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ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ

Медицинские новости Грузии
საქართველოს სამედიცინო სიახლე

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.

GMN is indexed in MEDLINE, SCOPUS, PubMed and VINITI Russian Academy of Sciences. The full text content is available through EBSCO databases.

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.

ჟურნალი ინდექსირებულია MEDLINE-ის საერთაშორისო სისტემაში, ასახულია SCOPUS-ის, PubMed-ის და ВИНТИ РАН-ის მონაცემთა ბაზებში. სტატიების სრული ტექსტი ხელმისაწვდომია EBSCO-ს მონაცემთა ბაზებშიდან.

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 საქურაღებოლ!

რედაქციაში სტატიის წარმოდგენისას საჭიროა დაიცვათ 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, შემაჯამებელი და პროცენტული მონაცემები უნდა შეესაბამებოდეს ტექსტში მოყვანილს.

6. ფოტოსურათები უნდა იყოს კონტრასტული; სურათები, ნახაზები, დიაგრამები - დასათაურებული, დანომრილი და სათანადო ადგილას ჩასმული. რენტგენოგრამების ფოტოასლები წარმოადგინეთ პოზიტიური გამოსახულებით **tiff** ფორმატში. მიკროფოტოსურათების წარწერებში საჭიროა მიუთითოთ ოკულარის ან ობიექტივის საშუალებით გადიდების ხარისხი, ანათალების შედეგის 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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CORRELATION OF EMOTIONAL EMPATHY WITH MENTAL HEALTH INDICATORS IN ADULTS TO DETECT PSYCHOLOGICAL WELL-BEING MARKERS

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Abstract.

Emotional empathy is an important mechanism of social interaction, which plays a major role in the development of psychological resilience in adults. The aim of the study is to determine the relationship between emotional empathy and mental health indicators in adults to identify psychological distress markers. The study involved 164 adults, who were divided into three groups: volunteers (n=48), social workers (n=64), and a control group (CG) — adults with a low level of emotional stress in professional activities (n=52). The respondents were assessed using the Empathic Concern and Personal Distress (IRI) subscales, the HADS-A and HADS-D scales, the Stress subscale of the DASS-21 and WHO-5 screening tools. Descriptive statistics, analysis of variance (ANOVA), correlation, and multiple regression analysis were used. The study established relationships between components of emotional empathy and mental health indicators in adults with different levels of emotional involvement in socially oriented activities. Social workers had the highest levels of anxiety, depression, and stress, while the CG demonstrated the highest level of well-being. Personal distress was a stable predictor of anxiety ($\beta=0.52$, $p<0.001$) and a decrease in well-being ($\beta=-0.46$, $p<0.001$). Empathic concern positively correlated with psychological well-being. Volunteers occupied an intermediate position between social workers and specialists with a low level of emotional load. Components of emotional empathy have a differentiated impact on the mental health of adults. Personal distress is a potential marker of psychological distress and requires correction by support programmes. Further research may focus on the development and testing of psychological screening models and preventive programmes aimed at reducing the level of personal distress and supporting empathic concern in volunteers and social workers.

Key words. Emotional empathy, personal distress, psychological well-being, anxiety, depression, stress, volunteers, social workers.

Introduction.

Emotional empathy is considered one of the main mechanisms of social interaction and psychological regulation in adulthood. Current research emphasizes that empathy has a heterogeneous structure and includes both resource components associated with prosocial motivation and support of others, as well as emotionally vulnerable elements that can contribute to the

development of psychological exhaustion and stress reactions [1,2]. In particular, personal distress, which reflects a reactive emotional response to the suffering of others, is considered one of the potential indicators of increased psychological vulnerability. The studies [3,4] show that this component of empathy is associated with increased anxiety, depressive manifestations and signs of emotional burnout, especially in adults of socioeconomic professions.

Professional activities that involve regular interaction with people in difficult life circumstances create a specific emotional context that affects the mental state of adults. According to earlier studies [5,6], social workers often experience increased levels of emotional exhaustion, secondary traumatization, and reduced psychological well-being. Such results are explained by the high intensity of interpersonal interactions and constant contact with human suffering. This strengthens the role of empathic processes in the formation of psychological resilience or, conversely, increased vulnerability.

Volunteering, although usually voluntary and can have positive effects on subjective well-being, is also associated with increased emotional distress. A meta-analysis by Nichol et al. [7] and studies by Weziak-Bialowolska et al. [8], Filges et al. [9] show that volunteers can derive moral comfort from prosocial behaviour. At the same time, they face risks associated with emotional fatigue, especially when the activity is long or intense. Similar results are reported in the works of Metzger et al. [10] and Duncan et al. [11]. They found that volunteering sometimes reduces symptoms of burnout, but can increase stress experiences under high workload or insufficient support.

At the same time, individual components of empathy can play a protective role. According to Nakamura et al. [12], Mosychuk et al. [13], empathic concern and prosocial motives can increase the level of subjective well-being, contribute to the development of a sense of significance, and improve psychological adaptation. This is consistent with the results of the study by Chen et al. [14], Dias et al. [15], which demonstrated that prosocial forms of empathy are associated with lower levels of depression, while reactive components contribute to greater vulnerability to emotional disorders. Such ambiguity indicates the need for a differentiated approach to the analysis of emotional empathy and its impact on mental health.

Despite the growing number of studies in this area, there are still a number of poorly studied issues. Most studies focus either on volunteers or on social workers, without directly comparing these groups using the same psychometric methods.

Furthermore, many studies focus on burnout, stress, or emotional fatigue, while emotional empathy is considered fragmentarily, without analysing its individual components. The role of empathic components as potential markers of psychological distress has been poorly studied, thereby limiting the possibility of their practical use for early detection of risk conditions in representatives of social professions.

The issue of how individual components of emotional empathy are related to various indicators of mental health in adults and whether they can act as indicators of psychological distress remains relevant. Addressing this gap has both theoretical and practical significance, as it can contribute to the development of more accurate models of assessing psychological risks in professions with increased emotional stress.

Research hypotheses:

(H1): The level of personal distress as an emotional component of empathy positively correlates with higher indicators of anxiety, depression, and stress regardless of professional affiliation.

(H2): Empathic concern is associated with better psychological well-being and functions as a resource factor.

(H3): Personal distress may be the strongest predictor of psychological distress compared to other components of emotional empathy.

(H4): The nature of social involvement (volunteering, social work, professional activity with a low level of emotional load) moderates the relationship between emotional empathy and mental health indicators.

The novelty of the study is the academic substantiation of the role of individual components of emotional empathy, in particular personal distress and empathic concern, as differentiated risk factors and resources for mental health depending on the nature of social involvement. This is the first-ever study in the Ukrainian socio-cultural context of the influence of the type of socially oriented activity on the relationship between emotional empathy and psychological distress under increased social tension and humanitarian challenges.

The aim of the study was to determine the relationships between emotional empathy and mental health indicators in adults to identify markers of psychological distress. The aim of the study was to identify empathic markers of psychological distress and determining their specifics for volunteers, social workers, and representatives of professions with a low level of emotional stress. The aim involved the fulfilment of the following research objectives:

- analyse the levels of emotional empathy, anxiety, depression, stress and psychological well-being in volunteers, social workers, and CG individuals;
- identify intergroup differences in the main indicators of mental health and emotional empathy components;
- investigate the correlations between emotional empathy and mental health indicators in the three groups;
- establish which components of emotional empathy are significant predictors of psychological distress in adults;
- identify specific empathic markers of increased psychological risk for different types of social involvement.

Materials and Methods.

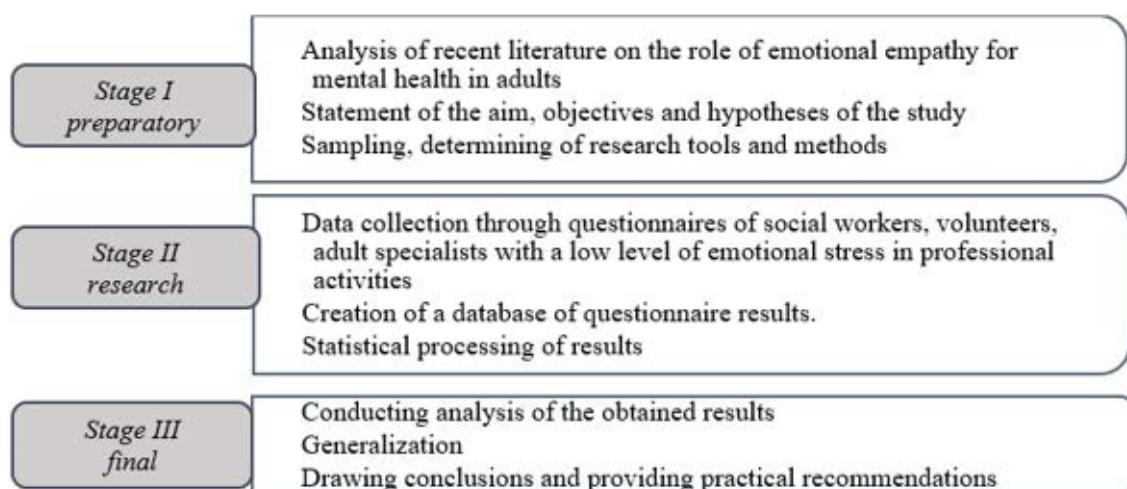
Research design:

The study was conducted in the format of cross-sectional quantitative analysis. This made it possible to simultaneously assess the levels of emotional empathy, mental health indicators, and the features of their relationships in different groups of adults. This approach provides the opportunity to identify intergroup differences and establish potential psychological markers of distress. This empirical study was conducted from August 2025 to October 2025. The study was carried out sequentially in three stages (Figure 1).

Sampling:

The study involved 164 respondents aged 18 to 60. Three groups were formed according to the set objectives:

- Group 1 — volunteers who carry out humanitarian, social or crisis activities and have regular experience of interacting with people (n = 48);



*Figure 1. Research design.
Source: developed by the authors.*

- Group 2 - social workers working in state or non-state social services (n = 64);
- Group 3 — a comparison group, represented by adult specialists with a low level of emotional stress in professional activities (accountants and administrators), who are not involved in volunteering and do not belong to socio-economic professions (n = 52).

The study included respondents who are involved in volunteering. Volunteering was defined as voluntary performance of work or socially useful activities without payment, aimed at helping individuals or communities outside one's own family or household. Involvement in volunteering can be a part of public organizations, charitable foundations, initiative groups or as an individual activity. Volunteering involves interpersonal interaction; the study included only those forms of volunteering that involved direct or indirect contact with recipients of assistance or other participants in the activity.

Respondents who are engaged in professional activities in the field of social work were also included. Social work was defined as professional activities to provide support, advisory or accompanying assistance to individuals, families or groups in difficult life circumstances. Employees of state, municipal and non-state social services, charitable foundations, social service centres, crisis centres or other organizations performing social functions could participate. All participants had to have direct or indirect contact with recipients of social services, as this format of activity is associated with increased emotional stress and is relevant for the study. The CG included respondents whose professional activities are characterized by a low level of emotional stress and do not involve systematic interaction with people in crisis or psycho-emotionally difficult situations. Such activities include accounting and administrative work. An important criterion was the regular performance of standard office functions in a stable work environment, which enables considering their psychological state relatively neutral in terms of the impact of emotional labour. It was also assumed that respondents had no experience of regular volunteering or participation in social work, as such forms of employment can affect the level of emotional empathy and psychological indicators.

Exclusion criteria were incomplete or illogical responses and lack of consent to participate in the study. The respondents for whom volunteering was only a secondary part of a broader professional activity or was part of complex interventions were not included. Social workers who were on leave for a long time or temporarily did not carry out practical work with clients were also excluded. Besides, this cohort did not include respondents who perform administrative or managerial functions without regular interaction with clients, as their activities do not involve systematic emotional contact.

Socio-demographic characteristics of the sample were formed using the author's questionnaire, which included questions about age, gender, education, duration of professional or volunteer activity, employment, and place of residence (Table 1).

The CG is characterized by stable full employment and lack of participation in social activities (Figure 2). The majority of respondents in all groups had full employment.

The work was carried out in accordance with the Ethical Principles for Medical Research Involving Human Subjects and Universal Declaration on Bioethics and Human Rights. Before the study, all respondents gave informed written consent to conduct the observation, use the results and publish the factual data in writing an academic paper. All of them were informed about the purpose, objectives, and stages of the study.

Research methods:

Emotional empathy: Emotional empathy was assessed through the Interpersonal Reactivity Index (IRI), using the Empathic Concern and Personal Distress subscales. These subscales were analysed separately because they reflect conceptually different components of empathy: other-oriented empathic responding and self-oriented emotional distress. Respondents rated the statements on a five-point scale from "strongly disagree" to "strongly agree". According to the obtained data, the internal consistency of the scales was high, which was confirmed by the values of Cronbach's coefficients.

Mental health indicators: The psychological state of the participants was assessed using standardized instruments that are widely used in modern mental health research and demonstrate high validity in different populations. These include:

Table 1. Main socio-demographic characteristics of respondents, n (%).

Indicator	Category	Volunteers (n=48)	Social workers (n = 64)	Control group (n=52)
Gender	Men	16 (33.3)	12 (18.9)	14 (26.9)
	Women	32 (66.7)	52 (81.1)	38 (73.1)
Age of respondents	18-25 years old	10 (20.8%)	4 (6.3%)	12 (23.1%)
	26-35 years old	18 (37.5%)	22 (34.4%)	20 (38.5%)
	36-45 years old	12 (25.0%)	24 (37.5%)	10 (19.2%)
	46-60 years old	8 (16.7%)	14 (21.9%)	10 (19.2%)
Education	Secondary	4 (8.3%)	6 (9.4%)	8 (15.4%)
	Incomplete higher education	10 (20.8%)	8 (12.5%)	6 (11.5%)
	Higher education	28 (58.3%)	40 (62.5%)	32 (61.5%)
	Second higher education/ master's degree	6 (12.5%)	10 (15.6%)	6 (11.5%)
Employment type	Full-time employment	24 (50.0%)	50 (78.1%)	46 (88.5%)
	Part-time	12 (25.0%)	8 (12.5%)	6 (11.5%)
	Students	10 (20.8%)	4 (6.3%)	-

Source: developed and calculated by the author.

Table 2. Descriptive statistics and ANOVA results for empathy and mental health measures, $M \pm SD$.

Indicator	Volunteers (n=48)	Social workers (n=64)	Control (n=52)	F	p	η^2
Empathic Concern	4.10 \pm 0.52	3.90 \pm 0.58	3.50 \pm 0.60	12.41	<0.001	0.12
Personal Distress	3.80 \pm 0.70	4.20 \pm 0.65	2.90 \pm 0.55	38.22	<0.001	0.28
Anxiety (HADS-A)	9.20 \pm 2.80	10.80 \pm 3.10	6.40 \pm 2.10	21.66	<0.001	0.17
Depression (HADS-D)	6.80 \pm 2.50	8.10 \pm 2.70	4.30 \pm 1.90	18.73	<0.001	0.15
Stress (DASS)	18.50 \pm 5.20	21.40 \pm 5.80	12.10 \pm 4.40	33.29	<0.001	0.25
Well-being (WHO-5)	46.20 \pm 12.80	40.50 \pm 11.20	61.30 \pm 13.50	42.11	<0.001	0.31

Note: η^2 to quantify the strength of intergroup differences. Values of 0.25–0.31 indicate large effects, typical of socio-emotional studies.

Source: developed and calculated by the authors.

Table 3. Correlations between components of emotional empathy and mental health indicators (Pearson's r).

Indicator	Anxiety	Depression	Stress	Well-being
Empathic Concern	–0.08	–0.06	–0.10	0.22*
Personal Distress	0.56**	0.48**	0.59**	–0.46**

Note. * $p < 0.05$; ** $p < 0.01$.

Source: developed and calculated by the author.

Table 4. Results of multiple regression for the prediction of anxiety and psychological well-being.

Predictor variables	Model 1: Anxiety, β	p	Model 2: Well-being, β	p
Age	0.08	0.21	0.03	0.61
Gender	0.05	0.38	–0.08	0.22
Group (social workers)	0.29	0.008	–0.24	0.063
Group (volunteers)	0.12	0.09	–0.12	0.12
Empathic Concern	–0.05	0.42	0.18	0.041
Personal Distress	0.52	<0.00001	–0.46	0.007
Stress	-	-	–0.31	0.003
R ² of the model	0.41	-	0.33	-

Notes: In Model 1, the dependent variable is anxiety (HADS-A). In Model 2, the dependent variable is psychological well-being (WHO-5). Group membership was dummy-coded, with the control group as the reference category.

Source: developed and calculated by the author.

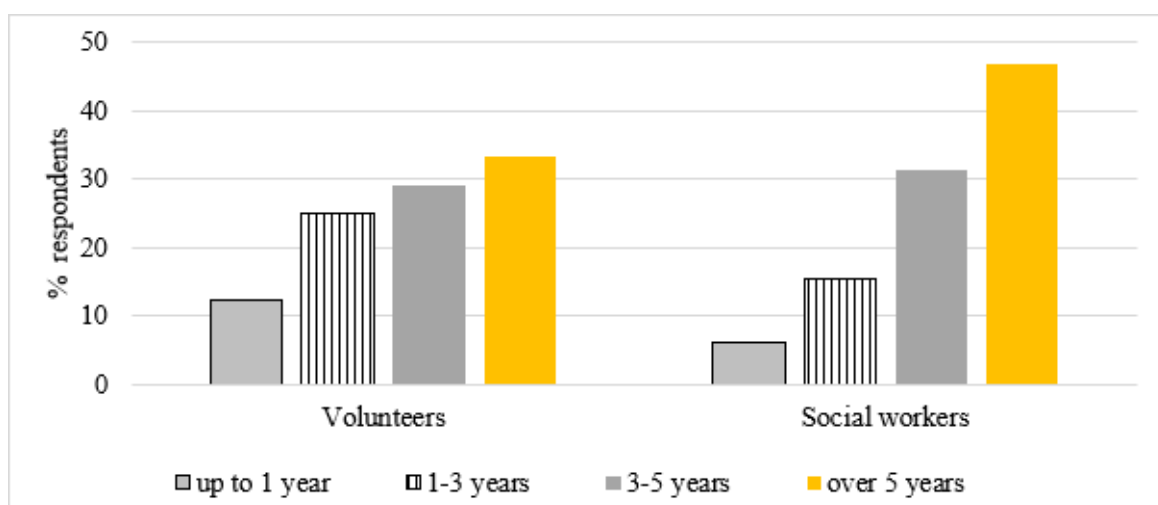


Figure 2. Distribution of respondents by experience of volunteer or professional activities. The CG was not assessed on this indicator, as respondents in this group are not engaged in volunteering or social work.

Source: developed and calculated by the author.

Hospital Anxiety and Depression Scale (HADS). The study used anxiety (HADS-A) and depression (HADS-D) subscales, each containing 7 items. The interpretation of the scores includes three ranges: 0–7 corresponds to the norm, 8–10 indicates a subclinical level, 11–21 corresponds to clinically significant symptoms. The HADS has proven reliability and sensitivity for assessing emotional disorders in non-clinical samples that are actively used to assess mental state [16].

DASS-21 Stress Scale (Stress subscale). The Stress subscale assesses the level of psychological strain, difficulties in recovery, and increased physiological reactivity. The distribution of scores traditionally includes normal (0–14), moderate (15–18), severe (19–25), and very high stress (≥ 26). The DASS-21 is used in studies that explore stress in jobs related to occupational stress and the influence of social factors on mental health [17,18].

WHO-5 Psychological Well-Being Index. The WHO-5 is a short but highly sensitive instrument for assessing subjective emotional state. The final score (0–100) enables assessing the level of psychological well-being: values ≤ 50 indicate its decline, and values ≤ 28 may indicate depressive symptoms. In recent years, the WHO-5 has been widely used in public health research and clinical samples, including the assessment of well-being in healthcare workers, volunteers, and the general population [19, 20]. All instruments have been adapted for use in the adult population and demonstrate satisfactory reliability and validity.

Statistical analysis methods. Statistical analysis was performed using descriptive indicators (means, standard deviations, frequencies) to describe the sample. The reliability of the applied psychodiagnostic instruments was assessed using Cronbach's α . Intergroup differences were tested using ANOVA followed by Tukey's post hoc test to identify pairs of groups with significant differences. To assess the strength of the effect, η^2 was calculated. Correlations between components of emotional empathy and mental health indicators were determined using Pearson's correlation coefficient. Multiple linear regression analysis was used to determine the contribution of empathy indicators to predicting levels of anxiety and psychological well-being. For regression analysis, group membership was entered as dummy-coded variables, with the control group used as the reference category. The level of statistical significance was set at $p < 0.05$.

Research tools:

The main tool of this study is a questionnaire survey, which was conducted online by filling out Google forms. The questionnaire data were calculated in SPSS software (version 26.0). Participants were recruited using non-probability convenience sampling through professional communities, educational platforms, and volunteer networks. Therefore, the sample should not be regarded as probability-based. Participation was voluntary and anonymous. After receiving informed consent, participants had the opportunity to complete the survey.

Results.

The features of emotional empathy and mental health indicators in adults with different types of social and professional involvement were identified through a comparative intergroup analysis. Emotional empathy has a heterogeneous structure and can perform both a resource and a risk function, its individual

components were included in the analysis — empathic concern and personal distress. In parallel, key indicators of mental health were assessed - anxiety, depression, stress and psychological well-being, which made it possible to consider the characteristics of empathy in the context of general psycho-emotional functioning (Table 2).

According to the obtained data, all the studied indicators demonstrated statistically significant intergroup differences ($p < 0.001$). This is confirmed by high F values, characteristic of large effects, which indicates a significant influence of the type of social or professional activity on the level of empathy and psycho-emotional state.

Comparison of the mean values of emotional empathy indicators revealed different empathy profiles in the studied groups. Volunteers demonstrated the highest level of empathic concern ($M = 4.10$), which may indicate their increased ability to prosocial emotional response. Social workers were found to have significantly higher personal distress ($M = 4.20$), which exceeds both the values of volunteers ($M = 3.80$) and the CG ($M = 2.90$). The increase in this indicator by more than 1.45 times compared to the CG indicates the accumulation of emotional stress as a result of prolonged interaction with clients in a state of vulnerability.

Analysis of mental health indicators showed a clearly expressed gradient of psychological stress. Social workers had the highest values of anxiety, depression and stress, which were statistically significantly different from the CG values. The difference in the level of anxiety between social workers and the CG was 1.7 times, and stress in social workers exceeded the CG indicators by 1.8 times. This configuration indicates a possible cumulative effect of emotionally difficult professional situations on the mental state of specialists.

Volunteers, although demonstrating increased values of anxiety and depression compared to the CG, had more moderate indicators than social workers. This may reflect greater flexibility of volunteering and the ability to independently regulate the level of emotional stress. The CG demonstrated the lowest indicators of psychological distress and the highest level of well-being. The most significant gap was observed in psychological well-being: the CG values ($M = 61.30$) exceeded those of social workers ($M = 40.50$) by 51%.

The use of ANOVA made it possible to establish statistically significant intergroup differences and assess the strength of the influence of the type of activity on the studied indicators. Particular attention was paid to the effect size (η^2) to move from formal statistical significance to the interpretation of the practical and psychological significance of the differences found. The set of descriptive statistics and ANOVA results presented in Table 2 creates a basis for the analysis of specific empathy profiles and the gradient of psychological stress in volunteers, social workers and individuals with a low level of emotional stress.

Further analysis was aimed at identifying relationships between the components of emotional empathy and mental health indicators. The most systematic and pronounced were the associations of personal distress with anxiety ($r = 0.56$), depression ($r = 0.48$) and stress ($r = 0.59$) (Table 3).

The negative relationship with psychological well-being ($r = -0.46$) further emphasizes the role of personal distress

as a potential marker of psychological distress. In contrast, empathic concern had a weak positive relationship with well-being ($r = 0.22$) and insignificant relationships with negative emotional states. This supports its interpretation as a resource component of empathy, capable of maintaining an overall positive psychological tone. Regression analysis made it possible to clarify the contribution of empathic components to the variability of mental health indicators (Table 4).

The model aimed at predicting anxiety demonstrated that personal distress is the most significant predictor ($\beta = 0.52$, $p < 0.001$), and belonging to the social worker group additionally increases the level of anxiety ($\beta = 0.29$, $p < 0.01$). The model explained 41% of the variation in anxiety, which indicates a high predictive value of the included variables. The model predicting psychological well-being showed that personal distress ($\beta = -0.46$, $p < 0.001$) and stress ($\beta = -0.31$, $p < 0.01$) significantly reduce the level of well-being, while empathic concern ($\beta = 0.18$, $p = 0.04$) has a positive effect.

The overall explanatory power of the model ($R^2 = 0.33$) confirms that emotional empathy plays a significant role in the subjective psychological functioning of adults.

Thus, emotional empathy has a differential relationship with mental health: the resource nature of empathic concern and the risk nature of personal distress form two opposing psychological mechanisms. Personal distress is a systemic marker of psychological distress, whereas empathic concern is associated with a higher level of psychological well-being. Clear intergroup differences emphasize the importance of the professional context in shaping the empathic and emotional profile of adults.

Discussion.

The obtained results reveal the complex and heterogeneous relationship between emotional empathy and mental health indicators in adults. According to the analysis, personal distress, which reflects emotional reactivity to the suffering of others, turned out to be the most stable marker of psychological distress. The established correlations are consistent with the data of other studies, where personal distress is considered a factor in emotional burnout and secondary traumatization.

Similar patterns are described in the studies of Wu and Lu [21], McGrath et al. [22], who showed that high emotional reactivity of social workers to the suffering of clients is a key link in the development of compassion fatigue. Our results confirm this conclusion, as social workers demonstrated the greatest severity of personal distress, as well as the highest indicators of anxiety, depression and stress. A similar trend is noted by Méndez-Fernández et al. [23], who indicate a connection between low psychological resilience, high empathic concern, and the formation of secondary traumatization in helping professions. Therefore, the data of our study are not only consistent with previous findings, but also demonstrate that personal distress acts as a generalized emotional marker of risk regardless of the type of activity.

At the same time, empathic concern, which reflects the ability to empathize without excessive emotional overinvolvement, showed a positive relationship with psychological well-being. This is supported by the data of Shdaifat et al. [24], Lehane and

Scarlett [25], according to which volunteering can contribute to an increase in subjective well-being and a sense of significance. In our study, volunteers demonstrated the highest levels of empathic concern and average indicators of psychological well-being. This is consistent with the results of Nasrullah et al. [26], Nichol et al. [7], which confirmed the impact of moderate levels of volunteering on emotional state without chronic overload.

The moderate position of volunteers regarding negative psychological states is also interesting: their levels of anxiety, depression and stress were higher than those of the CG, but lower than those of social workers. A similar trend is described by Metzger et al. [10], noting that volunteers demonstrate moderately increased levels of stress, but less pronounced symptoms of burnout compared to professionals. This is explained by the fact that volunteer activity is more often based on intrinsic motivation, flexibility and autonomy, which reduces the risks of chronic emotional fatigue [27,28].

In our study, the CG had the lowest values of emotional and mental disorders. This is consistent with the work of Baqea et al. [29], Furman et al. [30] where workers, without constant exposure to a stressor, demonstrate a more stable emotional background and better indicators of well-being. So, the difference between the groups confirms the influence of the professional context on the development of empathic and psychological characteristics.

In the context of international research, it is important to emphasize that our results demonstrate the differentiated nature of empathy. This corresponds to modern theoretical models that distinguish empathy into resource (empathic concern) and risk (personal distress) components. The studies of Chen et al. [14], Luo et al. [31] show that prosocial forms of empathy contribute to a decrease in depression, reactive ones — with increased vulnerability to stress. The profile of social workers we have identified fully corresponds to this pattern: high personal distress is accompanied by reduced well-being and increased levels of anxiety and depression.

In turn, regression analysis confirmed that personal distress has the greatest predictive effect on anxiety and psychological distress, which is consistent with the results of studies by Wu and Lu [21], Mulka et al. [32], which emphasize the key role of emotional reactivity in shaping the risk of professional burnout. This enables arguing that personal distress can be considered as an early emotional indicator of potential psychological distress in representatives of helping professions.

The obtained results showed that empathy has an ambivalent effect: some of its components contribute to well-being, while others increase the risk of emotional disorders, which is consistent with the hypotheses of the study. In this context, our study makes a significant contribution, as it demonstrates clear intergroup differences and establishes structural patterns in the relationship between empathy and mental health in adults.

The results of the study may be useful for organizations working with volunteers and social workers, as well as for mental health professionals. It was found that personal distress is an important emotional indicator of risk, so support programs should include training in emotional self-regulation skills and prevention of professional burnout. A practical step may be the introduction of regular psychological assessments or screening

among employees who constantly interact with people in crisis situations. For volunteers, brief trainings on stress management and balancing emotional load may be useful. The obtained data may also help organizational leaders to better distribute responsibilities and identify high-risk groups, which will help to preserve the emotional resources of staff and reduce the risk of psychological exhaustion.

Limitations.

The sample was formed on the basis of voluntary participation, so the obtained data may not fully reflect all groups of volunteers, social workers, or representatives of other professions. An additional limitation is the gender imbalance of the sample, with women predominating across all three groups. Given that previous studies have reported gender differences in empathy and psychological distress indicators, this distribution may limit the generalizability of the findings, despite controlling for gender in the regression model. The study is cross-sectional, which does not allow drawing conclusions about the cause-and-effect relationships between empathy and mental health indicators. The use of self-reported questionnaires may limit the accuracy of the data due to the subjectivity of responses. External factors, such as working conditions or the level of social support, which may affect the emotional state of the participants, were also not taken into account. Further studies need to use a larger sample.

Recommendations.

Taking into account the obtained results, it is advisable to implement systematic psychological screening among volunteers and social workers using the personal distress index as a marker of increased risk of psychological distress. It is recommended to develop and implement preventive programmes aimed at developing emotional self-regulation skills, reducing reactive empathy and supporting resource components, in particular empathic concern. The integration of brief psychoeducational interventions and regular psychological support in social and volunteer organizations is also of practical importance in order to reduce the risk of emotional exhaustion and maintain the mental health of personnel.

Conclusion.

The study confirmed that the components of emotional empathy have a differential impact on the mental health of adults depending on the nature of social involvement. All indicators showed statistically significant intergroup differences ($p < 0.001$) with large effects ($\eta^2 = 0.12-0.31$). Social workers had the highest levels of personal distress ($M = 4.20$), anxiety ($M = 10.80$), depression ($M = 8.10$), and stress ($M = 21.40$), as well as the lowest indicators of psychological well-being (WHO-5: $M = 40.50$). Compared with the CG, the level of stress was 1.8 times higher and well-being was 51% lower. Personal distress was the strongest predictor of psychological distress, demonstrating close relationships with anxiety ($r = 0.56$), depression ($r = 0.48$), and stress ($r = 0.59$), as well as a significant regression contribution to predicting anxiety ($\beta = 0.52$; $R^2 = 0.41$) and decreased well-being ($\beta = -0.46$; $R^2 = 0.33$). In contrast, empathic concern acted as a resource component and was positively associated with psychological well-being ($\beta = 0.18$; $p < 0.05$). The results can be used to screen for psychological risks and develop preventive

support programmes for volunteers and social workers. Further research should be directed at a longitudinal analysis of the dynamics of emotional empathy and mental health in order to establish causal relationships. It is promising to expand the sample to include other helping professions and to take into account organizational and social factors, in particular the level of social support and professional experience. Special attention is required to assess the effectiveness of psychoeducational and preventive interventions aimed at reducing personal distress and strengthening the resource components of empathy.

REFERENCES

1. Brown ARLCSW, Walters JE, Jones AE. Pathways to Retention: Job Satisfaction, Burnout, Organizational Commitment among Social Workers. *Journal of Evidence-Based Social Work*. 2019;16:577-594.
2. Mangoulia P, Tsokas N, Koukia E, et al. Cultivating Self-Compassion to Improve Social Workers' Professional Quality of Life in Primary Healthcare. *Healthcare (Basel, Switzerland)*. 2025;13:1313.
3. Ratcliff M. Social Workers, Burnout, and Self-Care: A Public Health Issue. *Delaware Journal of Public Health*. 2024;10:26-29.
4. Armes SE, Lee JJ, Bride BE, et al. Secondary trauma and impairment in clinical social workers. *Child Abuse Neglect*. 2020;110:104540.
5. Hitchcock C, Hughes M, McPherson L, et al. The role of education in developing students' professional resilience for social work practice: A systematic scoping review. *The British Journal of Social Work*. 2021;51:2361-2380.
6. Letson MM, Davis C, Sherfield J, et al. Identifying compassion satisfaction, burnout, traumatic stress in Children's Advocacy Centers. *Child Abuse Neglect*. 2020;110:104240.
7. Nichol B, Wilson R, Rodrigues A, et al. Exploring the Effects of Volunteering on the Social, Mental, and Physical Health and Well-being of Volunteers: An Umbrella Review. *Voluntas: International Journal of Voluntary and Nonprofit organizations*. 2023;35:97-128.
8. Weziak-Bialowolska D, Skiba R, Bialowolski P. Longitudinal reciprocal associations between volunteering, health and well-being: evidence for middle-aged and older adults in Europe. *European Journal of Public Health*. 2024;34:473-481.
9. Filges T, Siren A, Fridberg T, et al. Voluntary work for the physical and mental health of older volunteers: A systematic review. *Campbell Systematic Reviews*. 2020;16:e1124.
10. Metzger T, Nguyen N, Le H, et al. Does volunteering decrease burnout? Healthcare professional and student perspectives on burnout and volunteering. *Frontiers in Public Health*. 2024;12:1387494.
11. Duncan SA, Sperling GL, Moy MI, et al. Investigating the Impact of Community Volunteerism on the Mental Health of Medical Students. *Journal of Medical Education and Curricular Development*. 2023;10.
12. Nakamura JS, Wilkinson R, Nelson MA, et al. Volunteering in Young Adulthood: Complex Associations with Later Health and Well-Being Outcomes. *American Journal of Health Promotion: AJHP*. 2025;39:39-51.

13. Mosiychuk L, Klenina I, Petishko O. Features of lipid metabolism in patients with erosive esophagitis during the period of martial law. *Gastroenterology*. 2025;59:8-15.
14. Chen J, Zhang Y, Zhou S, et al. The influence of credits and stigmas in volunteering on depression, the modulating effects of volunteer personality and motivation. *BMC Public Health*. 2025;25:460.
15. Dias PC, Oliveira ÍM, Rodrigues A, et al. Burnout: personal and work factors in volunteer and career firefighters. *International Journal of Organizational Analysis*. 2023;31:17-34.
16. Tiksnadi BB, Triani N, Fihaya FY, et al. Validation of Hospital Anxiety and Depression Scale in an Indonesian population: a scale adaptation study. *Family Medicine and Community Health*. 2023;11:e001775.
17. Bajre PK. Structural validity of the DASS-21 during pandemic-induced psychological distress. *Discov Ment Health*. 2025;6:4.
18. Ali AM, Alkhamees AA, Hori H, et al. The Depression Anxiety Stress Scale 21: Development and Validation of the Depression Anxiety Stress Scale 8-Item in Psychiatric Patients and the General Public for Easier Mental Health Measurement in a Post COVID-19 World. *International Journal of Environmental Research and Public Health*. 2021;18:10142.
19. Domenech A, Kasujee I, Koscielny V. Systematic Review of the Use of the WHO-5 Well-Being Index Across Different Disease Areas. *Advances in Therapy*. 2025;42:3657-3677.
20. Carvalho PS, Vieira Martins M, Azevedo I, et al. World Health Organization's Well-Being Index - WHO-5: Psychometric Performance of the Portuguese Version for Adolescents. *Portuguese journal of public health*. 2025;43:38-46.
21. Wu T, Lu CR. Understanding compassion fatigue among social workers: a scoping review. *Frontiers in Psychology*. 2025;16:1500305.
22. McGrath K, Matthews LR, Heard R. Predictors of compassion satisfaction and compassion fatigue in health care workers providing health and rehabilitation services in rural and remote locations: A scoping review. *The Australian Journal of Rural Health*. 2022;30:264-280.
23. Méndez-Fernández AB, Aguiar-Fernández FJ, Lombardero-Posada X, et al. Vicariously resilient or traumatised social workers: Exploring some risk and protective factors. *The British Journal of Social Work*. 2022;52:1089-1109.
24. Shdaifat E, Alotaibi A, Alshowkan A, et al. Understanding the effects of volunteering on well-being: subjective, psychological, and social well-being, gratitude, and loneliness. *BMC Public Health*. 2025;25:4051.
25. Lehane G, Scarlett S. Psychological health outcomes of older adult volunteers: findings from the Irish longitudinal study on ageing. *Age and Ageing*. 2024;53.
26. Nasrullah SM, Refat T, Gustavsson ME. Mental health interventions for humanitarian volunteers: a scoping review. *BMJ Open*. 2025;15:e095363.
27. Boukraa I, Boukhalifa R. Psychological benefits of voluntary work. *International Journal of Early Childhood Special Education*. 2024;16:196-200.
28. Lee-Cheong S, Alaverdashvili M, Jardine M, et al. Burnout and Professional Quality of Life Amongst Crisis Hotline Responders: A Cross-Sectional Survey in Canada During COVID-19. *Healthcare*. 2025;13:1025.
29. Baqeaq MH, Davis J, Copnell B. Compassion fatigue and compassion satisfaction among palliative care health providers: a scoping review. *BMC Palliative Care*. 2021;20:88.
30. Furman D, Shchokin R, Kubitskyi S, et al. Motivation and incentives for employees of domestic enterprises. *Journal of Law and Sustainable Development*. 2023;11:e815.
31. Luo J, Liu XB, Yao Q, et al. The relationship between social support and professional identity of health professional students from a two-way social support theory perspective: chain mediating effects of achievement motivation and meaning in life. *BMC Medical Education*. 2024;24:473.
32. Mulska O, Vasylytsiv T, Shushkova Y, et al. Assessment of the population's social resilience environment (the case of the Carpathian region of Ukraine). *Problems and Perspectives in Management*. 2022;20:407-421.

Аннотация.

Эмоциональная эмпатия является важным механизмом социального взаимодействия, играющим ключевую роль в развитии психологической устойчивости у взрослых. Цель исследования — определить взаимосвязь между эмоциональной эмпатией и показателями психического здоровья у взрослых с целью выявления маркеров психологического дистресса. В исследовании приняли участие 164 взрослых, которые были разделены на три группы: волонтеры (n = 48), социальные работники (n = 64) и контрольная группа (КГ) — взрослые с низким уровнем эмоционального стресса в профессиональной деятельности (n = 52). Оценка респондентов проводилась с помощью субшкал «Эмпатическая забота» и «Личное беспокойство» (IRI), шкал HADS-A и HADS-D, субшкалы «Стресс» опросника DASS-21 и скринингового инструмента WHO-5. Использовались методы описательной статистики, дисперсионного анализа (ANOVA), корреляции и множественной регрессии. В ходе исследования были установлены взаимосвязи между компонентами эмоциональной эмпатии и показателями психического здоровья у взрослых с разным уровнем эмоциональной вовлеченности в социально ориентированную деятельность. У социальных работников отмечались самые высокие уровни тревожности, депрессии и стресса, тогда как в КГ был зафиксирован самый высокий уровень благополучия. Личный дистресс являлся стабильным предиктором тревожности ($\beta=0,52$, $p<0,001$) и снижения благополучия ($\beta=-0,46$, $p<0,001$). Эмпатическая забота положительно коррелирует с психологическим благополучием. Волонтеры заняли промежуточное положение между социальными работниками и специалистами с низким уровнем эмоциональной нагрузки. Компоненты эмоциональной эмпатии по-разному влияют на психическое здоровье взрослых. Личное дистресс является потенциальным индикатором психологического дистресса и требует коррекции с помощью программ поддержки. Дальнейшие исследования могут быть сосредоточены на разработке и апробации моделей психологического скрининга и профилактических программ, направленных на снижение

уровня личного дистресса и поддержку ресурсной эмпатии у волонтеров и социальных работников.

Ключевые слова: эмоциональная эмпатия, личностный дистресс, психологическое благополучие, тревога, депрессия, стресс, волонтеры, социальные работники.

ანოტაცია.

ემოციური ემპათია სოციალური ურთიერთქმედების მნიშვნელოვანი მექანიზმია, რომელიც დიდ როლს ასრულებს ზრდასრულებში ფსიქოლოგიური მდგრადობის განვითარებაში. კვლევის მიზანია ზრდასრულებში ემოციურ ემპათიასა და ფსიქიკური ჯანმრთელობის მაჩვენებლებს შორის კავშირის დადგენა ფსიქოლოგიური შეწუხების მარკერების იდენტიფიცირების მიზნით. კვლევაში მონაწილეობდა 164 ზრდასრული, რომლებიც დაიყო სამ ჯგუფად: მოხალისეები (n=48), სოციალური მუშაკები (n=64) და საკონტროლო ჯგუფი (CG) — ზრდასრულები პროფესიულ საქმიანობაში ემოციური სტრესის დაბალი დონით (n=52). რეკონდენტების შეფასება მოხდა ემპათიური ზრუნვისა და პირადი შეწუხების (IRI) ქვესკალებით, HADS-A და HADS-D სკალებით, DASS-21-ის სტრესის ქვესკალითა და WHO-5 სკრინინგის ინსტრუმენტებით. გამოყენებული იყო აღწერითი სტატისტიკა, ვარიაციის ანალიზი (ANOVA), კორელაციური და მრავალმახვილოვანი რეგრესიული ანალიზი. კვლევამ დაადგინა კავშირი ემოციური ემპათიის კომპონენტებსა და ფსიქიკური ჯანმრთელობის ინდიკატორებს შორის ზრდასრულებში, რომლებიც

განსხვავებულ დონეზე არიან ჩართულნი სოციალურად ორიენტირებულ საქმიანობაში. სოციალურ მუშაკებს აღნიშნებოდათ შფოთვის, დეპრესიისა და სტრესის ყველაზე მაღალი დონე, ხოლო საკონტროლო ჯგუფმა (CG) ყველაზე მაღალი დონის კეთილდღეობა გამოავლინა. პირადი ტანჯვა სტაბილური პროგნოზული ფაქტორი იყო შფოთვისთვის ($\beta=0.52$, $p<0.001$) და კეთილდღეობის შემცირებისთვის ($\beta=-0.46$, $p<0.001$). ემპათიური შემფოთება დადებით კორელაციაში იყო ფსიქოლოგიურ კეთილდღეობასთან. მოხალისეები იკავებდნენ შუალედურ პოზიციას სოციალურ მუშაკებსა და დაბალი ემოციური დატვირთვის მქონე სპეციალისტებს შორის. ემოციური ემპათიის კომპონენტებს განსხვავებული გავლენა აქვთ ზრდასრულთა ფსიქიკურ ჯანმრთელობაზე. პირადი შეწუხება ფსიქოლოგიური დისტრესის პოტენციური მაჩვენებელია და საჭიროებს კორექტირებას მხარდაჭერი პროგრამების მეშვეობით. შემდგომი კვლევა შეიძლება ფოკუსირდეს ფსიქოლოგიური სკრინინგის მოდელებისა და პრევენციული პროგრამების შემუშავებასა და ტესტირებაზე, რომლებიც მიზნად ისახავს პირადი შეწუხების დონის შემცირებას და მოხალისეებსა და სოციალურ მუშაკებში რესურსული ემპათიის მხარდაჭერას.

საკვანძო სიტყვები: ემოციური ემპათია, პირადი შეწუხება, ფსიქოლოგიური კეთილდღეობა, შფოთვა, დეპრესია, სტრესი, მოხალისეები, სოციალური მუშაკები.