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Predictors of Depression in Primary Care Physicians in Kosovo Ten Years after the End of the Balkan Conflict

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An abstract of
A thesis submitted to the Faculty of the Rollins School of Public Health of Emory University
in partial fulfillment of the requirements
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Abstract

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By Teresa I. Sivilli

Complex humanitarian emergencies (CHEs) result from war or conflict; they are massive public health disasters in which social structures break down and civilians are the majority of the affected. CHEs have significant impact on mental health; morbidity can persist years after the event is over. Little is known about the mental health consequences for aid workers who respond to a CHE. One group at particular risk is "national staff", individuals from the affected population who respond to an emergency.

Methods

A survey of primary health care doctors and nurses in Kosovo in May 2010 measured prevalence of stress- and trauma-related symptoms. The stratified sampling frame comprised 361 physicians and 972 nurses; the CDC assessment team attempted to include every eligible physician and a systematic random sample of 50% of nurses. Participants completed a questionnaire capturing demographics, chronic stressors, trauma experiences, secondary trauma transmission, social support, and coping strategies. No personally identifiable information was collected; therefore the CDC determined this survey was not human subjects research.

Results

Overall response was 85%; 716 staff participated including 286 physicians (79.2% of total) and 430 nurses (88.5% of total). 30.1% of participants reported elevated anxiety symptoms and 28.5% reported elevated depression symptoms, while 15.8% met criteria for PTSD. Factors most strongly associated with depression among physicians were chronic stressors, secondary trauma, maladaptive coping, and being imprisoned during the war.

Conclusions

Physicians are experiencing moderate to severe problems with depression, anxiety, and PTSD symptoms, primarily from their war experiences. Levels of secondary trauma are high. This has potential impacts on their work, because of difficulties with concentration and decision-making; on inter-personal relationships due to irritability; and on their own health, due to long-term consequences of stress and risks associated with negative coping behaviors.

Discussion/Public Health Implications

Depression, anxiety, and other stress-related physical and mental illnesses impede societies as they work to recover from conflict. Results from this survey will guide psychosocial interventions for the population. Understanding the determinants of negative mental health outcomes will increase knowledge of long-term mental health effects of CHEs on national staff. Innovative, results-oriented, cost-effective approaches to treat stress-related illness are badly needed.

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- ~ our colleagues at the Kosovo Centre for Rehabilitation of Torture Victims;
- ~ the doctors and nurses who participated in the study; and
- ~ Charles L. Raison, MD for allowing me the time away from my other research responsibilities to complete this work.

Table of Contents

Chapter 1: Introduction

In the 1974 constitution of the Socialist Federal Republic of Yugoslavia, Kosovo was a largely autonomous province. Traditionally the poorest of Yugoslavia's provinces, its autonomous status was removed in 1989 and 1990 through a series of constitutional changes.[1] Kosovo was the heart of the medieval Serbian state, but ethnic Albanians make up more than 90% of the population.[2] Clashes between Serbian police forces and members of the Kosovo Liberation Army (KLA) in Kosovo early in 1998 led to escalating violence and the deaths of a number of Kosovar Albanians at the hands of Serbian police. When ethnic Albanians in Prishtina, the capital of Kosovo, protested the police actions, the police attacked them with tear gas, water cannons and clubs. The conflict quickly escalated, and tens of thousands of Kosovar Albanians were displaced from their homes by the fighting. Some took refuge with host families within Kosovo; others hid in the hills and forests.[3] Over one million Kosovar Albanian refugees fled to neighboring countries, they brought with them stories of torture, human rights abuses, and war crimes committed by the Serbian forces. NATO forces started a bombing campaign against Yugoslavia in March 1999 to bring about an end to the conflict. The United Nations Mission in Kosovo, known as UNMIK, was established by a UN Security Council Resolution in June 1999. Within a month of the establishment of UNMIK administration, over 800,000 Kosovars refugees and internally displaced persons returned to their homes. More than 11 years later, violence between Kosovar Albanians and Serbs still plagues the population. Kosovar Albanians celebrated the country's self-declared independence in February 2008, but for the minority Serbian population, who live in fear of reprisals, it was hardly cause for a celebration. The declaration of independence has not been recognized by the UN Security Council, but 69 UN countries have recognized Kosovo, and in July 2010 the International Court of Justice ruled that

Kosovo's declaration of independence did not breach international law, a ruling that may open the door for more countries to recognize Kosovo.

Scores of international and local non-governmental organizations (NGOs) worked alongside the United Nations in the aftermath of the conflict to begin the process of creating a country by building democratic institutions in government and non-government sectors. This process would be challenging for any new country; it is made more difficult by scant financial resources and by the residual psychological trauma of the war.

Against this background, Kosovo is trying to rebuild its healthcare infrastructure. Under the centrally managed Yugoslavian healthcare system, Kosovar Albanian physicians and nurses were not able to obtain quality training. The current government is implementing reforms, to establish a decentralized system focused on prevention, and emphasizing family care, which will be the gatekeeper for secondary and tertiary care.[4] The new system provides for one physician and two nurses per 2,000 patients. Various programs have been offered to improve the training of both doctors and nurses.[5] In 2006 few mental health professionals were practicing in Kosovo: one psychiatrist per 90,000 people; one mental health worker per 40,000 people; and a few clinical psychologists and social workers. Due to lack of other resources, mental health treatment focuses on pharmaceuticals and hospitalization. The population of Kosovo is young (65% under the age of 30) yet there are few child or adolescent psychiatrists practicing. [6]

As a result, the doctors and nurses in the primary healthcare system are responsible for both the physical and mental health of the traumatized Kosovo population, and must work directly with patients who have been affected by the war and its consequences, including poor physical health, war-related injuries, poverty, disrupted families with missing members, ongoing violence, and unemployment (50% at the time of this writing).

Yet these doctors and nurses themselves are members of the population affected by the war in Kosovo, and are themselves living with high levels of stress and trauma. There is no formal staff support system for health professionals, and no guidance to assist them in supporting each other. Besides confronting personal stressors and the challenges of a difficult patient population, the healthcare staff is also faced with organizational stressors, as the their country undertakes a variety of reform measures and attempts to modernize.

The situation of primary healthcare staff in Kosovo parallels the situation of another group often affected by traumatic stress: humanitarian relief workers. As the number of complex humanitarian emergencies has increased over the past decades, so too has the incidence of traumatic stress among the personnel who respond to them.[7] Yet little is known about the etiology of deleterious symptoms following exposures to traumatic events in this population. The U.S. Centers for Disease Control and Prevention (CDC), in conjunction with a group of collaborating partners, is conducting a longitudinal study of expatriate staff of humanitarian relief agencies, in an effort to establish predictive relationships between personal, organizational, and duty-related stressors, and mental health and organizational productivity. This work should address some of the gaps in the knowledge in this field; however, even less is known about the stress of humanitarian work, and the concomitant exposure to traumatic events, among national staff – those individuals from the affected population who work with relief and development agencies to respond to a humanitarian emergency. In many organizations, national staff make up the majority of the workforce, yet often are not entitled to the same benefits and services as expatriate staff. Benefits and services such as basic health care, psychological support, salary and other benefits, organizational support, and security policies for national staff are generally less comprehensive and less generous than that provided to expatriate staff.[8] Because they are drawn

from the population affected by the emergency in their country, national staff have often suffered the same traumatic experiences and extreme stress as the beneficiaries that they are serving, and are likely to identify with those beneficiaries, because of their shared backgrounds and shared experiences. Identification with a beneficiary population may lead more easily to the development of burnout syndrome and to vicarious traumatization.[9]

This paper reports on the mental health status of primary health care professionals employed by the government-run family medicine clinics in Kosovo. The data were generated in a survey of primary healthcare workers conducted in May 2010 by the Kosovo Center for the Rehabilitation of Torture Victims, in collaboration with the Antares Foundation and the CDC. The survey took place in the context of guiding stress management program implementation for healthcare professionals. The purpose of the survey was to measure the prevalence of stress-related and trauma-related psychological problems in primary healthcare professionals in Kosovo, and to identify aspects of work associated with elevated risk of poor mental health and burnout in that population. The situation of the doctors and nurses in Kosovo parallels the situation of national staff in numerous CHEs, in that they have been drawn from the same population that experienced the emergency and yet are trying to respond to that emergency. Therefore, the doctors and nurses in the primary health system in Kosovo are an appropriate proxy population to study the long-term effects of stress and trauma on national staff. The current data will be compared to that gathered in two previous surveys, conducted in 1999 and 2000, immediately after the end of the war in Kosovo. Predictive and associative models will be constructed from the data. Because of the large number of potential outcomes and predictors in the dataset, only one outcome (depression) in one part of the population (physicians) will be examined here.

Chapter 2: Review of the Literature

The United Nations (UN) defines a complex humanitarian emergency (CHE) as "a humanitarian crisis in a country, region, or society where there is total or considerable breakdown of authority resulting from internal or external conflict and which requires an international response that goes beyond the mandate or capacity of any single and/or ongoing UN country program."[10] This definition does not exclude emergencies resulting from natural disasters which result in a breakdown of civil and political life, such as the 2004 Asian tsunami or the 2010 earthquake in Haiti. Complex humanitarian emergencies have proliferated since the 1980s, yet the international community continues to be insufficiently prepared to respond to them.[11] A CHE represents a massive public health disaster in which civilians are the majority of the affected.[12]

In the immediate aftermath of a CHE, the humanitarian response focuses on providing water, shelter, sanitation, and food; immunization programs to prevent epidemics; and treatment of acute or chronic disease.[13] Yet the impact of a CHE on mental health is enormous. Humanitarian relief work takes place in an often stressful and frequently traumatic environment. The stress of relief work is two-fold: relief workers personally experience or witness traumatic events, and they hear traumatic stories from the beneficiary population that they are assisting.

Attacks on aid workers – such as kidnapping and murder – have been increasing since the 1990s, and in 2008 the fatality rate for aid workers exceeded that of UN peacekeeping troops. Most of these attacks focused on expatriate staff and a few particularly violent situations, although national staff have historically been underrepresented in this accounting, and have wrongly been assumed to be immune from such attacks.[14]

Even in the absence of violence directed at the workers themselves, relief work often entails witnessing the effects of war and disasters and hearing the stories of others who have

witnessed or experienced traumatic events such as murder, rape, or mass casualties. In Srebrenica, for example, a handful of delegates for the International Committee of the Red Cross (ICRC) were responsible for hearing the traumatic stories related to the 7,000 Muslim men who had been who had been rounded up by Serbian militia and executed.[15] Several factors increase the stress of working in CHEs, compared to natural disasters: the risk of personal violence; the moral and ethical ambiguities inherent in many CHEs; and the very act of caring for those who have been subjected to violence.[8] Individuals whose work requires them to be exposed to the traumatic experiences of others are themselves at higher risk for depression and PTSD. The state of physical and emotional exhaustion that can result from working with others has been variously described as vicarious traumatization or compassion fatigue.[1] Therapists and others who work with traumatized clients often show signs of psychological distress themselves.[16] Rescue workers can become overwhelmed by the presentation of mass casualties.[17] Up to 30% of relief workers who are directly or indirectly exposed to traumatic events report symptoms of Post-Traumatic Stress Disorder (PTSD), and the largest contributing factor to the development of PTSD symptoms is exposure to life-threatening events.[7] Among peacekeeping troops, exposure to traumatic events during deployment was the most significant predictor of PTSD symptom severity.[18] In human rights workers, anxiety, depression, and PTSD symptoms were associated with experiencing an armed attack, hostility from the local population, and with being employed by their organization for longer than six months. [19]

Some training courses focused on humanitarian relief in general, and CHEs in particular, have been developed by universities (including Emory's Rollins School of Public Health) and

[1] The terms vicarious traumatization and secondary traumatization will be used interchangeably in this paper. Compassion fatigue is a misnomer; the syndrome is not caused by a lack or exhaustion of compassion, which the author proposes is actually part of the solution to the problem.

NGOs. Still, the main responsibility for preparing workers for a field deployment rests with the employing organization. The quality of preparation varies widely, and areas important to employees, such as stress management, are precisely the ones most likely to be neglected in pre-deployment training.[8] Where staff support programs are developed, they sometimes fall victim to a lack of dedicated resources; this was the case for some programming for international staff who responded to the Haiti earthquake. Despite requests from staff for psychological support and stress management training, programming could not be sustained due to a lack of funding and commitment from organization management.[20]

Recognizing that humanitarian emergencies can take a long-term toll on the mental health of a population, the Inter-Agency Standing Committee, which was established by a United Nations General Assembly Resolution in 1992, issued guidelines that established the minimum response required in an emergency to protect and improve mental and psychosocial health. The document acknowledges that those who respond to an emergency work under difficult conditions, and that lack of managerial and organizational support is often the greatest stressor experienced by aid workers. Although they have been criticized for not recognizing the importance of data-driven programs, the guidelines emphasize the responsibility of organizations to ensure the health of their expatriate and national staff, noting the particular difficulties experienced by national staff.[21] The guidelines recommend seven key actions:

1. Ensure the availability of a concrete plan to protect and promote staff well-being for the specific emergency.
2. Prepare staff for their jobs and for the emergency context.
3. Facilitate a healthy working environment.
4. Address potential work-related stressors.

5. Ensure access to health care and psychosocial support for staff.
6. Provide support to staff who have experienced or witnessed extreme events (critical incidents, potentially traumatic events).
7. Make support available after the mission/employment.[22]

Although acknowledging that the mental health of aid workers merits attention, their needs are not addressed in by the World Health Organization (WHO) in its guidelines for mental health in emergencies.[23] Medecins sans Frontieres, in its extensive manual for implementing mental health and psychosocial interventions in situations of mass violence, does provide a brief description of the necessary components of a "help the helpers" program to support national and expatriate staff.[24] But other organizations are actively working in this field. The Antares Foundation, for example, works to raise awareness of the need for aid agencies to manage stress in staff; the organization offers training and consulting for individuals and organizations about coping with the stress of humanitarian aid work. Some stress is inherent in humanitarian work, and some difficult experiences cannot be avoided. Nevertheless, excessive stress can be avoided and other stress managed through effective responses by individuals, their managers, and their organizations. In its Guidelines for Good Practice, Antares emphasizes the importance of good staff care and psychosocial care to manage stress and prevent and treat traumatic stress and post-traumatic stress, noting that while many organizations acknowledge the need for such care, few have developed effective programs or devote the necessary attention and resources to this issue. The Guidelines were developed in consultation with national and international NGO workers and health specialists to provide a framework for organizations interested in developing a staff care program. Underlying the guidelines is the principle that "managing staff stress is good management practice." Managing staff stress is not only important for the staff members

themselves, but also for the beneficiary populations they are working with, and thus is integral to achieving an organization's objectives in the field. The negative adverse consequences of stress can include "post-traumatic stress syndromes, burnout, depression and anxiety, over-involvement or over-identification with beneficiary populations or, conversely, callousness and apathy towards beneficiaries, self destructive behaviors such as drinking and dangerous driving, and interpersonal conflict with coworkers or with family members." Clearly, these consequences would impede an organization's ability to provide services in the field. [25]

A cross-sectional survey of aid workers in Kosovo found that rates of depression and PTSD were higher in national staff than in expatriate workers; the number of trauma events was significantly associated with depression for both categories of workers.[26] A cross-sectional cluster sample survey conducted in 1999 among Kosovar Albanians reported a high prevalence of traumatic events and found that large numbers of people had experienced multiple traumas. These traumas were associated with overall poor mental health and social functioning, even though the general physical health of the population remained relatively stable. This survey found that those who were internally displaced during the war had worse mental health status than those who had become refugees and had experienced significantly more traumas than refugees or those who had never moved from their homes during the war.[27] Significant levels of somatic distress were noted, the term applied to unexplained medical symptoms, generally considered to be an expression of anxiety or a mood disorder and often noted as a consequence of traumatic experiences.[28] Five years after the war, more than 40% of the population met the criteria for moderate or severe depression, or for clinical anxiety, and significant numbers endorsed suicidal ideation; it is noteworthy that only about 10% of the population surveyed had received any treatment for psychological distress resulting from their experiences during the

war.[29] In a sample of Bosnian refugees in the United States, PTSD severity decreased with treatment for the majority, but a significant percentage experienced an increase in the severity of their symptoms over the same period of time.(need to figure out which reference this is.)

A 2007 survey of mental health staff in Croatia found different predictors for each of the components of burnout: emotional exhaustion was predicted by pay and reward satisfaction, work climate, advancement opportunities, and psychological and physical manifestations of occupational stress; depersonalization was predicted by negative emotional and behavioral reactions towards patients and colleagues, psychological and physical manifestations of occupational stress, and pay and rewards satisfaction; and low levels of personal accomplishment were predicted by satisfaction with the work climate.[30]

The situation in Kosovo provides an exemplary laboratory to examine the effects of a CHE on a population, and particularly on national staff. The impact of the war on the mental health of the population was significant, and many organizations have long recognized that patients with mental health issues arising from the conflict need treatment and referral . This has been illustrated in various studies conducted by U. S. Centers for Disease Control and Prevention (CDC) and the Kosovo Rehabilitation Centre for Torture Victims (KRCT).[19,26,27,29,31]

According to KRCT's 2006 study on mental health and social dysfunction problems in Kosovo, the prevalence of PTSD, depression and emotional distress is still high among the population. [32] The current estimate for the prevalence of PTSD symptoms in the population is 22%; this rate is only 3% lower than the rate in 2000. In 2001, two years after the war ended, the prevalence of PTSD among Kosovar Albanians who had been refugees during the war was 23.5%.[33] In 2006, the estimated prevalences for depression and emotional distress were 41.8% and 43.1% respectively.[32]

Mental disorders, particularly PTSD and major depression, have been found to increase in the aftermath of war, lingering for years after the conflict has ended; the number of traumatic experiences during war increases the likelihood of experiencing negative effects after, particularly depression.[34], [35] Psychological trauma is often a consequence of ethnic cleansing.[10] Trauma appeared to be more pronounced in those who became refugees.[36] Some individuals with PTSD who remained in Kosovo experienced a lessening of symptoms over time, other individuals experienced a worsening of symptoms over time or developed PTSD in conjunction with traumatic experiences after the war was over.[37] "Community studies in this population have reported an association between war experience and raised levels of mental disorders several years later. The association between feelings of hatred and revenge and PTSD symptoms has been established, as has the ameliorating effect of programs that help a community establish forums for justice.[31,38]

The effect of war experiences on mental health was noted not only in Kosovo, but also in other countries affected by the Balkan war, including Bosnia-Herzegovina, Croatia, the Republic of Macedonia, and Serbia.[39] In Bosnian women, stressful events experienced after the war contributed to the number and intensity of PTSD symptoms they reported.[40] A longitudinal study of Bosnian refugees in a Croatian refugee camp found that symptoms of depression and PTSD persisted three years later in 46% of the participants, and an additional 16% developed symptoms.[41] Similarly, a survey conducted in Afghanistan in 2002 reported extremely high levels of PTSD (42.1%), depression (67.7%) and anxiety (72.2%) in the population; individual reported experiencing at least four traumatic events over the previous 10 years.[42] In contrast, individuals affected by the 2004 tsunami in Thailand exhibited elevated levels of PTSD, anxiety and depression eight weeks after the event, but these levels dropped over the next nine months.[43]

Some refugees from Kosovo had access to mental health services; for example, Medecins sans Frontieres (Doctors without Borders), UNICEF, Save the Children, and Oxfam all offered mental health programs to internally displaced persons as well as to refugees in camps and to those who had sought refuge with local townspeople during the Balkan war.[44] The author was not able to identify any study that compared the long-term mental health outcomes for those who had access to mental health services and those who did not; this area would be fruitful for future research.

A CHE can affect men and women differently: women and children suffer disproportionately in war and disasters.[45] In a study conducted two years after the end of the war, posttraumatic stress symptoms were linked to the number of traumatic events experienced; social support had a protective effect agains posttramatic stress symptoms for women, but not for men.[46] Depression causes reduced functioning across many domains, and treating depression in women has been shown to also improve functioning in basic and important areas such as caring for the self and for the family.[47]

A 2008 household survey in Mitrovice, a district of Kosovo that had experienced a high level of traumatic events, also demonstrated the enduring nature of the conflict; significant correlations were observed between the lifetime level of exposure to violence, lifetime violence-related injury, the proportion of family members who currently reported pain, and the family's current financial burden.[48] A more detailed examination of the physical and mental fitness of those who had experienced violence found high levels of PTSD, depression and anxiety; 77% experienced poor emotional well-being and poor quality of life. Poor scores for perceived emotional well-being and quality of life were associated with such factors as unemployment, lower education and income level, higher exposure to violence and human rights violations, and

higher pain intensity. Those who had experienced violence were predominantly overweight or obese, and exhibited impaired physical function to a degree that would impact their ability to hold a job, do household chores or cope with daily activities.[49]

Community-based mental health interventions, particularly those which reinforce existing social support mechanisms, can be effective. For example, an intervention based on building family resilience was effective in Kosovo, which has strong, traditional family structures.[50] Such a model also avoids classifying the affected population as "patients" in need of "treatment" and recognizes trauma symptoms as normal reactions to abnormal situations, while establishing a basis for contact and exchange of ideas.[51] Kosovo's limited mental health resources have traditionally been centralized in Prishtina, the capital; it has been pointed out that a decentralized, community-based system is needed both for geographic coverage and to allow patients and families to build and maintain support systems and will integrate mental health services with local resources and healthcare services.[52]

The situation of nurses in Kosovo reveals particular cultural and social circumstances that could exacerbate personal traumatic experiences. Until recently, nursing education was restricted to a secondary-level diploma program. College-level nursing education has been established, and some nurses have received post-graduate training in other countries, but this is not the norm. Prestige and morale are low, and there is little self-esteem or autonomy in Kosovo's patriarchal society.[2] The lack of status for nurses in Kosovo society, combined with their frequent exposure to the traumatic stories of their patients, could place them at greater risk for deleterious sequelae from their war experiences.[53] In contrast, significant advances in physician training have been made since the war ended.[54,53]

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[2] In May 2010, doctors and nurses traveling several hours from the same clinic to a training in the capital of Pristina arrived in separate cars, illustrating a shocking lack of team collegiality.

Chapter 3: Manuscript

Predictors of Depression in Primary Care Physicians in Kosovo Ten Years after the Balkan Conflict

Teresa I. Sivilli, MPH[i]; Barbara Lopes Cardozo, MD, MPH[ii]; Curtis Blanton, MS[ii]; Frida Ghitis

[i] Rollins School of Public Health and Department of Psychiatry and Behavioral Sciences, Emory University

[ii] International Emergency and Refugee Health Branch, U. S. Centers for Disease Control and Prevention

Contribution of Student

I assisted with data collection, analyzed the data, developed the tables, and wrote the manuscript. The survey itself was part of a larger project by the CDC and the Antares Foundation and included surveys in several other countries. Thus the design of the survey was set by that larger project. Barbara Lopes Cardozo contributed to the conclusions and recommendations, as did Frida Ghitis, a consultant contracted by the Antares Foundation. Curtis Blanton reviewed the statistical procedures and advised me on the logistic regression model.

Abstract

Complex humanitarian emergencies (CHEs) result from war or conflict; they are massive public health disasters in which social structures break down and civilians are the majority of the affected. CHEs have significant impact on mental health; morbidity can persist years after the event is over. Little is known about the mental health consequences for aid workers who respond to a CHE. One group at particular risk is "national staff", individuals from the affected population who respond to an emergency.

Methods
A survey of primary health care doctors and nurses in Kosovo in May 2010 measured prevalence of stress- and trauma-related symptoms. The stratified sampling frame comprised 361 physicians and 972 nurses; the CDC assessment team attempted to include every eligible physician and a systematic random sample of 50% of nurses. Participants completed a questionnaire capturing demographics, chronic stressors, trauma experiences, secondary trauma transmission, social support, and coping strategies. No personally identifiable information was collected; therefore the CDC determined this survey was not human subjects research.

Results
Overall response was 85%; 716 staff participated including 286 physicians (79.2%) and 430 nurses (88.5%). 30.1% of participants reported elevated anxiety symptoms and 28.5% reported elevated depression symptoms, while 15.8% met criteria for PTSD. Factors most strongly associated with depression among physicians were chronic stressors, secondary trauma, maladaptive coping, and being imprisoned during the war.

Conclusions
Physicians are experiencing moderate to severe problems with depression, anxiety, and PTSD symptoms, primarily from their war experiences. Levels of secondary trauma are high. This has potential impacts on their work, because of difficulties with concentration and decision-making; on inter-personal relationships due to irritability; and on their own health, due to long-term consequences of stress and risks associated with negative coping behaviors.

Discussion/Public Health Implications
Depression, anxiety, and other stress-related physical and mental illnesses impede societies as they work to recover from conflict. Results from this survey will guide psychosocial interventions for the population. Understanding the determinants of negative mental health outcomes will increase knowledge of long-term mental health effects of CHEs on national staff. Innovative, results-oriented, cost-effective approaches to treat stress-related illness are badly needed.

Introduction

A complex humanitarian emergency (CHE) represents a breakdown of social structures and function as a result of internal or external war or conflict.[10] A CHE represents a massive public health disaster in which civilians are the majority of the affected.[12] In the immediate aftermath of a CHE, the humanitarian response focuses on providing water, shelter, sanitation, and food; immunization programs to prevent epidemics; and treatment of acute or chronic disease.[13] Yet the impact of a CHE on mental health is enormous, no less so for the responders as for the affected population. Humanitarian relief work takes place in an often stressful and frequently psychologically traumatic environment. The stress of relief work is two-fold: relief workers personally experience or witness traumatic events, and they hear traumatic stories from the beneficiary population that they are assisting. As the number of complex humanitarian emergencies has increased over the past decades, so too has the incidence of traumatic stress among the personnel who respond to them.[7] Yet little is known about the frequency or etiology of deleterious symptoms following exposures to traumatic events in this population, as scant research has been done to address the consequences of stress and trauma on expatriate humanitarian aid workers or on national staff, individuals from the affected population who respond to the emergency.

In many organizations, national staff make up the majority of the workforce, yet often are not entitled to the same benefits and services as expatriate staff. Benefits and services such as basic health care, psychological support, salary and other benefits, organizational support, and security policies for national staff are generally less comprehensive and less generous than that provided to expatriate staff.[8] Because they are drawn from the population affected by the emergency in their country, national staff have often suffered the same traumatic experiences and

extreme stress as the beneficiaries that they are serving, and are likely to identify with those beneficiaries, because of their shared backgrounds and shared experiences. Identification with a beneficiary population may lead more easily to the development of burnout syndrome and to vicarious traumatization.[9] The situation of the doctors and nurses in Kosovo parallels the situation of national staff in numerous CHEs, in that they have been drawn from the same population that experienced the emergency and yet are trying to respond to that emergency. Therefore, the doctors and nurses in the primary health system in Kosovo are an appropriate proxy population to study the long-term effects of stress and trauma on national staff.

In the 1974 constitution of the Socialist Federal Republic of Yugoslavia, Kosovo was a largely autonomous province. Traditionally the poorest of Yugoslavia's provinces, its autonomous status was changed in 1989 and 1990.[1] Although the area has historically been considered part of Serbia, ethnic Albanians make up more than 90% of the population.[2] Clashes between Serbian police forces and members of the Kosovo Liberation Army (KLA) in Kosovo early in 1998 led to escalating violence and the deaths of a number of Kosovar Albanians at the hands of Serbian police. When ethnic Albanians in Prishtina, the capital of Kosovo, protested the police actions, the police attacked them with tear gas, water cannons and clubs. Thousands of Kosovar Albanians were displaced from their homes by the fighting. Some took refuge with host families; others hid in the hills and forests.[3] Over one million Albanian refugees fled to neighboring countries, they brought with them stories of torture, human rights abuses, and war crimes committed by the Serbian forces. NATO forces started a bombing campaign against Yugoslavia in March 1999 to bring about an end to the conflict. The United Nations Mission in Kosovo, known as UNMIK, was established by a UN Security Council Resolution in June 1999.[1] Within a month of the establishment of UNMIK administration, over 800,000 Kosovars refugees

and internally displaced persons returned to their homes. More than 11 years later, violence between Albanians and Serbs still plagues the population. Kosovar Albanians celebrated the country's self-declared independence in February 2008, but the minority Serbian population lives in fear of reprisals. The UN Security Council has not recognized the declaration of independence, but 69 UN countries have recognized Kosovo. In July 2010 the International Court of Justice ruled that Kosovo's declaration of independence did not breach international law. That ruling that may open the door for more countries to recognize Kosovo.

Scores of international and local NGOs worked alongside the United Nations in the aftermath of the conflict to begin the process of creating a country by building democratic institutions in government and non-government sectors. This process would be challenging for any new country; the scant financial resources and residual psychological trauma of the war make it more difficult..

Against this background, Kosovo is trying to rebuild its healthcare infrastructure. The centrally managed Yugoslavian healthcare system delivered poor quality care.[4] Physicians and nurses were not well trained. Reforms are being implemented to establish a decentralized system focused on prevention, and emphasizing family care, which will be the gatekeeper for secondary and tertiary care.[4] In 2006 few mental health professionals were practicing in Kosovo: one psychiatrist per 90,000 people; one mental health worker per 40,000 people; and a few clinical psychologists and social workers. Mental health treatment focuses on pharmaceuticals and hospitalization, due to lack of other resources. The population of Kosovo is young (65% under the age of 30) yet there are few child or adolescent psychiatrists practicing.[6]

As a result, the doctors and nurses in the primary healthcare system are responsible for both the physical and mental health of the traumatized Kosovo population, and must work

directly with patients who have been affected by the war and its consequences, including poor physical health, war-related injuries, poverty, disrupted families with missing members, ongoing violence, and unemployment (50% at the time of this writing).

Yet these doctors and nurses themselves are also members of the population affected by the war in Kosovo, and also live with high levels of stress and trauma. There is no formal staff support system for health professionals, and no guidance to assist them in supporting each other. Besides confronting personal stressors and the challenges of a difficult patient population, the healthcare staff is also faced wth structural stressors, as the country undertakes a variety of reform measures and attempts to modernize.

This paper reports on the mental health status of primary healthcare professionals in Kosovo. The data were generated in a survey of primary healthcare workers conducted in May 2010 by the Kosovo Center for the Rehabilitation of Torture Victims, in collaboration with the Antares Foundation and the CDC. The survey took place in the context of guiding program implementation for those individuals. The purpose of the survey was to measure the prevalence of stress-related and trauma-related psychological problems in primary healthcare professionals in Kosovo, and to identify aspects of work associated with elevated risk of poor mental health and burnout in that population. This population is an appropriate proxy for national staff, in that they share the characteristics of being drawn from the beneficiary population and were exposed to the same stressors and traumatic events as the rest of the population. Because of the large number of potential outcomes and predictors in the dataset, only one outcome (depression) in one part of the population (physicians) will be examined here.

Methods

Sample Population

Approximately 361 physicians and 972 nurses in Kosovo's primary health care system were eligible to participate in the survey. This represents every physician who was listed as employed in a primary care clinic, but excluded anyone on vacation, on assignment out of the country, or missing since the war. The original list provided by the director of Family Medicine, who oversees the clinics, was updated by the research team and is believed to be extremely accurate as of the date of the survey. The sampling frame was stratified by physicians and nurses; the assessment team attempted to include every eligible physician (361) and a systematic random sample equal to 50% of the 972 nurses. Because this was a census of the physicians, a sample size calculation was not required. For the nurses, we selected a stratified random sample with allocation proportional to the population in each of the eight districts of the country. Sample size was calculated based on alpha of 0.05; a confidence interval of +/- 5%, and an unknown prevalence of stress-related mental health problems among PHC workers, which was estimated conservatively at 50%.

Based on these assumptions a sample of 341 nurses was required; taking into consideration refusals, and dropouts the sample size was calculated to be 450 nurses. Because the sample would be stratified by doctors and nurses, and because every eligible doctor would be included in the survey (original estimated n = 500) the assessment team elected to sample an equal number of nurses; however, the estimate of the number of physicians proved to be high, and only 361 physicians were working in the family medicine system and available to participate at the time of the survey. Thus, the final sample for the survey included 361 physicians and 486

nurses; of these, 716 individuals (85.0%) of the total participated; the response rate for physicians was 79.2% and the response rate for nurses was 88.5%.

Ethical Approvals

The senior-level Associate Director for Science at the CDC's Center for Global Health determined the survey was not human subjects research and therefore did not require further IRB review.

Survey Instrument

The survey instrument included measures to capture demographics, organizational support and work experience, support measures for local staff and management (climate within the organization), chronic stressors, trauma experiences, possible secondary trauma transmission, social support, and coping strategies. The main study outcomes include mental health measures such as posttraumatic stress disorder, anxiety, depression, burnout, and job- and life satisfaction.

We conducted a rapid qualitative assessment of key informants, including representatives from the Ministry of Health and the mental health professionals and representatives of local staff not participating in the study, in order to provide assurance that all key variables were included and culturally appropriate for Kosovo. In individual interviews, key informants (for e.g., the physician and nurse coordinators in each region) provided examples of the primary stressors in their clinic settings, as well as examples of existing support structures for their staff. The material they provided augmented the existing stressor, coping, and organizational support items in the questionnaire.

Demographic information collected included sex, age, ethnicity, religion, education and marital status. To evaluate methods of coping with stress, the Coping Strategy Indicator was revised to include statements specific to the Kosovar population, for example, asking if they had

used walking, or listening to their favorite music, as means of coping with stress. We shortened the Amirkhan coping measure to include three items each on the three subscales of Problem Solving; Seeking Social Support; and Avoidance. [55]

We assessed the respondents' perception of social support using the Social Provisions Scale.[56,57] One question assessed the impact of religion on coping. Respondents indicated how much stress they experience from each of six chronic stressors common to healthcare situations. The six items are scored on a Likert-type scale: N/A, None, Little, Moderate, Substantial, or Extreme. Grouping the N/A, None and Little responses, and the Moderate, Substantial and Extreme responses, resulted in a new dichotomous variable.

We used the Harvard Trauma Questionnaire (HTQ) to assess traumatic experiences. The HTQ consists of two parts; the first part lists traumatic events, and should be specific to the situation where it is being administered. This survey listed 19 possible traumatic events, including "lack of food or water," "injury from landmine," and "living in a refugee camp." Respondents indicated whether they had not experienced the event, had personally experienced the event, had witnessed the event, or had heard about the event. The second part of the HTQ captures symptoms from the DSM III/DSM IV criteria for post-traumatic stress disorder (PTSD), grouping the items into three categories to reflect recurring symptoms, arousal and avoidance. Mean scores were computed for each of the subscales. A "PTSD case" is defined by summing the subscales and computing their mean.[58]

Secondary traumatization or vicarious traumatization is a term that refers to the acquisition of trauma responses due to the close association with a traumatized individual. To measure this construct we created a six-item scale specifically for use in this population. Three items additional assessed the general health of the participants and specific health problems.[59,60]

The Hopkins Symptom Checklist-25 (HSCL25) is composed of 10 statements that measure elevated anxiety symptoms and 15 statements that measure elevated depression symptoms. The mean is computed for each subscale; scores above the cutoff of 1.75 determine a "case", of elevated anxiety or depression. [58,61]

Job burnout is defined as "a syndrome of emotional exhaustion, depersonalization of others, and a feeling of reduced personal accomplishment."[62] Burnout is a type of stress response that can affect persons whose work involves intense contact with others. The measure proposed by Maslach, commonly cited as The Maslach Burnout Inventory for Human Services (MBI), comprises 22 statements measuring the level of the tri-construct of burnout. [63] These three constructs are: Emotional Exhaustion (EE), Depersonalization (DP), and reduced Personal Accomplishment (PA). High scores on the EE and DP subscales and low scores on the PA subscale reflect a high degree of burnout; conversely, low scores on the EE and DP subscales and high scores on the PA subscale reflect a low degree of burnout. [64]

In order to obtain descriptive information on job satisfaction, four questions asked how participants felt about their jobs. Responses were collected using a five-point Likert format, ranging from "strongly disagree" to "strongly agree".

Five statements asked respondents how they felt about their current life to assess life satisfaction. Responses were recorded on a seven-point Likert scale ranging from "strongly disagree" to "strongly agree". The final two questions included on the questionnaire were open-ended. These questions allowed staff to write in responses to two queries: "What would you need from your organization to do your job better, or have a better experience during your work?" and "What other feedback would you like to give the organization you are employed with (confidentially)?" Responses to these questions are not included in the analysis.

The survey questionnaire was translated into Albanian and back-translated to English to assess the accuracy of the translation. A local physician reviewed the questionnaire to provide expert validation of the translation, and his recommendations were incorporated. In addition, an informed consent was written and translated in order to provide each participant with information about the survey project and the intended use of the results to inform stress management trainings. The consent also included a clarification of confidentiality, the possible benefits of participation, and the resources available in case of distress during the survey.

Study procedures

Working through KRCT, the assessment team obtained a list of the physicians and nurses in the family medicine clinics in Kosovo. The management team for each region includes a director, physician and nurse coordinators, and a district coordinator. The assessment team briefed the regional directors and coordinators on the survey procedures at a training day and delivered a research ethics training to the group. A representative of the Ministry of Health and the national director for the family medicine clinics attended the meeting. During the training day, the group agreed on survey dates for each region. The assessment team invited the physicians and nurses to attend on the day specified for their region, and traveled to the region to meet with the potential participants.

The key informants agreed that it would be culturally acceptable to administer the survey instrument in a group setting. In consultation with KRCT, each coordinator organized a meeting location on the specific date and time when the doctors and nurses were invited to fill out the questionnaires. The meetings were held in the training rooms at the family medicine clinics in a central city in each region. The assessment team hired two translators who were fluent in English and Albanian to facilitate the survey administration. Along with the regional directors and

coordinators, they participated in the one day training to instruct them in the importance of confidentiality and other human subjects ethical procedures. In addition, each regional coordinator, nursing coordinator and physician coordinator completed the questionnaire to become acquainted with the content of the survey. The assessment team and the translators remained in the room in the event that any of the participants of the survey needed clarification or had any questions.

The district coordinator and the assessment teach welcomed participants at the site and explained the purpose of the project to them. The potential participants were then given written letters of invitation, as well as two copies of the informed consent form translated into Albanian. Participants read the consent and then circled “yes” or “no” regarding their willingness to participate in the needs assessment. Those who did not wish to participate were free to leave, and those who wished to participate were given the questionnaire to fill out. No financial incentives were provided to the participating organizations and staff; however, transportation costs were reimbursed for all participants. No names were recorded on the questionnaires.

The assessment team emphasized the importance of answering every question on the survey, unless it was a question the participant did not feel comfortable answering. When the surveys were turned in, they were quickly scanned for missing items; participants were queried to ensure that any unanswered items were intentionally left blank, rather than overlooked. This procedure ensured a relatively low number of blank responses.

Data management and analysis

The assessment team supervised data entry into a Microsoft Excel database in Prishtina, Kosovo. Data analyses were performed using SPSS 17.0 and SAS 9.2. Categorical variables were assessed with chi square tests and continuous variables were assessed with student’s t-tests. P

values < .05 were considered statistically significant. Data are not identifiable to any specific individual or region and have been analyzed and displayed only as general results. Descriptive analyses for both physicians and nurses will be presented; however, only one logistic model will be presented, outlining the factors associated with depression in doctors.

Risk factors for depression were each assessed independently as a predictor for depression. This analysis revealed that the population was homogenous in some domains, such as religion, ethnicity, and education. Age was grouped into three categories to assess the association with depression and was also evaluated as a continuous variable. Responses for each social support item were summed, and the final score was categorized as “high” or “low.” Each chronic stressor was assessed independently, as was each traumatic event. The number of traumatic events was split into three categories, based on results from previous studies in this group. The resulting groups (0, 1 – 4, 5+) were assessed with the 0 group as the reference. Results of the bivariate analysis are shown in Table 25.

To statistically evaluate the associations between risk factors and depression, a multiple logistic regression model was constructed. Risk factors for depression were evaluated independently for the strength of their association with the outcome. Factors that were associated at the level of p=0.1 were included as covariates in the multiple logistic regression model. The model therefore included: age, sex (being female rather than male); level of social support (low support rather than high); five items from the chronic stressors; six items from the secondary traumatization scale; four of the traumatic events; and four items from the coping scale. Adjusted odds ratios and 95% confidence intervals (CI) were computed for association with depression (Table 26). Regression diagnostics were run on the fitted model (Table 27).

Results

A total of 716 staff consented to participate in the assessment. The overall response rate was 85%. There were no refusals to sign the consent form or to fill out the questionnaire once the participants were at the facility where the assessment took place. Of those who participated, 286 were physicians and 430 were nurses. (Table 1) Overall, 25.8% of the respondents were male and 74.0% were female. Within the physicians, 126 (44.0%) were male and 159 (55.6%) were female. The overall mean age of the respondents was 43.2 (SD 8.6); the mean age for physicians was 47.1 (SD 5.8); mean age for nurses was 40.6 (SD 9.1). Most of the participants were Albanian (95.7%) as were most of the physicians (94.8%). Overall, 11.0% of respondents were single, and 84.3% were married or in a committed relationship. Only 7.0% of physicians were single, and 89.5% were married or in a committed relationship. The majority of respondents were Muslim (97.2%) and 1.8% were Catholic; 94.8% of the physicians were Muslim, 2.8% Catholic, and 1.8% indicated no religion.

Coping strategies can be categorized into three domains, Problem Solving, Seeking Social Support, and Avoidance. The most frequently endorsed methods of coping among all respondents were to think about what needed to be done to straighten things out (81.1%), or trying to solve the problem (91.6%) followed by seeking reassurance (64.4%) and forming a plan of action in mind (61.6%). (Table 2) Among physicians, the most commonly used coping mechanisms were trying to solve the problem (89.8%) and thinking about what needs to be done to straighten things out (77.2%), followed by seeking reassurance (66.1%); and forming a plan of action (63.0%). (Table 3) As a group, therefore, the physicians rely on pro-active problem-solving coping strategies to manage stressful situations, and also rely on the support of friends, although a significant number (40.28%) overwork to cope with stress, which falls into the realm of Avoidance.

Social support may favorably impact physical and emotional health, which underscores the importance of interpersonal relationships.[65] The results of the social support section of the questionnaire were mixed. (Table 4) On the one hand, responses appeared to indicate strong social support: 91.2% agreed that there is a trustworthy person they could turn to for advice; however, only 79.2% also responded negatively to the reverse statement (There is no one I can turn to in times of stress.). This pattern was repeated throughout the questionnaire, although with a smaller gap between the scores for the matching pairs of questions. For example, 94% of the physicians agreed that there are people they can depend on to help them if they need it, but 87.7% disagreed that if something went wrong, no one would come to their assistance; while 86.6% stated that they have close relationships that provide them with emotional security and well-being, 90.5% disagreed with the statement that they lack emotional closeness with another person. One question on the survey assessed the use of religious practices. Religion was more important for coping among nurses (70.7%) than among physicians (59.3%) (p=.002). More than half (59.3%) of the physicians indicated that their religion helps them cope better with stress. Thus, despite the secular outward appearance of Kosovar society, religion may be protective against stress for the physicians in this survey. (Table 6)

Certain issues have been identified as chronic stressors in a healthcare environment (Tables 7 and 8). Of these, the most common chronic stressors were workload (72.1%), followed by personal economical and financial problems (61.3%) for all staff. Lack of direction from institution management as a stressor was significantly different for physicians (35.6%) versus nurses (24.7%) (p= .002); similarly, lack of recognition for work accomplished was significantly different between nurses (29.1%) and physicians (39.1%) (p= .006). Financial problems were cited as a source of substantial or extreme stress by almost a third of physicians (32.1%), while

workload was a source of substantial or extreme stress for 42.1%. Professional interpersonal relationships were not a source of stress for this group, but level of pay, and the amount of work that they are doing to earn that pay, are chronically adding to the stress load for this group.

Some of the survey respondents remained in Kosovo during the war, and others fled the country. Either course of action carried the potential to experience stressful or traumatic events. The majority of the respondents (64.8%) reported experiencing traumatic events in which they were frightened or felt their life was in danger, and 43.1% reported that they or their family members had been involved in fighting in the war. (Table 9) Significantly more nurses (15.7%) than doctors (9.5%) have experienced ill health without access to healthcare ($p=0.02$), while more doctors (27.0%) than nurses (19.2%) had experienced having friends or family die from disease or lack of food. (Table 10) There were also statistically significantly differences between numbers of doctors and nurses who were involved in fighting during the war (66.9% vs. 43.8%, $p<.0001$) and who had experienced events that were frightening or life-threatening (73.7% vs. 59.0%, $p <.0001$).

The most commonly experienced traumatic event for physicians that was included on the survey list was having to flee suddenly, which was reported by 66.7% of the survey respondents (Table 11). Lost property or belongings was reported by 48.2%, while 44.5% lived in a refugee camp. Another 42.0% stated that they or their family had been involved in fighting during the war and 37.7% had experienced shelling or rocket attacks during the war. Many lost people they were close to, either through violent or non-violent causes: 27.9% stated that they experienced the death of a family member or a friend as a result of illness or lack of food; 26.7% said they experienced the murder of a neighbor or someone from their village and 21.4% experienced the murder of a family member or neighbor. Nearly three-fourths of physicians (73.7%) indicated

they experienced another event, one not listed on the questionnaire, in which they felt their life was endangered or they had felt very frightened. About a quarter of the respondents (25.4%) experienced a lack of food or water during the war, and 23.1% had been without shelter and 19.8% had been forcibly separated from family members. Five physicians had been raped (1.8%) and an additional nine (3.2%) had witnessed rapes and 11.2% had been tortured. Physical injury from the war was less frequently reported, but not insignificant; 5.3% reported a serious injury due to knife, gunshot or fighting, and 3.9% had been injured by land mines. An additional 8.5% witnessed land mine injuries. Only 12.5% of the respondents did not experience any traumatic event during the war (Table 12), while 53.6% experienced five or more traumatic events. The mean number of traumatic events experienced was 4.9 (SD 4.0) overall and 5.1 (SD 3.7) for physicians.

Not surprisingly, given the high number of traumatic events experienced by this population, they consistently reported many PTSD symptoms. (Tables 13 and 14) In the month prior to filling out the questionnaire, 43.3% of the doctors had been bothered either “quite a bit” or “extremely” by recurrent thoughts or memories of the most hurtful or terrifying events. The next most commonly reported symptom was avoiding activities that reminded them of traumatic events, reported by 40.14%, followed by being unable to feel emotions, reported by 37.86% of respondents. More than a third (35.94%) were unable to remember parts of the most traumatic events or avoided thoughts of feelings associated with the traumatic events (33.69%).

Secondary traumatization or vicarious traumatization is a term that refers the acquisition of trauma responses due to the close association with a traumatized individual. The work of the doctors and nurses in the primary health system involved listening to trauma stories from the beneficiary population by 85.2% of the respondents to the survey, and 56.4% experienced

intrusive thoughts related to especially difficult cases, while 46.2% reported losing sleep over a client's traumatic experiences and 41.2% experienced flashbacks connected to the people they help. Nurses had significantly higher rates of secondary traumatization than doctors; nurses were significantly more likely than doctors to lose sleep over traumatic experiences of their patients ($p<0.001$). Nurses also had more sudden and involuntary recall of frightening experiences than doctors and more often experienced troubling dreams of the people they help ($p<0.001$ and $p<0.001$, respectively).

The majority of physicians (88.1%) listen to trauma stories from their patients and those stories have caused flashbacks for 36.3% of the respondents, and caused 28.4% to involuntarily recall a frightening experience (Table 10). For 35.8% of physicians, the traumatic stories of their patients were causing them to lose sleep. In addition to dealing with the ongoing consequences of their own exposure to trauma during the war, the physicians who participated in the survey also are affected by the traumatic experiences of their patients.

The main outcome measures for the survey were PTSD, depression, anxiety and burnout. In addition, job satisfaction and overall life satisfaction were measured.

The Harvard Trauma Questionnaire[58] captures symptoms from the DSM III/DSM IV criteria for PTSD. The items are grouped to reflect recurring symptoms, arousal and avoidance. By summing the subscales and computing their mean, a "PTSD Case" can be defined; 15.8% of the study population, and 12.6% of the physicians, met the criteria for a PTSD case (Table 11).

Symptoms of anxiety and depression were measured using the Hopkins Symptom Checklist-25 (HSCL25) [61]which is composed of 10 statements measuring elevated anxiety symptoms and 15 statements measuring elevated depression symptoms. A 1.75 standardized and validated cut-off score determines a "case", of elevated anxiety or depression. Using this cut-off

score 30.1% of participants and 26.9% of physicians reported elevated anxiety symptoms and 28.5% (25.0% of physicians) reported elevated depression symptoms. Despite this, the survey did not detect significant levels of burnout. Job burnout is most commonly cited as "a syndrome of emotional exhaustion, depersonalization of others, and a feeling of reduced personal accomplishment".[62] A type of stress response, burnout can affect persons who have an intense level of contact with others within their work. Maslach's definition of burnout, commonly cited as The Maslach Burnout Inventory for Human Services (MBI) is composed of 22 statements measuring the level of the tri-construct of burnout.[63] These three constructs are Emotional Exhaustion (EE), Depersonalization (DP), and reduced Personal Accomplishment (PA). Low scores on the EE and DP subscales and high scores on the PA subscale reflect a low degree of burnout (Table 12).

Few participants met levels suggestive of job-related burnout on the tri-construct case definition, but 16.1% and 8.2% reported high levels of emotional exhaustion and depersonalization. Scores on Personal Accomplishment were more evenly distributed; 37.9% of participants had a higher risk level in that category, while 43.1% were in the low risk level range, or had higher feelings of personal accomplishment. We also examined how many participants met the cut off scores for all three constructs in order to tabulate an overall "case prevalence" for burnout. Of all participants 1.3% met the criteria for all three construct cut-offs.

While most physicians did not meet levels suggestive of job-related burnout, 17.8% and 7.8% reported high levels of emotional exhaustion and depersonalization. Scores on Personal Accomplishment were more evenly distributed; 49.8% of participants had a higher risk level in that category (low personal accomplishment), while 31.7% were in the low risk level range (high

feelings of personal accomplishment). Within physicians, 1.4% met the criteria for all three construct cut-offs.

In order to obtain descriptive information on job satisfaction, four questions asked how participants felt about their jobs; responses were collected using a five-point Likert format, ranging from “strongly disagree” to “strongly agree”. The majority of participants appeared to indicate satisfaction with their jobs; only 5.3% of participants agreed or strongly agreed with the statement, “I considered my job rather unpleasant”; 92.8% agreed or strongly agreed that they “felt well satisfied with [their] job”; 91.6% agreed or strongly agreed that they “found real enjoyment in [their] work”; and only 4.7% indicated they agreed or strongly agreed with the statement “I am disappointed that I ever took this job.” (Tables 21 and 22) While they may experience stress related to their work, the work itself is not a source of stress for the doctors. When asked to respond to the statement, “I consider my job rather unpleasant,” 91.2% either disagreed or strongly disagreed. Correspondingly, 90.6% agreed or strongly agreed with the statement “I feel fairly well satisfied with my job” and 89.8% agreed or strongly agreed that they find real enjoyment in their work. And 88.4% would do it again – they disagreed or strongly disagreed with the statement, “I am disappointed that I ever took this job.” Despite the workload and the financial stress of low pay, the physicians in the primary health care system overwhelmingly enjoy their work.

Five statements ask how respondents feel about their current life and are intended to provide a measure of life satisfaction. Responses are recorded on seven-point Likert scale ranging from “strongly disagree” to “strongly agree”. Responses varied by response and by item, and would appear to indicate strong individual variation in life satisfaction. While 31.2% agreed or strongly agreed that they would change nothing about their current life, 34.9% disagreed or

strongly disagreed with that statement, and 66.4% agreed or strongly agreed that they were satisfied with their current life, and only 7.2% disagreed or strongly disagreed with that statement. Over half (56.5%) agreed or strongly agreed with the statement “My current life is ideal for me”; 42.3% agreed or strongly agreed that “the current conditions of [their] life are excellent”; and 66.5% agreed or strongly agreed that they “have the important things [they] want right now.” (Table 23) Among physicians, 31.2% agreed or strongly agreed that they would change nothing about their current life, and 31.9% disagreed or strongly disagreed with that statement; 63.6% agreed or strongly agreed that they were satisfied with their current life, and only 6.4% disagreed or strongly disagreed with that statement. Almost half (48.1%) agreed or strongly agreed with the statement “My current life is ideal for me”; 35.8% agreed or strongly agreed that “the current conditions of [their] life are excellent”; and 64.9% agreed or strongly agreed that they “have the important things [they] want right now.” Life satisfaction, then, is associated with more than the immediate material conditions of their lives, and while there are things the Kosovar physicians would change about their lives, they are in general happy with them.

A number of items were found to be statistically associated with depression in the bivariate analysis, including being female (OR 1.9, 95% CI 1.09 – 3.4,p=0.0243). (Table 25) Being married vs. unmarried was not significant, nor was age group or religious practice. A perceived level of high social support was protective against depression (0.4, 0.2 – 0.8, p=.02). Of the six chronic stressors evaluated, only one, conflicts and misunderstandings among co-workers, was not significant. Personal economic and financial problems were strongly associated with depression (2.9, 1.5 – 5.8, p=0.001) as was workload being too high (2.7, 1.3 – 5.6, p=0.008). In this category, being asked to perform duties outside of their professional training;

lack of direction from institution management; and lack of recognition from management were all strongly associated with depression.

The survey instrument included seven items relating to secondary traumatization. The physicians affirmed that they hear and listen to trauma stories from their patients, but this factor is not associated with depression. However, the physicians are losing sleep over the traumatic experiences of their patients, and this fact is strongly associated with depression (5.347, 2.981 – 9.592). Other items strongly associated with depression include experiencing intrusive thoughts in connection with particularly difficult cases; suddenly and involuntarily recalling frightening experiences while working with patients; having flashbacks connected to experiences of their patients; experiencing troubling dreams connected to patients; and avoiding "difficult" cases.

The number of traumatic events experienced during the war was not significantly associated with depression; however, specific traumatic events, when personally experienced by the doctors themselves, were predictors of depression. These items include lack of shelter (1.913, 1.037 – 3.53, p=0.038) and being imprisoned (2.954, 1.147 – 7.607, p=0.025). The trauma events section included a general category, "any other event in which you felt your life was in danger, or you were very frightened," to capture any war experience that was not specifically named. This item was also associated with depression (2.08, 1.02 – 4.241, p=0.04).

Some coping strategies are considered to be adaptive and positive, while others are more generally negative. Discussing a problem with a friend is an example of a socially oriented, positive coping strategy; thinking about how to address the problem is an example of a pro-active, positive strategy. Isolation, or use of alcohol or drugs, are examples of negative coping strategies. Not surprisingly, several negative coping strategies were positively associated with depression, including avoiding being with people (2.8, 0.97- 8.02, p=0.06), and "wishing that

people would just leave you alone" (4.6, 1.9 – 11.04). Overwork was a popular coping strategy, but also one that was associated with a negative outcome (2.9, 1.69 – 5.23, p=0.0002), and taking time off from work because of stress, which might appear to be protective, was also associated with the outcome (9.4, 0.9 – 91.8, p=0.05), which was excluded from the logistic regression because of small cell sizes. Several positive coping strategies were found to be protective against depression, including using humor and listening to their favorite music. See Table 25.

There were 25 factors that were statistically associated with depression as either predictors of depression or as protective against depression. These items were fitted into a regression model. The fitted model was checked for multi-collinearity; none was found. The model was then adjusted by individually removing terms that had become insignificant when adjusted in the model, starting with those that had the highest p value in the saturated model. At each step the model was recalculated, and the term with highest p value was removed. This procedure was continued until all terms in the model were significant. One coping item, taking sick leave or being absent from work, was removed due to small cell size. The saturated model had an overall p = <.001 and a c value of 0.851. The adjusted model contained six terms:

- Age (Adjusted Odds Ratio 1.079, 95% Confidence Interval 1.11-1.15, p=0.014) (Table 26);
- Personal economic or financial problems (from Chronic Stressors scale) (AOR 2.56, CI 1.17 – 5.58, p=0.019);
- Losing sleep over the traumatic experiences of the people they help (AOR 4.9, CI 2.45-9.98, p=<.001);
- Experiencing troubling dreams similar to those of the people they help (AOR 2.35, CI 1.09-5.07, p=0.03);

- Imprisonment (from Harvard Trauma Questionnaire) (AOR 3.33, CI 1.04-10.64, p=0.048);
- Wishing that people would leave them alone (from Coping scale) (AOR 6.04, CI 2.19-16.7, p=<.001);
- Overworking (from Coping scale) (AOR 2.31, CI 1.2-4.5, p=0.01).

The final model was tested for goodness of fit. The p value for the Hosmer and Lemeshow goodness of fit test was 0.4996. Therefore we conclude that the model is very good fit to the data. See Table 27.

Discussion

The population in this survey was directly and massively affected by the war. The traumatic events of the war continue to affect the population; more than a decade after hostilities ended, they are living with traumatic memories of their war experiences and are exhibiting symptoms of avoidance associated with PTSD.

This survey establishes associations among a variety of personal and organizational stressors and mental health outcomes for primary healthcare workers in Kosovo. The results will provide baseline data for psychosocial interventions in the population. One limitation of this survey is that it encompassed only physicians and nurses, and therefore the results cannot be generalized beyond that population. Possibly some factors contribute to depression in this population that were not measured.

Large numbers of the doctors reported moderate to serious problems with PTSD symptoms such as arousal (e.g. irritability, difficulty concentrating, excessive jumpiness), avoidance, and re-experiencing symptoms. This finding is echoed in the high levels of depression and anxiety found in the doctors. Levels of secondary traumatization were also high.

Many of the doctors are living with high levels of physical arousal and agitation from their war experiences. This has potential impacts on their work (because of difficulties with concentration, decision-making, and inter-personal relationships due to irritability); and on their own physical health, due to long-term physical consequences of stress, and the risks associated with negative coping behaviors such as smoking.

Although the levels of reported depression and anxiety symptoms were high, we found little evidence of job-related burnout, and most respondents reported that they find satisfaction in and enjoy their work. This suggests that the experiences of depression and anxiety are not primarily work-related. In addition, respondents reported strong perceived social support, and little loneliness or isolation, as well as pro-active coping strategies. Many individuals take refuge from stress in their work; at the same time, some physicians are overworking as a way to cope with stress. The physicians are largely using effective methods to cope with the stress in their lives.

One important stressor for most participants was financial concerns. This was the second-highest chronic stressor overall, and the most important stressor for the physicians. Those who endorsed financial concerns as a problem were more than twice as likely to be depressed than those who did not report this as a problem ($p=0.0185$). Low salaries spawn a number of consequences, including subsistence problems; family stress; the need to have a second job, which cuts down on the time available to spend with family and friends, or to relax; and loss of social standing as a result of their reduced financial circumstances. Female nurses and female physicians are susceptible to family pressures and cultural pressures in addition to work pressures, as they are often the family breadwinner in a culture where men are expected to provide for their families.

The mixed results on the Social Support questionnaire may well be due to the wording of the questionnaire, which asks for responses on a five-point Likert-type scale, from strongly disagree to strongly agree. The positively worded statements are easy to understand and respond to, e.g., “There are people who enjoy the same social activities I do.” But half of the statements are negatively worded, e.g. “There is no one who shares my interests and concerns.” In order to respond to that statement in the affirmative, that there is indeed someone who shares your interests, it is necessary to disagree with that statement. It is likely that the requirement to tease out the affirmative response from the double-negative statement was confusing, which is borne out by the high number of questions that the researchers and translators were asked to respond to about that section. The responses to the positively worded statements may therefore be more reliable than the other half of the questions on this section of the survey, and given the strong family ties evident in Kosovar society, it is likely that social support buffers the negative impacts of stress for this group.

Although the MBI is used extensively in populations of social workers, police officers, nurses and others whose work requires frequent and extensive stressful interaction with the public, the instrument has not been validated to measure burnout in Kosovo. Given the high levels of anxiety, depression and PTSD, we expected to find correspondingly high levels of burnout. We considered several explanations for the divergent results. The wording of the questions may not be culturally appropriate, although the questions were certainly comprehensible to the translation team that worked on the survey instrument. The cutoff score for a burnout “case” could be inappropriate for this population, setting the bar to high and identifying too few individuals as cases. Alternatively, it is possible that this group has been

somewhat protected from burnout by their strong social networks and their pro-active coping strategies.

Depression among physicians in Kosovo is related to a number of factors, including wartime experiences and their current situation. The fighting may have ended, and physical wounds may have healed, but the war and its aftermath continue to take a toll on the mental and emotional health of the doctors in Kosovo, either through their own pressured financial situations or through the trauma of their patients. Notably, physicians who had been imprisoned during the war were three times as likely to be depressed as those who were not. While nothing can be done to change the wartime experiences of the population, it is possible to address other factors that were associated with depression. Education about adaptive coping strategies, effective methods of stress management, and peer groups to support them in coping with their own traumatic experiences – and those of their patients – could all be helpful in this population.

Chapter 4: Discussion, Conclusion and Recommendations

The physical impact of war is easy to see: conflict leaves visible scars on bodies and on societies. The mental health impacts are less visible but perhaps more pernicious. It is estimated that more than one billion persons across the globe have been affected by war and violent conflict. The burden of stress-related mental and physical illness resulting from these events is enormous and grows with each new conflict. Stress and trauma manifest in the short term as psychological symptoms, and in the longer term as chronic illnesses, including heart disease, stroke, cancer, hypertension, and auto-immune disorders, through the mechanism of increased inflammation. The long-term effects of stress and related inflammation promise to place an onerous burden of ill health on populations, and drive up the cost of health care. In the short term, the immediate manifestation of stress as depression, anxiety, and other physical and mental illness impedes societies as they work to recover from conflict. Resource-poor countries lack sufficient trained health professionals or appropriate programs to address the impact of stress and trauma on their populations, and there is little reliable information about the effectiveness of mental health interventions in post-conflict settings. Innovative, results-oriented, cost-effective approaches to treat stress-related illness are badly needed.

For the physicians and nurses in Kosovo, their burden of traumatic stress is likely ameliorated to a large degree by the strong social support afforded by their robust family networks. But even that strength cannot overcome some rather grim realities about the fledgling country. Unemployment is high and the population is young, a combination that has proved to be incendiary in other countries. There is no manufacturing base, and little agriculture, despite the fertile land, because land titles are unclear and funds for investment in modern machinery and equipment are unavailable. And Kosovars have learned that the world's attention span is short:

there have been other conflicts, and enormous natural disasters, in the past decade, and resources are being directed elsewhere. The depression inventory might be tapping into unresolved grief, discouragement or hopelessness about the political situation in Kosovo.

In this society and against this background, any mental health intervention will necessarily be low-cost, and should be community based to take advantage of and reinforce strong social ties. Because social networks did not appear to be as strong in the workplace as they were in families, strengthening collegiality among the doctors and nurses could mitigate some of the stress of their jobs.

The survey will be used to guide a program of stress management training for the population. This training should focus on methods to help reduce physical agitation and arousal. In addition, it may be useful to consider practices from other traditions (such as yoga or meditation) that have a salutary effect on physical and emotional stress. Some previous stress management programs were initiated, but ended when the trainers left, which underscores the need to integrate such programs into staff training, and to employ “train the trainer” methods to ensure that competencies are transferred to this population, which would be empowering and enable them to help themselves and their peers. Mental health resources in Kosovo are scarce, but this could be turned to an advantage by holding group education sessions for patients and staff, which would reduce stigmatization. Continuing education on mental health issues would raise awareness that the issues can apply to everyone, including staff. Specific programs to address structurally address the negative effects of vicarious traumatization, and effective coping methods, are needed for doctors and nurses.

Although they were not discussed in the manuscript section, the survey collected responses to open-ended questions which solicited comments about anything that the

respondents wanted their organizations to know. Both doctors and nurses referred to the poor working conditions in their clinics, expressing concern and frustration that they do not have the facilities, equipment, medications and other resources to care for their patients properly. The difficult economic conditions in Kosovo, combined with the loss of social standing by doctors, have put physicians – and to some extent nurses – under enormous pressure from patients who demand services the health care workers cannot provide. Patients' expectations simply do not match the providers' resources. Helping educate the population about what health care providers can realistically do for them might reduce unrealistic expectations that create pressure on providers and conflict with beneficiaries. Continuing education and training is a priority for both doctors and nurses. Collaborations with foreign university medical centers would give the staff access to the training and resources not now available in Kosovo. Specifically, a university with strengths in family medicine could webcast its grand rounds for viewing in the family medicine centers; and a relationship could be established with a medical library to provide access to journals and online databases. Funding should be made available for computers, internet connections, and translation.

Although the world's attention has moved on to other conflicts, a host of problems still need to be addressed in Kosovo. A moderate, secular Muslim state in the heart of Europe, it is strategically important, and could also serve as a model for post-conflict interventions that could guide policy in other parts of the world – specifically, the conflicts in Afghanistan and Iraq.

Tables and Figures

Table 1. Demographic Characteristics of Physicians and Nurses in the Family Medicine Clinics in Kosovo

	All staff		Physicians		Nurses	
	n/N(%)	%	n/N(%)	%	n/N(%)	%
Sex						
Male	185/716	25.8	126/286	44	59/430	13.7
Female	530/716	74	159/286	55.6	371/430	86.3
Age Group						
15 – 34	137/716	19.1	5/286	1.8	132/430	30.7
35 – 54	526/716	73.5	241/286	84.3	285/430	62.8
55 – 64	51/716	7.1	38/286	14.9	13/430	3
≥ 65	1/716	0.1	1/286	0.4	0/430	0
Marital Status						
Single	79/716	11	20/286	7	59/430	13.7
Married (or in committed relationship)	603/716	84.3	256/286	89.5	347/430	80.7
Separated, Divorced or Widowed	30/716	4.3	8/286	2.8	22/430	5.1
Ethnicity						
Albanian	685/716	95.7	271/286	94.8	414/430	96.3
Serb	0/716	0	0/286	0	0/430	0
Turkish	13/716	1.8	6/286	2.1	7/430	1.6
Other	16/716	2.2	7/286	2.5	9/430	2.1
Religion						
Islam	696/716	97.2	271/286	94.8	425/430	98.8
Catholic	13/716	1.8	8/286	2.8	5/430	1.2
Orthodox	0/716	0	0/286	0	0/430	0
No Religion	5/716	0.7	5/286	1.8	0/430	0
Other	0/716	0	0/286	0	0/430	0
Region						
Ferizaj	48/716	6.7	22/286	7.7	26/430	6
Gjakova	59/716	8.2	25/286	8.7	34/430	7.9
Gjilani	81/716	11.3	42/286	14.7	39/430	9.1
Lipjani	28/716	3.9	13/286	4.5	15/430	3.5
Mitrovica	93/716	13	25/286	8.7	68/430	15.8
Peja	104/716	14.5	38/286	13.3	66/430	15.3
Prishtina	200/716	27.9	85/286	29.7	115/430	26.7
Prizren	103/716	14.4	36/286	13.6	67/430	15.6

Table 2. Use of Methods for Coping with Stress Among Physicians and Nurses in the Family Medicine Clinics in Kosovo

	A Lot		A Little		Not At All	
Coping items	n/N	%	n/N	%	n/N	%
Problem Solving						
Formed a plan of action in your mind	438/711	61.6%	245/711	34.5%	28/711	3.9%
Used humor to try to cope with the problem	244/713	34.2%	370/713	51.9%	99/711	13.9%
Tried to use relaxation/deep breathing techniques	204/713	28.6%	383/713	53.7%	126/713	17.7%
Thought about what needed to be done to straighten things out	576/710	81.1%	118/710	16.6%	16/710	2.3%
Tried to solve the problem	653/713	91.6%	53/713	7.4%	7/713	1.0%
Seeking Social Support						
Went to a friend to help you feel better about the problem	247/712	34.7%	398/712	55.9%	67/712	9.4%
Confided your fears and worries to a friend	426/713	59.7%	266/713	37.3%	21/713	2.9%
Sought reassurance from those you know best	457/710	64.4%	232/710	32.7%	21/710	3.0%
Avoidance						
Avoided being with people in general	92/710	13.0%	316/710	44.5%	302/710	42.5%
Wished that people would just leave you alone	79/712	11.1%	295/712	41.4%	338/712	47.5%
Overworked	297/707	42.0%	313/707	44.3%	97/707	13.7%
Have gone on vacation/taken a trip	127/714	17.8%	419/714	58.7%	168/714	23.5%
Taken sick leave or have been absent from work because of stress related to your job	13/715	1.8%	104/715	14.5%	598/715	83.6%
Exercised more than usual	213/709	30.0%	383/709	54.0%	113/709	15.9%
Watched television more than usual	135/711	19.0%	454/711	63.9%	122/711	17.2%
Listening to your favorite music	245/714	34.3%	398/714	55.7%	71/714	9.9%
Shopping more than usual	88/708	12.4%	344/708	48.6%	276/708	39.0%
Walking	291/709	41.0%	373/709	52.6%	45/709	6.3%

Table 3. Use of Methods for Coping with Stress among Physicians Employed by the Family Medicine Clinics in Kosovo

		A Lot		A Little		Not at All		Missing
		n	%	n	%	n	%	
1	Went to a friend to help you feel better about the problem?	82	28.8	169	59.3	34	11.9	1
2	Formed a plan of action in your mind?	179	63.0	100	35.2	5	1.7	2
3	Used humor to try to cope with the problem?	83	29.1	159	55.8	43	15.1	1
4	Exercised more than usual?	80	28.2	154	54.2	50	17.6	2
5	Avoided being with people, in general?	15	5.3	127	44.9	141	49.8	3
6	Wished that people would just leave you alone?	23	8.1	125	43.9	137	48.1	1
7	Overworked?	114	40.3	139	49.1	30	10.6	3
8	Tried to use relaxation/deep breathing techniques?	67	23.5	163	57.2	55	19.3	1
9	Have gone on vacation/taken a trip?	47	16.5	172	60.4	66	23.2	1
10	Have taken sick leave, or have been absent from work, because of stress related to your job?	4	1.4	36	12.6	245	85.9	1
11	Thought about what needed to be done to straighten things out?	220	77.2	60	21.1	5	1.7	1
12	Tried to solve the problem?	256	89.8	28	9.8	1	0.4	1
13	Confided your fears and worries to a friend?	149	52.3	128	44.9	8	2.8	1
14	Sought reassurance from those you know best?	187	66.1	91	32.2	5	1.8	3
15	You watched more television than usual?	48	16.9	187	65.8	49	17.3	2
16	Listening to your favorite music?	90	31.6	172	60.4	23	8.1	1
17	Shopping more than usual?	37	13.1	140	49.5	106	37.5	3
18	Walking	116	41.3	149	53.0	16	5.7	5

Table 4. Perception of Social Support among Physicians and Nurses Employed by the Family Medicine Clinics in Kosovo

Social Support Domains	Questions per Domain	Mode	(%) Frequency
Guidance	1. There is no one I can turn to in times of stress	Strongly disagree and disagree	71.5% 509
	2. There is a trustworthy person I could turn to for advice if I were having problems	Strongly agree and agree	91.2% 651
Reassurance of Worth	1. I do not think other people respect my skills and abilities	Strongly disagree and disagree	64.3% 459
	2. I have relationships where my competence and skill are recognized	Strongly agree and agree	92.0% 658
Social Integration	1. There are people who enjoy the same social activities I do	Strongly agree and agree	84.4% 597
	2. There is no one who shares my interests and concerns	Strongly disagree and disagree	89.0% 635
Attachment	1. I have close relationships that provide me with a sense of emotional security and well-being	Strongly agree and agree	89.2% 637
	2. I lack emotional closeness with another person	Strongly disagree and disagree	83.5% 594
Nurturance	1. I feel personally responsible for the well-being of another person	Strongly agree and agree	84.1% 599
	2. There is no one who really relies on me for his/her well-being	Strongly disagree and disagree	92.6% 654
Reliable Alliance	1. There are people I can depend on to help me if I really need it	Strongly agree and agree	93% 664
	2. If something went wrong, no one would come to my assistance	Strongly disagree and disagree	86.3% 617

Table 5: Perception of Social Support among Physicians Employed in the Family Medicine Clinics in Kosovo

Social Support Domains			n	%	Missing
Guidance	1. There is no one I can turn to in times of stress	Strongly disagree and disagree	225	79.2	1
	2. There is a trustworthy person I could turn to for advice if I were having problems	Strongly agree and agree	256	91.2	1
Reassurance of Worth	1. I do not think other people respect my skills and abilities	Strongly disagree and disagree	194	68.3	2
	2. I have relationships where my competence and skill are recognized	Strongly agree and agree	268	94.0	1
Social Integration	1. There are people who enjoy the same social activities I do	Strongly agree and agree	252	89.1	3
	2. There is no one who shares my interests and concerns	Strongly disagree and disagree	260	91.2	1
Attachment	1. I have close relationships that provide me with a sense of emotional security and well-being	Strongly agree and agree	246	86.6	2
	2. I lack emotional closeness with another person	Strongly disagree and disagree	257	90.5	2
Nurturance	1. I feel personally responsible for the well-being of another person	Strongly agree and agree	235	82.5	1
	2. There is no one who really relies on me for his/her well-being	Strongly disagree and disagree	264	92.9	2
Reliable Alliance	1. There are people I can depend on to help me if I really need it	Strongly agree and agree	268	94.0	1
	2. If something went wrong, no one would come to my assistance	Strongly disagree and disagree	250	87.7	1

Table 6. Helpfulness of Religious Practice for Coping with Stress among Physicians and Nurses in the Family Medicine Centers in Kosovo

	All staff		Physicians		Nurses		p value
	n/N	%	n/N	%	n/N	%	
Religion helps me cope better (agree + strongly agree)	473/715	66.2	169/285	59.3	304/430	70.7	.002

Table 7. Factors Contributing to Chronic Stress among Physicians and Nurses in the Family Medicine Centers in Kosovo

	All staff		Physicians		Nurses		p value
	n/N	%	n/N	%	n/N	%	
Personal economic/ financial problems	438/714	61.3	182/284	64.1	256/430	59.6	.239
Workload too high	516/715	72.1	206/285	72.3	310/430	72.1	1.0
Being asked to perform duties outside of professional training	102/714	14.3	43/285	15.1	59/429	13.8	.663
Lack of direction from institution management	207/714	29.0	101/284	35.6	106/430	24.7	.002
Lack of recognition from management for work accomplished	236/714	33.1	111/284	39.1	125/430	29.1	.006
Conflicts or misunderstandings between co-workers	131/714	18.4	62/284	21.9	69/430	16.0	.06

Table 8. Factors Contributing to Chronic Stress among Physicians in the Family Medicine Centers in Kosovo

	N/A		None		Little		Moderate		Substantial		Extreme		Missing
	n	%	n	%	n	%	n	%	n	%	n	%	
Personal economic/ financial problems	26	9.2	19	6.7	57	20.1	91	32.0	74	26.1	17	6.0	2
Workload too high	4	1.4	20	7.0	55	19.3	86	30.2	99	34.7	21	7.4	1
Being asked to perform duties outside of professional training	62	21.8	138	48.4	42	14.7	24	8.4	14	4.9	5	1.8	1
Lack of direction from institution management	30	10.6	76	26.8	77	27.1	40	14.1	49	17.3	12	4.2	2
Lack of recognition from management for work accomplished	29	10.2	77	27.1	67	23.6	50	17.6	46	16.2	15	5.3	2
Conflicts or misunderstandings between co-workers	48	16.9	84	29.6	90	31.7	33	11.6	23	8.1	6	2.1	2

Table 9. Traumatic Events Experienced During the Balkan War by the Physicians and Nurses Employed by the Family Medicine Centers in Kosovo

Traumatic event experienced	Experienced		Witnessed		Heard About		No	
	n/N	%	n/N	%	n/N	%	n/N	%
Lack of food or water	178/711	25	51/711	32.2	218/711	30.7	264/711	37.1
Ill health without access to health care	94/708	13.3	102/708	14.4	220/708	31	78/293	41.3
Lack of shelter	176/701	25.1	82/708	11.7	191/708	27.2	252/708	35.9
Imprisonment	46/708	6.5	61/708	8.6	245/708	34.6	356/708	50.3
Serious injuries due to knife, gunshot or fighting	53/710	7.5	115/710	16.2	232/710	32.7	310/710	43.7
Injury due to land mines	52/711	7.3	55/711	7.7	265/711	37.3	339/711	47.7
Forced separation from family members	121/708	17.1	57/708	8.1	184/708	26	346/708	48.9
Rape	26/709	3.7	16/709	2.3	249/709	35.1	418/709	59
Murder of family/close friend	154/709	21.7	44/709	6.2	209/709	29.5	302/709	42.6
Murder of other people (neighbor, someone from village)	197/706	27.9	71/706	10.1	264/706	37.4	174/706	24.6
Death of family or friend as a result of disease or lack of food.	160/707	22.6	73/707	10.3	139/707	19.7	335/707	47.4
Missing or lost family member(s)	82/710	11.5	35/710	4.9	138/710	19.4	455/710	64.1
Torture	83/709	11.7	57/709	8	190/709	26.8	379/709	53.5
Shelling or rocket attacks	263/703	37.4	82/703	11.7	126/703	17.9	232/703	33
Having to flee suddenly	412/701	58.8	56/701	8	60/701	8.6	173/701	24.7
Lost property or belongings.	329/707	46.5	43/707	6.1	43/707	6.1	292/707	41.3
Living in a refugee camp.	315/704	44.7	45/704	6.4	52/704	7.4	292/704	41/5
I or my family was involved in fighting during the war.	304/706	43.1	73/706	10.3	80/706	11.3	249/706	35.3
Other event in which I felt my life was in danger or I was very frightened.	460/710	64.8	49/710	6.9	44/710	6.2	157/710	22.1

Table 10. Traumatic Events Personally Experienced During the Balkan War by the Physicians and Nurses Employed by the Family Medicine Centers in Kosovo

Traumatic event experienced	All staff		Nurses		Physicians		p-value
	n/N	%	n/N	%	n/N	%	
I have personally experienced lack of food or water	178/711	25	106/428	24.8	72/283	25.4	0.86
I have personally experienced ill health without access to health care	94/708	13.3	67/426	15.7	27/283	9.5	0.018
I have personally experienced lack of shelter	176/701	25.1	111/420	26.4	65/281	23.1	0.33
I have personally experienced imprisonment	46/708	6.5	27/426	6.3	19/282	6.7	0.877
I have personally experienced serious injuries due to knife, gunshot or fighting	53/710	7.5	38/427	8.9	15/283	5.3	0.08
I have personally experienced injury due to land mines	52/711	7.3	41/428	9.6	11/283	3.9	0.005
I have personally experienced forced separation from family members	121/708	17.1	65/425	15.3	56/283	19.8	0.127
I have personally experienced rape	26/709	3.7	21/427	4.9	5/282	1.8	0.039
I have personally experienced murder of family/close friend	154/709	21.7	94/428	22	60/281	21.4	0.853
I have personally experienced murder of other people I know	197/706	27.9	122/425	28.7	75/281	26.7	0.607
I have personally experienced death of family or friend as a result of disease or lack of food.	160/707	22.6	82/427	19.2	78/280	27	0.008
I have personally experienced missing or lost family member(s)	82/710	11.5	52/426	12.2	30/284	10.6	0.55
I have personally experienced torture	83/709	11.7	50/427	11.7	33/282	11.7	1
I have personally experienced shelling or rocket attacks	263/703	37.4	157/422	37.2	106/281	37.7	0.937
I have personally experienced having to flee suddenly	412/701	58.8	224/419	53.5	188/282	66.7	0.001
I have personally experienced lost property or belongings.	329/707	46.5	193/425	45.4	136/282	48.2	0.489
I have personally lived in a refugee camp.	315/704	44.7	190/423	44.9	125/281	44.5	0.938
I or my family was personally involved in fighting during the war.	304/706	43.1	186/425	43.8	188/281	66.9	<.0001
I have personally experienced other event in which I felt my life was in danger or I was very frightened.	460/710	64.8	253/429	59	207/281	73.7	<.0001

Table 11. Experience of Rape During the Balkan War Among the Physicians and Nurses Now Employed by the Family Medicine Centers in Kosovo

	Experienced		Witnessed		Heard About		No	
	n/N	%	n/N	%	n/N	%	n/N	%
Men	3/184	1.63	8/184	4.3	65/184	35.3	108/184	58.7
Women	23/525	4.4	8/525	1.5	184/525	35.0	310/525	59.0

Table 11. Traumatic Events Personally Experienced During the Balkan War by the Physicians Employed by the Family Medicine Centers in Kosovo

Traumatic event experienced	Experienced		Witnessed		Heard About		No		Missing
	n	%	n	%	n	%	n	%	n
Lack of food or water	72	25.44	26	9.19	91	32.16	94	33.22	3
Ill health without access to health care	27	9.54	54	19.08	85	30.04	117	41.34	3
Lack of shelter	65	23.13	47	16.73	82	29.18	87	30.96	5
Imprisonment	19	6.74	33	11.7	110	39.01	120	42.55	4
Serious injuries due to knife, gunshot or fighting	15	5.3	52	18.37	99	34.98	117	41.34	3
Injury due to land mines	11	3.89	24	8.48	115	40.64	133	47	3
Forced separation from family members	56	19.79	26	9.19	84	29.68	117	41.34	3
Rape	5	1.77	9	3.19	109	38.65	159	56.38	4
Murder of family/close friend	60	21.35	20	7.12	95	33.81	106	37.72	5
Murder of other people (neighbor, someone from village)	75	26.69	38	13.52	110	39.15	58	20.64	5
Death of family or friend as a result of disease or lack of food.	78	27.86	36	12.86	55	19.64	111	39.64	6
Missing or lost family member(s)	30	10.56	17	5.99	50	17.61	187	65.85	2
Torture	33	11.17	28	9.93	85	30.14	136	48.23	4
Shelling or rocket attacks	106	37.72	43	15.3	53	18.86	79	28.11	5
Having to flee suddenly	188	66.67	21	7.45	21	7.45	52	18.44	4
Lost property or belongings.	136	48.23	16	5.67	14	4.96	116	41.13	4
Living in a refugee camp.	125	44.48	15	5.34	21	7.47	120	42.7	5
I or my family was involved in fighting during the war.	118	41.99	27	9.61	32	11.39	104	37.01	5
Other event in which I felt my life was in danger or I was very frightened.	207	73.67	16	5.69	5	1.78	53	18.86	5

Table 12. Number of Traumatic Events Experienced During the Balkan War by Physicians Now Employed in the Family Medicine Clinics in Kosovo

n=286 Missing = 21	n	%
0	33	12.5
1	17	6.4
2	23	8.7
3	26	9.8
4	24	9.1
5	34	12.8
6	21	7.9
7	20	7.6
8	22	8.3
9	12	4.5
10	11	4.2
11	5	1.9
12	5	1.9
13	7	2.6
14	3	1.1
15	1	0.4
19	1	0.4
Mean	5.1	

Table 13. PTSD Symptoms Reported by the Physicians and Nurses Employed in the Family Medicine Clinics in Kosovo

PTSD Symptom	Not at all		A little		Quite a bit		Extremely	
	n/N	%	n/N(%)	%	n/N(%)	%	n/N (%)	
Recurrent thoughts or memories of the most hurtful or terrifying events	99/712	13.9	288/712	54.4	203/712	28.5	122/712	5
Feeling as though the hurtful or terrifying event is happening again	290/711	40.8	261/711	36.7	101/711	14.2	59/711	8.3
Recurrent nightmares	340/711	47.8	259/711	36.4	69/711	9.7	43/711	6
Feeling detached or withdrawn from people	479/704	68	159/704	22.6	36/704	5.1	30/704	4.3
Unable to feel emotions	138/702	19.7	325/708	46.3	158/708	22.5	81/708	11.5
Feeling jumpy, easily startled	240/707	33.9	322/707	45.5	75/707	10.5	70/707	9.9
Difficulty concentrating	328/707	46.4	296/707	41.9	53/707	7.5	30/707	4.2
Trouble sleeping	311/712	43/7	265/712	37.2	78/712	11	58/712	8.1
Feeling on guard	240/708	33.9	250/708	35.3	124/708	17.5	94/708	13.3
Feeling irritable or having outbursts of anger	234/710	33	308/710	43.4	103/710	14.5	65/710	9.2
Avoiding activities that remind you of traumatic or hurtful events	141/713	19.8	246/713	34.5	160/713	22.4	166/713	23.3
Inability to remember parts of the most traumatic or hurtful events	150/706	21.2	298/706	42.2	163/706	23.1	95/706	13.5
Less interested in daily activities	255/710	35.9	269/710	37.9	100/710	14.1	86/710	12.1
Feeling as if you don't have a future	460/706	65.2	150/706	21.2	42/706	5.9	54/706	7.6
Avoiding thoughts or feelings associated with the traumatic or hurtful events	166/709	23.4	247/709	34.8	124/709	18.9	162/709	22.8
Sudden emotional or physical reactions when reminded of the most hurtful or traumatic events	154/708	21.8	306/708	43.2	131/708	18.5	117/708	16.5
Feeling guilty	475/709	67	139/709	19.6	34/709	4.8	61/709	8.6

Table 14. Post-Traumatic Stress Disorder Symptoms Experienced in the Previous Week by the Physicians and Nurses Employed in the Family Medicine Clinics in Kosovo

	Not at all		A little		Quite a bit		Extremely		Missing
	n	%	n	%	n	%	n	%	n
Recurrent thoughts or memories of the most hurtful or terrifying events	37	13.0	124	43.7	90	31.7	33	11.6	2
Feeling as though the hurtful or terrifying event is happening again	119	41.9	110	38.7	40	14.1	15	5.3	2
Recurrent nightmares	143	50.4	99	34.9	27	9.5	15	5.3	2
Feeling detached or withdrawn from people	183	65.6	64	22.9	22	7.9	10	3.6	7
Unable to feel emotions	52	18.6	122	43.6	77	27.5	29	10.4	6
Feeling jumpy, easily startled	110	39.3	115	41.1	40	14.3	15	5.4	6
Difficulty concentrating	127	45.2	130	46.3	18	6.4	6	2.1	5
Trouble sleeping	133	46.8	106	37.3	28	9.9	17	6.0	2
Feeling on guard	110	38.7	92	32.4	56	19.7	26	9.2	2
Feeling irritable or having outbursts of anger	93	33.0	128	45.4	41	14.5	20	7.1	4
Avoiding activities that remind you of traumatic or hurtful events	74	26.1	96	33.8	65	22.9	49	17.3	2
Inability to remember parts of the most traumatic or hurtful events	55	19.6	125	44.5	75	26.7	26	9.3	5
Less interested in daily activities	118	41.8	105	37.2	38	13.5	21	7.5	4
Feeling as if you don't have a future	184	65.5	67	23.8	14	5.0	16	5.7	5
Avoiding thoughts or feelings associated with the traumatic or hurtful events	61	21.6	126	44.7	56	19.9	39	13.8	4
Sudden emotional or physical reactions when reminded of the most hurtful or traumatic events	59	21	139	49.5	52	18.5	31	11.0	5
Feeling guilty	195	69.4	55	19.6	11	3.9	20	7.1	5

Table 15. Symptoms of Secondary Traumatization Reported by Physicians and Nurses Employed by the Family Medicine Clinics in Kosovo

	All staff		Nurses		Physicians		
	n/N	%	n/N	%	n/N	%	p value
In my current employment I hear and listen to trauma stories from the beneficiary population. (sometimes + very often)	609/715	85.2	358/430	83.3	251/285	88.1	.086
I am losing sleep over the traumatic experiences of a person I help. (sometimes + very often)	330/715	46.2	228/430	53.0	102/285	35.8	< 0.001
I have experienced intrusive thoughts of times with especially difficult people I helped. (sometimes + very often)	403/714	56.4	252/429	58.7	151/285	53.0	.143
I have suddenly and involuntarily recalled a frightening experience while working with people I help. (sometimes + very often)	275/713	38.6	194/429	45.2	81/285	28.4	< 0.001
I have had flashbacks connected to the people I help. (sometimes + very often)	299/714	41.2	196/430	45.6	103/284	36.3	.016
I experience troubling dreams similar to those of the people I help. (sometimes + very often)	192/714	26.9	142/430	32.3	50/284	17.6	<0.001
I avoid working with certain (“difficult”) clients (sometimes + very often)	122/712	17.1	75/428	17.5	47/284	16.5	.761

Table 16. Symptoms of Secondary Traumatization Reported by Physicians and Nurses Employed by the Family Medicine Clinics in Kosovo

	Never		Rarely		Sometimes		Very Often		N/A		Sometimes + Very Often		Missing
	n	%	n	%	n	%	n	%	n	%	n	%	n
In my current employment I hear and listen to trauma stories from the beneficiary population.	5	1.8	28	9.8	99	34.7	152	53.3	1	0.4	251	88.1	1
I am losing sleep over the traumatic experiences of a person I help.	45	15.8	120	42.1	86	30.2	16	5.6	18	6.3	102	35.8	1
I have experienced intrusive thoughts of times with especially difficult people I helped.	32	11.2	92	32.3	111	39	40	14	10	3.5	151	53	1
I have suddenly and involuntarily recalled a frightening experience while working with people I help.	86	30.3	110	38.7	66	23.2	15	5.3	7	2.5	81	28.4	2
I have had flashbacks connected to the people I help.	77	27.1	98	34.5	75	26.41	28	9.9	6	2.1	103	36.3	2
I experience troubling dreams similar to those of the people I help.	131	46.1	94	33.1	43	15.1	7	2.5	9	3.2	50	17.6	2
I avoid working with certain “difficult” clients.	45	63.3	127	17.8	102	14.3	20	2.8	12	1.7	122	17.1	4

Table 17. Prevalence of Selected Mental Health Outcomes among the Physicians and Nurses Employed by the Family Medicine Clinics in Kosovo

Mental health outcomes based on cut-off measures	Number of respondents All staff		Nurses		Physicians		
	n/N	%	n/N	%	n/N	%	p- value
PTSD Case	113/716	15.8	77/430	17.9	36/285	12.6	.060
Depression	199/699	28.5	129/419	30.8	70/280	25.0	.104
Anxiety	214/711	30.1	138/428	32.2	76/283	26.9	.133

Table 18. Prevalence of Selected Mental Health Outcomes among Physicians Employed by the Family Medicine Clinics in Kosovo

	n	%	Missing
PTSD Case	36	12.6	1
Depression	70	25	6
Anxiety	76	26.9	3
Burnout	4	1.42	5

Table 19. Prevalence of Burnout among Physicians and Nurses Employed by the Family Medicine Clinics in Kosovo

Burnout risk levels	All staff		Nurses		Physicians	
	n/N	%	n/N	%	n/N	%
Emotional Exhaustion						
- Low	431/704	61.2	264/423	62.4	167/281	59.4
- Average	160/704	22.7	96/423	22.7	64/281	22.8
- High	113/704	16.1	63/423	14.9	50/281	17.8
Depersonalization						
- Low	514/704	73.0	304/423	71.9	210/281	74.7
- Average	132/704	18.8	83/423	19.6	49/281	17.4
- High	58/704	8.2	36/423	8.5	22/281	7.8
Personal Accomplishment						
- Low	304/705	43.1	164/424	38.7	140/281	49.8
- Average	134/705	19.0	82/424	9.3	52/281	18.5
- High	267/705	37.9	178/424	42.0	89/281	31.7
Burnout Case (3 levels)	9/705	1.3	5/424	1.2	4/281	1.4

Table 20. Burnout Burnout Risk Levels for Physicians Employed by the Family Medicine Clinics in Kosovo

	Physicians (n=286)		
	n	%	Missing
Emotional Exhaustion			
Low	167	59.4	5
Average	64	22.8	5
High	50	17.8	5
Depersonalization			
Low	210	74.7	5
Average	49	17.4	5
High	22	7.8	5
Personal Accomplishment			
Low	140	49.8	5
Average	52	18.5	5
High	89	31.7	5
Burnout Case	4	1.4	5

Table 21. Job Satisfaction among Physicians and Nurses Employed by the Family Medicine Clinics in Kosovo

	All staff		Nurses		Physicians	
	n/N	%	n/N	%	n/N	%
I consider my job rather unpleasant.						
1 Strongly Disagree	412/714	57.7	261/429	60.8	151/285	53.0
2 Disagree	244/714	34.2	135/429	31.5	109/285	38.2
3 Undecided	20/714	2.8	9/429	2.1	11/285	3.9
4 Agree	35/714	4.9	23/429	5.4	12/285	4.2
5 Strongly Agree	3/714	0.4	1/429	0.2	2/285	0.7
I feel fairly well satisfied with my job.						
1 Strongly Disagree	7/714	1.0	3/429	0.7	4/285	1.4
2 Disagree	20/714	2.8	11/429	2.6	9/285	3.2
3 Undecided	24/714	3.4	10/429	2.3	14/285	4.9
4 Agree	360/714	50.4	215/429	50.1	145/285	50.9
5 Strongly Agree	303/714	42.4	190/429	44.3	113/285	39.7
I find real enjoyment in my work.						
1 Strongly Disagree	6/714	0.8	4/429	0.9	2/285	0.7
2 Disagree	24.714	3.4	15/429	3.5	9/285	3.2
3 Undecided	30/714	4.2	12/429	2.8	18/285	6.3
4 Agree	359/714	50.3	207/429	48.3	152/285	53.3
5 Strongly Agree	295/714	41.3	191/429	44.5	104/285	36.5
I am disappointed that I ever took this job.						
1 Strongly Disagree	404/715	56.5	261/430	60.7	143/285	50.2
2 Disagree	246/715	34.4	137/430	31.9	109/285	38.2
3 Undecided	32/715	4.5	13/430	3.0	19/285	6.7
4 Agree	24/715	3.4	13/430	3.0	11/285	3.9
5 Strongly Agree	9/715	1.3	6/430	1.4	3/285	1.0

Table 22: Job Satisfaction among Physicians Employed by the Family Medicine Clinics in Kosovo

	Strongly Disagree		Disagree		Undecided		Agree		Strongly Agree		Missing
	n	%	n	%	n	%	n	%	n	%	n
I consider my job rather unpleasant.	151	53	109	38.2	11	3.9	12	4.2	2	0.7	1
I feel fairly well satisfied with my job.	4	1.4	9	3.2	14	4.9	145	50.9	113	39.7	1
I find real enjoyment in my work.	2	0.7	9	3.2	18	6.3	152	53.3	104	36.5	1
I am disappointed that I ever took this job.	143	50.2	109	38.2	19	6.7	11	3.9	3	1	1

Table 23. Life Satisfaction among Physicians and Nurses Employed by the Family Medicine Clinics in Kosovo

	Number of respondents All staff		Physicians		Nurses	
	n/N	%	n/N	%	n/N	%
I would change nothing about my current life						
1. Strongly Disagree	111/715	15.5	30/285	10.5	81/430	18.9
2. Disagree	139/715	19.4	61/285	21.4	78/430	18.1
3. Slightly Disagree	79/715	11	27/285	9.5	52/430	12.1
4. Neither Agree or Disagree	77/715	10.8	35/285	12.3	42/430	9.8
5. Slightly Agree	85/715	12	43/285	15.1	43/430	10
6. Agree	127/715	17.8	57/285	20	70/430	16.3
7. Strongly Agree	96/715	13.4	32/285	11.2	64/430	14.9
I am satisfied with my current life.						
1 Strongly Disagree	14/714	2	5/285	1.8	9/429	2.1
2 Disagree	37/714	5.2	13/285	4.6	24/429	5.6
3 Slightly Disagree	55/714	7.7	29/285	10.2	26/429	6
4. Neither Agree or Disagree	47/714	6.6	18/285	6.3	29/429	6.8
5 Slightly Agree	87/714	12.2	39/285	13.7	48/429	11.2
6 Agree	277/714	38.8	117/285	41.1	160/429	37.3
7 Strongly Agree	197/714	27.6	64/285	22.5	133/429	31
My current life is ideal for me.						
1 Strongly Disagree	17/714	2.4	9/285	3.2	8/429	1.9
2 Disagree	50/714	7	27/285	9.5	23/429	5.4
3 Slightly Disagree	70/714	9.8	33/285	11.6	37/429	8.6
4 Neither Agree or Disagree	48/714	6.7	18/285	6.3	30/429	7
5 Slightly Agree	126/714	17.65	61/285	21.4	65/429	15.2
6 Agree	269/714	37.7	98/285	34.4	171/429	39.9
7 Strongly Agree	134/714	18.8	39/285	13.7	95/429	22.1
The current conditions of my life are excellent.						
1 Strongly Disagree	38/714	5.3	15/285	52.6	23/429	5.4
2 Disagree	96/714	13.4	58/285	20.4	38/429	8.9
3 Slightly Disagree	81/714	11.3	36/285	12.6	45/429	10.5
4 Neither Agree or Disagree	57/714	8	21/285	7.4	36/429	8.4
5 Slightly Agree	140/714	19.6	53/285	18.6	87/429	20.3
6 Agree	209/714	29.3	74/285	26	135/429	31.5
7 Strongly Agree	93/714	13	28/285	9.8	65/429	15.2
I have the important things I want right now.						
1 Strongly Disagree	19/714	2.7	5/285	1.8	14/428	3.3
2 Disagree	48/714	6.7	18/285	6.3	30/428	7
3 Slightly Disagree	53/714	7.4	22/285	7.7	31/428	7.2
4 Neither Agree or Disagree	31/714	4.3	17/285	6	14/428	3.3
5 Slightly Agree	88/714	12.3	38/285	13.3	50/428	11.7
6 Agree	313/714	43.9	140/285	49.1	173/428	40.4
7 Strongly Agree	161/714	22.6	45/285	15.8	116/428	27.1

Table 24. . Life Satisfaction among Physicians Employed by the Family Medicine Clinics in Kosovo

	Strongly Disagree		Disagree		Slightly Disagree		Neither Agree or Disagree		Slightly Agree		Agree		Strongly Agree		Missing
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n
I would change nothing about my current life	30	10.5	61	21.4	27	9.5	35	12.3	43	15.1	57	20	32	11.2	1
I am satisfied with my current life.	5	1.8	13	4.6	29	10.2	18	6.3	39	13.7	117	41.1	64	22.5	1
My current life is ideal for me.	9	3.2	27	9.5	33	11.6	18	6.3	61	21.4	98	34.4	39	13.7	1
The current conditions of my life are excellent.	15	52.6	58	20.4	36	12.6	21	7.4	53	18.6	74	26	28	9.8	1
I have the important things I want right now.	5	1.8	18	6.3	22	7.7	17	6	38	13.3	140	49.1	45	15.8	1

Table 25. Unadjusted Odds Ratios for Risk Factors for Depression among Primary Care Physicians in Kosovo, 2010

		Wald's Chi-Square	p	OR	95% Confidence Interval
Sex (female vs. male)		5.075	0.02	1.93	1.09 - 3.40
Marital Status (unmarried vs. married)		3.2199	0.07	2.18	0.93 - 5.11
Age Group	34-43	ref			
	44 - 51	5.2376	0.07	1.20	0.58 - 2.49
	52 - 63			2.28	1.03 - 5.02
Age		5.3498	0.02	0.94	0.90 - 0.99
Religious Practice (yes vs. no)		0.6018	0.44	1.33	0.64 - 2.76
Perceived Social Support (high vs. low)		5.8502	0.02	0.40	0.19 - 0.84
Exposure to Chronic Stressors					
Personal economic/ financial problems		10.3768	0.001	2.98	1.53 - 5.78
Workload too high		6.9846	0.001	2.68	1.29 - 5.57
Being asked to perform duties outside of professional training		12.6541	<.001	3.45	1.74 - 6.83
Lack of direction from institution management		10.5703	0.001	2.53	1.45 - 4.43
Lack of recognition from management for work accomplished		10.3146	0.001	2.50	1.43 - 4.37
Conflicts or misunderstandings between co-workers		2.7671	0.10	1.70	0.91 - 3.17
Exposure to Secondary Trauma (very often or sometimes vs. not at all and rarely)					
In my current employment I hear and listen to trauma stories from the beneficiary population.		0.555	0.81	0.90	0.38 - 2.13
I am losing sleep over the traumatic experiences of a person I help.		31.618	<.001	5.38	2.98 - 9.59
I have experienced intrusive thoughts of times with especially difficult people I helped.		19.72	<.001	4.10	2.20 - 7.63
I have suddenly and involuntarily recalled a frightening experience while working with people I help.		20.0608	<.001	3.73	2.10 - 6.63
I have had flashbacks connected to the people I help.		14.6939	<.001	2.99	1.71 - 5.24
I experience troubling dreams similar to those of the people I help.		18.7766	<.001	4.16	2.18 - 7.93
I avoid working with certain (“difficult”) clients		7.0039	0.01	2.44	1.26 - 4.73
Personal experience of trauma					
5 or more events		1.0398	0.59	1.217	0.44 - 3.37
1 - 4 events				1.529	0.58 - 4.02
0 events		ref			

Table 25, continued. Unadjusted Odds Ratios for Risk Factors for Depression among Primary Care Physicians in Kosovo, 2010

	Wald's Chi-Square	p	OR	95% Confidence Interval
Specific Trauma Events (Personal experience)				
Lack of food or water	0.39	0.53	1.22	0.66 - 2.26
Ill health without access to health care	2.41	0.12	1.94	0.84 - 4.46
Lack of shelter	4.31	0.04	1.91	1.04 - 3.53
Imprisonment	5.04	0.03	2.95	1.15 - 7.61
Serious injuries due to knife, gunshot or fighting	0.1	0.75	0.81	0.22 - 2.99
Injury due to land mines	0.13	0.72	1.29	0.33 - 5.14
Forced separation from family members	2.06	0.15	1.60	0.84 - 3.05
Rape	0.06	0.80	0.75	0.08 - 6.86
Murder of family/close friend	0.02	0.88	0.95	0.48 - 1.86
Murder of other people I know	0.01	0.93	0.97	0.52 - 1.80
Death of family or friend as a result of disease or lack of food	0.81	0.37	1.31	0.73 - 2.38
Missing or lost family member(s)	0.32	0.57	0.76	0.30 - 1.96
Torture	1.64	0.20	1.67	0.76 - 3.67
Shelling or rocket attacks	0.24	0.63	1.15	0.66 - 2.01
Having to flee suddenly	0.80	0.37	1.32	0.72 - 2.41
Lost property or belongings	2.24	0.13	1.53	0.88 - 2.65
Lived in a refugee camp	0.59	0.44	1.24	0.72 - 2.15
I or my family was personally involved in fighting during the war	1.23	0.27	0.73	0.41 - 1.28
Other event in which life was endangered/ was very frightened	4.06	0.04	2.08	1.02 - 4.24
Coping Strategies				
Went to a friend to help you feel better about the problem	2.47	0.12	0.60	0.31 - 1.14
Formed a plan of action in your mind	1.01	0.31	0.75	0.43 - 1.31
Used humor to try to cope with the problem	2.69	0.10	0.59	0.31 - 1.11
Exercised more than usual	0.16	0.69	1.13	0.62 - 2.05
Avoided being with people in general	3.65	0.06	2.80	0.97 - 8.02
Wished that people would just leave you alone	11.64	<0.001	4.60	1.91 - 11.04
Overworked	14.29	<0.001	2.97	1.69 - 5.23
Tried to use relaxation or deep breathing techniques	0.15	0.70	0.88	0.46 - 1.69
Have gone on vacation or taken a trip	0.83	0.36	0.69	0.32 - 1.52
Taken sick leave or have been absent from work because of stress related to your job	3.71	0.05	9.40	0.96 - 91.8
Thought about what needed to be done to straighten things out	0.12	0.73	0.89	0.47 - 1.69
Tried to solve the problem	0.86	0.35	0.67	0.29 - 1.56
Confided your fears and worries to a friend	1.31	0.25	0.73	0.42 - 1.26
Sought reassurance from those who know you best	6.49	0.01	0.48	0.28 - 0.85
Watched television more than usual	0.21	0.64	1.18	0.58 - 2.40
Listening to your favorite music	5.42	0.02	0.46	0.24 - 0.89
Shopping more than usual	0.01	0.91	0.95	0.43 - 2.14
Wallking	0.61	0.44	0.80	0.45 - 1.41

Table 26. Adjusted Odd Ratios for Associations with Depression in Primary Care Physicians in Kosovo, 2010

	Wald Chi-Square	p	AOR	95% Confidence Interval
Sex	1.60	0.21	1.66	0.76 - 3.64
Level of Social Support	1.19	0.27	0.56	0.20 - 1.58
Chronic Stressors				
Personal economic/ financial problems	2.57	0.11	2.03	0.85 - 4.82
Workload too high	0.002	0.97	1.02	0.40 - 2.63
Being asked to perform duties outside of professional training	0.08	0.78	0.87	0.33 - 2.32
Lack of direction from institution management	0.43	0.51	1.33	0.57 - 3.08
Lack of recognition from management for work accomplished	1.41	0.23	1.65	0.72 - 3.78
Secondary Traumatization				
I am losing sleep over the traumatic experiences of a person I help.	7.59	0.006	3.09	1.38 - 6.89
I have experienced intrusive thoughts of times with especially difficult people I helped.	1.06	0.30	1.56	0.67 - 3.65
I have suddenly and involuntarily recalled a frightening experience while working with people I help.	0.07	0.80	0.89	0.37 - 2.13
I have had flashbacks connected to the people I help.	0.99	0.32	1.53	0.66 - 3.52
I experience troubling dreams similar to those of the people I help.	1.51	0.22	1.78	0.71 - 4.49
I avoid working with certain (“difficult”) clients.	0.73	0.39	1.45	0.62 - 3.41
Traumatic Events				
I have personally experienced lack of shelter	0.012	0.91	0.95	0.39 - 2.32
I have personally experienced imprisonment	4.23	0.04	4.25	1.07 - 16.86
I have personally lived in a refugee camp.	0.62	0.43	0.73	0.34 - 1.59
I have personally experienced other event in which I felt my life was in danger or I was very frightened.	0.87	0.35	1.57	0.61 - 4.07
Coping				
Avoided being with people in general	0.13	0.72	1.29	0.32 - 5.20
Wished that people would just leave you alone	4.51	0.03	3.54	1.10 - 11.34
Overworked	5.28	0.02	2.29	1.13 - 4.64
Taken sick leave or have been absent from work because of stress related to your job	3.17	0.07	13.35	0.77 - 231.1

Table 27: Adjusted Associations for Depression among Primary Care Physicians in Kosovo, 2010

Effect	AOR	95% Confidence Interval	Wald Chi-Square	p
Age	1.08	1.02 - 1.15	6.08	0.0137
Personal Economic/Financial Problems	2.56	1.17 - 5.58	5.55	0.0185
Losing sleep over the traumatic experiences of patients	4.95	2.45 - 9.98	19.92	<.001
Experiencing troubling dreams similar to those of patients	2.35	1.09 - 5.07	4.71	0.03
Wishing that people would just leave you alone	6.04	2.19 - 16.70	12.04	0.0005
Overworked	2.31	1.20 - 4.46	6.25	0.0124
Imprisonment	3.33	1.04 - 10.64	4.11	0.0427

Model Fit	
Wald Chi-Square	49.07
p	<.001
c	0.82
Hosmer and Lemeshow Goodness-of-Fit Test	
Chi-Square	7.35
p	0.5

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