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ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ

Медицинские новости Грузии
საქართველოს სამედიცინო სიახლენი

GEORGIAN MEDICAL NEWS

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GMN: Georgian Medical News is peer-reviewed, published monthly journal committed to promoting the science and art of medicine and the betterment of public health, published by the GMN Editorial Board since 1994. GMN carries original scientific articles on medicine, biology and pharmacy, which are of experimental, theoretical and practical character; publishes original research, reviews, commentaries, editorials, essays, medical news, and correspondence in English and Russian.

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GMN: Медицинские новости Грузии - ежемесячный рецензируемый научный журнал, издаётся Редакционной коллегией с 1994 года на русском и английском языках в целях поддержки медицинской науки и улучшения здравоохранения. В журнале публикуются оригинальные научные статьи в области медицины, биологии и фармации, статьи обзорного характера, научные сообщения, новости медицины и здравоохранения. Журнал индексируется в MEDLINE, отражён в базе данных SCOPUS, PubMed и ВИНТИ РАН. Полнотекстовые статьи журнала доступны через БД EBSCO.

GMN: Georgian Medical News – საქართველოს სამედიცინო სიახლენი – არის ყოველთვიური სამეცნიერო სამედიცინო რეცენზირებადი ჟურნალი, გამოიცემა 1994 წლიდან, წარმოადგენს სარედაქციო კოლეგიისა და აშშ-ის მეცნიერების, განათლების, ინდუსტრიის, ხელოვნებისა და ბუნებისმეტყველების საერთაშორისო აკადემიის ერთობლივ გამოცემას. GMN-ში რუსულ და ინგლისურ ენებზე ქვეყნდება ექსპერიმენტული, თეორიული და პრაქტიკული ხასიათის ორიგინალური სამეცნიერო სტატიები მედიცინის, ბიოლოგიისა და ფარმაციის სფეროში, მიმოხილვითი ხასიათის სტატიები.

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WEBSITE

www.geomednews.com

К СВЕДЕНИЮ АВТОРОВ!

При направлении статьи в редакцию необходимо соблюдать следующие правила:

1. Статья должна быть представлена в двух экземплярах, на русском или английском языках, напечатанная через **полтора интервала на одной стороне стандартного листа с шириной левого поля в три сантиметра**. Используемый компьютерный шрифт для текста на русском и английском языках - **Times New Roman (Кириллица)**, для текста на грузинском языке следует использовать **AcadNusx**. Размер шрифта - **12**. К рукописи, напечатанной на компьютере, должен быть приложен CD со статьей.

2. Размер статьи должен быть не менее десяти и не более двадцати страниц машинописи, включая указатель литературы и резюме на английском, русском и грузинском языках.

3. В статье должны быть освещены актуальность данного материала, методы и результаты исследования и их обсуждение.

При представлении в печать научных экспериментальных работ авторы должны указывать вид и количество экспериментальных животных, применявшиеся методы обезболивания и усыпления (в ходе острых опытов).

4. К статье должны быть приложены краткое (на полстраницы) резюме на английском, русском и грузинском языках (включающее следующие разделы: цель исследования, материал и методы, результаты и заключение) и список ключевых слов (key words).

5. Таблицы необходимо представлять в печатной форме. Фотокопии не принимаются. **Все цифровые, итоговые и процентные данные в таблицах должны соответствовать таковым в тексте статьи.** Таблицы и графики должны быть озаглавлены.

6. Фотографии должны быть контрастными, фотокопии с рентгенограмм - в позитивном изображении. Рисунки, чертежи и диаграммы следует озаглавить, пронумеровать и вставить в соответствующее место текста **в tiff формате**.

В подписях к микрофотографиям следует указывать степень увеличения через окуляр или объектив и метод окраски или импрегнации срезов.

7. Фамилии отечественных авторов приводятся в оригинальной транскрипции.

8. При оформлении и направлении статей в журнал МНГ просим авторов соблюдать правила, изложенные в «Единых требованиях к рукописям, представляемым в биомедицинские журналы», принятых Международным комитетом редакторов медицинских журналов - <http://www.spinesurgery.ru/files/publish.pdf> и http://www.nlm.nih.gov/bsd/uniform_requirements.html. В конце каждой оригинальной статьи приводится библиографический список. В список литературы включаются все материалы, на которые имеются ссылки в тексте. Список составляется в алфавитном порядке и нумеруется. Литературный источник приводится на языке оригинала. В списке литературы сначала приводятся работы, написанные знаками грузинского алфавита, затем кириллицей и латиницей. Ссылки на цитируемые работы в тексте статьи даются в квадратных скобках в виде номера, соответствующего номеру данной работы в списке литературы. Большинство цитированных источников должны быть за последние 5-7 лет.

9. Для получения права на публикацию статья должна иметь от руководителя работы или учреждения визу и сопроводительное отношение, написанные или напечатанные на бланке и заверенные подписью и печатью.

10. В конце статьи должны быть подписи всех авторов, полностью приведены их фамилии, имена и отчества, указаны служебный и домашний номера телефонов и адреса или иные координаты. Количество авторов (соавторов) не должно превышать пяти человек.

11. Редакция оставляет за собой право сокращать и исправлять статьи. Корректур авторам не высылаются, вся работа и сверка проводится по авторскому оригиналу.

12. Недопустимо направление в редакцию работ, представленных к печати в иных издательствах или опубликованных в других изданиях.

При нарушении указанных правил статьи не рассматриваются.

REQUIREMENTS

Please note, materials submitted to the Editorial Office Staff are supposed to meet the following requirements:

1. Articles must be provided with a double copy, in English or Russian languages and typed or computer-printed on a single side of standard typing paper, with the left margin of 3 centimeters width, and 1.5 spacing between the lines, typeface - **Times New Roman (Cyrillic)**, print size - 12 (referring to Georgian and Russian materials). With computer-printed texts please enclose a CD carrying the same file titled with Latin symbols.

2. Size of the article, including index and resume in English, Russian and Georgian languages must be at least 10 pages and not exceed the limit of 20 pages of typed or computer-printed text.

3. Submitted material must include a coverage of a topical subject, research methods, results, and review.

Authors of the scientific-research works must indicate the number of experimental biological species drawn in, list the employed methods of anesthetization and soporific means used during acute tests.

4. Articles must have a short (half page) abstract in English, Russian and Georgian (including the following sections: aim of study, material and methods, results and conclusions) and a list of key words.

5. Tables must be presented in an original typed or computer-printed form, instead of a photocopied version. **Numbers, totals, percentile data on the tables must coincide with those in the texts of the articles.** Tables and graphs must be headed.

6. Photographs are required to be contrasted and must be submitted with doubles. Please number each photograph with a pencil on its back, indicate author's name, title of the article (short version), and mark out its top and bottom parts. Drawings must be accurate, drafts and diagrams drawn in Indian ink (or black ink). Photocopies of the X-ray photographs must be presented in a positive image in **tiff format**.

Accurately numbered subtitles for each illustration must be listed on a separate sheet of paper. In the subtitles for the microphotographs please indicate the ocular and objective lens magnification power, method of coloring or impregnation of the microscopic sections (preparations).

7. Please indicate last names, first and middle initials of the native authors, present names and initials of the foreign authors in the transcription of the original language, enclose in parenthesis corresponding number under which the author is listed in the reference materials.

8. Please follow guidance offered to authors by The International Committee of Medical Journal Editors guidance in its Uniform Requirements for Manuscripts Submitted to Biomedical Journals publication available online at: http://www.nlm.nih.gov/bsd/uniform_requirements.html
http://www.icmje.org/urm_full.pdf

In GMN style for each work cited in the text, a bibliographic reference is given, and this is located at the end of the article under the title "References". All references cited in the text must be listed. The list of references should be arranged alphabetically and then numbered. References are numbered in the text [numbers in square brackets] and in the reference list and numbers are repeated throughout the text as needed. The bibliographic description is given in the language of publication (citations in Georgian script are followed by Cyrillic and Latin).

9. To obtain the rights of publication articles must be accompanied by a visa from the project instructor or the establishment, where the work has been performed, and a reference letter, both written or typed on a special signed form, certified by a stamp or a seal.

10. Articles must be signed by all of the authors at the end, and they must be provided with a list of full names, office and home phone numbers and addresses or other non-office locations where the authors could be reached. The number of the authors (co-authors) must not exceed the limit of 5 people.

11. Editorial Staff reserves the rights to cut down in size and correct the articles. Proof-sheets are not sent out to the authors. The entire editorial and collation work is performed according to the author's original text.

12. Sending in the works that have already been assigned to the press by other Editorial Staffs or have been printed by other publishers is not permissible.

**Articles that Fail to Meet the Aforementioned
Requirements are not Assigned to be Reviewed.**

ავტორთა საყურადღებო!

რედაქციაში სტატიის წარმოდგენისას საჭიროა დავიცვათ შემდეგი წესები:

1. სტატია უნდა წარმოადგინოთ 2 ცალად, რუსულ ან ინგლისურ ენებზე, დაბეჭდილი სტანდარტული ფურცლის 1 გვერდზე, 3 სმ სიგანის მარცხენა ველისა და სტრიქონებს შორის 1,5 ინტერვალის დაცვით. გამოყენებული კომპიუტერული შრიფტი რუსულ და ინგლისურენოვან ტექსტებში - **Times New Roman (Кириллица)**, ხოლო ქართულენოვან ტექსტში საჭიროა გამოვიყენოთ **AcadNusx**. შრიფტის ზომა – 12. სტატიას თან უნდა ახლდეს CD სტატიით.

2. სტატიის მოცულობა არ უნდა შეადგენდეს 10 გვერდზე ნაკლებს და 20 გვერდზე მეტს ლიტერატურის სიის და რეზიუმეების (ინგლისურ, რუსულ და ქართულ ენებზე) ჩათვლით.

3. სტატიაში საჭიროა გაშუქდეს: საკითხის აქტუალობა; კვლევის მიზანი; საკვლევი მასალა და გამოყენებული მეთოდები; მიღებული შედეგები და მათი განსჯა. ექსპერიმენტული ხასიათის სტატიების წარმოდგენისას ავტორებმა უნდა მიუთითონ საექსპერიმენტო ცხოველების სახეობა და რაოდენობა; გაუტკივარებისა და დაძინების მეთოდები (მწვავე ცდების პირობებში).

4. სტატიას თან უნდა ახლდეს რეზიუმე ინგლისურ, რუსულ და ქართულ ენებზე არანაკლებ ნახევარი გვერდის მოცულობისა (სათაურის, ავტორების, დაწესებულების მითითებით და უნდა შეიცავდეს შემდეგ განყოფილებებს: მიზანი, მასალა და მეთოდები, შედეგები და დასკვნები; ტექსტუალური ნაწილი არ უნდა იყოს 15 სტრიქონზე ნაკლები) და საკვანძო სიტყვების ჩამონათვალი (key words).

5. ცხრილები საჭიროა წარმოადგინოთ ნაბეჭდი სახით. ყველა ციფრული, შემავსებელი და პროცენტული მონაცემები უნდა შეესაბამებოდეს ტექსტში მოყვანილს.

6. ფოტოსურათები უნდა იყოს კონტრასტული; სურათები, ნახაზები, დიაგრამები - დასათაურებული, დანომრილი და სათანადო ადგილას ჩასმული. რენტგენოგრაფიის ფოტოსურათები წარმოადგინეთ პოზიტიური გამოსახულებით **tiff** ფორმატში. მიკროფოტოსურათების წარწერებში საჭიროა მიუთითოთ ოკულარის ან ობიექტივის საშუალებით გადიდების ხარისხი, ანათალების შედეგების ან იმპრეგნაციის მეთოდი და აღნიშნოთ სურათის ზედა და ქვედა ნაწილები.

7. სამამულო ავტორების გვარები სტატიაში აღინიშნება ინიციალების თანდართვით, უცხოურისა – უცხოური ტრანსკრიპციით.

8. სტატიას თან უნდა ახლდეს ავტორის მიერ გამოყენებული სამამულო და უცხოური შრომების ბიბლიოგრაფიული სია (ბოლო 5-8 წლის სიღრმით). ანბანური წყობით წარმოდგენილ ბიბლიოგრაფიულ სიაში მიუთითეთ ჯერ სამამულო, შემდეგ უცხოელი ავტორები (გვარი, ინიციალები, სტატიის სათაური, ჟურნალის დასახელება, გამოცემის ადგილი, წელი, ჟურნალის №, პირველი და ბოლო გვერდები). მონოგრაფიის შემთხვევაში მიუთითეთ გამოცემის წელი, ადგილი და გვერდების საერთო რაოდენობა. ტექსტში კვადრატულ ფხიხლებში უნდა მიუთითოთ ავტორის შესაბამისი N ლიტერატურის სიის მიხედვით. მიზანშეწონილია, რომ ციტირებული წყაროების უმეტესი ნაწილი იყოს 5-6 წლის სიღრმის.

9. სტატიას თან უნდა ახლდეს: ა) დაწესებულების ან სამეცნიერო ხელმძღვანელის წარდგინება, დამოწმებული ხელმოწერითა და ბეჭდით; ბ) დარგის სპეციალისტის დამოწმებული რეცენზია, რომელშიც მითითებული იქნება საკითხის აქტუალობა, მასალის საკმაობა, მეთოდის სანდოობა, შედეგების სამეცნიერო-პრაქტიკული მნიშვნელობა.

10. სტატიის ბოლოს საჭიროა ყველა ავტორის ხელმოწერა, რომელთა რაოდენობა არ უნდა აღემატებოდეს 5-ს.

11. რედაქცია იტოვებს უფლებას შეასწოროს სტატია. ტექსტზე მუშაობა და შეჯერება ხდება საავტორო ორიგინალის მიხედვით.

12. დაუშვებელია რედაქციაში ისეთი სტატიის წარდგენა, რომელიც დასაბეჭდად წარდგენილი იყო სხვა რედაქციაში ან გამოქვეყნებული იყო სხვა გამოცემებში.

აღნიშნული წესების დარღვევის შემთხვევაში სტატიები არ განიხილება.

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COPING STRATEGIES IN CONDITIONS OF CONTINUOUS TRAUMATIC STRESS: COMPARATIVE ANALYSIS WITHIN THE CONTEXT OF ARMED CONFLICT

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Abstract.

Objective: The study investigates coping mechanisms and the severity of continuous traumatic stress (CTS) factors among individuals with different types of exposure in the context of armed conflict.

Method: The study included 201 participants, divided into two primary groups: Group 1 (direct exposure, n=100), which included Subgroup 1.1 (n=70; continuously residing in the conflict zone) and Subgroup 1.2 (n=30; temporarily left the conflict zone), and Group 2 (indirect exposure, n=101). Data were collected using the Method for the Determination of Individual Coping Strategies (MDICS) by E. Heim and a biographical questionnaire.

Results: Subgroup 1.1 primarily relied on stabilizing and restraint strategies and demonstrated associations with all three CTS factors—fear and helplessness, rage and betrayal, and exhaustion and detachment. Subgroup 1.2 exhibited dominant emotional reactions, including rage and detachment, along with avoidant behavior. Participants in Group 2 more often demonstrated fear and helplessness while maintaining a relatively adaptive coping profile.

Conclusion: The results reveal significant differences in coping responses and CTS factors depending on the type of exposure, confirming the influence of traumatic context on coping mechanisms.

Key words. Continuous traumatic stress, coping mechanisms, armed conflict, indirect exposure.

Introduction.

Continuous traumatic stress:

Traditional approaches to the study of traumatic stress are based on the assumption that the traumatic impact is localized in the past, while its consequences continue to manifest in the present through intrusive memories, avoidant behavior, and other symptoms. However, for millions of people worldwide, traumatization is not confined to the past—it persists, recurs, and becomes part of everyday life.

Researchers describe such conditions using the concept of continuous traumatic stress (CTS). As a scientific construct, CTS was first introduced in the 1980s by Straker and the Sanctuaries Consulting Team [1] in the context of prolonged political violence in South Africa. For a long time, the concept remained largely overlooked, and only recently has it attracted renewed scholarly interest, leading to its further development and reinterpretation.

At present, research on CTS follows two main approaches. On the one hand, scholars view CTS as a specific context and use it to characterize life under realistic, current, and ongoing threat [2]. On the other hand, CTS is defined as a distinct reaction that develops in response to an ongoing threat. For example,

C. Higson-Smith described CTS as emotional and behavioral reactions to real, present threat, which the narrator attributes to living amid ongoing danger [3]. The present study takes the position that these conceptualizations are complementary, in line with Straker's [4] view that CTS can be defined both in terms of context and reaction.

Viewing CTS as external conditions of traumatization, Eagle and Kaminer [2] identified four key characteristics: (1) the context of the stressor conditions, referring to environments such as conflict-affected areas or territories dominated by gangs, where danger does not arise from a specific event or individual but remains faceless, unpredictable, and persistent in daily life; (2) the temporal location of the stressor conditions, in which attention is directed not toward the past, as in acute trauma, but toward the present and future, requiring individuals to cope with ongoing realities while anticipating subsequent threats; (3) the complexity of discriminating between real and perceived or imagined threat, given that the danger remains both immediate and anticipated; and (4) the absence of external protective systems, as social and governmental structures often fail to provide adequate protection and may themselves become sources of threat.

Recent research has expanded the understanding of CTS as a contextual condition to include not only direct exposure to armed conflict but also indirect forms of threat. For example, Harwood-Gross et al. [5] found that participants subjected to extreme media exposure (more than six hours per day) exhibited the highest CTSR scores compared to other groups.

When conceptualizing CTS as a reaction, scholars emphasize the need to move beyond the PTSD framework in order to capture the broader consequences of living under conditions of ongoing threat [6]. Responses to CTS encompass a wide range of emotional, cognitive, and behavioral manifestations, such as a diminished sense of safety [7], distrust [8], perceived lack of control over the future and mental and physical exhaustion [8,9], among others.

Importantly, many scholars reject the idea that these reactions should be viewed as pathological. Unlike the PTSD model, which treats symptoms as signs of disorder, Diamond et al. [10] proposed that such responses can be understood as natural, protective, and adaptive within the given context. Their study demonstrated that upon leaving the traumatic environment or relocating to less dangerous areas, symptoms decreased substantially, underscoring their dependence on context.

Coping mechanisms under CTS:

Coping mechanisms are widely recognized as an important mechanism of human adaptation to stressful environments [11]. Coping is generally understood as deliberate behavioral activity through which individuals seek to maintain internal equilibrium by balancing external demands with available resources. Unlike

defense mechanisms, which are largely unconscious and rigid, coping strategies are flexible, situationally dependent, and enable individuals to actively regulate their responses to adverse experiences [12].

CTS differs fundamentally from various other trauma types, including single-event trauma, cumulative but past trauma, and developmental trauma, among others [2]. Therefore, it can be assumed that coping strategies under CTS will also differ from those observed in these trauma contexts. Kaminer et al. [8] described CTS as an “emergency routine” in which individuals continuously shift between ordinary functioning and survival-oriented modes. Similarly, Lahad and Leykin emphasized that individuals exposed to protracted conflict have no real pauses for recovery and thus remain under the sway of physiological fright/flight reactions, or use avoidance as a means to manage these feelings [13]. Taken together, these findings suggest that coping in conditions of CTS should not be regarded as short-lived reactions; rather, it represents ongoing processes embedded in daily life that regulate behavior, emotions, and interpersonal relationships.

The duration of exposure is also an important factor in the dynamics of coping. Wang et al. [14] proposed that coping strategies evolve during protracted conflict: strategies that may seem adaptive in the acute stage (e.g., avoidance or suppression) can become maladaptive over time, contributing to long-term maladjustment. Hobfoll et al. [15] likewise remarked that sustained threat often results in continued reliance on emotional numbing, detachment, and rigid problem-solving patterns, even after external conditions have partially stabilized. At the same time, Seery et al. [16] noted that prolonged threat may give rise to divergent adaptation pathways—either increased vulnerability and heightened traumatization or habituation processes that foster resilience—which may in turn be associated with the use of different coping strategies. Overall, these findings indicate that coping mechanisms should be examined in close relation to the temporal and situational characteristics of CTS.

Despite the conceptual importance of this issue, empirical evidence on coping under CTS remains scarce. For example, Wang et al. [14] examined the associations between trauma exposure, coping strategies, quality of life, and mental health symptoms in Ukrainian adults one year after the Russian–Ukrainian war began. Their analysis focused on posttraumatic stress disorder (PTSD) and related outcomes, but continuous traumatic stress (CTS) was not explicitly addressed. Samokhvalova et al. [17] explored coping strategies across varying territorial proximity to conflict. Their findings revealed distinct patterns: youth in the “first circle” (within the conflict zone) more frequently reported psychoactive substance use; those in the “second circle” (adjacent to the conflict zone) demonstrated greater reliance on risk acceptance; and participants in the “third circle” (distant territories) were more likely to seek instrumental support. Although the conditions formally correspond to CTS, this concept also was not explicitly considered in the study.

To our knowledge, the only study directly examining both CTS and coping is by Harwood-Gross et al. [5]. Their results demonstrated that trauma-focused coping was ineffective, and in

some cases detrimental, while forward-focused coping emerged as particularly protective. However, their analysis treated the sample as a whole and did not differentiate between types of exposure.

The present study addresses this gap by systematically comparing coping mechanisms and CTS responses among civilians with continuous, episodic, and indirect exposure to armed conflict. In doing so, it extends the CTS framework by (a) examining how specific reactions—ED, RB and FH—are associated with different types of CTS exposure, and (b) linking CTS factors with particular coping mechanisms, thereby clarifying the adaptive processes underlying resilience and vulnerability in prolonged conflict settings. Therefore, the present study aims to compare coping strategies across groups with different types of CTS exposure and to examine their relationships with CTS factors.

Materials and Methods.

Study design: This study employed a quasi-experimental comparative design aimed at examining the characteristics of coping mechanisms among individuals living under continuous traumatic stress (CTS). CTS was conceptualized both as a context (external conditions) encompassing direct, episodic, or indirect exposure to armed conflict, and as a reaction to prolonged threat.

Data were collected using an online platform, and all participants provided informed voluntary consent to take part in the study. The research complied with established ethical standards in psychological studies, including anonymity and the right to withdraw.

Participants: The total sample consisted of 201 participants: 170 women (84.6%) and 31 men (15.4%); ages ranged from 17 to 68 years ($M = 22.89$; $SD = 8.042$).

For analysis, the data were divided into two main groups according to the degree of CTS exposure:

- Direct exposure group (G1) - 100 participants ($M = 23.78$, $SD = 10.299$), including 25 males (25%) and 75 females (75%). This group was further divided into two subgroups:

- Subgroup 1.1 (G1.1): permanently residing in the conflict zone - $n = 70$ ($M = 24.44$, $SD = 10.838$), 17 males (24.3%) and 53 females (75.7%).

- Subgroup 1.2 (G1.2): temporarily left the conflict zone — $n = 30$ ($M = 22.27$, $SD = 8.898$), 8 males (26.7%) and 22 females (73.3%).

- Indirect exposure group (G2) — 101 participants ($M = 22$, $SD = 4.767$), including 6 males (5.9%) and 95 females (94.1%). These participants did not reside in the conflict area but experienced indirect exposure through media saturation, close relationships, and socio-emotional involvement.

Eligibility was determined by the presence of direct, episodic, or indirect exposure to armed conflict. Exclusion criteria included participation in combat, a history of traumatic brain injury, or diagnosed mental disorders.

Instruments.

1. Method for the Determination of Individual Coping Strategies (MDICS) (E. Heim; adapted by the Laboratory of Clinical Psychology, V.M. Bekhterev Psychoneurological

Institute, under the supervision of L.I. Wasserman). This method assesses 26 situation-specific coping mechanisms across three domains: cognitive, emotional, and behavioral. All strategies are categorized into three groups according to their level of adaptiveness: adaptive, relatively adaptive, and maladaptive.

2. Biographical Questionnaire with CTS-Related Items. A questionnaire developed specifically for this study included items assessing:

- the extent and duration of residence in the conflict zone; the presence of periods of displacement. Two questions were asked in this block: (1) *Do you currently live or have you previously lived in a zone of armed conflict?* (response options: yes / no). (2) If the answer was “yes,” a follow-up item specified the pattern of residence: *Since the beginning of the conflict, you have...* with the following response options:
 - continuously resided in the conflict zone;
 - left the conflict zone for less than six months (during a single departure) and subsequently returned;
 - left the conflict zone for more than six months (during a single departure) and subsequently returned;
 - left the conflict zone and have not returned.

Participants who selected the last option were not included in the sample, as they did not meet the criterion of being exposed to continuous stress at the time of the study.

- subjective perception of threat and the severity of three categories of reactions identified in the structure of continuous traumatic stress: emotional exhaustion and detachment, rage and betrayal, fear and helplessness. This block included the following items:

- *Which feelings and emotions prevail in your life at the present moment?* (multiple responses possible). Response options: anxiety, sadness, joy, indifference, rage, interest, calmness, fear, shame, optimism, helplessness, or “other.”

- *Have you experienced moral exhaustion since the beginning of the conflict?* (response options: yes; rather yes; rather no; no).

- *Have you faced a sense of betrayal?* (response options: yes; rather yes; rather no; no).

Because no validated CTS scale was available in the local language at the time of the study, these items were included as a proxy measure. Their selection was guided by the structure of the Continuous Traumatic Stress Response Scale (CTSR), which identifies these three factors as core manifestations of CTS [18]. In our questionnaire, the term indifference was used instead of detachment, as it better reflects the everyday language of respondents in the local cultural context and was therefore more appropriate for capturing subjective experience.

Data were analyzed using IBM SPSS Statistics. Nonparametric tests (Mann–Whitney U and Kruskal–Wallis H) were applied due to non-normal distributions of variables. Pearson’s χ^2 test with Monte Carlo correction and Cramer’s V were used to assess associations between categorical variables. Spearman’s rank-order correlations were calculated to examine relationships between CTS factors and coping strategies. All tests were two-tailed, with a significance threshold of $p < 0.05$.

Ethics Statement. The study was reviewed and approved by the National Center of Bioethics (Armenia) (report № 25/03/03, 20253/03/03).

Results.

Coping Mechanisms Under Continuous Traumatic Stress.

Direct vs. Indirect Exposure (G1 vs. G2):

In G1, the dominant strategies were optimism (52%) and emotional suppression (19%) in the emotional domain; cooperation (19%), distraction (19%), and withdrawal (16%) in the behavioral domain; and problem analysis (28%), meaning attribution (15%), and maintenance of self-control (12%) in the cognitive domain. Across all domains, adaptive strategies predominated (see Table 1).

Table 1. Distribution of Coping Mechanisms by Level of Adaptiveness (G1).

Domain	Adaptive	Relatively adaptive	Maladaptive
Emotional	57%	9%	34%
Behavioral	47%	26%	27%
Cognitive	47%	27%	26%

In G2, optimism (55.4%) was most frequent in the emotional domain; cooperation (29.7%), distraction (15.8%), and withdrawal (13.9%) in the behavioral domain; and problem analysis (22.8%), self-affirmation (17.8%), and dissimulation (15.8%) in the cognitive domain. As in G1, adaptive strategies prevailed across all domains (see Table 2).

Table 2. Distribution of Coping Mechanisms by Level of Adaptiveness (G2).

Domain	Adaptive	Relatively adaptive	Maladaptive
Emotional	61.4%	11.9%	26.7%
Behavioral	59.4%	19.8%	20.8%
Cognitive	49.5%	22.8%	27.7%

Levels of adaptiveness. Differences between G1 and G2 were examined using the Mann–Whitney U test. No statistically significant differences were found.

Individual coping strategies. Group differences in individual coping strategies were assessed using Pearson’s χ^2 test with Monte Carlo correction; Cramer’s V was reported as the effect size. The following significant associations were identified:

- Emotional suppression (maladaptive, emotional domain): Cramer’s $V = 0.146$, $p = 0.042$; more frequent in G1 (19%) than in G2 (8.9%).

- Seeking support (adaptive, behavioral domain): Cramer’s $V = 0.151$, $p = 0.032$; more frequent in G2 (13.9%) than in G1 (5%).

- Self-affirmation (adaptive, cognitive domain): Cramer’s $V = 0.164$, $p = 0.031$; more common in G2 (17.8%) than in G1 (7%).

Continuous vs. Episodic Exposure (G1.1 vs. G1.2):

In G1.1 the most frequent strategies were optimism (55.7%) and emotional suppression (21.4%) in the emotional domain; distraction (21.4%), cooperation (17.1%), and compensation (17.1%) in the behavioral domain; and problem analysis (22.9%), meaning attribution (11.4%), and maintenance of self-control (11.4%) in the cognitive domain.

In G1.2 optimism (43.3%), emotional discharge (13.3%), and emotional suppression (13.3%) dominated in the emotional domain; cooperation (23.3%) and active avoidance (20.0%) in the behavioral domain; and problem analysis (40.0%) and meaning attribution (23.3%) in the cognitive domain.

Adaptive strategies were predominant in both subgroups in the emotional domain (60.0% in G1.1 and 50.0% in G1.2), with relatively adaptive strategies more frequent in G1.2 (16.7% vs. 5.7%). In the behavioral domain, adaptive strategies prevailed in G1.1 (51.4%) but decreased in G1.2 (36.7%), alongside a higher share of maladaptive strategies (36.7% vs. 22.9%). In the cognitive domain, adaptive strategies dominated in G1.2 (60.0% vs. 41.4% in G1.1), with maladaptive strategies less common (13.3% vs. 31.4%).

Levels of adaptiveness (Mann–Whitney U test): A significant difference was found in the cognitive domain ($p = 0.047$).

Individual strategies: Emotional discharge (relatively adaptive, emotional domain) was more frequent in G1.2 (13.3%) than in G1.1 (1.4%); this difference was significant (Cramer's $V = 0.250$, $p = 0.026$).

Additional Analyses.

A comparison of overall coping adaptiveness across G1.1, G1.2, and G2 (Kruskal–Wallis test) did not reveal significant differences. Pairwise analyses, however, showed:

- G1.2 vs. G2: A significant difference in the behavioral domain by Mann–Whitney U test ($p = 0.025$); active avoidance (maladaptive, behavioral domain) was more frequent in G1.2 (20.0%) than in G2 (6.9%) (Cramer's $V = 0.184$, $p = 0.044$).
- G1.1 vs. G2: Emotional suppression (maladaptive, emotional domain) was more frequent in G1.1 (21.4%) than in G2 (8.9%) (Cramer's $V = 0.177$, $p = 0.023$).

Reactions to Continuous Traumatic Stress.

Direct vs. Indirect Exposure:

In G1 the most pronounced factor was Exhaustion and Detachment (ED): fully expressed in 17%, partially expressed in 50%, and absent in 33%. Rage and Betrayal (RB) was fully expressed in 11%, partially in 56%, and absent in 33%. Fear and Helplessness (FH) was absent in 68%, partially expressed in 24%, and fully expressed in 8%.

In G2 ED was fully expressed in 9.9%, partially in 44.6%, and absent in 45.5%. RB was fully expressed in 6.9%, partially in 51.5%, and absent in 41.6%. FH was absent in 67.3%, partially expressed in 28.7%, and fully expressed in 4.0%.

Mann–Whitney U test: A significant difference was identified for ED ($p = 0.042$), with G1 participants showing more signs of emotional exhaustion and detachment.

Within-group Comparisons and Across Groups:

Within G1, a trend was observed for RB: partial manifestation was more common in G1.1 (62.9%) than in G1.2 (40.0%), whereas absence was higher in G1.2 (46.7%) than in G1.1 (27.1%). A similar tendency appeared when comparing G1.1 with G2 (partial RB = 62.9% vs. 51.5%; absence = 27.1% vs. 41.6%). Presence of ED was highest in G1.2 (23.0%), compared to 14.3% in G1.1 and 9.9% in G2. Conversely, complete absence of ED was most common in G2 (45.5%), compared to G1.1 (32.9%) and G1.2 (33.3%).

Correlational Analysis of Coping Mechanisms and CTS.

CTS as Context:

Significant associations were found between exposure type and individual strategies (Spearman's ρ ; see Table 3).

Table 3. Association Between CTS Exposure Type and Coping Mechanisms.

Compared variables	ρ	p
Direct vs. indirect – Emotional suppression	0.146	< 0.05
Direct vs. indirect – Seeking support	– 0.151	< 0.05
Direct vs. indirect – Self-affirmation	– 0.164	< 0.05
Continuous vs. episodic – Emotional discharge	– 0.250	< 0.01

Note. ρ = Spearman's rank correlation coefficient, used here as a nonparametric measure of association between binary variables. This coefficient is mathematically equivalent to the phi coefficient in the case of binary $\times$ binary associations, but was applied here for the sake of consistency across all analyses. Given the limited number of significant associations, correlations at both $p < 0.01$ and $p < 0.05$ are reported to provide a fuller picture.

CTS as Reaction:

Significant associations emerged between CTS factors and both overall levels of coping adaptiveness (see Table 4) and specific coping mechanisms measured by Heim's inventory (see Table 5).

Table 4. Association Between CTS Factors and Levels of Coping Adaptiveness.

Sample	Significant correlation	ρ	p
All participants	Emotional level $\times$ RB	0.186	< 0.01
	Emotional level $\times$ FH	0.238	< 0.01
G1	Emotional level $\times$ FH	0.279	< 0.01
G1.1	Emotional level $\times$ FH	0.252	< 0.05
G1.2	Emotional level $\times$ RB	0.671	< 0.01
G2	—	—	—

Note. ρ = Spearman's rank correlation coefficient. Given the limited number of significant associations, correlations at both $p < 0.01$ and $p < 0.05$ are reported to provide a fuller picture.

Table 5. Association Between CTS Factors and Specific Coping Mechanisms.

Sample	Significant correlation	ρ	p
G1	Optimism – FH	–0.301	< 0.01
	Confusion – FH	0.263	< 0.01
G1.1	Optimism – FH	–0.318	< 0.01
	Passive cooperation – RB	–0.312	< 0.01
	Ignoring – ED	–0.311	< 0.01
G1.2	Optimism – RB	–0.707	< 0.01
G2	Emotional suppression – FH	0.255	< 0.01

Note. ρ = Spearman's rank correlation coefficient. Because a larger number of correlations emerged in this analysis, only the most robust associations ($p < 0.01$) are reported here to facilitate interpretation. Additional correlations at the $p < 0.05$ level were identified but are omitted for brevity and are available upon request.

Discussion.

Coping Mechanisms under Continuous Traumatic Stress.

Living under continuous traumatic stress, where habitual

coping methods often lose effectiveness, requires individuals to develop new strategies of adjustment. Such environments impose heightened demands on personal resources, simultaneously fostering resilience and risking psychological exhaustion. Against this background, the absence of statistically significant differences in overall levels of adaptiveness between participants with direct exposure and indirect exposure suggests comparable mobilization of coping efforts across both groups.

One of the possible explanations is habituation: prolonged exposure to stress can diminish sensitivity to traumatic stimuli and foster resilience [16]. A second explanation may involve the impact of indirect exposure, which participants in G2 encounter. Although they are not under immediate threat, they may still experience substantial anxiety and uncertainty through information overload, concern for relatives, and a strained social atmosphere. Previous studies have shown that indirect exposure—whether via media or second-hand accounts—can also lead to posttraumatic symptoms and persistent emotional destabilization [19], which places a substantial adaptive burden on this group as well.

Frequency analysis of individual strategies revealed a high level of adaptive coping across both groups in all domains, yet through different mechanisms. The prevalence of adaptive strategies aligns with findings by Middendorf [20], who, based on diary records from the Second World War, described how individuals often resorted to denial, humor, hope, and a positive outlook as ways to preserve strength and maintain psychological functioning under constant threat to life.

Divergences in specific coping mechanisms suggest the presence of distinct adaptive patterns among participants exposed to different forms of CTS. For example, the higher frequency of emotional suppression observed in G1 may reflect a unique strategy of psychological self-regulation in the context of protracted conflict. As C. Roach [21] noted, emotions in such circumstances tend to become “muted” or “shallow,” which may indicate both an economization of resources and an internal repression of experiences. At the same time, Aulén et al. [22] emphasized that emotion-focused coping is particularly significant under conditions perceived as uncontrollable, as it facilitates the reduction of the subjective severity of stress. In this context, suppression of emotions can be considered a functional form of adaptation, enabling resilience under chronic threat.

On the other hand, participants in G2 demonstrated more frequent use of socially oriented and self-affirming strategies. This pattern may indicate greater flexibility of coping behavior and wider access to restorative resources, including social support. Such differences are partly consistent with the findings of Samokhvalova et al. [17], who showed that residents of territories more distant from the conflict zone (the so-called “third circle”) were more likely to seek instrumental support.

Of further interest are the data obtained in the same study for participants from the “first circle,” directly exposed to the conflict. In this group, avoidance strategies such as denial and substance use were predominant, which partially aligns with our findings for G1, where relatively high levels of distraction (19%) and withdrawal (16%) were observed. However, unlike

the reported study, in our sample similar strategies were also present in G2 at comparable levels, and no statistically significant differences between groups were identified for these mechanisms. This discrepancy is likely attributable to differences in sample composition.

It should be noted that the overall sample was skewed towards women, a tendency that was particularly pronounced in G2 (94.1% females). This imbalance may have influenced the observed coping patterns, especially the prevalence of socially oriented strategies. Prior research consistently demonstrates that gender differences in coping are salient and should be considered in interpretation. For example, Matud [23] found that women scored significantly higher than men on emotional and avoidance coping styles and lower on rational and detachment styles; and also women were more likely to perceive stressful situations as unchangeable and to turn to others for support. Moreover, studies of continuous traumatic stress indicate that women are also more prone to posttraumatic stress symptoms compared to men [24]. Taken together, these findings suggest that the greater use of “seeking support” observed in G2, as well as other differences in coping, may reflect not only contextual exposure but also the gender composition of the sample, a factor that needs to be taken into account in the interpretation of the present results.

The comparison between continuous and episodic exposure to CTS revealed distinct differences in coping patterns. Participants in G1.1 demonstrated higher levels of adaptive coping strategies in emotional and behavioral domains, which is consistent with the earlier explanation of habituation under conditions of persistent threat. In contrast, lower levels of adaptive strategies in these domains among G1.2 participants may reflect the effect of repeated traumatization associated with alternating periods of safety and subsequent return to the conflict zone. Such repeated re-engagement with traumatic contexts may reduce resilience and hinder the formation of a stable coping stance. This explanation is indirectly supported by findings from a Ukrainian sample [14], where mental health outcomes were assessed one year after the onset of the 2022 conflict. Participants who had previously been affected by the 2014 hostilities showed substantially higher prevalence rates of depression (56.0%), anxiety (30.9%), and loneliness (49.4%) compared to those without prior exposure (39.7%, 20.1%, and 34.4%, respectively).

Differences were particularly pronounced in the cognitive domain. G1.1 participants displayed higher levels of maladaptive cognitive strategies, which may be linked to the difficulty of making sense of experiences in the context of constant threat [13]. Moreover, research has shown that processing traumatic experience requires both temporal distance and a sense of relative safety. Under continuous traumatic stress, such processing may not only prove ineffective but may also become potentially destructive [5]. By contrast, participants in G1.2 demonstrated significantly higher use of adaptive cognitive strategies, such as problem analysis and meaning attribution. This may indicate that temporary distance from direct threat allowed participants to reflect on and integrate their traumatic experiences. Emotional discharge, reported far more frequently in G1.2 (13.3%) than in G1.1 (1.4%), further supports this interpretation.

Additional comparisons across all groups confirmed the earlier results without revealing new patterns. Overall, the results indicate that adaptive coping strategies predominated across groups, though their specific forms differed depending on the type of CTS exposure.

Reactions to Continuous Traumatic Stress.

The results indicate that the overall expression of CTS factors was largely comparable between participants with direct and indirect exposure, though slightly more pronounced in G1. Within this context, statistically significant differences emerged for exhaustion and detachment, which may be regarded as a marker of cumulative impact. As Kaminer et al. [8] noted, when the threat is ongoing, the capacity to process past traumatic experiences is often postponed for months or even years. Under such conditions, symptoms associated with prior stress accumulate alongside the current fear of re-traumatization, intensifying overall strain and producing an effect of cumulative exhaustion.

The absence of significant differences for the factors of rage and betrayal and fear and helplessness suggests that these reactions are equally characteristic of both directly and indirectly exposed participants. In particular, rage and betrayal—conceptualized as manifestations of moral injury [18]—may arise as a consequence of shattered world assumptions, such as beliefs in justice and benevolence [25]. Such distortions of worldviews depend more on the subjective significance of trauma than on the type of exposure. Regarding the component of fear and helplessness, approximately two-thirds of participants, regardless of group, reported partial or complete absence of these states. For G2, this may be related to greater distance from immediate threat and preservation of a sense of control over the situation. For G1, the same pattern is consistent with CTS dynamics under protracted threat: rather than acute surges of panic, prolonged exposure tends to yield a sustained state of chronic vigilance and functional avoidance [2,13], commonly interpreted as adaptive rather than pathological [6,10].

Additional comparisons across all groups, although not yielding statistically significant differences, help to refine the understanding of reactions to CTS under varying conditions. The higher levels of emotional exhaustion and detachment observed in G1.2 complement the earlier distinctions identified between G1 and G2. Within the broader context of direct exposure, variability can be seen: returning after a period of relative safety may be accompanied by heightened exhaustion, consistent with the previously described effect of repeated traumatization.

Differences in rage and betrayal across G1.1, G1.2, and G2 suggest that it is the continuous nature of exposure—without opportunities for recovery—that contributes to the emergence of such reactions, rather than the mere fact of being in danger or the subjective significance of stress.

Taken together, these findings indicate that different reactions may predominate under different CTS conditions: continuous exposure is more likely to evoke rage and betrayal; episodic exposure is associated with pronounced exhaustion and detachment; and indirect exposure is characterized by lower overall levels across all factors.

Associations Between Coping and Continuous Traumatic Stress.

Correlation analyses were conducted between levels of adaptiveness and individual coping mechanisms, on the one hand, and CTS factors, both as contextual conditions (types of exposure) and as specific reactions, on the other.

With respect to CTS as context, no associations emerged between exposure type and overall levels of adaptiveness. By contrast, specific coping mechanisms varied with exposure: direct (vs. indirect) exposure was associated with greater use of emotional suppression, whereas indirect exposure was associated with more help-seeking and greater self-affirmation. In addition, continuous (vs. episodic) exposure was associated with lower use of emotional discharge. Taken together, these patterns confirm the earlier conclusions: direct and continuous exposure tends to reinforce emotional suppression as a regulatory strategy, whereas episodic exposure allows for emotional discharge, and indirect exposure is more closely associated with help-seeking and reliance on personal values.

Significant correlations between levels of coping adaptiveness and CTS factors were identified only in the emotional domain and only among participants with direct exposure, underscoring the particular sensitivity of emotional coping to CTS reactions. Positive associations between RB and FH factors and emotional coping suggest that stronger experiences of rage, betrayal, fear, and helplessness increase the likelihood of resorting to less adaptive emotional strategies.

In G1 and G1.1, significant positive correlations were found between FH and emotional coping, which complements the comparative analyses, where no such associations had previously emerged. At the same time, FH correlated negatively with optimism (in both subgroups) and positively with confusion (in G1), indicating that heightened fear and helplessness reduce the capacity to maintain internal resources. In G1.1, ED correlated negatively with ignoring, suggesting that cumulative exhaustion may weaken the ability to distance oneself from traumatic impact.

In G1.2, a strong positive correlation was observed between emotional coping and RB. This finding contrasts with the comparative results, where RB was more pronounced in G1.1. However, additional correlations show that in G1.1 RB was negatively related to passive cooperation, whereas in G1.2 it was negatively related to optimism. This pattern may imply that in continuous exposure (G1.1) rage and betrayal tend to be restrained and unprocessed, while in episodic exposure (G1.2) they activate stronger emotional reactions as optimism resources decline. Thus, under episodic exposure RB may take the form of overt emotional strain, whereas under continuous exposure it remains more latent, not fully integrated into active behavior.

In G2, a single correlation emerged between emotional suppression and FH, suggesting a maladaptive manifestation of helplessness under indirect exposure.

Taken together, all identified associations between CTS factors and coping levels were confined to the emotional domain, though their distribution varied across groups. Participants in G1 demonstrated correlations with all three CTS reaction factors,

G1.2 with RB, and G2 with FH. These findings diverge from the comparative analysis of symptom expression, indicating that the impact of CTS factors on emotional responding does not always correspond directly to their severity but rather depends on the form of exposure, the specificity of adaptation, and the availability of coping resources.

Practical Implications.

The findings of this study have practical value for the development of psychosocial interventions in contexts of prolonged armed conflict. The predominance of adaptive coping strategies across groups suggests that resilience processes can be mobilized and supported through targeted programs.

For populations with direct exposure, interventions should prioritize the expansion of safe opportunities for emotional expression and the reduction of reliance on suppression, which emerged as a frequent strategy under conditions of continuous threat. For participants with episodic exposure, programs should address the risk of repeated retraumatization by facilitating psychological recovery during intervals of safety and by preventing the accumulation of exhaustion. For indirectly exposed groups, strengthening access to social support networks and reinforcing self-affirmation strategies—both of which were more characteristic of this group—may serve as protective factors.

Finally, the identification of exhaustion and detachment (ED) as a key marker of cumulative stress highlights the importance of preventive measures aimed at alleviating fatigue and promoting long-term psychological recovery in communities chronically affected by conflict.

Limitations and Future Directions.

Several limitations should be noted. First, the cross-sectional design restricts conclusions about causal relationships between CTS exposure and coping outcomes. Longitudinal research would allow tracking of adaptation trajectories over time. Second, the study relied on self-report measures, which may be subject to biases of social desirability or limited introspective accuracy. Future work should integrate multiple assessment methods, including behavioral indicators and qualitative interviews. Third, the sample was relatively young and predominantly female, which may limit generalizability. Expanding research to more diverse demographic groups and across different cultural contexts is essential. Finally, although this study focused on coping and adaptation, further integration with biological and social factors would provide a more comprehensive picture of resilience under CTS conditions.

Conclusion.

The present findings indicate that continuous traumatic stress (CTS) is associated with variability in coping strategies in terms of both adaptiveness and the predominance of specific coping mechanisms. The observed differences depend on the type of exposure and on the psychological reactions elicited by such conditions.

Among participants with direct exposure (G1), coping was characterized by emotional restraint, particularly through emotional suppression, which may serve a protective and self-regulatory function in the context of chronic threat. This group

also demonstrated signs of moral and emotional exhaustion, with fear and helplessness (FH) emerging as a key factor linked to their coping responses.

Participants indirectly exposed to CTS (G2) displayed a comparatively favorable coping profile, relying more often on socially oriented strategies. However, the similar prevalence of adaptive mechanisms and the absence of significant differences from G1 suggest that traumatic impact appears to persist, though in a less acute form. Associations with FH were also observed in this group, highlighting its important role across different exposure types.

Within the direct exposure group, distinct trajectories emerged. Continuous exposure (G1.1) was marked by stabilization and restraint strategies, reflected in more stable emotional and behavioral indicators, yet accompanied by signs of cognitive maladaptation. This subgroup showed associations with all three CTS factors, underscoring the cumulative effect of unremitting threat. Episodic exposure (G1.2), by contrast, was associated with signs of re-traumatization: higher levels of exhaustion and detachment (ED), instability of behavioral strategies—particularly avoidance—and pronounced moral reactions expressed as rage and betrayal (RB). These reactions correlated positively with emotional coping and negatively with optimism, reflecting resource depletion under repeated re-engagement with trauma.

Beyond documenting these patterns, the study contributes to the development of CTS theory by demonstrating that different types of exposure—continuous, episodic, and indirect—are associated with distinct CTS reactions. This differentiation clarifies the structure of CTS and underscores that its full constellation emerges primarily under continuous threat. At the same time, the findings have practical importance: identifying which coping mechanisms are mobilized and which reactions are most pronounced under different conditions of exposure provides a basis for refining psychological support programs and delivering more targeted assistance to affected populations.

REFERENCES

1. Straker G, Sanctuaries Counselling Team. The continuous traumatic stress syndrome: The single therapeutic interview. *Psychol Soc.* 1987;8:48-78.
2. Eagle G, Kaminer D. Continuous traumatic stress: Expanding the lexicon of traumatic stress. *Peace Confl.* 2013;19:85-99.
3. Higson-Smith C. Counseling torture survivors in contexts of ongoing threat: Narratives from sub-Saharan Africa. *Peace Confl.* 2013;19:164-179.
4. Straker G. Continuous traumatic stress: Personal reflections 25 years on. *Peace Confl.* 2013;19:209-217.
5. Harwood-Gross A, Stern N, Lambez B, et al. A nation at (ongoing) war: The effect of societal and forward-focused coping on symptoms of continuous traumatic stress. *Psychol Trauma.* 2025.
6. Nuttman-Shwartz O, Shoval-Zuckerman Y. Continuous traumatic situations in the face of ongoing political violence: The relationship between CTS and PTSD. *Trauma Violence Abuse.* 2016;17:562-570.
7. Bleich A. Exposure to terrorism, stress-related mental health symptoms, and coping behaviors among a nationally

representative sample in Israel. *JAMA*. 2003;290:612-620.

8. Kaminer D, Eagle G, Crawford-Browne S. Continuous traumatic stress as a mental and physical health challenge: Case studies from South Africa. *J Health Psychol*. 2016;23:1038-1049.

9. Clauw DJ, Engel CC, Aronowitz R, et al. Unexplained symptoms after terrorism and war: An expert consensus statement. *J Occup Environ Med*. 2003;45:1040-1048.

10. Diamond GM, Lipsitz JD, Hoffman Y. Nonpathological response to ongoing traumatic stress. *Peace Confl*. 2013;19:100-111.

11. Folkman S, Moskowitz JT. Coping: Pitfalls and promise. *Annu Rev Psychol*. 2004;55:745-774.

12. Kramer U. Coping and defence mechanisms: What's the difference? *Psychol Psychother*. 2010;83:207-221.

13. Lahad M, Leykin D. Ongoing exposure versus intense periodic exposure to military conflict and terror attacks in Israel. *J Trauma Stress*. 2010;23:691-698.

14. Wang S, Barrett E, Hicks MHR, et al. Associations between mental health symptoms, trauma, quality of life and coping in adults living in Ukraine: A cross-sectional study a year after the 2022 Russian invasion. *Psychiatry Res*. 2024;339:116056.

15. Hobfoll SE, Watson P, Bell CC. Five essential elements of immediate and mid-term trauma intervention: Empirical evidence. *Psychiatry*. 2007;70:283-315.

16. Seery MD, Holman EA, Silver RC. Whatever does not kill us: Cumulative lifetime adversity, vulnerability, and resilience. *J Pers Soc Psychol*. 2010;99:1025-1041.

17. Samokhvalova AG, Tikhomirova EV, Ekimchik OA, et al. Coping strategies and resilience of Russian youth in the sociocultural context of "new wars." *Russ Psychol J*. 2025;22:195-222.

18. Goral A, Feder-Bubis P, Lahad M, et al. Development and validation of the Continuous Traumatic Stress Response scale (CTSR) among adults exposed to ongoing security threats. *PLoS One*. 2021;16:e0251724.

19. Lerman SF, Rudich Z, Shahar G. Does war hurt? Effects of media exposure after missile attacks on chronic pain. *J Clin Psychol Med Settings*. 2013;20:56-63.

20. Middendorf G. Civilian coping strategies in war: A qualitative content analysis of a diary from the siege of Breslau in 1945. *Pax et Bellum J*. 2024;11.

21. Roach C. Shallow affect, no remorse: The shadow of trauma in the inner city. *Peace Confl*. 2013;19:150-163.

22. Aulén AM, Pakarinen E, Feldt T, et al. Teacher coping profiles in relation to teacher well-being: A mixed method

approach. *Teach Teach Educ*. 2021;102:103323.

23. Matud MP. Gender differences in stress and coping styles. *Pers Individ Dif*. 2004;37:1401-1415.

24. Stein J, Levin Y, Gelkopf M, et al. Traumatization or habituation? A four-wave investigation of exposure to continuous traumatic stress in Israel. *Int J Stress Manag*. 2017;25:114-125.

25. Janoff-Bulman R. Shattered assumptions: Towards a new psychology of trauma. New York: Oxford University Press; 1992.

Копинг-стратегии в условиях непрерывного травматического стресса: сравнительный анализ в контексте вооружённого конфликта

Аннотация.

Цель исследования: Оценить особенности копинг-механизмов и выраженность факторов непрерывного травматического стресса (CTS) у участников с различными формами воздействия в условиях вооружённого конфликта.

Методы: В исследовании приняли участие 201 человек. Выделены две основные группы: Группа 1 - с непосредственным воздействием (n=100), включающая подгруппы Г1.1 (не покидали зону конфликта, n=70) и Г1.2 (покидали эпизодически, n=30); Группа 2 — с косвенным воздействием (n=101). Применялись методика диагностики копинг-механизмов Э. Хейма и биографический опросник с включением вопросов о CTS.

Результаты: Участники Г1.1 в основном опирались на стабилизационные и сдерживающие стратегии и продемонстрировали связи со всеми тремя факторами CTS - страхом и беспомощностью, гневом и предательством, а также истощением и отчуждением. Г1.2 показала доминирующие эмоциональные реакции, включая гнев и отчужденность, а также избегающее поведение. Участники Г2 чаще демонстрировали страх и беспомощность, сохраняя относительно адаптивный профиль.

Выводы: Полученные данные указывают на значимые различия в копинг-реакциях и факторах CTS в зависимости от формы воздействия, подтверждая влияние типа травматического контекста на характер совладающих механизмов.

Ключевые слова: непрерывный травматический стресс, копинг-механизмы, вооружённый конфликт, косвенное воздействие.