

# GEORGIAN MEDICAL NEWS

---

ISSN 1512-0112

NO 4 (373) Апрель 2026

---

ТБИЛИСИ - NEW YORK



ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ

Медицинские новости Грузии  
საქართველოს სამედიცინო სიახლენი

## GEORGIAN MEDICAL NEWS

Monthly Georgia-US joint scientific journal published both in electronic and paper formats of the Agency of Medical Information of the Georgian Association of Business Press.  
Published since 1994. Distributed in NIS, EU and USA.

**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 ბაზებიდან.

### WEBSITE

[www.geomednews.com](http://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](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.nlm.nih.gov/bsd/uniform_requirements.html)  
[http://www.icmje.org/urm\\_full.pdf](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. რენტგენოგრაფიების ფოტოასლები 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.

Kazantsev A.D, Lipatov K.V, Deushev A.D, Kovtun A.V, Harina A.S, Sahnó D.A, Kapustina D.S, Davydov P.K, Frolova M.O, Vajntrub G.V, Silaeva A.S, Kirsanova A.A, YUgrina D.V, Haimov S.A, Tembotova L.A, Tret'yakova D.A, Matveeva V.V, Kozak A.S, Israfilova A.F, Efimenko V.V. ELECTRONIC TRAINING PROGRAM «DRAINAGE IN MINE-BLAST INJURIES» FOR STUDYING THE MODULES OF GENERAL SURGERY.....	6-12
S. Lutvinov, O. Malinina, O. Taran, I. Sorokoumova, A. Vozniuk, M. Jaruchowska. RARE CLINICAL CASE OF CHORIOCARCINOMA WITH MULTIPLE METASTASES AND A FAVORABLE OUTCOME: DIAGNOSTIC CHALLENGES.....	13-21
Yuxin Zhu, Tong Deng, Wenjie Wen, Chao Deng, Rui Li, Donglin Zhang. EXPLORING POTENTIAL KEY GENES AND MECHANISMS OF PERIODONTITIS THROUGH INTEGRATED BIOINFORMATICS ANALYSIS.....	22-29
Davit Rekhviashvili, Giorgi Chakhunashvili, Maia Chkhaidze, Nino Abdushelishvili, Gvantsa Arveladze, Shalva Kevlishvili, Iamze Taboridze. ASSESSMENT OF THE LIPID SPECTRUM IN GEORGIAN CHILDREN WITH TYPE 1 DIABETES MELLITUS.....	30-35
Nazarova Dinara, Kemelbekov Kanatshan, Doltayeva Bibigul, Seidakhmetova Aizat, Sergazina Aigul, Khatamov Furkhat, Syzdykova Assem, Yrysbay Symbat. DYNAMICS OF THE FUNCTIONAL STATE OF THE RESPIRATORY SYSTEM IN CHILDREN DURING COMPLEX REHABILITATION.....	36-42
Ellen Safadi, Nithin Raj, Sara Musa Abdalla Elamin, Lutfullayeva Gulnoza Umrilloeyvna, Marwan Ismail. IMMEDIATE POST-ANAESTHESIA CONFUSION AND AGITATION IN ADULT SURGICAL PATIENTS: INCIDENCE AND CLINICAL CORRELATES.....	43-49
Ermira Jahja, Ardita Koçi, Irina Nakashidze. INTERLEUKIN-1 GENE POLYMORPHISMS AND SUSCEPTIBILITY TO PERIODONTITIS ACROSS ETHNICITIES AND POPULATIONS: A LITERATURE REVIEW.....	50-60
Zhanylsyn Urasheva, Alima Khamidulla, Aigul Yermagambetova, Gulnar Kabdrakhmanova, Andrej M Grjibovski. NEUTROPHIL-TO-LYMPHOCYTE RATIO AS A POTENTIAL PREDICTOR OF IN-HOSPITAL MORTALITY AMONG ISCHEMIC STROKE PATIENTS: A PROSPECTIVE COHORT STUDY.....	61-66
Denys Oklei, Serhii Nemenko. APPLICATION OF LOCAL HEMOSTATIC AGENTS FOR STRENGTHENING THE SEAMS OF COLONIC ANASTOMOSES.....	67-73
Tetiana Salií, Liliia Salií. DEEP SELF-REGULATION METHOD: A HYPNOTHERAPEUTICAL AND COACHING APPROACH TO STRESS AND BURNOUT.....	74-82
Varduhi Papoyan, Anna Nadoyan, Vahan Manukyan. PSYCHOPHYSIOLOGICAL RELATIONSHIPS BETWEEN EMOTIONAL STATES AND RESPIRATORY DYNAMICS IN DRIVERS UNDER COGNITIVE LOAD.....	83-92
Wafa H Mohamed Ahmed, Ayman Abdelaziz Idres Elfaki, Azza O Alawad. ASSESSMENT OF CARDIOVASCULAR DISEASE RISK USING ANKLE-BRACHIAL INDEX IN EMERGENCY PHYSICIANS WORKING 24-HOUR DUTIES: A CROSS-SECTIONAL STUDY.....	93-97
Madina Rashova, Aliya Kabduova, Zhanbolat Sailau, Gulzhan Serikberli, Karilkhan Nurmukhamed, Assem Munaidarova. COMPREHENSIVE ASSESSMENT OF BIOFILM FORMATION AND ANTIMICROBIAL RESISTANCE OF <i>STAPHYLOCOCCUS</i> IN PURULENT-INFLAMMATORY DISEASES.....	98-108
Aryam Ayad Al-Rashidi, Anas Ali Alhur, Aryam Faleh Al-Anazi, Yara Awad Al-Anazi, Aryam Aziz Al-Rashidi, Atha Ayad Alshammari, Bayan Nasser Alshammari, Fatima Saud Alsaeed, Karima Hamad Alazmi, Shahad Ghazi Alshammari. THE ROLE OF MEDICAL SECRETARIES IN HOSPITAL WORKFLOW, COMMUNICATION, AND HEALTH INFORMATION MANAGEMENT: A QUALITATIVE STUDY AT AL-HAIT GENERAL HOSPITAL, SAUDI ARABIA.....	109-118
Ioannis Galitsianos, Nikolaos Geropoulos, Ioannis Alexiou, Antonios Ziakas, Charalampos Karvounis. FROM COST CONTAINMENT TO VALUE CREATION: INTEGRATING PATIENT-REPORTED OUTCOMES IN CARDIOLOGY REIMBURSEMENT FRAMEWORKS-THE PARADIGM OF SELECTED EUROPEAN COUNTRIES.....	119-127
Wasan Raheem Mubark Al khafaji, Marwa Habeeb Nazzal Eswad, Aseel Mosa Jabber. ORAL N-ACETYLCYSTEINE FOR MENSTRUAL PAIN IN ADOLESCENTS: A RANDOMIZED CONTROLLED STUDY OF OXIDATIVE STRESS REDUCTION WITHOUT HORMONAL MODULATION.....	128-135
Alexandre Pateishvili, Tamar Lomidze, Manana Kalandadze, Vladimer Margvelashvili, Ann Margvelashvili. ORAL HEALTH STATUS AND ASSOCIATED RISK FACTORS AMONG PROFESSIONAL ATHLETES IN GEORGIA.....	136-143
Abdulrahman S. Alsaqabi, Ebtehal Almogbel, Faisal A. Al-Harbi, Sultan S. Al-Ruqaie, Ayoub S. Alharbi, Eyad A. Alkharraz, Abdulaziz T. Alturki, Reema K. Al-mutairi, Abdulhakim A. Al-Kharraz, Asim Ibrahim Alghelfes. ANALYSIS OF THE TYPES AND PATTERNS OF LIMB AMPUTATIONS RELATED TO DIABETIC FOOT CONDITIONS IN THE	

QASSIM REGION: A RETROSPECTIVE STUDY.....	144-152
Abrar Ghalib, Alaa Mohammed Mahmoud Qasem, Abdelgadir Elamin, Ahmed L. Osman, Mutaz Ibrahim Hassan, Ellen Safadi, Gulandom Shodikulova, Ikromi Turakhon Sharbat, Bobokalonzoda Jamoliddin Murodali, Namoz Mavlonov Xalimovich, Maxmudjon Butaboyev, Marwan Ismail.	
AEROBIC AND RESISTANCE TRAINING SHOW DIVERGENT ASSOCIATIONS WITH INSULIN SENSITIVITY AND SHORT-TERM GLYCEMIC EXPOSURE IN PREDIABETES: A CROSS-SECTIONAL STUDY.....	153-164
F.T. Khalilova, A.A. Kerimov, G.R. Kerimova.	
CLINICAL AND MOLECULAR GENETIC CHARACTERISTICS OF POLYCYTHEMIA VERA AND CURRENT TREATMENT APPROACHES.....	165-173
Malika M. Meirmanova, Aizhan A. Abiltayeva, Yoshihiro Noso, Askar M. Abiltayev, Rustem S. Kazangapov, Olga S. Makhmetova.	
CLINICAL CHARACTERISTICS, IMAGING EFFICACY, AND SAFETY OF MRI-GUIDED FOCUSED ULTRASOUND ABLATION (FUS-MRI) IN THE TREATMENT OF UTERINE FIBROIDS: A SINGLE-CENTER EXPERIENCE.....	174-182
Tskaev T.A, Tkhakumashev A.R, Panov A.V, Veselova A.V, Dibirova M.D, Seryi I.F, Mosina P.A, Shvets D.D, Gekmen M.A, Khlynov D.A, Medjidov A.N.	
COMPARATIVE ANALYSIS OF ACUTE UPPER AND LOWER EXTREMITY ISCHEMIA DUE TO ARTERIAL EMBOLISM.....	183-188
Long Huang, Zijian Yao, Xin Jin, Xin Sheng, Guoping Wang, Jin Zhou.	
THE EFFECT OF TEACHER SUPPORT ON LEARNING BURNOUT: THE MEDIATING ROLE OF SCHOOL BELONGING AND ACADEMIC RESILIENCE.....	189-197
Ghukasyan N.N.	
POST-CESAREAN SCAR ENDOMETRIOSIS: LONG LATENCY, FREQUENT MISDIAGNOSIS, AND OUTCOMES OF SURGICAL EXCISION (A CASE SERIES OF 5 PATIENTS).....	198-203
Togzhan Algazina, Dinara Azanbayeva, Natalya Tsoy, Gulnaz Touir, Tatyana Kotlyarova.	
CYTOKINE – ASSOCIATED PARAMETERS OF THE IMMUNE RESPONSE IN PSORIASIS AND THEIR CORRELATIONS WITH ALPHA – AND BETA – DIVERSITY OF THE GUT MICROBIOME.....	204-210
Tchernev G, Tchernev KG Jr, Kordeva S.	
DERMATOSURGERY ROUNDS: THE DOUBLE ROTATION (YIN-YANG) FLAP AS BASIC WEAPON IN THE FIGHT AGAINST KERATINOCYTE CANCER OF THE SCALP.....	211-214
Veen Sagvan Jamil, Mohammed Rashed Nabi Aldoski, Bahar Jaafar Selivany, Doaa Waleed Jameel.	
MORPHOLOGY AND PREVALENCE OF C-SHAPED CANALS IN MANDIBULAR FIRST MOLARS OF AN IRAQI KURDISTAN REGION POPULATION: A CONE-BEAM COMPUTED TOMOGRAPHY ASSESSMENT.....	215-218
Petro Rogozhan, Olga Drobot, Olena Kostiuchenko, Viktoriia Stamat, Oleg Nazarov.	
PSYCHOLOGICAL ASPECTS OF USING SUGGESTIVE METHODS IN COGNITIVE-BEHAVIORAL THERAPY.....	219-226
Natia Jojua, Tinatin Gognadze, Tamar Zarginava, Sopia Samkharadze, Maia Tsanova.	
EVALUATION OF GEORGIAN MEDICAL DOCTORS’ RESEARCH EXPERIENCE AND PERCEPTIONS TOWARD COLLABORATIVE RESEARCH WITH UNIVERSITIES.....	227-230
Solmaz Imanova, Babek Zeynalov, Adalat Rustam, Rana Jafarova.	
CLINICAL RESULTS OF DELORME’S AND ALTEMEIER’S PROCEDURES IN RECTAL PROLAPSE.....	231-237
Faisal A. Al-Harbi, Mohanad A. Alkuwaiti, Rasil Sulaiman Alayed, Khalid A Alkhalifah, Mayadah Assaf Alawaj, Hussam J. Alshehri, Nora Mohammed Alzoum, Abdulaziz Alroshodi, Mohammed AL Mulhim.	
NON-PHARMACOLOGICAL INTERVENTIONS FOR RESTLESS LEG SYNDROME IN HEMODIALYSIS PATIENTS: A SYSTEMATIC REVIEW AND NETWORK META-ANALYSIS.....	238-253

## PSYCHOLOGICAL ASPECTS OF USING SUGGESTIVE METHODS IN COGNITIVE-BEHAVIORAL THERAPY

Petro Rogozhan<sup>1\*</sup>, Olga Drobot<sup>2</sup>, Olena Kostiuhenko<sup>3</sup>, Viktoriia Stamat<sup>4</sup>, Oleg Nazarov<sup>5</sup>.

<sup>1</sup>Master of Psychology, Senior Lecturer at the Department of Psychology, Interregional Academy of Personnel Management, Kharkiv, Ukraine.

<sup>2</sup>Doctor of Psychological Sciences, Professor, Professor of the Department of Psychology, Philosophy and Social Sciences, Educational and Scientific Humanitarian Institute, V.I. Vernadsky Taurida National University, Kyiv, Ukraine.

<sup>3</sup>Doctor of Science, Professor, Department of Philosophy and Pedagogy, Kyiv National University of Culture and Arts, Kyiv, Ukraine.

<sup>4</sup>PhD in Economics, Associate Professor, Department of Management and Marketing, Faculty of Management, Mykolaiv National Agrarian University, Mykolaiv, Ukraine.

<sup>5</sup>PhD (Psychology), Professor, Associate Professor of the Department of Psychology Activity in Special Conditions, Education and Scientific Institute of Operational Rescue Forces, National University of Civil Protection of Ukraine, Kharkiv, Ukraine.

### Abstract.

**Aim:** This study examines the integration of cognitive-behavioral therapy (CBT) with suggestive methods, reflecting the growing trend toward methodological convergence in psychotherapy. It focuses on the psychological mechanisms underlying suggestion and its adaptation to digital therapeutic contexts.

**Methods:** A systemic-analytical approach, qualitative comparative analysis, and content analysis of contemporary literature were applied to evaluate the effectiveness of combining cognitive and suggestive techniques.

**Results:** The study identifies key forms of suggestion within CBT, including direct and indirect mechanisms, and explains their neuropsychological basis in reducing affective tension and modifying dysfunctional beliefs. Evidence supports the effectiveness of this integrated approach in treating anxiety, depression, post-traumatic stress disorder, and eating disorders. A conceptual model for integrating suggestive elements into CBT sessions was developed, along with their adaptation to digital tools.

**Conclusion:** Integrating suggestive methods into CBT enhances therapeutic outcomes and supports personalized, digitally mediated psychotherapy.

**Key words.** Cognitive-behavioral therapy, suggestion, psychological mechanisms, affirmations, suggestion, therapeutic effectiveness, psychotherapeutic techniques, digital therapy.

### Introduction.

The modern global sociocultural space is saturated with permanent social turbulence, which is intensified by information flows and the growth of existential instability. Today, there is a persistent trend in society toward pathological psycho-emotional saturation of the personal sphere. The phenomenon of modern psychosomatic and affective disorders requires clinical psychology to develop not only proven but also methodologically flexible therapeutic strategies aimed at implementing change. Cognitive-behavioral therapy (further – CBT) occupies a dominant position in evidence-based psychotherapy due to its high level of effectiveness in treating anxiety and depressive disorders. However, at the present stage, especially given the war in Ukraine, it is undergoing a phase of internal transformation. The key vector of evolution is the transition from rigid algorithms to adapted personalized interventions.

A promising direction for increasing the therapeutic resource of CBT is the use of suggestive components, which are traditionally considered no more than non-directive or hypnosuggestive approaches. The integration of suggestion into the cognitive-oriented process allows for the optimization of cognitive restructuring and the application of techniques that help overcome cognitive rigidity and quickly eliminate ineffective patterns. The use of implicit influence minimizes the resistance that is characteristic of direct rational analysis. In this context, suggestion acts as a mediator of emotional stabilization, which is a critically important component in the early stages of working with stress disorders.

In modern psychotherapeutic science, the discourse on the role of suggestive components in the structure of cognitive-behavioral changes is determined by the presence of paired antagonistic methodological positions. Some scientists [1,2] adhere to the principle of cognitive transparency, in which therapeutic changes occur through conscious logic, reflection, and empirical verification of changes. From this point of view, the involvement of any emotionally associative events or influences should be regarded as a transformation (from scientifically based protocols that potentially negate the autonomy of the subject and the rational nature of the restructuring process). On the other hand, recent studies [3-5] point to the need to expand the CBT toolkit through the use of suggestive-mediated techniques.

Researchers argue that the use of metaphorization, positive affirmative modeling, and imaginative exercises in no way contradicts cognitive logic, but can act as a catalyst for therapeutic influence on a person. An analysis of the available scientific literature suggests a shift in scientific episteme: from rigid rationalism to flexible integration. Suggestive elements are particularly important when working with certain categories of clients who are characterized by emotional lability and pronounced resistance to rational interventions. Thus, suggestion is considered not as a substitute for cognitive analysis, but as a mechanism for overcoming the “cognitive censor,” which significantly intensifies the process of therapeutic transformation.

Despite the intensification of the empirical base in cognitive science, the current theoretical and methodological foundations for implementing suggestive technologies that form the structure of cognitive-behavioral therapy currently lack conceptual integrity and are characterized by a certain degree of fragmentation. Analysis of the state of the problem and

verification of current scientific discourses allow us to identify a list of critical issues that require comprehensive study:

1. As of the end of 2025, there is no established unified conceptual model that would explain the psychological mechanisms of suggestion through the lens of cognitive processes. Suggestive influence is currently under discussion and allows interaction with mechanisms and forms of information processing, as well as how it allows changing deep cognitive patterns without interfering or creating confrontation.

2. Currently, there is insufficient research to adequately assess the differentiated effectiveness of existing techniques in various therapeutic environments. The specifics of digital formats, which lack direct paralinguistic contact and transform the structure of suggestive messages, require special scientific verification. In group dynamics, suggestion is enhanced by the effects of social facilitation and induction.

3. There is a shortage of standardized algorithms that would allow for the ethically and methodologically correct incorporation of suggestive elements such as affirmations, metaphors, and guided imagery into CBT research protocols. The issue of preserving client autonomy and preventing manipulative influences in the context of suggestion remains far beyond the scope of full scientific discourse.

The identified contradictions between practical demands for intensification of therapy and insufficient theoretical justification of suggestion mechanisms determine the necessity of this dissertation research. It will allow developing a comprehensive methodological basis for creating personalized and highly effective integrative psychological assistance programs.

The aim of the study is to provide a theoretical and methodological justification and conceptualization of the psychological determinants of the implementation of suggestive technologies in the cognitive-behavioral paradigm of psychotherapy, as well as to identify the specifics of the functioning of these mechanisms in the context of modern (in particular, digital) formats of therapeutic interaction.

## Materials and Methods.

The current research is grounded in the systematic and analytical methodology that incorporates qualitative comparative analysis and content analysis of the latest scientific literature. The following academic databases were used to conduct the literature search: Scopus, Web of science, Pubmed, and Google Scholar. The keywords were combined in the search strategy, i.e., cognitive-behavioral therapy, suggestion, suggestive techniques, CBT integration, digital psychotherapy, and affirmations in therapy.

The inclusion criteria included the following: (1) peer-reviewed articles published in 2021-2025; (2) articles that concentrated on suggestive techniques integration in CBT; (3) articles that reported empirical or review outcomes; (4) articles written in English. The elimination criteria were: (1) non-CBT related studies; (2) non-methodologically transparent publications; (3) duplicate or low-impact publications.

According to these criteria, 10 international studies were selected to be further analyzed qualitatively and comparatively. The chosen articles were reviewed regarding the efficacy of the therapeutic option, the mechanisms of suggestive impact, and

the extent of its applicability in the conventional and digital treatment settings.

To achieve this goal, the following scientific tasks should be solved:

- to conduct a comparative analysis of scientific approaches to the study of the phenomenon of suggestion in practical psychology and define its essence as an adaptive component of cognitive-behavioral intervention;

- to identify the cognitive, affective, and neurodynamic mechanisms that mediate the effectiveness of its influence and are capable of reducing the cognitive rigidity of the subject;

- to generalize the array of empirical data on which the results of suggestive techniques depend when working with different nosological groups and psychological profiles of clients;

- to develop and justify algorithms for the integration of suggestive tools: from metaphorization, affirmative modeling, and imagination to digital protocols.

This study aims to level the methodological dichotomy between the rational-logical foundation of cognitive-behavioral therapy and the irrational-implicit nature of suggestive influence. The introduction of suggestive technologies into the structure of CBT allows for the optimization of the correction process at several levels of mental organization:

- transformation of deep beliefs and mental patterns by deactivating mechanisms of psychological resistance and directly influencing structures of consciousness;

- intensification of affective self-regulation processes through immersion in resourceful suggestive states, which contributes to a reduction in emotional reactivity;

- stabilization of adaptive patterns through mechanisms of positive post-suggestive reinforcement can ensure a prolonged therapeutic effect and the consolidation of new forms of life activity.

The practical value of the results lies in the creation of a structured methodological platform for designing personalized therapeutic trajectories, which are critical for improving the effectiveness of remote and algorithmic psychological assistance systems.

## Results.

In contemporary psychological discourse, suggestion is defined as a special mechanism of individual influence, which is formed on the basis of suggestion and uncritical (subconscious) assimilation of information that determines the further modification of cognitive attitudes, emotional reactions, and behavioral patterns of the subject. The evolution of suggestive practices in psychotherapy demonstrates a shift from classical hypnotic techniques to complex forms of indirect suggestion that are integrated into current therapeutic paradigms.

The latest scientific work [3,4] substantiates the feasibility of implementing suggestive components to exponentially improve therapeutic outcomes.

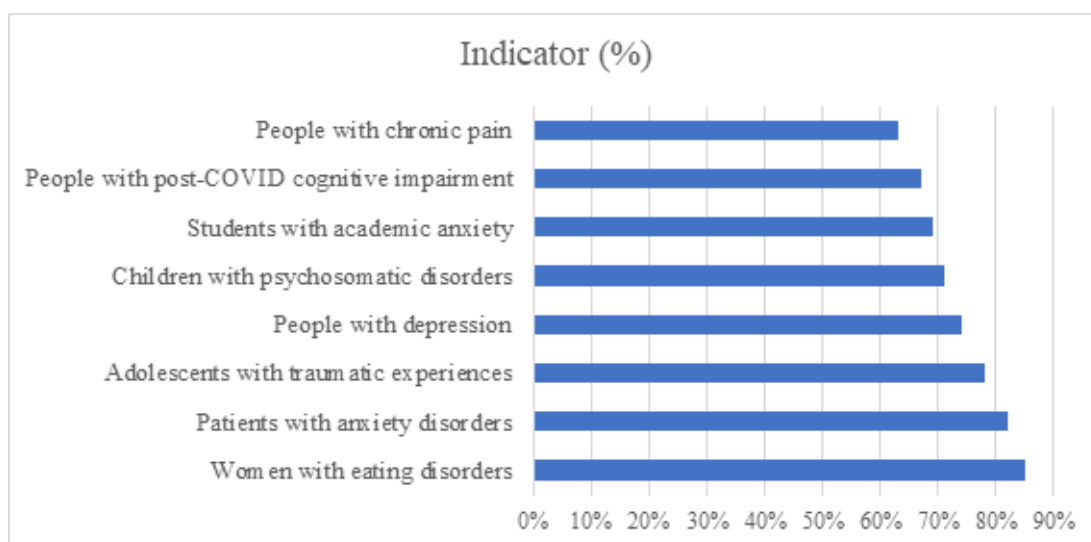
Research demonstrates that the cultural adaptation of CBT protocols (using the example of Arab countries) requires the mandatory consideration of the suggestive component as an integral element of the region's traditional communicative paradigm. Contemporary paradigms emphasize the integration of elements of positive suggestion into the ABCDEF model

structure. Within this approach, suggestive influence is implemented at the stage of formulating new cognitive constructs (stage “E” — Effective new belief), which ensures a high level of internalization of adaptive beliefs by the client. The clinical effectiveness of combining cognitive and suggestive methods is confirmed by group formats and therapies. In particular, studies by Baroi and Muhammad verify the effectiveness of combined group CBT in the process of correcting specific anxiety (in particular, speech anxiety in students). The authors argue that the introduction of suggestive components significantly accelerates the process of overcoming psychological barriers compared to isolated cognitive interventions (Table 1).

To synthesize the findings reported in the selected studies, a qualitative comparative analysis of 10 international publications (2021–2025) was conducted. It should be emphasized that this study does not involve the collection of primary empirical data but is based on the systematic interpretation and integration of previously published research results. Particular attention is

paid to the effectiveness of suggestive therapy techniques in working with different target audiences. The selected studies evaluated the effectiveness of interventions in terms of symptom reduction, improved treatment adherence, and stability of the therapeutic effect. The empirical results of using suggestive therapy techniques in CBT among different categories of clients are shown in Figure 1. The findings provided in this section represent the synthesis of findings obtained in earlier published studies and not experimental data. The authors create the tables and figures in the form of analytical generalizations which aim to systematize and compare the available evidence. Moreover, the conceptual model used in this study is a unique theoretical contribution, which is based on a combination of identified patterns instead of an empirically validated one.

The use of virtual reality (VR) allows for a high level of emotional engagement and a “presence effect” of the therapist, which is critical for the successful implementation of suggestive influence (Table 2).



**Figure 1.** Comparison of techniques in the structure of CBT interventions for different categories of respondents.

Source: Created by the author based on Amer et al. [6], Baroi and Muhammad [16], Csirmaz et al. [13], Frye and Rawlins [24], Ganji et al. [4], Melisse and Arora [7], Reuther and Canavera [5], Stewart et al. [10].

**Table 1.** Psychological mechanisms of suggestive determination in cognitive-behavioral therapy.

No	Name of mechanism	Theoretical essence	Clinical demonstration in the process of CBT
1	Therapeutic trust	Perception of the therapist as a figure with a high level of expertise	Commitment to treatment
2	Identification	Image of the therapist as a role model	Transmission and assimilation of new patterns
3	Affective resonance	Emotional involvement	Positive reinforcement through the emotional involvement of the specialist and the client.
4	Expectancy effect	Formation of positive symptom dynamics through thoughts.	Mobilization of the placebo resources of the psyche.
5	Anchoring	Formation of stable psycho-emotional connections.	Use of signal verbal constructs
6	Visualization	Activation of imaginative thinking	Mental modeling of adaptive behavior scenarios.
7	Formation of dialogue	Transformation of therapeutic influence on internal self-regulation.	Mastering self-suggestion skills
8	Motivation	Supportive verbal techniques	Positive reframing interpretation of the patient's volitional efforts.

Source: grouped by the author based on sources Burger et al. [12], Csirmaz et al. [13], Kılıç et al. [14], Pincus [9].

**Table 2.** Examples of successful integration of suggestive methods into modern CBT models.

No	Format	Method typology	Target group	Expected effect	Source
1	Face-to-face CBT	Affirmations in the self-monitoring structure	Patients with depressive disorders	Stabilization and improvement of self-esteem	Amer et al. [6]
2	Remote consultations	Reframing and metaphorical modeling	Students with high levels of anxiety	Minimal thinking about negative events	Baroi and Muhammad [16]
3	Video therapy	Nonverbal influence	Social phobia	Intensification of therapeutic rapport and trust	Stewart et al. [10]
4	Telemental therapy	Formation of resourceful cognitive attitudes	Patients with PTSD	Reduction in psychological distress	Morgan-Mullane [8]
5	Self-help mobile applications	Motivational messages	People with emotional burnout syndrome	Self-regulation skills training	Nelson et al. [3]
6	Group online classes	Collective induction method	People with eating disorders	Multiplication of the effect of social support	Melisse and Arora [7]
7	VR simulators	Visualization	Young people with deviant behavioral responses	Adaptive response patterns	Pincus [9]

Source: developed by the author.

**Table 3.** The phenomenon of suggestion in cognitive-behavioral therapy.

Stage of CBT	Form of influence	Object and cause	Result
Formation of an alliance	Facilitation	Leveling interpersonal barriers	Emotional openness
Psychoeducation and structuring of processes	Conceptual metaphors	Formation of attitudes towards change	Increasing awareness of one's own states
Identification of thoughts	Targeted verbal suggestion	Maladaptive thinking patterns and schemas	Shifting focus to resources
Behavioral experiments	Programmable mobilization predictors	Using acquired experience in a real environment	Transformation of control
Summing up and completing therapy	Consolidating success (anchoring)	Forming connections and models	Forming attitudes, relapse resistance

Source: created by the author based on Amer et al. [6], Nelson et al. [3], Passmore and Sinclair [17], Reuther and Canavera [5], Stewart et al. [10].

The results of the analysis (see Table 3) indicate the high adaptability of the techniques and the possibility of their effective implementation in both face-to-face CBT formats and within remote or mediated digital models. Algorithmic affirmations, guided visualization, and metaphorical interventions play a leading role in the process of cognitive modification. These tools facilitate the reconstruction of an individual's fundamental cognitive schemas regarding their own "I", the surrounding society, and the temporal perspective of the future (Table 3).

The role of suggestion in CBT can be represented as a cyclical process of influence, where each intervention activates the corresponding psychological mechanisms. In particular, positive wording of therapeutic messages (verbal or written), creating a narrative of change, visualizing progress, and raising expectations help overcome the client's internal resistance and maintain the stability of new beliefs.

## Discussion.

The acquired findings are put into the perspective of modern scientific discussions of the incorporation of suggestive techniques into cognitive-behavioral treatment. The discussion is aimed at comparing the established empirical trends with the available theoretical frameworks, and determining the methodological and practical consequences of the incorporation of suggestion into CBT in its traditional and digital form.

Contemporary scientific discourse in the field of clinical

psychology and psychotherapy is characterized by a pronounced vector of integration of methodologies, with a special focus on the convergence of the cognitive-behavioral paradigm and technology. An analysis of recent publications allows us to structure existing scientific developments along several conceptual lines:

1. Empirical studies in recent years [3-6] confirm the need to implement many components, primarily target beliefs, affirmations, and therapeutic metaphors, which reflect a significant increase in the therapeutic effectiveness of CBT. The authors note that this synergistic effect is most relevant in the correction of anxiety disorders, depressive states, and complex psychosomatic diseases that are resistant to traditional therapy.

2. Techno-mediation of suggestion in the digital environment is a separate area of research [7-10], which is devoted to the transformation of suggestive influence in the context of the digitization of the psychotherapeutic space. Scientists substantiate the peculiarities of the mechanisms of "algorithmic suggestion," which is implemented through visual interface patterns, asynchronous programmed messages, and multimedia visualization formats that act as triggers for adaptive changes.

3. Research into ethnocultural and contextual forms has made it possible to understand the limits of suggestion itself. These were explored in the work of AlHadi [1] and Nasif et al. [11]. The researchers focus on the cultural prediction of suggestive sensitivity and emphasize that in ethnocultures with a developed

tradition of indirect communication, the suggestive elements of CBT demonstrate a higher level of validity and speed of change.

4. The works of Burger et al. [12], Csirmaz et al. [13], Kılıç et al. [14], and Varela et al. [15] further substantiate the paradigm of “precision psychotherapy.” In addition, suggestive methods are considered a flexible toolkit for an individual therapeutic approach, allowing the influence to be modeled according to the relevance of the client’s psycho-emotional status and cognitive style.

5. Suggestion as a mediator of interpersonal interaction has been studied in the works of Baroi and Muhammad [16], Passmore and Sinclair [17], and many others.

The works have established that implicit suggestion is a critical factor in the formation of therapeutic rapport, as it contributes to the leveling of psychological resistance, the mobilization of internal personality resources, and the strengthening of compliance through the mechanism of expected effectiveness (placebo-related response).

**There is a marked dichotomy of views, which have a pronounced compatibility of technologies with the rational architecture of cognitive-behavioral therapy:**

1. The concept of radical rationalist methodology, which is adhered to by researchers [1,2,18,19], advocates the expediency of preserving the “purity” of the cognitive direction. In their opinion, any implementation of emotional-associative or irrational influences is considered from the perspective of evidence-based scientific principles, which can potentially negate the client’s subjective agency and the transparency of the therapeutic contract.

2. The strategy of integrative pragmatism is the opposite, and the results of large-scale studies by analysts [20-23] demonstrate the flexibility of including suggestive components and create the possibility of using them in classical CBT protocols. This approach shows a significantly higher level of clinical effectiveness. This synergistic approach is particularly valid when used with different patient groups where purely logical deduction is limited by cognitive rigidity or specific clinical characteristics of the profile.

3. The effectiveness of internal dialogue has been proven in the treatment of post-COVID syndromes and addictive eating disorders [4,7]. The effectiveness of suggestion in affective disorders in neurological patients directly depends on the therapy process and its structuring (therapeutic delivery) of the message [21].

According to Frye and Rawlins [24], sensory-somatic changes have a limited effect in cases of intense somatic pain syndromes, where perceptual mechanisms dominate over cognitive-imaginative constructs. Thus, analysis of the scientific debate allows us to note a transition from discussions about the “possibility” of combining methods to the identification of specific clinical indicators and contraindications for the integration of such methods and techniques. These contradictions confirm the need to develop a differentiated model of suggestive implementation that would take into account the neuropsychological limitations and potential of the client.

Predictors of psychological resistance and mechanisms of adaptation in conditions of macrosocial stress, as many

scientists emphasize, focus on the determinants of psycho-emotional stability of subjects functioning in a mode of increased responsibility and vital threat (martial law, pandemic restrictions, intense competitive activity). An analysis of existing studies allows us to identify several vectors of scientific research:

1. In the works of Popovych et al. [25,26] and Kurova et al. [27], a multifactorial model of mental states is substantiated, which expresses key predictors and highlights gender characteristics, the level of dispositional optimism, and the specifics of the situational context. The authors prove that the adaptive potential of a person directly depends on the level of cognitive assessment of stressful circumstances that determine the overall effectiveness of activity.

2. The research by Popovych et al. [28] allows us to consider emotional intelligence not only as a personal trait, but also as a functional component of the subject’s motivational orientation (particularly in football). A connection has been established between the ability to regulate emotions and the intensity of achieving target indicators under stressful conditions during competitions.

3. Expanding the boundaries of therapeutic influence through the introduction of telemedicine technologies and remote support formats [29] allows for a high level of effectiveness in the rehabilitation process of patients with post-COVID symptoms. The versatility of psychological correction mechanisms will allow adaptation to digital platforms without losing therapeutic validity.

Summary and conclusions. The systematization of these studies allows us to conclude that a comprehensive paradigm of psychological resilience has been formed, where the common indicator is the recognition of the need to create a multi-level system of targeted support that integrates individual typological characteristics (gender, optimism); active development of emotional competence; the possibility of using modern technological mediators (telemedicine, digital therapy).

The proposed scientific approaches form the basis for the development of specialized psychological support programs both in high-performance sports and in clinical practice, which is critically important for minimizing the effects of traumatic stress and optimizing adaptation processes.

Modern psychotherapeutic science is expanding the boundaries of the application of integrative CBT models, focusing on the determinants that determine susceptibility to suggestive interventions in different categories of respondents. The high plasticity of neural networks during puberty contributes to the intensification of the therapeutic effect when using modern techniques. In particular, Stewart et al. [10] and Morgan-Mullane [8] verified the effectiveness of telemental formats of suggestive support for minors with PTSD, proving the effectiveness of digital mediation through the suggestive potential of intervention.

The research by Umegaki [30] is of particular scientific value, as it uses a Japanese sample to justify the need for cultural adaptation of the suggestive component in rumination-oriented CBT. This emphasizes the role of the ethnocultural context as a mediator of the perception of therapeutic messages.

The transdiagnostic approach proposed by Ornelas [18] considers suggestive techniques as a universal construct, which, however, requires rigorous methodological structuring to prevent the intervention from losing its focus.

4. Xiongxin and Liang [31] focus on the synergistic effect of the combined use of hypnotherapy and CBT in the treatment of affective disorders, which allows for deep cognitive restructuring. On the other hand, there is theoretical divergence in the field of destructive behavior correction advocating the priority of rational logical-discursive interventions when working with aggression, considering suggestion as a controversial element that can weaken the subject's self-control.

At the same time, the expansion of suggestive techniques within CBT raises important ethical and clinical concerns. One of the key risks is the potential weakening of the client's autonomous cognitive control due to the implicit nature of suggestion, which may reduce critical reflection and increase susceptibility to external influence. This is particularly relevant in cases involving aggressive or impulsive behavior, where insufficiently structured suggestive interventions may unintentionally reinforce maladaptive patterns instead of correcting them. Furthermore, the use of suggestion in digital therapeutic environments introduces additional risks related to algorithmic influence, reduced therapist oversight, and the standardization of suggestive messages without adequate personalization. Therefore, it is essential to ensure that suggestive methods are applied within a clearly defined ethical framework that prioritizes informed consent, preservation of client autonomy, and transparency of therapeutic goals.

5. The universality of the suggestive mechanism is confirmed by the works of Ulrich [22], in particular, methods related to therapeutic suggestion are successfully implemented in the educational process to facilitate the cognitive activation of students. This indicates the preclinical potential of suggestion as a tool for optimizing mental activity in general.

Despite significant progress, a number of questions remain open. Uniform criteria for the effectiveness of suggestive techniques within CBT have not yet been defined, and the long-term results of their use in different cultural contexts have not been sufficiently studied.

A separate focus of the study is on the adaptability of suggestive interventions in remote (telemental) formats. Based on a critical analysis of the collected data, the author developed original summary tables and a structural-logical diagram reflecting the specifics of digital interaction. The interpretations and conclusions presented are based on a comparison of the theoretical positions of various research schools and are supported by the relevant scientific apparatus with references to primary sources.

A separate vector of the study is the analysis of the adaptability of suggestive interventions within the framework of remote (telemental) formats of psychological assistance. Through a critical review of the accumulated empirical material, the specifics of digital interaction in the "therapist-client" system are explained. The result of the author's synthesis is the development of original generalizing techniques.

## Conclusion.

Summarizing the above, it can be argued that the results of the analysis confirm the initial hypothesis regarding the high effectiveness of integrating suggestive methods into the structure of cognitive-behavioral therapy. At the same time, it is necessary to outline a number of methodological limitations: this work is based on a secondary analysis of published sources without the use of a direct experimental design. This research is founded on a secondary interpretation of already existing studies and is not a research that requires a primary data collection and experimental confirmation. The results must then be understood as a conceptual and analytical synthesis of the available scientific data. The suggested model is a theoretical guideline that needs to be further validated on controlled clinical environments.

It should be noted that despite certain theoretical discussions in the professional literature, suggestion appears to be a delicate indirect but highly effective tool of psychotherapeutic influence. It has been established that suggestive interventions can be harmoniously integrated into the logical structure of cognitive-behavioral therapy, ensuring a synergistic increase in its effectiveness. The following areas have been identified as promising directions for further research: studying the dynamics of the influence of various forms of suggestion in controlled clinical conditions; comparative analysis of the effectiveness of suggestion, taking into account the gender, age, and other characteristics of respondents; the possibility of creating adaptive mobile applications and online platforms with integrated suggestive algorithms based on the individual psycho-emotional profile of the user.

## Competing interests.

The authors declare no competing interest.

## Authors' contributions.

**Petro Rogozhan:** Conceptualization; Methodology; Supervision; Writing – review & editing.

**Olga Drobot:** Investigation; Data curation; Formal analysis; Writing – original draft.

**Olena Kostiuhenko:** Methodology; Validation; Visualization; Writing – original draft.

**Viktoriia Stamat:** Resources; Investigation; Data curation; Writing – review & editing.

**Oleg Nazarov:** Formal analysis; Software; Visualization; Writing – review & editing.

## REFERENCES

1. AlHadi AN. Cognitive behavioral therapy in Saudi Arabia: A scoping review on training, practice, and research. *Int J Cogn Ther.* 2024;17:335-346.
2. Khan NT. Cognitive behavioral therapy in Bangladesh. In: *Cognitive behavioral therapy in a global context.* Cham: Springer. 2022:63-84.
3. Nelson J, Kaplan J, Simerly G, et al. The balance and integration of artificial intelligence within cognitive behavioral therapy interventions. *Curr Psychol.* 2025.
4. Ganji MF, Kalantari M, Abedi A. Transformative approaches to chronic mood disorders: A comparative evaluation of cognitive-behavioral therapy and allegorical schema modes. *Curr Psychol.* 2024;43:30989-30998.

5. Reuther E, Canavera K. Brief cognitive-behavioral therapy for pediatric health conditions. In: Brief CBT and science-based tailoring for children, adolescents, and young adults. Cham: Springer. 2024:219-235.
6. Amer NA, Abdelrazek S, Eladrosy W, et al. Computer-based cognitive behavioral therapy intervention for depression, anxiety, and stress disorders: A systematic review. *Int J Cogn Ther.* 2024;17:885-918.
7. Melisse B, Arora T. Cognitive behavioral therapy-enhanced through videoconferencing for night eating syndrome, binge-eating disorder and comorbid insomnia: A case report. *J Eat Disord.* 2024;12:175.
8. Morgan-Mullane A. Trauma-focused cognitive behavioral therapy. In: An integrative approach to clinical social work practice with children of incarcerated parents. Cham: Springer. 2023:57-67.
9. Pincus JD. Goals as motives: Implications for theory, methods, and practice. *Integr Psychol Behav Sci.* 2025;59:22.
10. Stewart R, Orengo-Aguayo R, Shanholtz C. Telehealth delivery of trauma-focused cognitive-behavioral therapy. In: Schueller SJ, Weisz PD, editors. *Telemental health care for children and families.* Cham: Springer; 2024:69-89.
11. Nasif J, Che Din N, Al-Khawaja M, et al. Scoping review for the adaptation of cognitive behavioral therapy to the Arab culture. *Int J Cogn Ther.* 2024;17:919-945.
12. Burger T, Potgieter JC, Nell W. Methods and environmental conditions typical of nature-based mindfulness practice: A scoping review. *Mindfulness.* 2024;15:1621-1637.
13. Csirmaz L, Viktor F, Szekely A, et al. A home-based approach to reduce test anxiety using a combination of methods: A randomized controlled trial. *J Ration Emot Cogn Behav Ther.* 2023;42:322-338.
14. Kılıç G, Samar BŞ, Akkuş K, et al. Effectiveness of a cognitive behavioral group therapy program for obesity: A pre-post and 6-month follow-up results. *Int J Cogn Behav Ther.* 2025.
15. Varela YM, Almeida RN, Menezes Galvão AC, et al. Psychophysiological responses to group cognitive-behavioral therapy in depressive patients. *Curr Psychol.* 2023;42:592-601.
16. Baroi B, Muhammad N. The effectiveness of cognitive-behavioral group therapy on foreign language learning anxiety among university students. *Discov Psychol.* 2024;4:131.
17. Passmore J, Sinclair T. Cognitive behavioral approach and ABCDEF model. In: *Becoming a coach.* Cham: Springer; 2024:133-137.
18. Ornelas AC. Transdiagnostic approaches in cognitive behavioral therapy. Cham: Springer. 2024.
19. Sturmey P. Individual therapies for violence and aggression: I. Cognitive and behavioral therapies. In: *Violence and aggression.* Cham: Springer. 2022:381-408.
20. Hall CA, Broman-Fulks JJ. Taxometric methods in child and adolescent anxiety disorders. In: McKay D, Storch EA, editors. *Handbook of child and adolescent anxiety disorders.* Cham: Springer. 2023:97-110.
21. Kasper G, Hart S, Samuel N, et al. Anxiety and depression in patients with intracranial meningioma: A mixed methods analysis. *BMC Psychol.* 2022;10:93.
22. Ulrich I. Teaching: Activating students. In: *Good teaching in higher education.* Wiesbaden: Springer. 2023:109-122.
23. Vaca KC, Tremmel JA, Edwards KS. Group cognitive behavioral therapy to reduce psychological distress in patients with spontaneous coronary artery dissection. *J Clin Psychol Med Settings.* 2021;28:826-832.
24. Frye WS, Rawlins JT. Cognitive behavioral therapy in an adolescent with juvenile ankylosing spondylitis: A case study. *Int J Cogn Ther.* 2024;17:649-662.
25. Popovych I, Semenov O, Hrys A, et al. Research on mental states of weightlifters' self-regulation readiness for competitions. *J Phys Educ Sport.* 2022;22:1134-1144.
26. Popovych I, Koval I, Raievska Y, et al. Dominating mental states of the representatives of individual sports under lockdown and martial law: Comparative analysis. *J Phys Educ Sport.* 2023;23:170-178.
27. Kurova A, Popovych I, Hrys A, et al. Dispositional optimistic and pessimistic mental states of young athletes: Gender differentiation. *J Phys Educ Sport.* 2023;23:857-867.
28. Popovych I, Plokhikh V, Hrys A, et al. Operationalization of footballers' emotional intelligence in the dimensions of motivational orientation. *J Phys Educ Sport.* 2023;23:772-781.
29. Koliadenko NV, Zhyvago KS, Bursa AI. Provision of medical-psychological and psychiatric care to patients with post-covid syndrome in telemedicine conditions. *Bangladesh J Med Sci.* 2022;21:719-730.
30. Umegaki Y. Delivering rumination-focused cognitive-behavioral therapy in Japan. *Int J Cogn Ther.* 2024;17:1-7.
31. Xiongxin C, Liang X. Hypnotherapy. In: *The ECPH encyclopedia of psychology.* Singapore: Springer. 2024.

#### ანოტაცია

მიზანი: კვლევა განიხილავს კოგნიტურ-ქცევითი თერაპიის (CBT) ინტეგრაციას სუგესტიურ მეთოდებთან, რაც ასახავს ფსიქოთერაპიაში მეთოდოლოგიური კონვერგენციის მზარდ ტენდენციას. ყურადღება გამახვილებულია სუგესტიის ფსიქოლოგიურ მექანიზმებზე და მის ადაპტაციაზე ციფრულ თერაპიულ გარემოში. მეთოდები: გამოყენებულ იქნა სისტემურ-ანალიტიკური მიდგომა, ხარისხობრივი შედარებითი ანალიზი და თანამედროვე სამეცნიერო ლიტერატურის შინაარსობრივი ანალიზი კოგნიტური და სუგესტიური ტექნიკების კომბინაციის ეფექტიანობის შესაფასებლად. შედეგები: კვლევა გამოავლენს სუგესტიის ძირითად ფორმებს CBT-ის ფარგლებში, მათ შორის პირდაპირ და არაპირდაპირ მექანიზმებს, და განმარტავს მათ ნეიროფსიქოლოგიურ საფუძველს აფექტური დამაბულობის შემცირებისა და დისფუნქციური რწმენების მოდიფიკაციაში. მტკიცებულებები ადასტურებს ამ ინტეგრირებული მიდგომის ეფექტიანობას შფოთვის, დეპრესიის, პოსტტრავმული სტრესული აშლილობისა და კვებითი დარღვევების მკურნალობაში. შემუშავებულია კონცეპტუალური მოდელი CBT სესიებში სუგესტიური ელემენტების ფაზობრივი ინტეგრაციისთვის, ასევე მათი ადაპტაცია ციფრულ ინსტრუმენტებთან. დასკვნა: სუგესტიური მეთოდების ინტეგრაცია CBT-ში ზრდის თერაპიულ

ეფექტიანობას და ხელს უწყობს პერსონალიზებული, ციფრულად მდირებული ფსიქოთერაპიის განვითარებას.

საკვანძო სიტყვები: კოგნიტურ-ქცევითი თერაპია, სუგესტია, ფსიქოლოგიური მექანიზმები, აფირმაციები, სუგესტია, თერაპიული ეფექტიანობა, ფსიქოთერაპიული ტექნიკები, ციფრული თერაპია.