

ORIGINAL ARTICLE

Comparative analysis of stress resilience indicators in law enforcement officers of different genders

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ABSTRACT

Aim: To conduct a comparative analysis of stress resilience indicators in future law enforcement officers of different genders during their professional training.

Materials and Methods: The research, conducted in 2025-2026, involved 134 cadets (71 men, 63 women) in their fourth training year and majoring in the "Law Enforcement" program. Three methods were used to assess the cadets' stress resilience: the Reactive Anxiety Scale, the Method for Assessing Neuro-Emotional Tension, and the Perceived Stress Scale (PSS-10).

Results: It has been established that female cadets exhibit lower levels of stress resilience across all measured indicators (anxiety levels, neuro-emotional tension, and stress) compared to male cadets. At the same time, the greater the impact of stress factors in professional activities, the more pronounced the difference in indicators becomes. After the field placement in practical police units, female cadets were found to have significantly ($p \leq 0.05-0.01$) worse indicators than those of male cadets in reactive anxiety (by 4.4 points), neuro-emotional tension (by 4.8 points), and stress (by 3.9 points).

Conclusions: The results of the research should be taken into account when developing and implementing preventive and corrective programs, as well as when conducting counseling and educational-psychological activities among law enforcement cadets, thereby enhancing their stress resilience and strengthening their psychophysical health.

KEY WORDS: stress, anxiety, stress resilience, law enforcement officers, cadets, gender, mental health

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INTRODUCTION

In the current conditions of war in Ukraine, nearly 90 % of Ukrainians live in a state of high stress caused by threats to life, separation from loved ones, financial instability, and daily shelling [1]. Stress has evolved from a temporary reaction into a chronic condition, leading to mental exhaustion, somatic illnesses, and premature aging [2]. Numerous studies indicate that stress negatively affects both the mental and physical health of modern individuals [3, 4]. At the same time, a person with a resilient psyche fully fulfills their social roles, carries out their professional and civic duties for the common good, is an effective worker and a good family member, continually improves themselves, and harmonizes their interactions with the surrounding world [5].

One of the most intense and stress-filled types of activity is law enforcement. Stress is an integral part of law enforcement officers' professional activities, as their

work is constantly marked by high psycho-emotional tension, life-threatening risks, and the need to make quick decisions under extreme conditions [6, 7]. During the war in Ukraine, the level of stress associated with law enforcement activities has significantly increased, in part due to a substantial expansion of law enforcement officers' powers [8]. Cadets – future law enforcement officers – are no exception; their professional training takes place under the challenging conditions of martial law, amid heightened responsibility and strict discipline. The modern educational process for law enforcement cadets involves: high physical and psychological demands; a combination of intensive study, physical training, and the performance of service duties (while on duty in patrols, on shifts, during practical training, and field placements); psychological readiness of cadets to face danger and work with offenders; performing tasks under time constraints and in situations requiring rapid decision-making [9, 10].

At the same time, today, higher educational institutions (HEIs) that train future law enforcement officers have a large number of female cadets, whose stress levels differ from those of male cadets [11, 12]. Research into the stress resilience of male and female law enforcement cadets during training in wartime conditions is relevant to developing effective strategies to prevent stress-related phenomena among cadets, foster stress-coping skills, and strengthen their psychosomatic health, thereby improving their professional performance.

AIM

The aim is to conduct a comparative analysis of stress resilience indicators in future law enforcement officers of different genders during their professional training.

MATERIALS AND METHODS

PARTICIPANTS

The research, conducted in 2025-2026, involved 134 cadets (71 men, 63 women) who were in their fourth training year at Kharkiv National University of Internal Affairs (KhNUIA, Kharkiv, Ukraine), majoring in "Law Enforcement." The cadets' ages ranged from 20 to 22 years. The cadets' stress resilience indicators were assessed twice: before the start of their field placement in practical police units (Stage 1) and after returning to the HEI (Stage 2). The field placement lasted 4 weeks. No special selection was conducted for the study groups of men and women. Six training groups of KhNUIA cadets majoring in "Law Enforcement" were involved. The inclusion criterion for cadets was their enrollment in a 4th-year training group in the relevant major. The cadets who were on temporary duty leave or receiving inpatient treatment during the research period were excluded. Training conditions, living conditions, food quality, and material and financial support were the same for all cadets. Marital status and the extent to which their parents and relatives were involved in combat missions in the war with Russia were not taken into account. The exclusion criterion was the cadet's voluntary desire to withdraw from the research at any time.

RESEARCH METHODS

theoretical analysis and generalization of literature sources, psycho-diagnostic methods, statistical methods. The method of theoretical analysis and generalization of literary sources was used to conduct an analytical review of scientific sources on the outlined range of issues (24 sources (2013-2026) from MedLine, Scopus, Web of Science databases were analyzed).

Psycho-diagnostic methods were used to study stress resilience indicators among cadets of different genders. Three methods were used to study the cadets' stress resilience: the Reactive Anxiety Scale (Ch. D. Spielberger, Yu. L. Khanin); the Method for Assessing Neuro-Emotional Tension (T. A. Nemchyn); the Perceived Stress Scale, PSS-10 (J. M. Taylor) [13, 14].

The Reactive Anxiety Scale consists of 20 questions, through which the cadets assessed their state at the time of testing. Response options: no, that is not true; probably true; true; completely true. Scores were calculated using the formula: $RA = \Sigma 1 - \Sigma 2 + 50$, where RA is reactive anxiety, $\Sigma 1$ is the sum of the numbers marked on the form for items 3, 4, 6, 7, 9, 12, 13, 14, 17, and 18; $\Sigma 2$ is the sum of the numbers marked on the form for scale items 1, 2, 5, 8, 10, 11, 15, 16, 19, 20. The level of reactive anxiety was assessed as follows: 30 points or below – low anxiety level; 31-45 points – average level; 46 points or above – high level.

The Method for Assessing Neuro-Emotional Tension (NET) includes 30 characteristics of this state, divided into three levels of severity (a – low, b – average, c – high). By selecting one of the three response options (a, b, c), cadets assessed their state at the time of testing. Data processing was performed by summing the points: 1 point for response a, 2 points for b, and 3 points for c. The level of neuro-emotional tension was assessed as follows: 30-50 points – low NET; 51-70 points – average NET; 71-90 points – high NET.

The "Perceived Stress Scale, PSS-10" method consists of 10 questions with the following response options: never – 0 points, rarely – 1 point, sometimes – 2 points, quite often – 3 points, very often – 4 points. Stress levels were assessed as follows: 0-13 points – low level (mild stress); 14-26 points – average level (moderate stress); 27-40 points – high level (severe stress).

STATISTICAL METHODS

The statistical method was used to process the data obtained. The reliability of the difference was determined using the Student's t-test. The results were presented as $\text{Mean} \pm m$, where Mean is the arithmetic mean, m is the standard error. The reliability of the difference was set at $p < 0.05$. All statistical analyses were performed using STATISTICA 13.3.1 software package (2018), adapted for medical and biological research.

ETHICS

The procedure for organizing the study and the topic of the article were previously agreed with the Committee on compliance with Academic Integrity and Ethics of the KhNUIA. Also this study followed the regulations of

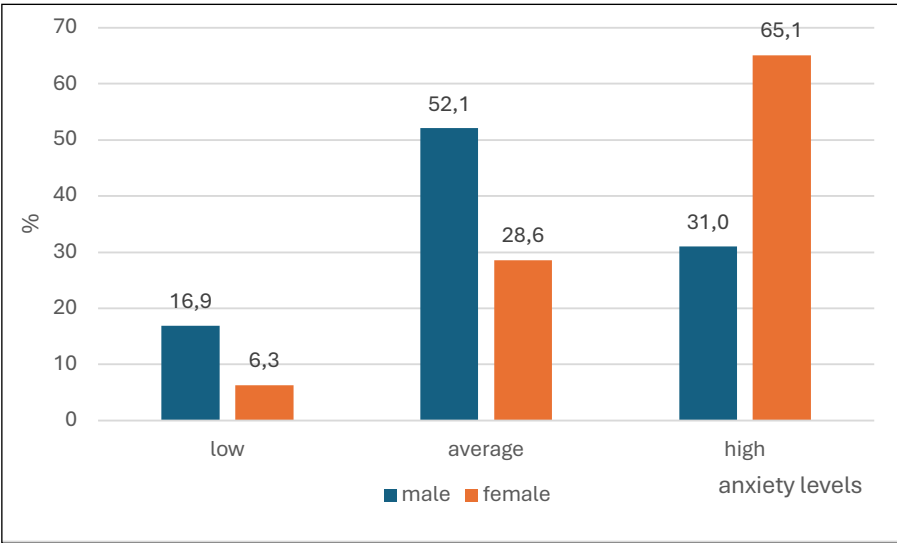


Fig. 1. The ratio of reactive anxiety levels among male (n=71) and female (n=63) cadets after the field placement, %
Picture taken by the authors

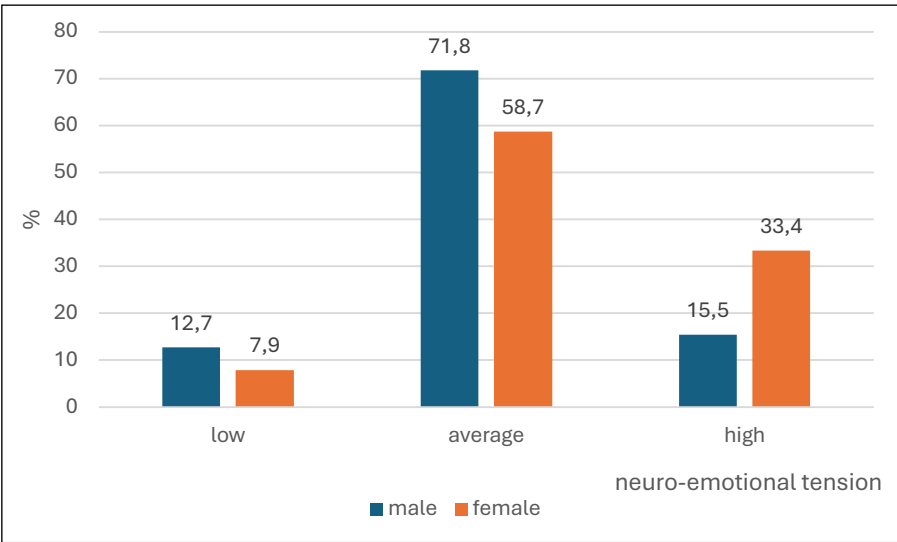


Fig. 2. The ratio of neuro-emotional tension levels among male (n=71) and female (n=63) cadets after the field placement, %
Picture taken by the authors

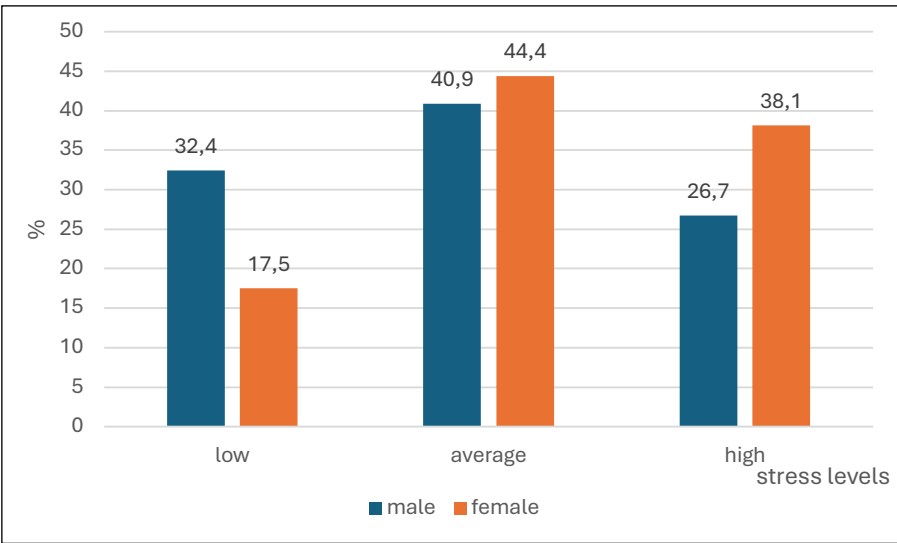


Fig. 3. The ratio of stress levels among male (n=71) and female (n=63) cadets after the field placement, %
Picture taken by the authors

the World Medical Association Declaration of Helsinki. Informed consent was received from all participants who took part in this study.

AI STATEMENT
The author states that no AI tools were used in writing this article.

Table 1. The comparative analysis of stress resilience indicators in cadets of different genders (n = 134) before (Stage 1) and after (Stage 2) their field placement in practical police units, Mean±m, points

Research stages	Cadets of different genders			
	Male cadets (n=71)	Female cadets (n=63)	Δ	t / p
Reactive anxiety				
Stage 1	41.7±0.95	43.6±0.99	1.9	1.38/>0.05
Stage 2	44.2±0.98	48.6±1.02	4.4	3.11/≤0.01
t / p	1.83/>0.05	3.52/≤0.001		
Neuro-emotional tension				
Stage 1	52.5±1.07	55.1±1.12	2.6	1.68/>0.05
Stage 2	54.9±1.09	59.7±1.14	4.8	3.04/≤0.01
t / p	1.57/>0.05	2.88/≤0.05		
Stress level				
Stage 1	21.2±1.15	23.5±1.19	2.3	1.39/>0.05
Stage 2	24.3±1.18	28.2±1.21	3.9	2.31/≤0.05
t / p	1.88/>0.05	2.77/≤0.05		

Legend: Δ – difference between the studied indicators; t – value of Student’s t-test; p – level of statistical significance of differences

Source: compiled by the authors of this study

FRAMEWORK

This scientific article was carried out according to the plan of the research work of the Kharkiv National University of Internal Affairs for 2020-2026 “Psychological, pedagogical and sociological support of law enforcement officers”(state registration number 0113U008196).

RESULTS

The results of the comparative analysis of stress resilience indicators in cadets of different genders before and after their field placement in practical police units are presented in Table 1.

Assessment of the level of reactive anxiety indicates that before the field placement, anxiety among cadets of both genders was at an average level. Among female cadets, the level of reactive anxiety before the field placement was 1.9 points higher than among male cadets; however, no statistically significant differences were found (p > 0.05). During the performance of law enforcement duties while on field placement in practical units, the anxiety level among both male and female cadets increased by 2.5 and 5.0 points, respectively; however, the changes among men were not statistically significant (p > 0.05), while the increase in anxiety among women was statistically significant (p ≤ 0.001). A comparison of cadets’ anxiety levels after the 4-week field placement revealed that female cadets’ anxiety levels were significantly higher than those of male cadets by 4.4 points (p ≤ 0.01). Moreover, while male cadets’ anxiety levels remained unchanged (at an average level) at the end of the research, those of female

cadets worsened to a high level. The ratio of reactive anxiety levels among male and female cadets after the field placement is shown in Fig. 1.

As shown in Fig. 1, after the field placement, the proportion of women with high levels of reactive anxiety (65.1 %) is more than twice that of men (31.0 %). In comparison, only 6.3 % of women have low levels of reactive anxiety, compared to 16.9 % of male cadets. This indicates that female cadets experience the stressful conditions of law enforcement work more acutely than men and are more prone to anxiety and distress.

The analysis of cadets’ NET before their field placement revealed no statistically significant differences between genders – the difference was 2.6 points (p > 0.05). At the same time, the NET level before the field placement was assessed as average for both men and women. The study of the dynamics of NET indicators among cadets of different genders reveal negative changes in the indicators of both male and female cadets during their field placement in practical police units. However, the decline among male cadets is 2.4 points (p > 0.05), while among female cadets it is 4.6 points (p ≤ 0.05). It is worth noting that after the field placement, female cadets showed significantly worse NET indicators (59.7 points) than male cadets (54.9 points), a difference of 4.8 points (p ≤ 0.01). These findings are supported by the male-to-female ratio of cadets across different NET levels after the field placement (Fig. 2).

The study of stress levels among male and female cadets before the field placement indicates that the indicators for both genders do not differ significantly

and correspond to the average level (moderate stress). During the field placement period in practical police units, stress levels worsened for cadets of both genders (by 3.1 points for men and 4.7 points for women); however, statistically significant differences were found only for female cadets ($p \leq 0.05$). It was found that after performing service duties during the field placement, the stress level among male cadets remained unchanged (moderate stress). At the same time, for women, it worsened to a high level (severe stress), which underscores the negative impact of law enforcement stressors on cadets' stress resilience, particularly among female cadets. After the field placement, female cadets' stress levels were significantly higher than those of male cadets by 3.9 points ($p \leq 0.05$). The ratio of stress levels among male and female cadets after the field placement is shown in Fig. 3.

The studies conducted showed that, across all indicators examined, stress resilience among female cadets is lower than that of male cadets. At the same time, the greater the impact of stressors related to professional activities, the more pronounced the difference in indicators becomes.

DISCUSSION

Currently, Ukraine is experiencing a deterioration in its social, economic, and political situation, along with increasing external pressure on individuals, resulting in significant stress among Ukrainians. High levels of anxiety about the future – both for one's family and loved ones and for the country as a whole – the constant threat to life and health, frequent sirens warning of missile danger and air raid alerts, power outages, disruptions in mobile communications, and the necessity to work or study remotely – are far from an exhaustive list of the causes of stress among Ukrainians [15].

The concepts of "stress" and "stress resilience" are now widely discussed in the scientific literature [16, 17]. When studying this phenomenon, the focus is most often on the development of its individual aspects or on the psychological rehabilitation of those who have experienced stress. At the same time, questions regarding manifestations of stress resilience influenced by gender differences – including among law enforcement personnel during wartime – remain understudied. This issue is of particular scientific interest because, as our research confirms, a thorough examination of it will enable the development of effective approaches to gender-based prevention of stress-related phenomena, stress-coping skills, and so on.

Experts use the term "stress resilience" to refer to emotional stability, psychological resilience to stress, stress

resistance, frustration tolerance, and other related concepts. Stress resilience is equated with emotional stability and the ability to control emotions, the ability to cope with heavy workloads and effectively solve tasks under extreme circumstances; the ability to independently calm emotional arousal while performing complex activities; a temperamental trait that allows one to successfully achieve one's goals through the optimal use of reserves of neuropsychological and emotional energy; the ability to direct one's emotional experiences toward positive solutions to future tasks; a consistent predominance of positive psycho-emotional states; an integrative personality trait characterized by the interaction of emotional, volitional, intellectual, and motivational components of human mental activity, which ensure the optimal and successful achievement of activity goals in a complex emotional environment [18].

The analysis of scientific sources [3, 4, 19] indicates that, to date, there is no consensus in the scientific community regarding differences in stress resilience indicators between men and women. At the same time, studies are being conducted on gender-related factors in stress resilience, self-actualization, gender stereotypes, personality traits, behavioral characteristics, motivation, vital capacity, self-realization, and other areas. However, many studies present conclusions that men have higher stress resilience than women [6]. Our research results also confirm this trend. It was found that, compared to men, women experience a significant increase in stress levels (severe stress) after performing professional tasks in crisis conditions, which underscores the negative impact of work-related stressors on stress resilience indicators among women.

As scientists note [20], stress resilience levels in men and women differ due to biological and social factors, with men more often demonstrating higher resilience, which is attributed to lower impulsivity. At the same time, women have better emotional adaptation and the ability to maintain social bonds, thanks to oxytocin (the "love" or "trust" hormone), which plays a key role in forming emotional bonds and social interactions. Women more often use emotional support (coping strategies), while men tend to analyze problems, avoid stress, or hide their emotions [21]. The results of our research confirmed the findings of scientists [3, 4, 22], who noted higher stress resilience in men than in women. Across all measured indicators (levels of anxiety, neuro-emotional tension, and stress), male cadets demonstrated better results than female cadets. Moreover, after a 4-week field placement in practical police units, the indicators among female cadets became even more pronounced. This once again confirms our scientific position that, across all indicators studied, stress resilience among female cadets is lower than that of male cadets.

Researchers also note that women demonstrate better adaptation to prolonged stress. Thus, studies [23, 24] indicate that women cope better with prolonged stress due to hormonal characteristics (estrogen, progesterone, oxytocin) that promote adaptive flexibility. However, the degree of influence of professional activity stressors is significant: the higher the stress level, the more pronounced the personality indicators become. In contrast, men tend to exhibit higher “combat readiness” and “fight-or-flight” responses. To confirm these findings, further research is needed involving longer-term exposure of participants to constant stressors.

CONCLUSIONS

It has been established that female cadets exhibit lower levels of stress resilience across all measured indicators (anxiety levels, neuro-emotional tension, and stress) compared to male cadets. At the same time, the greater the impact of stress factors in professional activities, the more pronounced the difference in indicators becomes. After the field placement in practical police units, female cadets were found to have significantly ($p \leq 0.05-0.01$) worse indicators than those of male cadets in reactive

anxiety (by 4.4 points), neuro-emotional tension (by 4.8 points), and stress (by 3.9 points). At the same time, the level of anxiety and stress shifted from average to high, indicating that female cadets experience the stressful conditions of law enforcement work more acutely than their male counterparts and are more prone to emotional distress. The obtained data are confirmed by the established correlation between the levels of the studied indicators in male and female cadets after their field placement.

The results of the research should be taken into account when developing and implementing preventive and corrective programs, as well as when conducting counseling and educational-psychological activities among law enforcement cadets, thereby enhancing their stress resilience and strengthening their psychophysical health.

PROSPECTS FOR FURTHER RESEARCH

It is planned to investigate the dynamics of somatic and mental health indicators among law enforcement officers of different genders under prolonged exposure to stressors.

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CONFLICT OF INTEREST

The Authors declare no conflict of interest

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