied in a number of countries heavily affected by COVID-19 pandemic (Chen et al., 2006; Maunder et al., 2003). However, when recommending this intervention, we are aware of the limitations and the resource constraints present in the Ukrainian healthcare system which may influence the feasibility of the implementation. One of the possible solutions though is to establish "cluster" mental health teams which can provide the necessary services for a cluster of hospitals in a particular region. This mechanism may first be piloted with the support of the local

authorities to be ultimately integrated into the package of services reimbursed by the NHSU.

A truly systemic approach would foresee that hospitals develop “mental well-being plans” to address mental health of their staff in a comprehensive manner. Such plans should integrate all the elements mentioned above, including regular assessment, referral systems, pool of peer support and specialized services available, as well as the patient routes to access them, reporting obligations, if any, etc. The plans need to be regularly revised and updated to make sure that all the outstanding challenges evolving in Ukraine are addressed. Although it is unlikely that such comprehensive mental well-being plans are established across all the hospitals in Ukraine In the near future, we recommend piloting the initiative at the selected healthcare facilities taking into account the availability of resources and the current workload. The pilot project may foresee the development of hospital internal mental well-being plans / programs which account for the outstanding war-related stressors and the type of mental health services and interventions which may be required to support the personnel. If successfully piloted, the mental well-being plans or similar internal regulations may be gradually integrated into the NHSU’s requirements for contracting the hospitals. Operationalization of the described approach though will not be feasible unless the resources and capacity of both the NHSU and the hospitals are significantly enhanced.

As a final note, one should stress the importance of extensive use of digital solutions throughout the whole course of providing mental health services to the healthcare personnel, including for the purposes of internal assessment of the personnel’s mental status, diagnosing, counselling, monitoring, reporting etc. Digital solutions are considered promising in reducing the stigma of mental issues and promoting requests for support among the healthcare professionals as they create a sense of distance and confidentiality. For instance, the experience of dealing with COVID-19-related stress in other countries demonstrated that a lot of healthcare professionals preferred remote consultations or using

helplines as they ensured anonymity and confidentiality. Besides, extensive use of various mobile apps which allowed healthcare staff to monitor their mental status, receive information on warning symptoms, as well as access the necessary support has as well proved quite efficient during the COVID-19 pandemic (Zace et al., 2021). In addition to being effective, digital solutions as developed at the national level may facilitate the integration of the low resourced facilities into the whole system of interventions by ensuring interoperability across the system is ensured. Hence, telehealth and other digital tools and opportunities should be used by the Ukrainian hospitals aiming to provide mental support to their staff.

Conclusions to Chapter III

The study findings demonstrated pervasive impact of the war-related stress upon mental health of the medical personnel working in Ukraine. In particular, it was established that more than one third of the healthcare workers had symptoms of either PTSD, depression, or anxiety. These rates are significantly higher than the average occurrence rates of these disorders among the general population. Besides, as hypothesized, we found that the prevalence of mental disorders was higher among the healthcare workers employed in hospitals located in the regions close to frontline as compared to the healthcare workers practicing in other regions. A range of risk factors increasing the probability of developing mental disorders have also been established including young age, responsibility at work, facing war-related difficulties in course of work etc. These findings highlight the problems the Ukrainian healthcare system faces during the full-scale war in terms of healthcare workers' mental health.

Respectively, we conclude that a range of evidence-based interventions shall be implemented to ensure that the system can deal with the war-related challenges. To be

efficient and comprehensive, such interventions are supposed to be implemented at different levels, namely at the national, local, and workplace levels. For this, the involvement of various stakeholders is needed, including the national-level decision makers (MoH, NSHU, other ministries and agencies, academic institutions etc.), local authorities which own healthcare facilities, as well as hospital managers.

Based on the experience of dealing with serious challenges faced by healthcare systems across the world, which has already been available in the aftermath of COVID-19 pandemic, we suggest focusing on the three components aimed at supporting psychological resilience of the healthcare workers: informational, organizational, and psychological support. When applied cumulatively with the focus on prevention and with particular attention to the risk groups, these interventions prove efficient to sustain the resilience of healthcare personnel and of the system as a whole.

CONCLUSIONS

The study was aimed at exploring the prevalence of symptoms of certain mental disorders among healthcare workers exposed to war-related stress in Ukraine to recommend interventions necessary for sustaining the healthcare system. The set aim has been fully attained as demonstrated by the study findings indicating the occurrence rates as well as certain peculiarities related to the development of mental disorders by the healthcare staff in Ukraine during the full-scale war. Based on the study findings, recommendations were formulated to sustain the healthcare system during and in the aftermath of the turbulent times.

The first task for the study was to establish the prevalence of certain mental disorders (PTSD, depression, and anxiety) in healthcare workers exposed to war-related stress during their work. The results of the survey carried out in eight hospitals located in four regions in Ukraine, which are differently positioned as concerning the impact of the war, demonstrated quite high occurrence rates of PTSD, anxiety, and depression among

the respondent healthcare staff. Namely, of the 454 study participants, more than one third (37%) have demonstrated symptoms of at least one of the mentioned disorders. These findings are consistent with the available evidence stating that healthcare practitioners exposed to war-related stress have higher rates of mental disorders as compared to the general population. Depression has been found to be the most widespread disorder among the respondents amounting to 37% of them, with almost 13% of them having symptoms of moderately severe or even severe depression which indicates the seriousness of the problem and requires respective interventions.

The second task for the study was to establish a correlation between the risk of developing the mentioned disorders and various individual and professional factors (*i.e.* to identify risk factors for healthcare professionals). Our study established a range of the risk factors impacting the probability of healthcare professionals' developing mental disorders, including female sex, younger age and little professional experience, more responsible (managerial or medical) position at a hospital, working in close proximity to the combat areas, as well as encountering war-related stressors at work (such as shortage of supplies, personnel, hospital beds, treating severely wounded patients, dealing with a large number of IDPs etc.). It is demonstrative that all the investigated disorders were found to be considerably more widespread among the healthcare personnel working at the hospitals in the frontline regions as compared with those employed in relatively safe regions of Ukraine. For instance, occurrence of anxiety is twice as high in the frontline regions, while occurrence of depression is almost three times as high. These results clearly demonstrate the need to pay particular attention to the healthcare personnel working in the frontline regions as their situation may already be quite dire with the risk of further deterioration leading to burnout, comorbid states and other negative consequences for the personnel and the system as a whole.

The third task for the study was to demonstrate the key problems faced by the Ukrainian healthcare system during the full-scale war which may have an impact on

mental health of the personnel. In this regard and in a broader context of discussing the resilience of the Ukrainian healthcare system during the war period and in its aftermath, our findings are instructive as they demonstrate the key hardships faced by the system, such as the IDP influx in certain regions, logistical difficulties, need to provide care beyond the primary medical specialty of the personnel, significant increase in the workload etc. These factors directly impact the functional capacity of the system to withstand the challenges and should inform respective policy interventions aimed at rendering the necessary support, including in terms of mental well-being of the healthcare personnel.

Finally, the fourth task for the study has foreseen developing recommendations for interventions to build on the resilience of healthcare practitioners based on the study findings. We conclude that all the mentioned findings are indicative of the factors which shall be taken into account when planning the interventions to support the healthcare professionals through improving their psychological resilience and mental well-being. Based on the mentioned findings and in reliance on the best practices implemented across the countries during the crisis periods, such as during the COVID-19 pandemic, we suggested a number of interventions to be developed and applied in Ukraine in order to prevent the healthcare system from deterioration by improving psychological resilience of its personnel. All the interventions recommended herein may be tentatively distinguished into those applied at the national, and at the workplace level. The interventions foresee the development and use of various instruments, such as the elaboration of comprehensive strategy for the mental well-being of the healthcare professionals at the national level, ensuring guidance and training to the hospital management in creating workplace supportive for their personnel's mental well-being, establishment of the uniform indicators and screening tools for assessing mental health status of the healthcare personnel, as well as the range of informational, organizational and psychological support measures to be taken at the workplace level. Still, it is important

to understand that only comprehensive integrated approach ensuring coordination between the interventions applied at the different levels may prove efficient to deal with the problem at a systemic level. Besides, it is important to ensure that the interventions be consistently provided at the whole continuum of the changing mental health needs, *i.e.* starting from pre-crisis to post-crisis stage. Hence, primary, secondary, and tertiary prevention interventions are recommended to maintain mental well-being of the healthcare professionals. Furthermore, any of the interventions to be developed and applied should be holistic by their nature to ensure that all the groups of the healthcare workers in need of psychological support receive it in a proper manner. Among other matters, it is essential to pay specific attention to people with pre-existing mental conditions as they are most vulnerable to the risk of further mental deterioration. Besides, when designing and implementing interventions, one shall bear in mind that the healthcare practitioners are quite reluctant to seek and receive support due to the risk of stigma and / or overconfidence in their resilience. Also, we strongly encourage extensive use of digital solutions throughout the whole course of providing mental health services to the healthcare personnel as they are considered promising in reducing the stigma of mental health issues by ensuring sense of confidentiality and anonymity and may also facilitate the integration of the low resourced healthcare facilities into the whole system of the interventions by ensuring interoperability across the system. Finally, given that Ukraine is moving towards membership in the EU, particular attention has been paid to the latter's approach to supporting essential workers' psychological well-being.

Overall, qualified and resilient healthcare personnel is one of the most valuable assets and the key to the efficiency of the healthcare system, hence, proper care shall be ensured to support the personnel in the times of the crisis.

BIBLIOGRAPHY

1. Abraham, A., Chaabna, K., Doraiswamy, S., Bhagat, S., Sheikh, J. I., Mamtani, R., & Cheema, S. (2021). Depression among healthcare workers in the Eastern Mediterranean Region: a systematic review and meta-analysis. *Human Resources for Health*, 19(1). <https://doi.org/10.1186/s12960-021-00628-6>
2. Adriaenssens, J., De Gucht, V., Van Der Doef, M., & Maes, S. (2011). Exploring the burden of emergency care: predictors of stress-health outcomes in emergency nurses. *Journal of Advanced Nursing*, 67(6), 1317–1328. <https://doi.org/10.1111/j.1365-2648.2010.05599.x>
3. Alharthy, N., Alrajeh, O. N., Al-Mutairi, M. S., & Alhajri, A. (2017). Assessment of anxiety level of emergency health-care workers by generalized anxiety disorder-7 tool. *International Journal of Applied & Basic Medical Research*, 7(3), 150. <https://doi.org/10.4103/2229-516x.212963>
4. American Psychiatric Association. (2013). Posttraumatic stress disorder. In *Diagnostic and statistical manual of mental disorders* (5th ed., text rev.). https://doi.org/10.1176/appi.books.9780890425787.x07_Trauma_and_Stressor_Related_Disorders

5. American Psychiatric Association. (2013). Posttraumatic stress disorder. In *Diagnostic and statistical manual of mental disorders* (5th ed., text rev.). [https://doi.org/10.1176/appi.books.9780890425787.x04 Depressive Disorders](https://doi.org/10.1176/appi.books.9780890425787.x04_Depressive_Disorders)
6. American Psychiatric Association. (2013). Posttraumatic stress disorder. In *Diagnostic and statistical manual of mental disorders* (5th ed., text rev.). [https://doi.org/10.1176/appi.books.9780890425787.x05 Anxiety Disorders](https://doi.org/10.1176/appi.books.9780890425787.x05_Anxiety_Disorders)
7. Antonijevic, J., Binic, I., Zikic, O., Manojlovic, S., Tosic-Golubovic, S., & Popović, N. (2020). Mental health of medical personnel during the COVID-19 pandemic. *Brain and Behavior*, 10(12). <https://doi.org/10.1002/brb3.1881>
8. Aziz, G. S., ALghfari, S., Bogami, E., Abduljwad, K., & Bardisi, W. M. (2022). Prevalence and determinants of depression among primary healthcare workers in Jeddah, Saudi Arabia 2020. *Journal of Family Medicine and Primary Care*, 11(6), 3013. https://doi.org/10.4103/jfmmpc.jfmmpc_2215_21
9. Bai, Y. M., Lin, C., Lin, C. C., Chen, J., Chue, C., & Chou, P. (2004). Survey of Stress Reactions Among Health Care Workers Involved With the SARS Outbreak. *Psychiatric Services*, 55(9), 1055–1057. <https://doi.org/10.1176/appi.ps.55.9.1055>
10. Belayneh, Z., Zegeye, A., Tadesse, E., Asrat, B., Ayano, G., & Mekuriaw, B. (2021). Level of anxiety symptoms and its associated factors among nurses working in emergency and intensive care unit at public hospitals in Addis Ababa, Ethiopia. *BMC Nursing*, 20(1). <https://doi.org/10.1186/s12912-021-00701-4>
11. Ben-Ezra, M., Palgi, Y., & Essar, N. (2007). Impact of war stress on posttraumatic stress symptoms in hospital personnel. *General Hospital Psychiatry*, 29(3), 264–266. <https://doi.org/10.1016/j.genhosppsy.2007.03.001>
12. Ben-Ezra, M., Palgi, Y., Wolf, J., & Shrira, A. (2011). Psychosomatic symptoms among hospital physicians during the Gaza War: a repeated cross-sectional study. *Israel Journal of Psychiatry and Related Sciences*, 48(3), 170–174.
13. Bentz, L., Vandentorren, S., Fabre, R., Bride, J., Pirard, P., Doulet, N., Baubet, T., Motreff, Y., & Pradier, C. (2021). Mental health impact among hospital staff in the aftermath of the Nice 2016 terror attack: the ECHOS de Nice study. *BMC Public Health*, 21(1). <https://doi.org/10.1186/s12889-021-11438-9>
14. Bentz, L., Vandentorren, S., Fabre, R., Bride, J., Pirard, P., Doulet, N., Baubet, T., Motreff, Y., & Pradier, C. (2021). Mental health impact among hospital staff in the aftermath of the Nice 2016 terror attack: the ECHOS de Nice study. *BMC Public Health*, 21(1). <https://doi.org/10.1186/s12889-021-11438-9>

15. Berger, W., Coutinho, E. S. F., Figueira, I., Marques-Portella, C., Luz, M. P., Neylan, T. C., Marmar, C. R., & Mendlowicz, M. V. (2012). Rescuers at risk: a systematic review and meta-regression analysis of the worldwide current prevalence and correlates of PTSD in rescue workers. *Social Psychiatry and Psychiatric Epidemiology*, 47(6), 1001–1011. <https://doi.org/10.1007/s00127-011-0408-2>
16. Bou-Karroum, L., Daou, K. N., Nomier, M., Arnaout, N. E., Fouad, F. M., El-Jardali, F., & Akl, E. A. (2019). Health Care Workers in the setting of the “Arab Spring”: a scoping review for the Lancet-AUB Commission on Syria. *Journal of Global Health*, 9(1). <https://doi.org/10.7189/jogh.09.010402>
17. Bou-Karroum, L., El-Harakeh, A., Kassamany, I., Ismail, H., Arnaout, N. E., Charide, R., Madi, F., Jamali, S., Martineau, T., El-Jardali, F., & Akl, E. A. (2020). Health care workers in conflict and post-conflict settings: Systematic mapping of the evidence. *PLOS ONE*, 15(5), e0233757. <https://doi.org/10.1371/journal.pone.0233757>
18. Busch, I. M., Moretti, F., Mazzi, M. A., Wu, A. W., & Rimondini, M. (2021). What We Have Learned from Two Decades of Epidemics and Pandemics: A Systematic Review and Meta-Analysis of the Psychological Burden of Frontline Healthcare Workers. *Psychotherapy and Psychosomatics*, 90(3), 178–190. <https://doi.org/10.1159/000513733>
19. Busch, I. M., Moretti, F., Mazzi, M. A., Wu, A. W., & Rimondini, M. (2021). What We Have Learned from Two Decades of Epidemics and Pandemics: A Systematic Review and Meta-Analysis of the Psychological Burden of Frontline Healthcare Workers. *Psychotherapy and Psychosomatics*, 90(3), 178–190. <https://doi.org/10.1159/000513733>
20. Caillet, A., Coste, C., Sanchez, R., & Allaouchiche, B. (2020). Psychological Impact of COVID-19 on ICU Caregivers. *Anaesthesia, Critical Care & Pain Medicine*, 39(6), 717–722. <https://doi.org/10.1016/j.accpm.2020.08.006>
21. Callus, E., Bassola, B., Fiolo, V., Bertoldo, E. G., Pagliuca, S., & Lusignani, M. (2020). Stress Reduction Techniques for Health Care Providers Dealing With Severe Coronavirus Infections (SARS, MERS, and COVID-19): A Rapid Review. *Frontiers in Psychology*, 11. <https://doi.org/10.3389/fpsyg.2020.589698>
22. Cameron, I. M., Crawford, J. R., Lawton, K., & Reid, I. R. (2008). Psychometric comparison of PHQ-9 and HADS for measuring depression severity in primary care. *British Journal of General Practice*, 58(546), 32–36. <https://doi.org/10.3399/bjgp08x263794>

23. Carolan, S., Harris, P. C., & Cavanagh, K. (2017). Improving Employee Well-Being and Effectiveness: Systematic Review and Meta-Analysis of Web-Based Psychological Interventions Delivered in the Workplace. *Journal of Medical Internet Research*, 19(7), e271. <https://doi.org/10.2196/jmir.7583>
24. D'Ettoire, G., Ceccarelli, G., Santinelli, L., Vassalini, P., Pietro Innocenti, G., Alessandri, F., Koukopoulos, A. E., Russo, A., D'Ettoire, G., & Tarsitani, L. (2021). Post-Traumatic Stress Symptoms in Healthcare Workers Dealing with the COVID-19 Pandemic: A Systematic Review. *International Journal of Environmental Research and Public Health*, 18(2), 601. <https://doi.org/10.3390/ijerph1802060>
25. D'Ettoire, G., Pellicani, V., & Ceccarelli, G. (2020). Post-traumatic stress disorder symptoms in healthcare workers: a ten-year systematic review. *Acta Bio-Medica : Atenei Parmensis*, 91. <https://doi.org/10.23750/abm.v91i12-s.9459>
26. Elhadi, M., Msherghi, A., Elgzairi, M., Alhashimi, A., Bouhuwaish, A., Biala, M., Abuelmeda, S., Khel, S., Khaled, A., Alsoufi, A., Elmabrouk, A., Alshiteewi, F. B., Alhadi, B., Alhaddad, S., Gaffaz, R., Elmabrouk, O., Hamed, T. B., Alameen, H., Zaid, A., . . . Albakoush, A. (2020). Psychological status of healthcare workers during the civil war and COVID-19 pandemic: A cross-sectional study. *Journal of Psychosomatic Research*, 137, 110221. <https://doi.org/10.1016/j.jpsychores.2020.110221>
27. Firth-Cozens, J., Midgley, S. J., & Burges, C. (1999). Questionnaire survey of post-traumatic stress disorder in doctors involved in the Omagh bombing. *BMJ*, 319(7225), 1609. <https://doi.org/10.1136/bmj.319.7225.1609>
28. Fond, G., Fernandes, S., Lucas, G., Greenberg, N., & Boyer, L. (2022). Depression in healthcare workers: Results from the nationwide AMADEUS survey. *International Journal of Nursing Studies*, 135, 104328. <https://doi.org/10.1016/j.ijnurstu.2022.104328>
29. Fullerton, C. S., Ursano, R. J., & Wang, L. (2004). Acute Stress Disorder, Posttraumatic Stress Disorder, and Depression in Disaster or Rescue Workers. *American Journal of Psychiatry*, 161(8), 1370–1376. <https://doi.org/10.1176/appi.ajp.161.8.1370>
30. Geoffroy, P. A., Goanvic, V. L., Sabbagh, O., Richoux, C., Weinstein, A., G. D., & Lejoyeux, M. (2020). *Psychological Support System for Hospital Workers During the Covid-19 Outbreak: Rapid Design and Implementation of the Covid-Psy Hotline*. *Frontiers in Psychiatry*, 11. <https://doi.org/10.3389/fpsy.2020.00511>

31. Gregory, J., De Lepinau, J., De Buyer, A., Delanoy, N., Mir, O., & Gaillard, R. (2019). The impact of the Paris terrorist attacks on the mental health of resident physicians. *BMC Psychiatry*, 19(1). <https://doi.org/10.1186/s12888-019-2058-y>
32. Grieger, T. A., Fullerton, C. S., Ursano, R. J., & Reeves, J. B. (2003). Acute Stress Disorder, Alcohol Use, and Perception of Safety Among Hospital Staff After the Sniper Attacks. *Psychiatric Services*, 54(10), 1383–1387. <https://doi.org/10.1176/appi.ps.54.10.1383>
33. Gungor, A., & Uçman, A. (2020). Depression and hopelessness in Turkish healthcare workers: The moderating and mediating roles of meaning in life. *Global Public Health*, 15(2), 236–246. <https://doi.org/10.1080/17441692.2019.1656273>
34. Hill, J. O., Harris, C. R., L, C. D., Boland, P., Doherty, A., Benedetto, V., Gita, B. E., & Clegg, A. (2022). The prevalence of mental health conditions in healthcare workers during and after a pandemic: Systematic review and meta-analysis. *Journal of Advanced Nursing*, 78(6), 1551–1573. <https://doi.org/10.1111/jan.15175>
35. Hodgetts, G., Broers, T., Godwin, M., Bowering, E., & Hasanović, M. (2003). Post-traumatic stress disorder among family physicians in Bosnia and Herzegovina. *Family Practice*, 20(4), 489–491. <https://doi.org/10.1093/fampra/cm9428>
36. Joseph, B., Pandit, V., Hadeed, G., Kulvatunyou, N., Zangbar, B., Tang, A., O’Keeffe, T., Wynne, J., Green, D. P., Friese, R. S., & Rhee, P. (2014). Unveiling posttraumatic stress disorder in trauma surgeons. *The Journal of Trauma and Acute Care Surgery*, 77(1), 148–154. <https://doi.org/10.1097/ta.0000000000000271>
37. Kerasiotis, B., & Motta, R. W. (2004). Assessment of PTSD symptoms in emergency room, intensive care unit, and general floor nurses. *International Journal of Emergency Mental Health*, 6(3), 121–133
38. Khanal, P., Devkota, N., Dahal, M., Paudel, K., & Joshi, D. (2020). Mental health impacts among health workers during COVID-19 in a low resource setting: a cross-sectional survey from Nepal. *Globalization and Health*, 16(1). <https://doi.org/10.1186/s12992-020-00621-z>
39. Kisely, S., Warren, N., McMahon, L., Dalais, C., Henry, I., & Siskind, D. (2020). Occurrence, prevention, and management of the psychological effects of emerging virus outbreaks on healthcare workers: rapid review and meta-analysis. *BMJ*, m1642. <https://doi.org/10.1136/bmj.m1642>
40. Koenen, K. C., Ratanatharathorn, A., Ng, L. L., McLaughlin, K. D., Bromet, E. J., Stein, D. J., Karam, E. G., Ruscio, A. M., Benjet, C., Scott, K., Atwoli, L., Petukhova, M., Lim, C., Aguilar-Gaxiola, S., Al-Hamzawi, A., Alonso, J. A.,

- Bunting, B., Ciutan, M., De Girolamo, G., Kessler, R. (2017). Posttraumatic stress disorder in the World Mental Health Surveys. *Psychological Medicine*, 47(13), 2260–2274. <https://doi.org/10.1017/s0033291717000708>
41. LaMontagne, A. D., Martin, A. J., Page, K. M., Reavley, N. J., Noblet, A., Milner, A., Keegel, T., & Smith, P. (2014). Workplace mental health: developing an integrated intervention approach. *BMC Psychiatry*, 14(1). <https://doi.org/10.1186/1471-244x-14-131>
42. Lee, S. Y., Kang, W. K., Cho, A., Kim, T. Y., & Park, J. B. (2018). Psychological impact of the 2015 MERS outbreak on hospital workers and quarantined hemodialysis patients. *Comprehensive Psychiatry*, 87, 123–127. <https://doi.org/10.1016/j.comppsy.2018.10.003>
43. Lim, A. G., Stock, L. M., Oo, E. K. S., & Jutte, D. P. (2013). Trauma and mental health of medics in eastern Myanmar's conflict zones: a cross-sectional and mixed methods investigation. *Conflict and Health*. <https://doi.org/10.1186/1752-1505-7-15>
44. Liu, J., Ma, H., He, Y., Xie, B., Xu, Y., Tang, H., Li, M., Hao, W., Wang, X., Zhang, M., Ng, C. H., Goding, M., Fraser, J., Herrman, H., Chiu, H. F., Chan, S. S. M., Chiu, E., & Yu, X. (2011). *Mental health system in China: history, recent service reform and future challenges*. *World Psychiatry*, 10(3), 210–216. <https://doi.org/10.1002/j.2051-5545.2011.tb00059.x>
45. Luce, A., Firth-Cozens, J., Midgley, S. J., & Burges, C. (2002). After the Omagh bomb: Posttraumatic stress disorder in health service staff. *Journal of Traumatic Stress*, 15(1), 27–30. <https://doi.org/10.1023/a:1014327110402>
46. Major, A., & Hlubocky, F. J. (2021). Mental health of health care workers during the COVID-19 pandemic and evidence-based frameworks for mitigation: A rapid review. medRxiv (Cold Spring Harbor Laboratory). <https://doi.org/10.1101/2021.01.03.21249166>
47. Marvaldi, M., Gorwood, P., Dubertret, C., Moro, M. R., & Guessoum, S. B. (2021). Anxiety, depression, trauma-related, and sleep disorders among healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis. *Neuroscience & Biobehavioral Reviews*, 126, 252–264. <https://doi.org/10.1016/j.neubiorev.2021.03.024>
48. Mata, D. A., Ramos, M. A., Bansal, N., Khan, R., Guille, C., Di Angelantonio, E., & Sen, S. (2015). Prevalence of Depression and Depressive Symptoms Among

- Resident Physicians. *JAMA*, 314(22), 2373.
<https://doi.org/10.1001/jama.2015.15845>
49. Mira, J., Vicente, M. V. V., Lopez-Pineda, A., Carrillo, I., Guilabert, M., Pérez-Jover, V., Martín-Delgado, J., Pérez-Pérez, P., Arcos-Vargas, A., Peña, M. P. A., Martínez-García, O. B., Marco-Gómez, B., & Bouzan, C. A. (2020). Preventing and Addressing the Stress Reactions of Health Care Workers Caring for Patients With COVID-19: Development of a Digital Platform (Be + Against COVID). *Jmir Mhealth and Uhealth*, 8(10), e21692. <https://doi.org/10.2196/21692>
50. Pajonk F., Cransac P., Muller V., Teichmann A. (2012). Trauma and stress-related disorders in German emergency physicians: the predictive role of personality factors. *International Journal of Emergency Mental Health*, 14(4), 257–268.
51. PHQ-9 Depression Test Questionnaire. (n.d.). Patient. <https://patient.info/doctor/patient-health-questionnaire-phq-9#ref-6>
52. Pinto-Meza, A., Serrano-Blanco, A., Peñarrubia, M. J., Blanco, E., & Haro, J. M. (2005). Assessing depression in primary care with the PHQ-9: Can it be carried out over the telephone? *Journal of General Internal Medicine*, 20(8), 738–742. <https://doi.org/10.1111/j.1525-1497.2005.0144.x>
53. Plummer, F., Manea, L., Trépel, D., & McMillan, D. (2016). Screening for anxiety disorders with the GAD-7 and GAD-2: a systematic review and diagnostic metaanalysis. *General Hospital Psychiatry*, 39, 24–31. <https://doi.org/10.1016/j.genhosppsych.2015.11.005>
54. Pollock, A., Campbell, P., Cheyne, J., Cowie, J., Davis, B., McCallum, J., McGill, K., Elders, A., Hagen, S., McClurg, D., Torrens, C., & Maxwell, M. (2020). Interventions to support the resilience and mental health of frontline health and social care professionals during and after a disease outbreak, epidemic or pandemic: a mixed methods systematic review. *The Cochrane Library*, 2020(11). <https://doi.org/10.1002/14651858.cd013779>
55. Post-Traumatic Stress Disorder (PTSD). (n.d.). *National Institute of Mental Health (NIMH)*. <https://www.nimh.nih.gov/health/statistics/post-traumatic-stress-disorder-ptsd>
56. Rija, A., Islam, Z., Bilal, W., Qamar, K., Gangat, S. A., Abbas, S., Mirha, H. T., Mohanan, P., Rahmat, Z. S., Shaeen, S. K., Djedid, S. N. K., Essar, M. Y., & Kashyap, R. (2022). The impact of violence on healthcare workers' mental health in conflict based settings amidst COVID-19 pandemic, and potential interventions: A narrative review. *Health Science Reports*, 5(6). <https://doi.org/10.1002/hsr2.920>

57. Ruscio, A. M., Hallion, L. S., Lim, C. C., Aguilar-Gaxiola, S., Al-Hamzawi, A., Alonso, J., Andrade, L. H., Borges, G., Bromet, E. J., Bunting, B., De Almeida, J. D., Demyttenaere, K., Florescu, S., De Girolamo, G., Gureje, O., Haro, J. M., He, Y., Hinkov, H., Hu, C., . . . Scott, K. M. (2017). Cross-sectional Comparison of the Epidemiology of DSM-5 Generalized Anxiety Disorder Across the Globe. *JAMA Psychiatry*, 74(5), 465. <https://doi.org/10.1001/jamapsychiatry.2017.0056>
58. Saragih, I. D., Tonapa, S. I., Saragih, I. S., Advani, S., Batubara, S. O., Suarilah, I., & Lin, C. (2021). Global prevalence of mental health problems among healthcare workers during the Covid-19 pandemic: A systematic review and meta-analysis. *International Journal of Nursing Studies*, 121, 104002. <https://doi.org/10.1016/j.ijnurstu.2021.104002>
59. Schreiber, M., Cates, D., Formanski, S. E., & King, M. (2019). Maximizing the Resilience of Healthcare Workers in Multi-hazard Events: Lessons from the 2014–2015 Ebola Response in Africa. *Military Medicine*, 184(Supplement_1), 114–120. <https://doi.org/10.1093/milmed/usy400>
60. Sendler, D. J., Rutkowska, A., & Makara-Studzińska, M. (2016). How the exposure to trauma has hindered physicians' capacity to heal: prevalence of PTSD among healthcare workers. *European Journal of Psychiatry*, 30(4), 321–334. <https://scielo.isciii.es/pdf/ejpen/v30n4/original06.pdf>
61. Stanley, I. H., Hom, M. A., & Joiner, T. E. (2016). A systematic review of suicidal thoughts and behaviors among police officers, firefighters, EMTs, and paramedics. *Clinical Psychology Review*, 44, 25–44. <https://doi.org/10.1016/j.cpr.2015.12.002>
62. Tang, L., Pan, L., Yuan, L., & Zha, L. (2017). Prevalence and related factors of post-traumatic stress disorder among medical staff members exposed to H7N9 patients. *International Journal of Nursing Sciences*, 4(1), 63–67. <https://doi.org/10.1016/j.ijnss.2016.12.002>
63. Van Steijn, M. E., Scheepstra, K. W. F., Yasar, G., Olf, M., De Vries, M. C., & Van Pampus, M. G. (2019). Occupational well-being in pediatricians—a survey about work-related posttraumatic stress, depression, and anxiety. *European Journal of Pediatrics*, 178(5), 681–693. <https://doi.org/10.1007/s00431-019-03334-7>
64. Walton, M. J., Murray, E., & Christian, M. D. (2020). Mental health care for medical staff and affiliated healthcare workers during the COVID-19 pandemic. *European Heart Journal. Acute Cardiovascular Care*, 9(3), 241–247. <https://doi.org/10.1177/2048872620922795>

healthcare workers for pandemic influenza: a randomized trial of the optimal dose of training. *BMC Health Services Research*, 10(1). <https://doi.org/10.1186/1472-6963-10-72>

75. Zace, D., Hoxhaj, I., Orfino, A., Viteritti, A., Janiri, L., & Di Pietro, M. (2021). Interventions to address mental health issues in healthcare workers during infectious disease outbreaks: A systematic review. *Journal of Psychiatric Research*, 136, 319–333. <https://doi.org/10.1016/j.jpsychires.2021.02.019>

APPENDIXES

Appendix A. Questionnaire used for the survey on the mental health of the healthcare professionals during the full-scale war in Ukraine (in Ukrainian)

Шановний учаснику / учаснице дослідження, ми висловлюємо Вам безмежну вдячність за Ваші зусилля зі збереження життя та надання необхідної медичної допомоги населенню України під час повномасштабної війни з російською федерацією.

Це дослідження проводиться в Школі охорони здоров'я Національного університету «Кієво-Могилянська академія» з метою виявлення впливу стресу, пов'язаного з роботою під час повномасштабної війни, на емоційний стан та психічне здоров'я медичних працівників. Результати дослідження будуть використані для розробки інструментів та політик, спрямованих на збереження ефективності національної системи охорони здоров'я шляхом підтримки належного психоемоційного стану медичних працівників.

Дані, отримані під час дослідження, є строго конфіденційними та не будуть використані чи опубліковані будь-де, окрім наукових звітів після статистичного аналізу без будь-якої ідентифікації респондентів, а також не будуть передаватися третім особам.

Прізвище та ім'я:		Вік:	
Стать:	Чоловік	Жінка	Третя стать
Будь-ласка, надайте запитану нижче інформацію про Вашу професійну діяльність та особливості роботи протягом періоду повномасштабного вторгнення, <u>позначивши</u> необхідний варіант відповіді:			
1.	Зазначте повну назву закладу		

<i>охорони здоров'я, в якому Ви працюєте</i>	Керівник (директор / головний лікар / медичний директор / заступник зазначених посад)	Лікар-спеціаліст	Сестра медична	Інтерн	Інше (вказіть)
2. <i>Зазначте Вашу посаду в закладі охорони здоров'я</i>					
3. <i>Зазначте Вашу основну лікарську спеціальність (за наявності)</i>					
4. <i>Вкажіть Ваш стаж роботи за фахом</i>	До 5 років		5 – 10 років		Понад 10 років
5. <i>Якою є середня тривалість Вашого робочого часу протягом доби за період повномасштабного вторгнення?</i>	До 8 годин		8 – 12 годин		Понад 12 годин
6. <i>Скільки днів на тиждень Ви в середньому працюєте під час повномасштабного вторгнення?</i>	1 – 4 дні		5 – 6 днів		7 днів

<p>Чи зазнавали Ви фізичної небезпеки під час роботи за період повномасштабного вторгнення (наприклад, ракетні атаки, артилерійські обстріли, наближеність до зони бойових дій тощо)?</p>	Так	Ні	Важко відповісти
<p>Чи часто у своїй роботі Вам доводилося стикатися з пацієнтами, що отримали тяжкі поранення внаслідок бойових дій протягом періоду повномасштабного вторгнення (в тому числі, військовими та цивільним населенням)?</p>	Так	Ні	Важко відповісти

<p>9. Чи стикалися Ви з великим напливом внутрішньо переміщених осіб, які зверталися за допомогою до закладу охорони здоров'я, протягом періоду повномасштабного вторгнення?</p>	Так	Ні	Важко відповісти
<p>10. Чи стикалися Ви з нестачею медичного персоналу в закладі охорони здоров'я протягом періоду повномасштабного вторгнення?</p>	Так	Ні	Важко відповісти
<p>11. Чи стикалися Ви з нестачею лікарських засобів, медичного обладнання, розхідних матеріалів, засобів індивідуального захисту тощо в закладі охорони здоров'я протягом періоду повномасштабного вторгнення?</p>	Так	Ні	Важко відповісти

<p>12. Чи стикалися Ви з нестачею ліжок для госпіталізації пацієнтів у закладі охорони здоров'я протягом періоду повномасштабного вторгнення?</p>	Так	Ні	Важко відповісти
<p>13. Чи доводилося Вам виконувати в закладі охорони здоров'я функції, невластиві для Вашої основної спеціальності, через нестачу персоналу протягом періоду повномасштабного вторгнення?</p>	Так	Ні	Важко відповісти
<p>14. Наскільки Ви оцінюєте зростання робочого навантаження та інтенсивності роботи порівняно з мирним часом (зазначте за шкалою від 0 до 10)</p>			

Прочитайте, будь-ласка, твердження нижче та оцініть наскільки сильно протягом останнього місяця Вас турбували будь-які з перерахованих проблем (обраний варіант обведіть):

	Зовсім ні	Трохи	Помітно	Відчутно	Дуже сильно
15. Повторювані, хвилюючі та небажані спогади про стресовий досвід?	0	1	2	3	4
16. Повторювані, хвилюючі сни про стресовий досвід?	0	1	2	3	4
17. Раптове відчуття ніби стресовий досвід трапився з Вами знову (так, ніби Ви знову пережили це)?	0	1	2	3	4
18. Почуття пригніченості через те, що щось нагадало Вам про стресовий досвід?	0	1	2	3	4
19. Сильні фізичні реакції на те, коли щось нагадало Вам про стресовий досвід (наприклад, прискорене серцебиття,	0	1	2	3	4

*утруднене дихання,
пiтливiсть)?*

<p><i>Уникнення спогадiв, думок, почуттiв, 20. що нагадують Вам про стресовий досвiд?</i></p>	0	1	2	3	4
<p><i>Уникнення зовнiшнiх факторiв, якi нагадують Вам про 21. стресовий досвiд (наприклад, людей, мiсць, розмов, дiй, об'єктiв або ситуацiй)?</i></p>	0	1	2	3	4
<p><i>Складнiсть, пов'язана з тим, 22. щоб пригадати важливі деталі стресового досвiду?</i></p>	0	1	2	3	4
<p><i>Негативні думки та переконання щодо себе, iнших людей або свiту 23. загалом (наприклад, думки на кшталт: Я поганий, Зі мною щось не так,</i></p>	0	1	2	3	4

	<i>Нікому не можна довіряти, Світ дуже небезпечний тощо)?</i>					
24.	<i>Звинувачення себе або когось в тому, що трапився стресовий досвід, або в тому, що сталося після?</i>	0	1	2	3	4
25.	<i>Сильні негативні переживання, такі як: страх, жах, злість, відчуття провини або сором?</i>	0	1	2	3	4
26.	<i>Втрата інтересу до занять, які приносили Вам задоволення?</i>	0	1	2	3	4
27.	<i>Почуття віддаленості, відстороненості від інших людей?</i>	0	1	2	3	4
28.	<i>Складність, пов'язана з переживанням позитивних емоцій (наприклад, неможливість почуватися щасливим або</i>	0	1	2	3	4

*відчувати любов до
близьких людей)?*

29.	<i>Дратівливість, спалахи гніву або агресивна поведінка?</i>	0	1	2	3	4
30.	<i>Занадто висока готовність ризикувати або займатися справами, які можуть бути небезпечними для Вам?</i>	0	1	2	3	4
31.	<i>Відчуття надмірної настороженості, зібраності, спостережливості?</i>	0	1	2	3	4
32.	<i>Відчуття занадто сильної знервованості?</i>	0	1	2	3	4
33.	<i>Труднощі з концентрацією уваги?</i>	0	1	2	3	4

Труднощі з 34. засинанням, поверхневий сон?	0	1	2	3	4
Прочитайте, будь-ласка, твердження нижче та оцініть наскільки часто протягом останніх двох тижнів Вас турбували будь-які з перерахованих проблем (обраний варіант обведіть):					
35. Втрата інтересу або задоволення від виконання справ	Зовсім не турбували	Кілька днів	Більшу половину часу	Майже щодня	
36. Поганий настрій, відчуття пригнічення або безнадії	Зовсім не турбували	Кілька днів	Більшу половину часу	Майже щодня	
37. Труднощі з засинанням, поверхневий сон або, навпаки, надмірна сонливість	Зовсім не турбували	Кілька днів	Більшу половину часу	Майже щодня	
38. Відчуття втоми або зниження енергії	Зовсім не турбували	Кілька днів	Більшу половину часу	Майже щодня	
39. Поганий апетит або переїдання	Зовсім не турбували	Кілька днів	Більшу половину часу	Майже щодня	
40. Негативне відчуття щодо себе: або Ви почувалися невдахою, або ж розчарувались у	Зовсім не турбували	Кілька днів	Більшу половину часу	Майже щодня	

<p>собої, або думали, що підвели родину чи близьких</p> <p>Труднощі з концентрацією уваги, наприклад, при читанні або перегляді телепередач</p> <p>41.</p>	Зовсім не турбували	Кілька днів	Більшу половину часу	Майже щодня
<p>Сповільненість рухів і мовлення, яку помічають оточуючі. Або, навпаки, надмірна і непритаманна Вам метушливість і активність</p> <p>42.</p>	Зовсім не турбували	Кілька днів	Більшу половину часу	Майже щодня
<p>Думки, що було б краще, якби Ви померли, або думки про те, щоб заподіяти собі шкоду</p> <p>43.</p>	Зовсім не турбували	Кілька днів	Більшу половину часу	Майже щодня
<p>Ви нервували, відчували тривогу або були дуже напружені</p> <p>44.</p>	Зовсім не турбували	Кілька днів	Більшу половину часу	Майже щодня
<p>Ви не могли зупинити або контролювати своє хвилювання</p> <p>45.</p>	Зовсім не турбували	Кілька днів	Більшу половину часу	Майже щодня

<p><i>Ви занадто хвилювались через різні речі</i></p>	Зовсім не турбували	Кілька днів	Більшу половину часу	Майже щодня
<p><i>47. Вам було важко розслабитись</i></p>	Зовсім не турбували	Кілька днів	Більшу половину часу	Майже щодня
<p><i>48. Ви були настільки неспокійні, що Вам було важко всидіти на одному місці</i></p>	Зовсім не турбували	Кілька днів	Більшу половину часу	Майже щодня
<p><i>49. Вам було легко дошкулити або роздратувати</i></p>	Зовсім не турбували	Кілька днів	Більшу половину часу	Майже щодня
<p><i>50. Ви відчували страх, неначе щось жахливе може статися</i></p>	Зовсім не турбували	Кілька днів	Більшу половину часу	Майже щодня

