

A Concept Analysis of Moral Injury in Ukrainian National Guard Service Members' Narratives: A Clinical Case Study

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Abstract. Moral injury is a relatively new construct which is strongly associated with PTSD but which also has distinctive features that may not overlap with PTSD. There is a growing body of literature that recognises moral injury as emotional distress and sufferings arising from a transgression of one's core moral principles or ethical beliefs and aligned with feelings of shame and guilt. A great number of moral injury research is represented by theoretical and qualitative studies vs biopsychosocial approach towards conceptualizing PTSD. However, a systematic understanding of how potentially moral injurious events contribute to moral injury symptoms is still lacking. Of particular concern is moral injury of military personnel exhibiting PTSD symptoms during and after wartime. This study utilizes the concept analysis model (Walker & Avant, 2011) to explore and assess the attributes, antecedents, consequences and empirical referents of moral injury in Ukrainian National Guard service members, who are protecting the northern Ukrainian border with Belarus and defending military objects during the 2022 full-scale invasion of Ukraine by Russian troops. The research uses narrative case studies collected from National Guard soldiers in Ukraine as part of our combatants' moral injury broader project. Initial results of this study indicate mechanisms of developing moral injury symptoms with comorbidity of depression, generalized anxiety, and PTSD in National Guard service members during wartime. The findings of the current study have important theoretical and practical implications in terms of better understanding the causal relations of moral injury and enhancing clinical practice and holistic treatment approach for National Guard soldiers.

Keywords: *National Guard service members, moral injury, concept analysis, narratives.*

Засєкіна Лариса, Кокун Олег, Козігора Марія, Федотова Тетяна, Журавльова Олена, Бойко Марта. Концептуальний аналіз моральної травми на основі наративів військовослужбовців Національної гвардії України: клінічний кейс-метод.

Анотація. Моральна травма є відносно новим конструктом, що тісно пов'язаний із ПТСР, але який водночас відрізняється від останнього за своєю природою і проявами. У сучасній психологічній літературі зростає кількість досліджень, які визначають моральну травму як емоційний дистрес і страждання, що виникають через порушення основних моральних принципів чи етичних переконань, і пов'язані з почуттям сорому та провини. Значна кількість досліджень моральної травми використовує змішаний дизайн та представлена теоретичними й якісними методами на протипагу біопсихосоціальному підходу, який переважає у вивченні ПТСР. Однак у літературі досі існує прогалина в систематичному розумінні того, як потенційно морально травмуючі ситуації спричиняють виникнення симптомів моральної травми. На особливу увагу заслуговують прояви моральної травми у військовослужбовців із симптомами ПТСР під час та після війни. У цьому дослідженні використовується модель концептуального аналізу (Walker & Avant, 2011) для вивчення та оцінки атрибутів, передумов, наслідків та емпіричних референтів моральної травми військовослужбовців Національної гвардії України, які захищають північний кордон України з Білоруссю та військові об'єкти під час повномасштабного вторгнення російських військ в Україну у 2022 році. У дослідженні використовуються наративи військовослужбовців Національної гвардії України в межах виконання комплексного проекту з дослідження моральної травми військових. Результати цього дослідження відображають механізми розвитку симптомів моральної травми з коморбідністю депресії, генералізованої тривоги та ПТСР у військовослужбовців Нацгвардії у воєнний час. Результати дослідження мають важливе теоретичне та практичне значення для розуміння передумов і наслідків виникнення моральної травми та покращення клінічної практики й ефективних психологічних інтервенцій для військовослужбовців Національної гвардії.

Ключові слова: *військовослужбовці Національної гвардії, моральна травма, концептуальний аналіз, наративи.*

Introduction

The last decade has been marked by a rapidly increasing interest of researchers, mental health professionals and policy makers in the concept of ‘moral injury’ (MI), a complex phenomenon characterized by spiritual, psychological and moral distress (Ames et al. 2021; Okulate et al. 2021; Molendijk, 2022). MI is one of the major recognized concerns among military personnel (Farnsworth et al., 2014; Terpou et al., 2022) due to the fact that MI itself can be considered as a mechanism that may lead to poor mental health and substance use outcomes among military personnel (Battles et al., 2018; Eikenaar, 2022; Jinkerson, 2016). In recent years, the MI concept has become a common term to describe the lasting impact of moral transgressions among frontline workers including service members, police officers, healthcare workers and humanitarian aid professionals (Eikenaar, 2022; Molendijk, 2022).

MI is the result of an internal conflict that stems from exposure to morally injurious experiences (MIEs; Frankfurt & Frazier, 2016; Litz et al., 2009). MIEs, in turn, are events that may run counter to an individual’s moral belief system (e.g., beliefs about right and wrong as well as personal goodness) or that are counter to military and professional training or rules of engagement (Battles et al., 2018). According to the large-scale systematic analysis performed by Richardson et al. (2020), MIEs have routinely been described as “perpetrating, failing to prevent and bearing witness to, or learning about acts that transgress deeply held moral beliefs and expectations” (Litz et al. 2009, p.697). The term ‘potentially morally injurious events’ (PMIEs) defined by Williamson et al. (2021) as experiences that violate one’s moral or ethical code is also used as a meaningful equivalent to MIE.

Combatants are considered the most vulnerable category among all professions and military personnel in terms of displaying MI mainly because modern warfare and guerrilla combat within a civilian setting often expose combatants to severe moral and ethical challenges (Eikenaar, 2022; Levi-Belz et al., 2020). Combatants’ PMIEs/MIEs have been classified into seven categories: 1) immoral acts, 2) death and injury, 3) betrayal, 4) ethical dilemmas, 5) disproportionate violence, 6) retribution and 7) religious/spiritual issues (Hodgson et al. 2021). A diverse set of research studies have identified types of PMIEs/MIEs including:

- experiencing events that are incongruent with beliefs about the rules of military engagement (Battles et al., 2018; Drescher et al., 2011);
- performing acts that would be illegal or violate typical rules of engagement in most other contexts, such as intentionally killing combatants or innocents (Braitman et al., 2018; Drescher et al., 2011; Koenig et al., 2019; Terpou et al., 2022);
- witnessing the death or injury of civilians, dismembered bodies, maltreatment of others, failing to prevent injury or death to others, engaging in friendly fire, deserting comrades during battle, inability to protect innocents or prevent the death of fellow soldiers, observing war-

related destruction (Battles et al., 2018; Koenig et al., 2019; Litz et al., 2009);

- witnessing situations in which a medic cannot attend to everyone who has been harmed, or in which someone freezes or fails to perform an active duty in a hostile setting (Terpou et al., 2022);
- the need to make a difficult moral choice, for instance, between the wellbeing of civilians and mission objectives, or have to execute orders that run counter to one's own moral beliefs (Eikenaar, 2022; Litz et al., 2009).

While not all traumatic events result in MI (Terpou et al. 2022) an exposure to PMIEs/MIEs is considered a necessary determinant of MI, but is insufficient on its own to result in MI (Zerach & Levi-Belz, 2022).

The prevalence of reported PMIEs/MIEs among military personnel studied in the United States and Canada ranges from 11% of US combatants reporting engagement in morally transgressive events, 26% indicating betrayals, and 26% experiencing moral transgressions committed by others (Wisico et al. 2017) to 24% of US Marines engaging in at least one morally transgressive act and 28% experienced a betrayal event during deployment (Jordan et al. 2017). In a study performed by Hansen et al. (2021) over 65% of Canadian Armed Forces members reported experiencing at least one PMIE with the most commonly reported PMIEs being: seeing ill or injured women and children whom combatants were unable to help (48.4%), being unable to distinguish between combatants and non-combatants (43.6%), and finding themselves in a threatening situation where they were unable to respond due to the rules of engagement under which they were required to operate (35.4%). One explanation for this wide discrepancy in results is that deployments can differ significantly in the terms of their goals, conditions and intensity of hostilities. Based on an analysis of a representative number of studies among veterans in various militaries around the globe, Levi-Belz et al. (2020) found that approximately 20–30% of veterans had experienced PMIEs.

Military personnel's involvement in PMIEs/MIEs naturally finds its reflection in a whole series of negative, first of all, emotional manifestations. Such manifestations include guilt, shame, grief/sorrow, and the inability to forgive one's self and others (Currier et al., 2019; Frankfurt & Frazier, 2016; Griffin et al., 2019; Held et al., 2019; Jinkerson, 2016; Sherman, 2014). At the same time, guilt and shame are considered as critical core symptoms, since they play a significant role in the development of secondary symptoms (Battles et al., 2018). MI of military personnel can lead to many persistent negative personal and social-personal consequences, as well as negative mental health consequences such as an increased risk of post-traumatic stress disorder (PTSD) and depression, hazardous alcohol use and substance abuse, suicidal ideation, social withdrawal, loss of trust in self and others, spiritual/existential crisis, moral confusion and disorientation (Battles et al., 2018; Currier et al., 2019; Frankfurt & Frazier, 2016; Houle et al., 2020; Koenig et al., 2019; Maguen et al., 2010; Nichter et al., 2021; Protopopescu et al., 2021; Williamson et al., 2021).

In assessing MI negative consequences, many researchers consider that while MI is strongly associated with PTSD, MI is a separate concept from PTSD (Eikenaar, 2022; Koenig et al., 2019; Molendijk, 2022). In particular, it is emphasized that all PTSD models are only focused on direct exposure to life-threatening situations and fear responses, and consequently do not pay attention to MI and moral emotions such as guilt, shame and anger (Molendijk, 2022).

A number of research studies found significant or strong relations between PMIEs/MIEs and PTSD symptoms in military personnel (Bryan et al. 2018; Currier et al. 2019, Jordan et al. 2017; Kinney et al. 2022; Koenig et al. 2020; Nillni et al. 2020). Many studies also found that the direction of the relation between MI and PTSD is that MI *can lead* to the development of PTSD symptoms or intensify PTSD manifestations (Currier et al., 2019; Okulate et al. 2021; Terpou et al., 2022; Williamson et al., 2021).

In recent years, one area of particular interest and promising direction in the study of combatants' MI is to conduct research on MI among different categories of military personnel with the understanding that each of the separate military branches has its own specifics and perform different tasks when participating in combat operations. An example of such a separate category is the National Guard. A small set of recent studies have specifically reported on MI among US National Guard members including Bryan et al. (2018) who examined similarities and differences in the signs and symptoms of PTSD and MI and determined if the combination of these 2 constructs was associated with increased risk for suicidal thoughts and behaviours. Martin et al. (2017) examined how deployment-related MI interacted with interpersonal factors to predict suicide risk. Houtsma et al. (2017) examined the moderating role of post-deployment social support on the association between MI (self-transgressions, other-transgressions, and betrayal) and thwarted belongingness. In Ukraine, Prykhodko et al. (2019, 2020) examined the types and secondary factor structure of the coping strategies of Ukrainian National Guard (UNG) members and found that their combat experience and the dynamics of their adaptation resources and psychological safety of their personality were different than combatants serving in other armed forces units.

In light of the potential negative MI consequences, the topic of MI and PMIE/MIE among Ukrainian military members, especially UNG is a topic of utmost importance. Since 2014, Ukraine has been at war with the Russian Federation when Russia illegally annexed Ukraine's Crimea peninsula and started an armed conflict in the eastern Donbas region of Ukraine. In February 2022, Russia attacked other Ukrainian cities and expanded the war to all of Ukraine. As a result, UNG members have been called into active duty and are at-risk for PMIE/MIEs and MI consequences.

The UNG is a part of Ukraine's Ministry of Internal Affairs, responsible for public security. The mission of the UNG is to ensure state security, protect the state borders, participate in activities to neutralize paramilitary armed groups, terrorist organizations, organized groups and criminal organizations, protect and guard critical

infrastructure such as Ukraine's nuclear power plants, as well as provide security for diplomatic missions, public authorities and buildings of the Ministry of Internal Affairs. Many UNG members have been relocated to the Volyn and Rivne regions in northwestern Ukraine and are stationed along the Ukrainian northern border with Belarus. At the end of May 2022, Ukraine's National Guard reported that at least 560 of its members were killed and additional 1,697 troops had been wounded since the invasion began on February 24, 2022.

This exploratory mixed methods research study was initiated as part of the project "Moral Injury and Healing of Combatants: Neuropsychological Correlates and Psychological Interventions" organized by the Ukrainian Ministry of Education & Sciences. Psychosocial support and health services are being provided to UNG members by the Ukrainian Psychotrauma Center in Lutsk, Ukraine which has provided clinicians and researchers in Ukraine the opportunity to gain an in-depth understanding of MI among UNG members and develop approaches to help mitigate MI consequences. The following set of research questions were formulated to aid in the project implementation and assessment of MI among UNG service members:

RQ1. Are there any differences in MI and PTSD with regard to gender, marital status, having children, or previous family psychotrauma?

RQ2. What are the core beliefs of MI in UNG service members during wartime in Ukraine?

RQ3. Are there any associations of MI and other emotional distress in UNG service members?

RQ4. What is the conceptual structure of MI, represented by PMIEs, in relation to critical attributes, antecedents, consequences and empirical referents in UNG service members.

Method

In designing this research study, it was decided to use a set of validated MI and PTSD screening instruments, as well as ask an open-ended question to give participants the opportunity to provide a brief narrative about their current experiences serving in the UNG during active combat. Research on MI in combatants conducted by Held, et al. (2019) and Hodgson et al. (2021) has shown that using narrative thematic analysis provides a unique perspective on their MI assessment. To examine the possible effect of previous family psychotrauma on MI, a question was included which asked: "Did you have any psychotrauma in your family history?" with a brief description of possible family history psychotraumata. This was done to assess whether there was any historical collective psychotrauma experiences (i.e. Holodomor, Holocaust, forced labor and deportations to Siberia and Soviet gulags) present in the participant's family history that may be a mitigating or contributing factor for MI and/or PTSD consequences. Yehuda et al. (1998) demonstrate an

increased vulnerability to PTSD among offspring of Holocaust survivors and identify offspring as a vulnerable group for PTSD.

The research aims were explained to all participants and they received participant information sheets and provided written consent. Participants were asked to complete a set of questionnaires described below that assessed MI, PTSD and anxiety and depression in UNG members. These survey instruments were part of their screening during the intervention program of psychosocial support for combatants and their families at the Ukrainian Psychotrauma Center.

Moral Injury Symptoms Scale (MISS-M-SF) assesses betrayal, guilt, shame, moral concerns, loss of trust, loss of meaning, difficulty forgiving, self-condemnation, religious struggle, and loss of religious/spiritual faith. Cronbach's alpha was 0.73 (95% CI 0.69–0.76), and test–retest reliability was 0.87 (Koenig et al., 2018). The Ukrainian version of MISS-M-SF scale demonstrate solid psychometric properties (Zasiiekina & Kozihora, 2022). Reliability was assessed through the internal consistency using Cronbach's $\alpha = .70$ ($n = 111$), and the test–retest reliability in 8 days, $r = .67$, $p \leq .01$ ($n = 32$). The study assesses discriminant validity of MISS-M-SF through association with PCL-5, which is $r = .36$ and MISS-M-SF through association with GAD-7, which is $r = .37$, $p \leq .05$. Convergent validity is expressed by the correlation of MISS-M-SF and other measures of emotional distress, namely PQH ($r = .53$, $p \leq .01$).

The PTSD Checklist for DSM-5 (PCL-5) is a 20-item self-report measure to assess PTSD symptoms experienced during the last month in accordance with DSM-5 criteria (Weathers et al., 2013). UNG service members were instructed to complete the PCL-5 considering the most stressful life event in their military experience. Items were rated on a 5-point scale, ranging from 0 = Not at all to 4 = Extremely, and summed for a total symptom severity score. Internal consistency of PCL-5 is $\alpha = .97$. DSM-5 symptom cluster severity scores can be obtained by summing the scores for the items within a given cluster, i.e., cluster B (re-experience, items 1-5), cluster C (avoidance, items 6-7), cluster D (negative cognitions and mood, items 8-14), and cluster E (arousal, items 15-20).

The 9-item Patient Health Questionnaire (PHQ-9) and *7-item Generalized Anxiety Disorder (GAD-7)* were used to measure depressive symptoms and anxiety symptoms, respectively. These two instruments are short screening measures often utilized to assess comorbidities of MI. Each item on these measures is rated on 4-point Likert scale (from 0 to 3) indicating how often each symptom has occurred within the past 2 weeks. Total scores range from 0 to 54 for PHQ-9 and 0–42 for GAD-7, with higher scores indicating more severe symptoms. PHQ-9 demonstrates strong internal consistency using Cronbach's $\alpha = .70$ and test-retest reliability is 0,83 (Kroenke et al., 2001). Internal consistency of GAD is 0,92 (Spitzer et al., 2006).

After completing the questionnaires, the participants were asked to write a narrative (200-300 words) focused on “My experience of the Russia-Ukraine War 2022.” The participants' narratives were then separated into categories based on the participant's score on the PTSD screening instruments. To determine probable mental

health disorders, a score of 34 or more on the PTSD checklist for DSM-5 (PCL-5) was used to assess probable PTSD with moral sufferings. Evidence consistently suggests that a cut off score of 34 is optimal for identifying likely PTSD in treatment seeking veterans (Murphy et al., 2017). As a result, we selected 22 from the 91 narratives (24.18%) which were written by participants scoring in the probable PTSD and MI range for further analysis.

To explore the mechanisms of developing MI after experiencing traumatic events, the study applied the concept analysis model introduced by Walker and Avant (2011) to the narratives. A concept analysis aims to reduce ambiguities about concepts and to enhance understanding of the MI construct. Walker and Avant's (2011) approach structured our research and determined the following stages (a) define the expression of MI in UNG service members' narratives "My experience of the Russia-Ukraine war 2022"; (b) identify PMIEs, critical attributions, antecedents and consequences; (c) explore empirical referents of UNG service members. We have chosen a case example to describe developing MI during wartime.

The study applied the cross sectional, between-subjects design utilizing the independent variables of PCL-5, GAD-7 and PHQ-9 and dependent variable of MISS-M-SF for multiple regression analysis. The data were analyzed using SPSS v.24.0 (IBM Corp. Released 2016).

The study was reviewed and approved by the Research Ethics Committee (#03-24/04/1070) at Lesya Ukrainka Volyn National University, Ukraine.

Results

A total of 91 participants of UNG soldiers who are protecting the northern Ukrainian border with Belarus and defending military objects during the 2022 full-scale invasion of Russian troops were recruited into the study by staff of the Ukrainian Psychotrauma Center in Lutsk, Ukraine, where they participated in the in-person group-intervention program of psychosocial support for combatants and their families. The program of psychosocial support was based on Spiritually Oriented Cognitive Processing Therapy for MI, suggested by Koenig et al. (2017). The UNG members participated on a voluntary basis in the weekly program that took place every Saturday during April-May, 2022. The program of psychosocial support covered eight topics related to MI (Introduction to MI; Meaning of the Event; Values and Meaningful Life; Forgiveness and Trust; Compassion, Fatigue and Satisfaction; Trauma and Resilience; Self-worthiness and Significant Others; Post-Traumatic Growth), and included psychoeducation, open discussions and group exercises. To consider heterogeneity of population, we applied a maximum variation sampling strategy to recruit UNG members into the research study, based on age, gender, marital status, nationality, their particular combat oblast, and their experience of previous family psychotrauma. Participant demographic data is presented in Table 1.

Table 1
Demographic Data for the UNG Service Members (n=91)

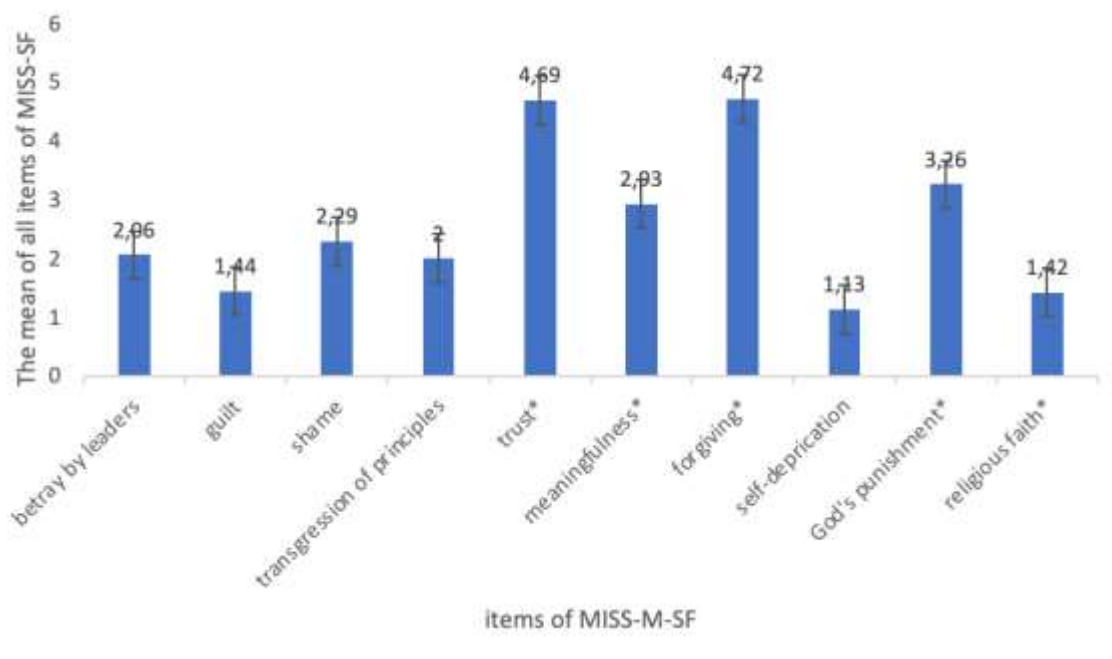
	Participants	
	Frequency	Percentage
Age	Mean (SD)	Min-Max
	30.95 (7.70)	18-56
Gender		
Female/male	29/62	31.9/68.1
Nationality	ukr.	100
Marital status		
Single	41	45.1
Married	50	54.9
Children		
Having children	49	53.8
Without children	42	4.2
Oblast of military service		
Rivnenska	87	95.60
Volynska	4	4.40
Previous Family Psychotrauma		
Yes	8	8.8
No	83	91.2

An independent-samples t-test was conducted to compare MISS-M-SF and PCL-5 for gender, having children / no children, and having previous family psychotrauma/ no previous family psychotrauma conditions. There was a significant difference only in the scores for PCL-5 in females ($M=13.69$, $SD=8.53$) and males ($M=4.66$, $SD=2.50$) conditions; $t(89) = 6.07$, $p = .01$. These results suggest that gender does have an effect on the probability of developing PTSD. Specifically, our results suggest females were found to be significantly more prone to developing PTSD. Interestingly, there was not a significant difference in the score of MI and PTSD for other conditions.

Considering a reverse scoring of the items trust, meaningfulness, forgiving, God's punishment and religious faith, Figure 1 below shows that weakening religious faith and loss of meaningfulness are mostly expressed in UNG service members. Therefore, MI is aligned with items that "*I have no sense of what makes my life meaningful*" and "*Compared to when I first went into the military my religious faith since then weakened a lot*". Analyzing items with direct scoring, the highest scores are aligned with loss of trust. We can presume that MI in UNG service members relates to the core beliefs: "*Most people are untrustworthy*" and "*I cannot trust people*". One unanticipated finding was that feelings of guilt and shame are not highly expressed in UNG service members. The possible explanation is that they have not been involved in active frontline hostilities but instead are exposed to the potentially life-threatening situations (Griffin et al., 2019; Litz et al., 2009). The same explanation refers also to the fact that Mean of MISS-M-SF in our sample is not very high $M=25.94$ ($SD=9.29$) within total scoring of MISS-M-SF between 10-100.

Figure 1

The Mean of All Items of MISS-SF in UNG Service Members (n=91)



Multiple regression analysis was used to predict the value of continuous variable MISS-M-SF based on other independent continuous variables, namely PCL-5, PHQ-9 and GAD-7. The assumptions of linear relationship, homoscedasticity, independence of residuals (Durbin Watson $d=1.78$), multicollinearity (average Tolerance= $0.97 > 0.1$, and average VIF= 4.88 , thus $1 < VIF < 10$) were met. Finally, the size of the sample is above number required by Central Limit Theorem ($n=91 > 30$), therefore the assumptions regarding normal distribution of data is also met.

The results of the regression with a forced enter method show that three variables (PCL-5, PHQ-9 and GAD-7) explained 10.3 % of MISS-M-SF in UNG service members, $F(3, 86) = 3.28, p=0.025$. The results also show that PCL significantly predicts MISS-M-SF, $b = .40, 95\% \text{ CI } [.03; .78], t(91) = 2.003, p=.048$, while the PHQ-9, $b = .50, 95\% \text{ CI } [-1.06; 2.16], t(91) = 0.675, p=.501$, and GAD-7, $b = .55, 95\% \text{ CI } [-1.98; .98], t(91) = .680, p=.498$, do not significantly predict the MISS-M-SF in UNG service members (see Table 2).

Table 2

Summary of multiple regression analyses for variables predicting MISS-M-SF for all subjects of UNG (n = 91)

Variables	B	SEB	β	t	p
PCL	.40	.02	.33	2.003	.048*
PHQ	.50	.74	17.6	0.675	.501
GAD	.55	.81	.16	.680	.498

Note: * $p < .05$

Table 2 indicates that there is an association of MISS-M-SF with all variables, namely PCL-5, PHQ-9 and GAD-7. However, only PCL-5 is a significant independent predictor of MISS-M-SF.

The results of our research show that there is a significant correlation between MISS-M-SF and clusters B and D in PCL-5, while correlation between MISS-M-SF and clusters C and E are not significant (Table 3).

Table 3

Correlations (2-tailed Pearson r) between MISS-M-SF, Clusters B, C, D, E from PCL-5 ($n = 91$)

Variables	MISS-M-SF	Cluster B	Cluster C	Cluster D	Cluster E
MISS-M-SF	-	.37**	.15	.24*	.18
Cluster B	.37**	-	.57**	.54**	.52**
Cluster C	.15	.57**	-	.24*	.34**
Cluster D	.24*	.54**	.24*	-	.47**
Cluster E	.18	.52**	.34**	.47**	-

Note. * $p < .05$, ** $p < .01$

Narrative Case Example and Concept Analysis

Natalia is 29 years old, single, has no children, lives and works in Rivnenskyia oblast, has no experience of previous family psychotrauma, PCL=34 (Cluster B=13, Cluster C = 4, Cluster D = 10; Cluster D =7), PHQ-9=7 (Mild), GAD-7=6 (Moderate), MISS-M-SF=49.

I worried of my friends who are in the frontline defending our Eastern borders. They have a lot of life-threatening situations every moment, and when I did not have a contact with them for some time it makes me crazy. I am suffering that I cannot help. I can only express words of support. I know that these words are very important. But I also have a feeling that it is practically nothing. I know that I should have helped more but I cannot find a way how to do it. I feel helplessness. I would like them to know that their relatives, friends, neighbours are waiting for them and wishing them to stay strong. They have to remember that they are fighting for their loved others, families and Ukraine. My mental state is unbalanced, since I am disappointed with people whom I trusted. The war disclosed the internal world of the people whom I trusted. I have never thought that they could have betrayed me. Now I have to learn this lesson and understand that the world and people are untrustworthy. I should also learn how to live with this new rule. Now I am reconsidering my attitudes to other people and relations in general.

This case demonstrates that MI relates to feelings of guilt, since Natalia suffers that she cannot help her colleagues who are exposed to continuous threat. She implies that everything she could do is not enough. This feeling corresponds to item 2 in MISS-M-SF “*I feel guilt over failing to save the life of someone in war*”. Interesting, that her guilt is strengthened by feeling of helplessness. In addition, she has lost trust

in other people, which is directly connected with reverse-scoring item 5 “*Most people are trustworthy*”. Natalia’s sufferings are triggered by no responses from her friends who are in the frontline of the war. Another trigger is her exposure to situations of betrayal, when she understands that most people are untrustworthy. Therefore, we can presume that PMIEs in this case are represented by situations of betrayal or losing contacts with other combatants who are highly involved in active frontline hostilities.

Critical attributes are most frequent characteristics that are present every time the concept occurs (Walker & Avant 2011). Natalia’s case demonstrates that the continuous life-threatening situations for her colleagues is a permanent characteristic for her feelings of guilt and an act of betrayal as a characteristic for growing mistrust.

Antecedents are events that occur before the developing MI (Walker & Avant 2011), and represent individual and collective dimensions. The case illustrates collective antecedents of high-threatening situations during wartime, and individual antecedent of Natalya’s personal experience of developing mistrust towards others. These antecedents are aligned with consequences of developing behavioural patterns of emotional over-involvement, because supportive behaviour is nothing, in her opinion, in these situations. Another consequence is changing her attitudes and relationships with significant others and deepening relational conflicts.

Empirical referents are tools that can be used to aid the measurement and acknowledge a concept of MI (Jamieson et al., 2020). Natalia’s case illustrates that MISS-M-SF is reliable measure for assessing MI. Natalia’s cognitions and feelings correspond to two items in MISS-M-SF. We can also presume that measures for assessing betrayal and guilt during wartime are important tools to capture empirical content of MI. In addition, tools for disclosing helplessness could throw light on developing feeling of guilt complicated with helplessness.

The results of concept analysis and defining PMIEs, attributes, antecedents, consequences and empirical referents for MI are illustrated in the Table 4.

Table 4
Concept analysis of MI in case study

Components of the concept model	Content
PMIEs	Situations of (a) betrayal, (b) losing contacts with other combatants who are at the high risk
Critical attributes	(a) continuous life-threatening situations for her colleagues; (b) act of betrayal
Antecedents	Individual: losing trust to others; collective: high-threatening situations during wartime
Consequences	Emotional over-involvement, relational conflicts
Empirical referents	MISS-M-SF, measures for assessing betrayal, guilt, and helplessness during wartime

Discussion

The first question in this study sought to determine the differences in MI and PTSD considering gender, marital status, previous family psychotrauma, having children. The results indicate that there was a significant difference only in the scores for PCL-5 for women which is in line with recent studies indicating that the overall high prevalence of PTSD higher among women than in men (Ainamani et al., 2020). It is aligned with high vulnerability of women, who may be more exposed to sexual assault and rape, and may exhibit increased worries about their children and feelings of helplessness. Therefore, trauma-focused psychological intervention during and post-war period should consider the context of gender.

This study did not find any significant differences in MI according to demographic characteristics. A possible explanation for this might be that the subjects of our sample did not suffer severe forms of MI. The recent findings suggest that women more frequently reported witnessing- and betrayal-based PMIEs, but no gender differences were observed for perpetration-based PMIEs (Maguen et al., 2020). Further research examining the effects of gender combined with a more detailed elicitation and assessment of previous family and individual psychotraumata and marital/relationship status is needed.

With respect to the second research question, it was found that the key core beliefs of UNG service members relate to rules “*I have no sense of what makes my life meaningful*”, “*My religious faith has weakened a lot*”, “*Most people are untrustworthy*” and “*I cannot trust people*”. It is in line with recent studies revealing that the core beliefs in MI express loss of trust towards others, self-worthless, increased responsibility, and blaming oneself, while PTSD was defined by threat of harm and forgiveness of the situation (Boska & Capron, 2021). This finding is also consistent with that of Koenig et al. (2017) who demonstrated religiosity and spirituality as protective factors for developing MI and robust predictor for MI healing.

The third question in this research was to examine any associations of MI and other emotional distress in UNG service members. Our findings suggest that there is an association of MISS-M-SF with PCL-5, PHQ-9 and GAD-7. However, only PCL-5 is a significant independent predictor of MISS-M-SF. It is in line with recent findings reporting significant or strong relations between MI events and PTSD symptoms (Aldridge et al., 2019; Bryan et al., 2018; Currier et al., 2018, 2019, 2020, 2021; Zerach & Levi-Belz, 2018).

However, we can presume that since PTSD is a multi-factored disorder, it is a much broader concept than moral sufferings per se. The recent findings show that PMIEs are less likely to cause PTSD in military personnel than immediate combat stressors, and the likelihood of meeting criteria for probable PTSD was the greatest in those who had experienced a non-morally injurious events (Williamson et al., 2021).

The results of our research also show that there is a significant correlation between MISS-M-SF and clusters B and D in PCL-5, while correlation between

MISS-M-SF and clusters C and E is not significant. Our findings are partially in agreement with Koenig et al. (2020) which showed that total MISS-M-SF scores in US active duty military and veterans were more strongly associated with PTSD symptoms of D cluster (negative cognitions and mood) in both bivariate and multivariate analyses. The results of our research also show the significant correlation of MISS-M-SF with D cluster in PCL-5. However, the strongest correlation is between MISS-SF and B Cluster (re-experiencing) in PCL-5. Therefore, we can presume that the re-experience of traumatic situations by UNG service members relate to recollecting specifically PMIEs.

With respect to the fourth research question, the study applies case study to explore the developing MI after experiencing traumatic event. The findings of PMIEs, critical attributes, antecedents, consequences and empirical referents broadly support the work of other studies in this area linking concept model with MI (Jamieson et al., 2020). In accordance with the present results, previous studies have demonstrated that acts of betrayal, specific cognitions and emotions, losing trust, life-threatening situations represent concept model of MI. However, in this study, specific core beliefs were found to cause MI after experiencing traumatic event and specific behavioural patterns of emotional over-involvement and relational conflicts are outlined. In addition, evidence consistently suggest that helplessness could be comorbidity for feeling of guilt. The most important clinically relevant finding was that specific PMIEs, critical attributes, antecedents, consequences and empirical referents should be taken to consider MI-focused interventions.

Conclusion

By comparing all the indicators obtained in the study according to such characteristics as gender, marital status, previous family psychotrauma and having children, we revealed only minor differences in UNG service members (the scores for PCL-5 were significantly higher in women compared to men). At the same time, no differences were found according to MI indicators. We also determined that the core beliefs of UNG service members with MI were characterized by loss of trust towards others, self-worthlessness, increased responsibility and blaming oneself. PCL-5 indicator was the only significant independent predictor of MISS-M-SF.

The use of narratives and a concept analysis framework employed in our study shows promise for future research. Thanks to this approach, the presented case study revealed that specific core beliefs produced MI after experiencing a traumatic event and specific behavioral patterns of emotional over-involvement and relational conflicts were also outlined. The most important conclusion was that specific PMIEs, critical attributes, antecedents, consequences and empirical referents should be taken into account to consider MI-focused interventions. While only one narrative case example was presented, the narrative dataset is substantial and a more systematic concept analysis review is being conducted that may reveal and expand on additional core MI beliefs.

Our findings provide an opportunity to create a scientifically based system of measures aimed at preventing MI and other negative mental states in UNG service members, as well as increasing the effectiveness of psychological support for this category of service members. The study is also unique in that it asked participants to reflect on historical collective family psychotrauma as a possible contributing factor to MI and/or PTSD. While results were not significant in this project, we believe it is an important component to consider in the study of MI and PTSD and in the design of psychosocial interventions for military personnel.

These findings may be somewhat limited by the sample of UNG service members, who are not in the frontline of the war and may not demonstrate severe forms of MI. However, they are under continuous stress because of the high risk of invasion from Belarus. Further studies, which take empirical referents of MI concept model into account, will need to be undertaken with members who serve in other Ukrainian armed forces units as well as the newly formed territorial defense units made up primarily of civilians. This is an important issue for future research of mental health in UNG service members after wartime.

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