

## ORIGINAL RESEARCH



## Resistance to Post-traumatic Stress Reactions of Vulnerable Groups Engaged in Pandemic Liquidation

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### Authors' Contribution:

- A** – Study design;  
**B** – Data collection;  
**C** – Statistical analysis;  
**D** – Data interpretation;  
**E** – Manuscript preparation;  
**F** – Literature search;  
**G** – Funds collection

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### Background and Aim of Study:

### Abstract

The increase in cases of post-traumatic stress reactions among vulnerable groups engaged in the pandemic liquidation, make the problem urgent for nowadays.

The aim of the study: to reveal the peculiarities of mental traumatic influence on military-men engaged into the COVID-19 pandemic liquidation; detail the level of stress, anxiety and depression in order to develop further actions concerning mental support and psycho-prophylaxis.

### Material and Methods:

In order to conduct the research, we have engaged 334 military-men (of different categories: military-men for a regular term and military-men under a contract, officers (of the age from 18 to 40), who performed their duty of maintaining order together with the police. We have shortlisted 3 groups. The structured questionnaire consisted of questions grounded on the following methods: “Mississippi Scale for Estimating Post-Traumatic Reactions (military variant)”; “Depression Anxiety Stress Scales”; “Insomnia Severity Index”. Cronbach’s alpha is 0.817 (good internal consistency).

### Results:

By the results of using the Mississippi scale for estimating post-traumatic reactions (military variant), the following fact has been stated: among military-men experienced in battle actions, the quantity of people with PTSR indicators accounted for 1.79%, that is significantly less than among military-men inexperienced in battle actions (3.42%). We have also revealed some certain gender peculiarities.

### Conclusions:

Military-men experienced in battle actions display anxiety, depression, stress and sleep disorders considerably more rarely than military-men inexperienced in such. In our mind it is stipulated by the fact that committing professional duties in conditions of the COVID-19 pandemic is less stressful for military-men experienced in battle actions than the battle actions themselves which they are adapted to. Sleep disorders (the average point by “Insomnia Severity Index” methods) have been considerably higher among military-women, than among military-men in all the groups that is connected, with their higher extraversion and stress in the COVID-19 pandemic.

### Keywords:

pandemic, anxiety, depression, stress, military-men, COVID-19

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## Introduction

The COVID-19 pandemic has led to expansion of problems concerning mental health. This problem has been revealed by researchers in medical, psychological, and social fields. Their studies prove that the situation with the COVID-19 has provoked an increase in cases of post-traumatic stress reactions and post-traumatic stress disorders, of vulnerable groups in particular (Holmes et al., 2020). Medical staff is one of the risk groups, which has a high possibility of psychological problems. Medical workers are affected by such psychological factors as mental over-loading, danger to be personally infected and become a reason of infecting members of their own family, etc. (Johns Hopkins University, Coronavirus Resource Center, 2020).

However, besides medical staff, a significant role in overcoming the consequences of the pandemic is played by military-men of the National Guard and policemen who maintain order among the population during the quarantine period. In Ukraine they perform the following functions: enforce civil order in places of the quarantine regime and observation, control the population to follow restricting quarantine actions by keeping up a patrol, etc. Policemen and military-men are engaged in solving conflicts with the people who refuse to follow the quarantine requirements. Committing functional duties creates a real threat to catch the disease due to a direct contact with those who are infected by the COVID-19.

Moreover, on account of military-men taking part in the operation of joint forces in Donbas that was accompanied by actions of the whole set of factors of battle conditions, a lot of military-men generate the symptoms of post-traumatic stress reactions (PTSR) (Melnyk, Prykhodko, & Stadnik, 2019; Melnyk & Stadnik, 2018). In terms of carrying out official duties at times of the COVID-19 pandemic, this group of military-men is affected by additional stress factors as well. It stipulates the necessity to research vulnerability to post-traumatic stress reactions of military-men who are engaged in the pandemic liquidation, as well as to develop an effective system of preventing neurotic disorders among them.

*The aim of the study.* To reveal the peculiarities of mental traumatic influence on military-men engaged into the COVID-19 pandemic liquidation; detail the level of stress, anxiety and depression in order to develop further actions concerning mental support and psycho-prophylaxis.

## Materials and Methods

In order to conduct the research, we have engaged 334 military-men (of different categories: military-men for a regular term and military-men under a contract, officers (of the age from 18 to 40), who performed their duty of maintaining order together with the police. We have shortlisted 3 groups: Group 1: 112 military members experienced in community policing and battle actions, among them: 96 (85.71%) men and 16 (14.29%) women; Group 2: 117 military members experienced in community policing, but inexperienced in battle actions, among them: 99 (84.62%) men and 18 (15.38%)

women; Group 3 (Control): 105 military members inexperienced in community policing as well as any battle actions, among them: 86 (81.90%) men and 19 (18.10%) women.

The study has been realised by such electronic means as on-line messengers: Facebook, Telegram, WhatsApp etc. This form of the on-line questionnaire has arisen from the necessity to restrict group contacts under conditions of the COVID-19 pandemic.

The structured questionnaire consisted of questions grounded on the following methods: “Mississippi Scale for Estimating Post-traumatic Reactions (military variant)”; “Depression Anxiety Stress Scales” (“DASS-21”); “Insomnia Severity Index” (“ISI”).

Besides, military-men who had mental disorders by the results of the standardised psychological methods have been interviewed by psycho-diagnostics with the purpose of specifying symptoms and providing psychological support.

Cronbach’s alpha used to assess the reliability of the structured questionnaire. Cronbach’s alpha is a measure used to assess the reliability, or internal consistency, of a set of scale or test items. In other words, the reliability of any given measurement refers to the extent to which it is a consistent measure of a concept, and Cronbach’s alpha is one way of measuring the strength of that consistency. Using the module SPSS Statistics, Cronbach’s alpha is 0.817. The obtained  $\alpha$  value is included in the interval  $0.9 > \alpha \geq 0.8$ , indicating a good internal consistency.

## Results

To assess the psychological influence of the COVID-19 pandemic on military-men and the level of intensity of their post-traumatic stress reactions we have applied “Mississippi Scale for Estimating Post-traumatic Reactions (military variant)” (Ahaiev et al., 2016). It has been developed to diagnose PTSR by military-men who performed tasks in the zone of battle actions. The Methods have been developed on the grounds of MMPI that consists of 35 questions forming three basic scales, which correlate with three groups of PTSR symptoms: 11 questions of the first scale describe symptoms of the group “invasion”, 11 questions of the second scale describe symptoms of the group “avoidance”, 8 questions of the third scale describe symptoms “excitability”, 5 questions describe symptoms connected with a feeling of blame and suicide inclination. The number of the received points allows dividing those who are under study into the following groups: fewer than 77 points – normative indices; 78-97 points – certain symptoms of PTSR; 98-145 points – indicators of PTSR (Ahaiev et al., 2016).

Further detalisation of psychopathological symptoms has been carried out by “DASS-21” methods. It is a short form of DASS (21 questions), that is intended for measuring negative states of depression, anxiety and stress. Assessment of DASS subscales has been realised according to the standardised methods (Psychology Foundation of Australia, 2018). The average number of points by the scale has been assessed, as well as a

number of military-men with normal, insignificant, moderate, heavy and extremely heavy manifestations. The indicators by the scales “Depression”/“Anxiety”/“Stress” are as follows: normal manifestations: 0-3/0-4/0-7 points, insignificant manifestations: 5-6/4-5/8-9 points, moderate manifestations: 7-10/6-7/10-12 points, heavy manifestations: 11-13/8-9/13-16 points, extremely heavy manifestations: 14+/10+/17+. These methods are appropriate for clinical and non-clinical conditions (Henry & Crawford, 2005). To our mind, its application is expedient for people who have to act under extreme conditions, including the COVID-19 pandemic. Other scientists share the same view (Tan, 2020). The quality of sleep which indicates whether the

respondents have experienced any stress has been evaluated by “ISI” methods (Bastien, Vallières, & Morin, 2001). The given methods are used to assess a subjective level of insomnia which consists of 7 points being estimated by Likert scale from 0 to 4 points. The average rate by “ISI” has been divided into: the absence of clinically significant insomnia (0-7), subliminal insomnia (8-14), moderately heavy clinical insomnia (15-21) and heavy clinical insomnia (22-28). The estimate results of psychological influence of the COVID-19 pandemic on military-men and the level of manifestations of post-traumatic stress reactions have been revealed by the methods “Mississippi Scale for Estimating Post-traumatic Reactions (military variant)” presented in Table 1.

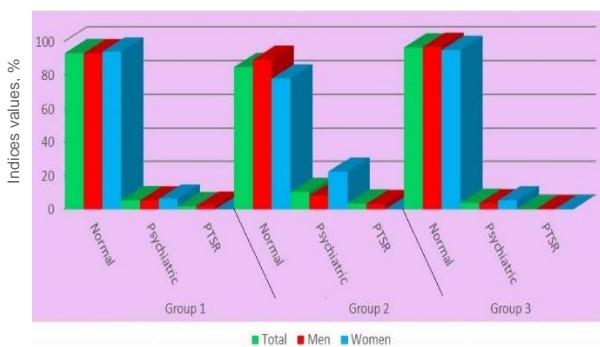
**Table 1.** Psychological impact of the epidemic COVID-19 on military members and the severity of post-traumatic stress reactions.

Reactions	Group 1 <sup>1</sup>						Group 2 <sup>2</sup>						Group 3 (Control) <sup>3</sup>					
	Total		Men		Women		Total		Men		Women		Total		Men		Women	
	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%
Normal	104	92.86	89	92.71	15	93.75	102	87.18	88	88.89	14	77.78	101	96.19	83	96.51	18	94.74
Psychiatric	6	5.36	5	5.21	1	6.25	12	10.26	8	8.08	4	22.22	4	3.81	3	3.49	1	5.26
PTSR	2	1.79	2	2.08	0	0.00	3	2.56	3	3.03	0	0.00	0	0.00	0	0.00	0	0.00

Note. N.: number of military members performed duties of community policing during the epidemic eruption of COVID-19; % percentage value;  
<sup>1</sup>Group 1: military members who had experience of community policing and some battle experience – 112 people, among them: 96 (85.71%) men and 16 (14.29%) women;  
<sup>2</sup>Group 2: military members who had experience of community policing, but did not have any battle experience – 117 people, among them: 99 (84.62%) men and 18 (15.38%) women;  
<sup>3</sup>Group 3 (Control): military members who did not have experience of community policing as well as any battle experience – 105 people, among them: 86 (81.90%) men and 19 (18.10%) women.

By the results of using the “Mississippi Scale for Estimating Post-traumatic Reactions (military variant)”, the following fact has been stated: among military-men experienced in battle actions, the quantity of people with PTSD indicators accounted for 1.79%, that is significantly less than among military-men inexperienced in battle actions (2.56%). Also among the military-men of Group 1, certain PTSD symptoms have been revealed in 5.36% cases, that is nearly twice as less as among the military-men of Group 2 (10.26%). Control Group has shown certain PTSD symptoms in 3.81% of cases.

Psychological impact of the epidemic COVID-19 on military members and the severity of PTSD is shown in percentage in Figure 1.



**Figure 1.** Psychological impact of the epidemic COVID-19 on military members and the severity of post-traumatic stress reactions.

We have also revealed some certain gender peculiarities. The normative indicators among military-men and

women experienced in battle actions are practically equal (92.71% and 93.75% correspondingly). At the same time among military-women inexperienced in battle actions, the quantity of certain PTSD symptoms (77.78%) is fewer than among men inexperienced in such (88.89%).

During a consulting interview with a psychologist, the following PTSD manifestations have been indicated among this category of military-men: a loss of appetite, fast fatigability, worsening of physical state, sleep disorders, anxiety, depression, irritability, inattentiveness, numbness, fear and despair.

Women displayed complaints for a feeling of personal weakness, helplessness, disorientation, fear as for their own physical health, freight, disappointment, paranoid ideas as for the COVID-19 pandemic, while men manifested a loss of control over the situation, irritability, aggressive behaviour and excessive optimism.

Using the module SPSS Statistics, the contingency table (cross-tabulation, crosstab) is based on two variables: according to the list of rows (group) and according to the list of columns (reaction). The value in each cell of the table is the count (frequency). The table displays the observed and expected frequencies (counts), their deviation (residual) in absolute units, frequency values in relation to the sums of rows, columns and the total in relative units (percentage of group, percentage of reaction, percentage of total).

Cross-tabulation for the methods “Mississippi Scale for Estimating Post-traumatic Reactions (military variant)” is presented as Table A.



Further detailisation of PTSR symptoms has been conducted by “DASS-21” and “ISI” methods. Manifestations of depression, anxiety and stress among

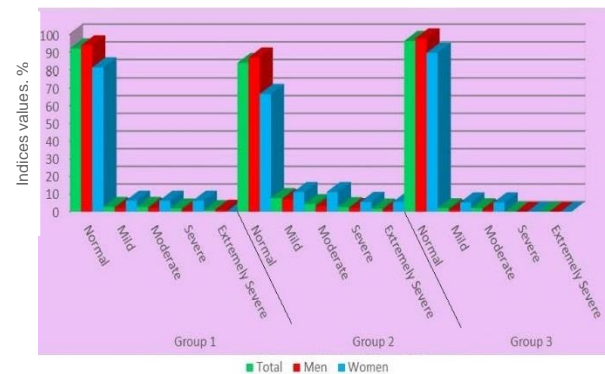
military-men who performed duties of maintaining civil order during the COVID-19 pandemic, is given in Table 2.

**Table 2.** Manifestations of depression, anxiety and stress among military members who performed duties of community policing during the pandemic COVID-19.

Indicators	Group 1 <sup>1</sup>						Group 2 <sup>2</sup>						Group 3 (Control) <sup>3</sup>					
	Total		Men		Women		Total		Men		Women		Total		Men		Women	
	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%
Mean DASS-21 Anxiety score	2.54		2.43		3.19		2.97		2.73		4.28		2.17		2.10		2.47	
Normal	103	91.96	90	93.75	13	81.25	98	83.76	86	86.87	12	66.67	101	96.19	84	97.67	17	89.47
Mild	3	2.68	2	2.08	1	6.25	9	7.69	7	7.07	2	11.11	2	1.90	1	1.16	1	5.26
Moderate	3	2.68	2	2.08	1	6.25	5	4.27	3	3.03	2	11.11	2	1.90	1	1.16	1	5.26
Severe	2	1.79	1	1.04	1	6.25	3	2.56	2	2.02	1	5.56	0	0.00	0	0.00	0	0.00
Extrem. Severe	1	0.89	1	1.04	0	0.00	2	1.71	1	1.01	1	5.56	0	0.00	0	0.00	0	0.00
Mean DASS-21 Depression score	2.26		2.33		2.50		2.88		2.63		4.28		2.17		2.14		2.47	
Normal	104	92.86	90	93.75	14	87.50	99	84.62	87	87.88	12	66.67	100	95.24	83	96.51	17	89.47
Mild	3	2.68	2	2.08	1	6.25	9	7.69	7	7.07	2	11.11	3	2.86	2	2.33	1	5.26
Moderate	3	2.68	2	2.08	1	6.25	5	4.27	3	3.03	2	11.11	2	1.90	1	1.16	1	5.26
Severe	1	0.89	1	1.04	0	0.00	2	1.71	1	1.01	1	5.56	0	0.00	0	0.00	0	0.00
Extrem. Severe	1	0.89	1	1.04	0	0.00	2	1.71	1	1.01	1	5.56	0	0.00	0	0.00	0	0.00
Mean DASS-21 Stress score	4.26		4.53		4.00		4.97		5.15		4.22		4.25		4.17		4.00	
Normal	105	93.75	89	92.71	16	100.00	100	85.47	84	84.85	17	94.44	102	97.14	83	96.51	19	100.00
Mild	3	2.68	3	3.13	0	0.00	9	7.69	8	8.08	1	5.56	2	1.90	2	2.33	0	0.00
Moderate	2	1.79	2	2.08	0	0.00	4	3.42	4	4.04	0	0.00	1	0.95	1	1.16	0	0.00
Severe	1	0.89	1	1.04	0	0.00	2	1.71	2	2.02	0	0.00	0	0.00	0	0.00	0	0.00
Extrem. Severe	1	0.89	1	1.04	0	0.00	2	1.71	2	2.02	0	0.00	0	0.00	0	0.00	0	0.00

Note. N.: number of military members performed duties of community policing during the epidemic eruption of COVID-19; % percentage value;  
<sup>1</sup>Group 1: military members who had experience of community policing and some battle experience – 112 people, among them: 96 (85.71%) men and 16 (14.29%) women;  
<sup>2</sup>Group 2: military members who had experience of community policing, but did not have any battle experience – 117 people, among them: 99 (84.62%) men and 18 (15.38%) women;  
<sup>3</sup>Group 3 (Control): military members who did not have experience of community policing as well as any battle experience – 105 people, among them: 86 (81.90%) men and 19 (18.10%) women.

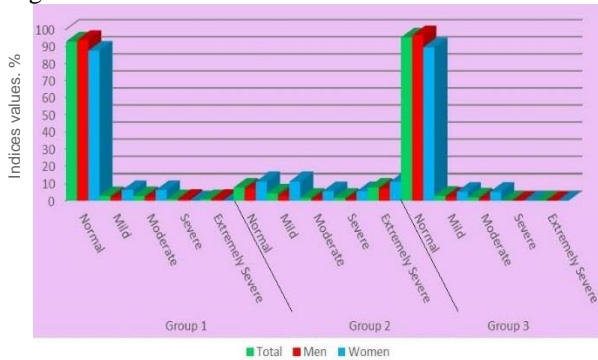
On the basis of questioning by “DASS-21” methods we have revealed the following qualitative results by the scale “Anxiety” for Group 1 of those who are under study: absence of anxiety symptoms has been indicated by 91.96% of military-men, insignificant and moderate manifestations of anxiety have been revealed by 2.68% of people, heavy ones – by 1.79% of people, and a critical level of anxiety has been indicated only by 1 (0.89%) of military-men. Group 2 consisting of those who are under research by the scale “Anxiety” has manifested the following indices: absence of anxious symptoms has been indicated by 83.76% of military-men, insignificant ones – by 7.69%, moderate – by 4.27%, heavy manifestations of anxiety have been noticed by 2.56% of people, and excessively heavy manifestations of anxiety have been revealed by 1.71% of military-men. Control Group has shown insignificant indices by the “Anxiety” scale: only 2 (1.90%) of people have revealed insignificant and moderate manifestations of anxiety. An average point by the scale “Anxiety” for Group 1 has made 2.54 which is less than the indices for Group 2 (2.97) and Control Group (2.17). It should be noted that the average point by the “Anxiety” scale for military-women has constituted 1.3-1.5 times as much than military-men and has made 3.19 and 4.28 points for Groups 1 and 2 correspondingly. Manifestations of depressions among military members who performed duties of community policing during the pandemic COVID-19 are shown in percentage in Figure 2.



**Figure 2.** Manifestations of depressions among military members who performed duties of community policing during the pandemic COVID-19.

By the scale “Depression” the absence of depressive symptoms has been noticed by 92.86% of military-men of Group 1, 84.62% of Group 2 and 95.24% of military-men of Control Group. Insignificant manifestations of depression have been indicated by 2.68% of people of Group 1, 7.69% of Group 2 and 2.86% of military-men of Control Group. Moderate manifestations of depression by people of Group 1 have made 2.68% that is significantly less than by Group 2 (4.27%) and Control Group (1.90%) of military-men. Heavy and extremely heavy manifestations of depression have been shown by 0.89% of military-men experienced in battle actions, which is much lower than indicators of military-men inexperienced in such (1.71%).

Manifestations of anxiety among military members who performed duties of community policing during the pandemic COVID-19 are shown in percentage in Figure 3.



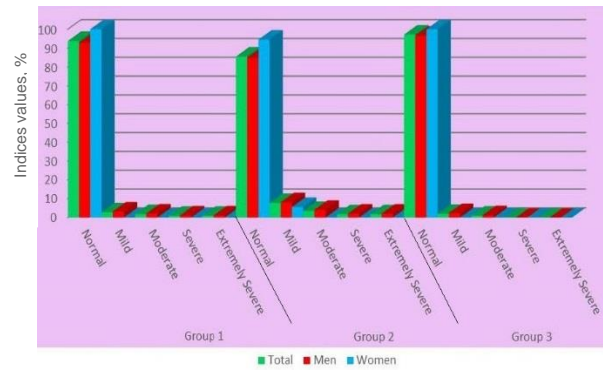
**Figure 3.** Manifestations of anxiety among military members who performed duties of community policing during the pandemic COVID-19.

An average point by the scale “Depression” for Group 1 comprised 2.26 points that is a little lower, than the indices for Group 2 (2.88) and Control Group (2.17). By the scale “Depression” the average point among military-women, inexperienced in battle actions, has been 1.6 times more than the indices of military-men of the same group. At the same time the indices of the average point by the scale “Depression” for military-women and men inexperienced in battle actions has not differed considerably (2.50 and 2.33 points correspondingly).

The average point by the scale “Stress” for Group 1 has made 4.26 that is a little lower of the indices for Group 2 (4.97) and equals to the average point of military-men of Control Group (4.25). For all this, the average point of military-men experienced in battle actions is the highest (5.15 points) among all gender groups of those who are under study.

The indices of the research DASS-21 by the scale “Stress” for Group 1 are the following: absence of stress symptoms has been noticed by 93.75% of military-men; insignificant manifestations of stress have been indicated only by 2.68% of people; moderate manifestations – by 1.79% of people; heavy and extremely heavy manifestations have been shown by 0.89% of military-men. For military-men inexperienced in battle actions, the indices of “DASS-21” research by the scale “Stress” have been higher: insignificant manifestations of stress have been noticed by 7.69% of people, moderate manifestations – by 3.42% of people, heavy and extremely heavy – by 1.71% of military-men. Manifestations of stress among military members who performed duties of community policing during the pandemic COVID-19 are shown in percentage in Figure 4.

So, it has to be stated that among military-men experienced in battle actions, a number of people with indicators of evident stress and marked anxious and depressive symptoms is significantly lower than the quantity of military-men with similar symptoms inexperienced in any battle actions. In our opinion it is connected with the fact that performing duties in conditions of the COVID-19 pandemic is less stressful than battle actions themselves for military-men.



**Figure 4.** Manifestations of stress among military members who performed duties of community policing during the pandemic COVID-19.

This category of military-men has indicted not only a pessimistic way of thinking, self-depreciation in case of failure, exaggeration of drawbacks and diminishing personal dignity, selective attention to negative sides of nowadays reality, hypertrophic perception of personal responsibility, suicide ideas, but also a so-called “cognitive triad”: negative self-perception; negative perception of their past and present; negative perception of future as joyless and dull.

For all this the highest indices of the average point among military-women by the scale “Anxiety” and “Depression” have been revealed by women inexperienced in battle actions, while the average point among military-men inexperienced in battle actions by the scale “Stress” is the highest (5.15 points) among all gender groups of those who are under research.

Cross-tabulation for the methods “The Depression Anxiety Stress Scales” is presented as Table B.

Manifestations of sleep disorders among military-men, who committed their duty of maintaining public order during the COVID-19 pandemic, have been presented in Table 3.

Studying sleep disorders among military-men who committed their duty of maintaining public order during the COVID-19 pandemic, by “ISI” methods have shown that in Group 1 of those who are under research: absence of symptoms of clinically significant insomnia has been observed by 87.50% of military-men, subthreshold insomnia has been stated by 10.71% of people, moderately severe clinical insomnia – only by 1.79% of people. We have not revealed any severe clinical insomnia.

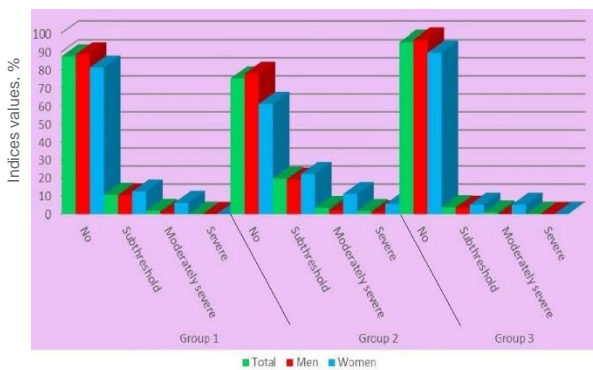
Among military-men of Group 2 the absence of insomnia symptoms has been revealed by 75.21% of military-men, subthreshold insomnia has been observed by 19.66% of people, moderately severe clinical insomnia has been revealed by 3.42% of military-men, while severe clinical insomnia – by 1.71% of military-men. Control Group has shown insignificant indices by “ISI” methods: 95.24% have not given any sign of clinically significant insomnia, 3.81% of military-men have stated subthreshold insomnia, and only 0.95% of people have indicated severe clinical insomnia.

Manifestations of sleep disorders among military members who performed duties of community policing during the pandemic COVID-19 are shown in percentage in Figure 5.

**Table 3.** Manifestations of sleep disorders among military members who performed duties of community policing during the pandemic COVID-19.

Indicators	Group 1 <sup>1</sup>						Group 2 <sup>2</sup>						Group 3 (Control) <sup>3</sup>					
	Total		Men		Women		Total		Men		Women		Total		Men		Women	
	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%
Mean ISI score	5.62		5.76		6.56		6.97		6.62		8.89		5.35		5.21		6.00	
No clinically significant insomnia	98	87.50	85	88.54	13	81.25	88	75.21	77	77.78	11	61.11	100	95.24	83	96.51	17	89.47
Subthreshold insomnia	12	10.71	10	10.42	2	12.50	23	19.66	19	19.19	4	22.22	4	3.81	3	3.49	1	5.26
Moderately severe clinical insomnia	2	1.79	1	1.04	1	6.25	4	3.42	2	2.02	2	11.11	1	0.95	0	0.00	1	5.26
Severe clinical insomnia	0	0.00	0	0.00	0	0.00	2	1.71	1	1.01	1	5.56	0	0.00	0	0.00	0	0.00

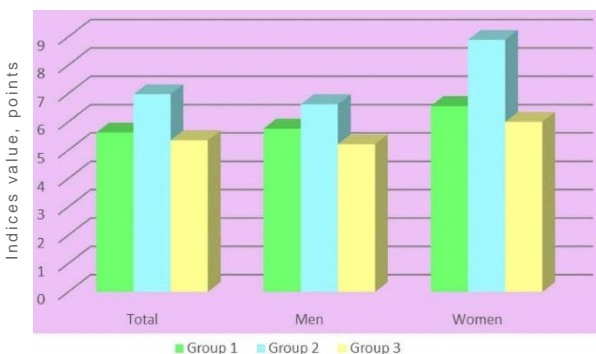
Note. N.: number of military members performed duties of community policing during the epidemic eruption of COVID-19; % percentage value;  
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<sup>3</sup>Group 3 (Control): military members who did not have experience of community policing as well as any battle experience – 105 people, among them: 86 (81.90%) men and 19 (18.10%) women.



**Figure 5.** Manifestations of sleep disorders among military members who performed duties of community policing during the pandemic COVID-19.

The average point by “ISI” methods in Group 2 (6.97) exceeded considerably the indices of Group 1 (5.62) and Control Group (5.35), that proves qualitative disorders in the form of shortening the length of night sleep, too late falling asleep, too early waking-up, frequent interruptions of sleep during a night. It should be indicated that the average point by “ISI” methods among the women has been higher in all the groups than among the men (see Figure 6). To our mind it has resulted from a higher level of their extraversion and stress in conditions of the COVID-19 pandemic.

Cross-tabulation for the methods “Insomnia Severity Index” is presented as Table C.



**Figure 6.** Mean “ISI” score.

### Discussion

In Wuhan (Hubei, China) in December, 2019, a severe acute respiratory syndrome of coronavirus (SARS-CoV-2) has been indicated (Dong, Du, & Gardner, 2020; Lauer et al., 2020).

Initially, the new virus was called 2019-nCoV. Subsequently, the task of experts of the International Committee on Taxonomy of Viruses (ICTV) termed it the SARS-CoV-2 virus as it is very similar to the one that caused the SARS outbreak (SARS-CoVs) (Casella, Rajnik, Cuomo, Dulebohn, & Di Napoli, 2020).

This coronavirus leads to potentially mortal disease called COVID-19 (Rothan & Byrareddy, 2020).

The spread of COVID-19 has acquired a pandemic nature (A. Remuzzi & Remuzzi, 2020).

By now the disease has spread over more than a hundred of countries of the world and has embraced a million of people (Johns Hopkins University, Coronavirus Resource Center, 2020).

Fast spreading, a wide range and consequences have placed this problem to the first place among scientific research.

The COVID-19 pandemic is having a profound effect on all aspects of society, including mental health as well as physical health (Brooks et al., 2020; Holmes et al., 2020; Shigemura, Ursano, Morganstein, Kurosawa, & Benedek; 2020).

The scientific publications emphasis the urgency of collecting high-quality data of the affect of the COVID-19 pandemic on the mental health of the whole population and vulnerable groups in particular. It is emphasised that certain research and recommendations should be developed in order to lessen the consequences of the affect of the COVID-19 pandemic on mental health of vulnerable groups (Holmes et al., 2020).

Managing mental health challenges faced by healthcare workers during the COVID-19 pandemic has been researched (Greenberg, Docherty, Gnanapragasam, & Wessely, 2020), it has been studied in the sphere of education as well (Araújo de Oliveira et al., 2020).

The influence of consequences of the COVID-19 pandemic on mental health in the clinical aspect has



been researched (Fiorillo & Gorwood, 2020), in the psychological aspect (Tan, 2020).

Pandemics are much more dangerous phenomena compared with natural disasters, such as earthquakes or tsunamis (Morganstein & Ursano, 2020), even comparing the pandemic with wars and international mass conflicts. Under such circumstances people can orientate themselves, while in conditions of the pandemic “threat” can be everywhere and it can be even communicated by a person nearby (Kaniasty, 2019).

Among the groups with an extremely high risk to catch the disease can be not only the medical staff that works in departments of first aid and reanimation, but also policemen and military-men who commit their professional duties, work with people who can be infected.

That is why the topic of resistance to post-traumatic stress reactions of vulnerable groups (military-men), engaged into the pandemic liquidation is urgent and is still insufficiently researched by scientists.

It is also necessary to pay attention to the problem concerning stigma and discrimination to infected people or those who can be referred potentially to them. Fighting with social stigma to the infected people and those who commit their professional duties in conditions of the COVID-19 pandemic has to become one of the priorities for specialists in the field of mental health in the nearest months (Fiorillo & Gorwood, 2020).

Social and psychological aspects of stigmatisations of military-men as an interdisciplinary problem, has been studied in (Melnyk, 2019; 2020).

The problem of influence of extreme conditions on mental health of military-men has been researched in (Melnyk & Stadnik, 2018).

The given research indicates the similarity of symptoms and consequences revealed by different groups of military-men who committed their professional duties in various extreme conditions (Melnyk et al., 2019). A high level of correlation between the results of this research allows making an assumption as for possible efficiency of using the model of medical and psychological support of the professional activity (Melnyk et al., 2019) to military-men, who were engaged into liquidation of the COVID-19 pandemic. This model has been tested on military-men who are under various extreme conditions, and it has been applied for estimating the state of mental health, outlining tendencies and providing preventing measures for development of mental disorders.

## Conclusions

So authors of the article have researched the resistance to post-traumatic stress reaction of military-men engaged into liquidation of the COVID-19 pandemic.

The military-men who maintained order and observed how the population followed the quarantine requirements, is one of the risk groups as for the psychological influence of the COVID-19 pandemic. They are affected by common psychogenic factors of the pandemic as well as factors of military service.

The results of studying psychological influence of the COVID-19 pandemic on military-men and the level of evidence of post-traumatic stress reactions revealed by the methods “Mississippi Scale for Estimating Post-

traumatic Reactions (military variant)”, have shown that in the group of military-men experienced in battle actions, who committed their duties of maintaining public order during the pandemic outbreak, manifestations of PTSR symptoms are nearly twice as low as in the group of military-men inexperienced in battle actions. Military-men experienced in battle actions display anxiety, depression, stress and sleep disorders considerably more rarely than military-men inexperienced in such. In our mind it is stipulated by the fact that committing professional duties in conditions of the COVID-19 pandemic is less stressful for military-men experienced in battle actions than the battle actions themselves which they are adapted to.

We have revealed certain gender peculiarities. An average point by the scale “Anxiety” among military-women of Groups 1 and 2 has been indicated as 1.3-1.5 times higher than among military-men. At the same time the indices of the average point by the scale “Depression” for military-women and men experienced in battle actions have not differed considerably. The average point of military-men inexperienced in battle actions, by the scale “Stress” is the highest among all gender groups of those who are under research. Sleep disorders (the average point by “ISI” methods) have been considerably higher among military-women, than among military-men in all the groups that is connected, to our mind, with their higher extraversion and stress in the COVID-19 pandemic.

We consider the perspective of further scientific research in studying effectiveness of implementing the model of medical and psychological support of professional activity (Melnyk et al., 2019), as well as developing on this ground the most efficient events of medical and psychological support and prophylaxis among vulnerable professional categories engaged in the pandemic liquidation.

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## Ethical approval

The study protocol was consistent with the ethical guidelines of the 1975 Declaration of Helsinki as reflected in a prior approval by the Institution’s Human Research Committee.

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**Table A.** Crosstab for the methods “Mississippi Scale for Estimating Post-traumatic Reactions (military variant)”.

Group	Indicator	Reaction			Total
		Normal	Psychiatric	PTSR	
Group 1	Count	104	6	2	112
	Expected Count	102.9	7.4	1.7	112.0
	Percentage of Group	92.9	5.4	1.8	100.0
	Percentage of Reaction	33.9	27.3	40.0	33.5
	Percentage of Total	31.1	1.8	0.6	33.5
	Residual	1.1	-1.4	0.3	-
Group 2	Count	102	12	3	117
	Expected Count	107.5	7.7	1.8	117.0
	Percentage of Group	87.2	10.3	2.6	100.0
	Percentage of Reaction	33.2	54.5	60.0	35.0
	Percentage of Total	30.5	3.6	0.9	35.0
	Residual	-5.5	4.3	1.2	-
Group 3	Count	101	4	0	105
	Expected Count	96.5	6.9	1.6	105.0
	Percentage of Group	96.2	3.8	0.0	100.0
	Percentage of Reaction	32.9	18.2	0.0	31.4
	Percentage of Total	30.2	1.2	0.0	31.4
	Residual	4.5	-2.9	-1.6	-
Total	Count	307	22	5	334
	Expected Count	307.0	22.0	5.0	334.0
	Percentage of Group	91.9	6.6	1.5	100.0
	Percentage of Reaction	100.0	100.0	100.0	100.0
	Percentage of Total	91.9	6.6	1.5	100.0

**Table B.** Crosstab for the methods “The Depression Anxiety Stress Scales”.

Group	Indicator	Level					Total
		Normal	Mild	Moderate	Severe	Extremely Severe	
Group 1	Count	103/104/105	3/3/3	3/3/2	2/1/1	1/1/1	112
	Expected Count	101.3/101.6/102.9	4.7/5.0/4.7	3.4/3.4/2.3	1.7/1.0/1.0	1.0/1.0/1.0	112.0
	Percentage of Group	92.0/92.9/93.8	2.7/2.7/2.7	2.7/2.7/1.8	1.8/0.9/0.9	0.9/0.9/0.9	100.0
	Percentage of Level	34.1/34.3/34.2	21.4/20.0/21.4	30.0/30.0/28.6	40.0/33.3/33.3	33.3/33.3/33.3	33.5
	Percentage of Total	30.8/31.1/31.4	0.9/0.9/0.9	0.9/0.9/0.6	0.6/0.3/0.3	0.3/0.3/0.3	33.5
	Residual	1.7/2.4/2.1	-1.7/-2.0/-1.7	-0.4/-0.4/-0.3	0.3/0.0/0.0	0.0/0.0/0.0	-
Group 2	Count	98/99/100	9/9/9	5/5/4	3/2/2	2/2/2	117
	Expected Count	105.8/106.1/107.5	4.9/5.3/4.9	3.5/3.5/2.5	1.8/1.1/1.1	1.1/1.1/1.1	117.0
	Percentage of Group	83.8/84.6/85.5	7.7/7.7/7.7	4.3/4.3/3.4	2.6/1.7/1.7	1.7/1.7/1.7	100.0
	Percentage of Level	32.5/32.7/32.6	64.3/60.0/64.3	50.0/50.0/57.1	60.0/66.7/66.7	66.7/66.7/66.7	35.0
	Percentage of Total	29.3/29.6/29.9	2.7/2.7/2.7	1.5/1.5/1.2	0.9/0.6/0.6	0.6/0.6/0.6	35.0
	Residual	-7.8/-7.1/-7.5	4.1/3.7/4.1	1.5/1.5/1.5	1.2/0.9/0.9	0.9/0.9/0.9	-
Group 3	Count	101/100/102	2/3/2	2/2/1	0/0/0	0/0/0	105
	Expected Count	94.9/95.3/96.5	4.4/4.7/4.4	3.1/3.1/2.2	1.6/0.9/0.9	0.9/0.9/0.9	105.0
	Percentage of Group	96.2/95.2/97.1	1.9/2.9/1.9	1.9/1.9/1.0	0.0/0.0/0.0	0.0/0.0/0.0	100.0
	Percentage of Level	33.4/33.0/33.2	14.3/20.0/14.3	20.0/20.0/14.3	0.0/0.0/0.0	0.0/0.0/0.0	31.4
	Percentage of Total	30.2/29.9/30.5	0.6/0.9/0.6	0.6/0.6/0.3	0.0/0.0/0.0	0.0/0.0/0.0	31.4
	Residual	6.1/4.7/5.5	-2.4/-1.7/-2.4	-1.1/-1.1/-1.2	-1.6/0.9/-0.9	-0.9/0.9/-0.9	-
Total	Count	302/303/307	14/15/14	10/10/7	5/3/3	3/3/3	334
	Expected Count	302.0/303.0/307.0	14.0/15.0/14.0	10.0/10.0/7.0	5.0/3.0/3.0	3.0/3.0/3.0	334.0
	Percentage of Group	90.4/90.7/91.9	4.2/4.5/4.2	3.0/3.0/2.1	1.5/0.9/0.9	0.9/0.9/0.9	100.0
	Percentage of Level	100.0/100.0/100.0	100.0/100.0/100.0	100.0/100.0/100.0	100.0/100.0/100.0	100.0/100.0/100.0	100.0
	Percentage of Total	90.4/90.7/91.9	4.2/4.5/4.2	3.0/3.0/2.1	1.5/0.9/0.9	0.9/0.9/0.9	100.0

Note. Each cell of the crosstab contains three indicator values, as the methods “The Depression Anxiety Stress Scales” contains three scales (“Depression”/“Anxiety”/“Stress”).

**Table C.** Crosstab for the methods “Insomnia Severity Index”.

Group	Indicator	Severity of insomnia				Total
		No clinically significant insomnia	Subthreshold insomnia	Moderately severe clinical insomnia	Severe clinical insomnia	
Group 1	Count	98	12	2	0	112
	Expected Count	95.9	13.1	2.3	0.7	112.0
	Percentage of Group	87.5	10.7	1.8	0.0	100.0
	Percentage of Insomnia	34.3	30.8	28.6	0.0	33.5
	Percentage of Total	29.3	3.6	0.6	0.0	33.5
	Residual	2.1	-1.1	-0.3	-0.7	-
Group 2	Count	88	23	4	2	117
	Expected Count	100.2	13.7	2.5	0.7	117.0
	Percentage of Group	75.2	19.7	3.4	1.7	100.0
	Percentage of Insomnia	30.8	59.0	57.1	100.0	35.0
	Percentage of Total	26.3	6.9	1.2	0.6	35.0
	Residual	-12.2	9.3	1.5	1.3	-
Group 3	Count	100	4	1	0	105
	Expected Count	89.9	12.3	2.2	0.6	105.0
	Percentage of Group	95.2	3.8	1.0	0.0	100.0
	Percentage of Insomnia	35.0	10.3	14.3	0.0	31.4
	Percentage of Total	29.9	1.2	0.3	0.0	31.4
	Residual	10.1	-8.3	-1.2	-0.6	-
Total	Count	286	39	7	2	334
	Expected Count	286.0	39.0	7.0	2.0	334.0
	Percentage of Group	85.6	11.7	2.1	0.6	100.0
	Percentage of Insomnia	100.0	100.0	100.0	100.0	100.0
	Percentage of Total	85.6	11.7	2.1	0.6	100.0

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