

Chronic Itch Among Soldiers and Civilians: A Cross-sectional Study During the War in Ukraine

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Submitted Feb 6, 2025. Accepted after revision Mar 18, 2025

Published Mar 27, 2025. DOI: 10.2340/actadv.v105.43119. Acta Derm Venereol 2025; 105: adv43119.

Itch, or pruritus, is defined as an unpleasant sensation of the skin leading to the desire to scratch (1). Chronic itch (CI), defined as pruritus lasting 6 weeks or longer, is a distressing symptom that is experienced by around 22% of people in their lifetime (2). CI arises from a variety of skin conditions, but can also feature as a symptom in various non-dermatological diseases.

According to the International Forum for the Study of Itch (IFSI), based on physical examination, CI can be divided into itch on diseased (inflamed) skin, on non-diseased skin, and itch with severe chronic secondary scratch lesions (3). Causes of CI can be classified by underlying disease into the following categories: (I) dermatological, (II) systemic – including diseases of pregnancy and drug-induced pruritus, (III) neurological, (IV) psychogenic, (V) mixed – if more than 1 cause may account for pruritus, and (VI) other – if no underlying disease can be identified.

Chronic itch is associated with increased stress and anxiety (4). In turn, stress and anxiety exacerbate itch, leading to a vicious circle that profoundly reduces quality of life (5). Recently, due to war, people in Ukraine have experienced higher levels of acute and chronic psychological stress. Many dermatological conditions, including psoriasis, atopic dermatitis, acne vulgaris, and others, have been reported to be exacerbated during this military conflict (6, 7). Among the consequences of war, one of the most significant is the impact on the mental health of the population, with the soldiers being an especially vulnerable group (8).

We conducted this study to evaluate the causes of CI among Ukrainian military personnel and compare them with the civilian population seeking dermatological help.

MATERIALS AND METHODS

The study group consisted of 210 patients who sought dermatological consultations at the Department of Skin and Venereal Diseases at Dnipro State Medical University in Dnipro, Ukraine, due to chronic itching. The primary research group comprised 77 consecutive soldiers (1 female and 76 males, age range: 19–55 years) with chronic itch, while 133 consecutive civilian patients (67 females and 66 males, age range: 18–58 years) suffering from chronic itch served as controls. Chronic itch was defined according to the International Forum for the Study of Itch (IFSI) as itching lasting for at least 6 weeks (3). Furthermore, the IFSI's two-step clinical classification was used to first group patients based on the

location of the itch: on diseased skin, non-diseased skin, and itch with secondary skin lesions resulting from scratching. In the second step, the categorization of the itch was based on the patient's history, physical examination, and necessary additional laboratory and imaging tests. These categories included dermatological itch, systemic itch, neurological itch, psychological itch, itch of mixed aetiology, and others (itch of undetermined origin) (3). The diagnosis of psychological itch was established fulfilling the criteria proposed by Misery et al. (9). Additionally, the intensity of the worst itch during the last 3 days was assessed using an 11-point Numerical Rating Scale (NRS), where 0 indicated no itch and 10 represented the most severe imaginable itch (10).

This study was conducted during the military conflict in Ukraine between April 2023 and September 2024. The study followed the principles outlined in the Declaration of Helsinki and was approved by the Ethical Committee of Wrocław Medical University (No. KB-234/2023).

The results obtained were analysed using IBM SPSS Statistics v. 26 (IBM Corp, Armonk, NY, USA). The data were first assessed for normality using the Kolmogorov–Smirnov test. Descriptive statistics, including minimum, maximum, mean, standard deviation, and range, were calculated. For quantitative data Student's *t*-test or Mann–Whitney *U* test were used for parametric and non-parametric data. Qualitative data were analysed using the χ^2 test. Multiple comparisons were adjusted according to the Bonferroni principle. *P*-values less than 0.05 were considered statistically significant.

RESULTS

The vast majority of military servants – 53 patients (68.8%) – reported chronic itch on non-diseased skin. Itch on diseased skin was reported by 20 subjects (26.0%) in this group, followed by the group with chronic scratch lesions (4 subjects, 5.2%). In contrast, among civilian patients, 86 (64.7%) presented with chronic itch on diseased skin, followed by 26 patients (19.5%) with itch on non-diseased skin, and 21 subjects (15.8%) with chronic scratch lesions. The difference between the 2 patient groups was highly significant ($p < 0.001$).

Regarding the categorization of itch, the most common type among soldiers was psychological itch – 34 patients (44.1%), followed by itch of undetermined origin in 16 patients (20.8%), and dermatological itch in 12 patients (15.6%). Itch of mixed aetiology, systemic itch, and neurological itch were less frequently diagnosed (9.1%, 6.5%, and 3.9%, respectively) (Table I). There was a statistically significant difference ($p < 0.001$) in the distribution of various types of itch between military

Table I. Chronic itch types and categories in soldiers and civilians

Parameter	Soldiers, <i>n</i> (%)	Civilians, <i>n</i> (%)	<i>p</i> -value
Type of itch			
Itch on diseased skin	20 (26.0)	86 (64.7)	<0.001
Itch on non-diseased skin	53 (68.8)	26 (19.5)	
Chronic scratch lesions	4 (5.2)	21 (15.8)	
Itch category			
Dermatological	12 (15.6)	84 (63.2)	<0.001
Systemic	5 (6.5)	4 (3.0)	
Neurological	3 (3.9)	6 (4.5)	
Psychogenic	34 (44.1)	11 (8.3)	
Mixed	7 (9.1)	14 (10.5)	
Other (undetermined origin)	16 (20.8)	14 (10.5)	

personnel and civilian patients. Among civilian subjects, dermatological itch was the most common, diagnosed in 84 patients (63.2%). Other types of itch were less frequent, with mixed aetiology and undetermined origin found in 14 patients (10.5%). Psychological itch was reported by 11 patients (8.3%), while neurological and systemic itch were rarely diagnosed (6 subjects, 4.5%, and 4 patients, 3.0%, respectively) (Table I).

The intensity of chronic itch in the military group, as assessed by the worst NRS over the last 3 days, was 3.42 ± 1.53 points and appeared significantly less severe ($p < 0.001$) compared with the mean itch intensity found in the civilian chronic itch population (5.48 ± 1.87 points). Additionally, the duration of chronic itch in the military group was significantly shorter ($= 0.023$) than in the civilian control group (4.76 ± 8.49 months vs 8.41 ± 16.77 months, respectively).

DISCUSSION

In the current study, we found that there was a significant difference in the distribution of various types of CI between military personnel and civilian patients. The main cause of CI in the group of military servants was psychogenic, while among civilian subjects, the main cause of itch was dermatological. Psychogenic itch among the civilian population was in fourth place.

Previous epidemiological studies concerning the prevalence of CI are scarce, with relatively few true epidemiological studies conducted on the topic. The frequency and causes of itch can vary widely based on factors such as age, ethnicity, individual characteristics, underlying health conditions, and access to local healthcare resources. Chronic itch is very often related to primary skin diseases. According to a multi-centre European study ($n = 4,626$), the prevalence of itch among dermatological patients was reported as 54.3%, compared with 8% among controls (11). In a cross-sectional study conducted in Norway ($n = 4,744$), the prevalence of itch among adolescents was 8.8%, and itch was experienced most often in those who reported eczema followed by those who reported mental distress (12). Equally, in a Polish cross-sectional study of elderly patients 65 years and older in geriatric wards ($n = 153$) CI was reported

by 35.3% of examined patients, with the most common aetiology of CI involving cutaneous conditions (IFSI I; 53.7%), followed by mixed aetiology (IFSI V; 25.9%) (13). The results of our study strengthen these findings: among civilian subjects aged 18–58 years, dermatological itch was the most common (IFSI I; 63.2%), followed by mixed aetiology and undetermined origin (IFSI V and VI; 10.5%). Among civilian subjects 64.7% of patients presented with CI on diseased skin.

Conversely, the most common type of itch among soldiers enrolled in our study was psychogenic (IFSI IV; 44.1%), and dermatological itch was reported in third place (IFSI I; 15.6%). The vast majority of military servants (68.8%) reported CI on non-diseased skin. Additionally, the intensity of chronic itch in the military group appeared significantly less severe compared with the civilian population and the duration of chronic itch in the military group was significantly shorter than in the civilian control group. Such a difference may be caused by the contribution of higher psychological stress in soldiers exposed to war in comparison with civilians. Previous studies clearly showed that CI is associated with anxiety and stress (4, 5). In fact, recent studies have revealed a bidirectional relationship between stress and itch, where each condition worsens the other (14). Moreover, at the community level there is a strong association between itch and psychosocial factors. Individuals with poor support who experienced more negative life events reported itch more than individuals with good support (15.6% compared with 10.9%) (15). One of the most traumatic events an individual may experience in their lifetime, with a catastrophic effect on health, is war. The long-term cost of combat was examined in a study conducted over 43 years on Australian Vietnam War veterans ($n = 60,228$), revealing that 47.9% had accepted claims for mental health conditions. The research also found that veterans who served for over a year were 2.5 times more likely to develop a mental health disability compared with those who served for less than 100 days (16). There is a direct positive correlation between the intensity of the exposure to war trauma and the amount of subsequent psychological symptoms (8, 15). The cost of traumatic war stress on soldiers extend beyond PTSD, to the increased risk of alcohol abuse, personality disorders, depression, and suicide.

We are aware of our study limitations. First, the study was conducted only in 2 region of Ukraine. Second, the primary research group was relatively small ($n = 210$) and there was an uneven male to female ratio (76:1 in soldiers, and 66:67 in civilian patients). Additionally, the age range among our study group did not comprise elderly people (19–55 years in soldiers, and 18–58 in civilian patients). Moreover, our study results may have been influenced by the limited access to the healthcare system due to war and exclusion of some groups of patients. A prospective, multicentre study with the as-

assessment of stress and CI by physicians should be conducted to confirm our results. As the next step in further investigating stress-induced psychogenic itch, it would also be desirable to conduct psychological tests on the subjects and examine the correlation with itch intensity. However, organizing such a study is almost impossible amidst ongoing military conflict. Given these limitations, the results of the current study should be interpreted with caution.

In conclusion, to the best of our knowledge, this is a first study underlining that among military personnel during the Ukrainian war psychological itch is the main type of CI reported and the distribution of different types of CI varies between soldiers and civilians. This should be considered in a holistic approach to CI subjects during military conflicts.

The authors have no conflicts of interest to declare.

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