

# The effectiveness of biosuggestive therapy in treatment of stress-related and psychosomatic disorders

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## ABSTRACT

**Aim:** To provide a comprehensive overview of the biosuggestive therapy (BST), with a critical evaluation of its effectiveness in managing patients with stress-related and psychosomatic disorders, and to review the published research on its therapeutic applications across various clinical conditions.

**Materials and Methods:** We conducted a literature search in the PubMed, Scopus, and Google Scholar databases for articles published between the early 2000s and mid-2025 that focus on examining the effectiveness of the BST method in managing and alleviating symptoms of various stress-related and psychosomatic disorders. During the literature search, we used the following set of key words: biosuggestive therapy, stress-related disorders, psychosomatic disorders, brain–gut axis, psychological distress, functional gastrointestinal disorders, and somatoform disorders. Considering the lack of research conducted and published to date, the authors compiled all the available information into a collection. We analyzed that collection, which ultimately contained 29 publications relevant to the topic of our review, and forwarded it for further analysis.

**Conclusions:** BST is a safe and effective method for treating a wide range of stress-related and psychosomatic disorders. As a technique derived from hypnotherapy, its application in assisting individuals exposed to war-related trauma is gaining increasing attention. In addition, BST has demonstrated positive outcomes in the treatment of chronic pain, depression, anxiety, internet addiction, post-traumatic stress disorder, and logoneurosis. The presented evidence underscores the need for further research and broader implementation of this therapeutic approach.

**KEY WORDS:** anxiety, depression, suggestion, brain-gut axis

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## INTRODUCTION

Rapid scientific and economic changes, alongside the coronavirus disease (COVID-19) pandemic and the ongoing war in Ukraine, have significantly impacted the mental health of the population, contributing to the development of neuropsychological disorders that also affect physical well-being [1, 2]. Ukrainians have experienced prolonged anxiety, fear, and sleep deprivation due to years of air raids and missile strikes. Anxiety and depression influence all organs and systems, leading to a wide range of health disorders [2]. Somatic and psychological states are closely interrelated and demonstrate a direct cause-and-effect relationship, as psychological distress is frequently manifested through physical symptoms. It is estimated that approximately 15–31% of patients seek medical care for various psychosomatic disorders [3].

Under the influence of psychotraumatic factors, the body exhibits elevated levels of stress hormones and mediators, disturbances in the neural regulation of organ and system functions, and disruption of humoral

homeostasis. These processes contribute to the manifestation of disease even in the absence of identifiable organic pathology. In cases where pathology already exists, prolonged stress further exacerbates psychological distress and intensifies the severity or onset of somatic symptoms.

In the context of adjustment and neurotic disorders associated with chronic distress, the primary goal of medical and psychological interventions is to prevent mental maladaptation as well as the development of mental and psychosomatic illnesses. Psychological interventions, including psychotherapy, are essential for preventing psychosomatic and stress-related conditions, complementing pharmacological treatments [4]. Psychotherapy, in particular, has gained increasing relevance in modern clinical practice. Considering the above, the search for effective, evidence-based, and safe pharmacological and/or non-pharmacological approaches that can be applied in both structured and single-session psychotherapeutic or psychocorrective interventions remains an important and timely objective.

One of the methods of psychological interventions is a hypnotherapy-based procedure – biosuggestive therapy (BST) – developed in Ukraine by A. Strashny [5]. It combines suggestion, tactile, verbal, and auditory techniques in individual or group sessions. BST effectively alleviates stress, anxiety, pain, and fatigue, gaining recognition in Ukraine since and during the active stage of the war [6]. An eight-session BST course improves overall health by targeting psychological stress and negative emotions, which are key factors in the dysregulation of the gut–brain axis, normalization of the response to aversive visceral stimuli, and subsequent normalization of visceral sensitivity and motility [7–10]. This method does not require deep hypnosis, which provides an advantage in patient acceptance and easier training for providers [5].

The digestive system is among the organ systems most affected by chronic stress in the human body. In particular, the disruption of neurohormonal regulation leads to the development of disorders of gut–brain interaction (DGBI) [11]. DGBI, formerly termed functional gastrointestinal disorders, represents a group of chronic or recurrent gastrointestinal conditions characterized by symptoms that lack identifiable structural or biochemical abnormalities. DGBI are systematically categorized into distinct subgroups based on anatomical or functional domains, as outlined by the Rome IV framework. These include oesophageal disorders (e.g., functional heartburn, characterized by retrosternal burning without evidence of gastroesophageal reflux), gastroduodenal disorders (e.g., functional dyspepsia, marked by postprandial fullness or epigastric pain), bowel disorders (e.g., irritable bowel syndrome [IBS], defined by recurrent abdominal pain associated with altered bowel habits), and anorectal disorders (e.g., functional defecation disorders) [12, 13].

The Rome Foundation's recommendations for managing diseases of the DGBI include evidence-based approaches like cognitive-behavioural therapy (CBT), gut-directed hypnotherapy, and mindfulness [7, 14, 15]. Gut-directed hypnotherapy effectively reduces gastrointestinal symptoms in IBS and functional dyspepsia, comparable to the FODMAP diet, with group sessions showing high efficacy [16, 17]. The Rome recommendation for hypnotherapy became the justification for proposing the use of the BST method for the correction of DGBI, as BST is the successor to hypnotherapy, which allows for the restoration of impaired gut–brain connections in a state of light trance [7–10].

## AIM

The aim of this article is to provide a comprehensive overview of BST, with a critical evaluation of its effective-

ness in the management of patients with stress-related and psychosomatic disorders, and to review the published research on its therapeutic applications across various clinical conditions.

## MATERIALS AND METHODS

We conducted a literature search in the PubMed, Scopus, and Google Scholar databases for articles published between the early 2000s and mid-2025 that focus on examining the effectiveness of the BST method in managing and alleviating symptoms of various stress-related and psychosomatic disorders. During the literature search, we used the following set of key words: biosuggestive therapy, stress-related disorders, psychosomatic disorders, brain–gut axis, psychological distress, functional gastrointestinal disorders, and somatoform disorders. Considering the lack of research conducted and published to date, the authors compiled all the available information into a collection. We analyzed that collection, which ultimately contained 29 publications relevant to the topic of our review, and forwarded it for further analysis.

## ETHICS

The preparation of this article followed the principles of scientific ethics and academic integrity, maintaining a commitment to transparency, accuracy, and ethical responsibility throughout all stages of literature selection, analysis, and interpretation.

## REVIEW AND DISCUSSION

Our review includes a small number of studies because BST, while well known to Ukrainian practitioners, is only just beginning to accumulate scientific publications. This review includes studies examining the effectiveness of BST for various psychosomatic disorders, with some studies comparing it to CBT. All existing studies indicate the effectiveness of the method to varying degrees. The efficacy of BST is predictable, as it is a direct descendant of hypnotherapy, which has already proven its effectiveness. However, unlike hypnotherapy, which requires specialised training [7], the simplicity and error-proof nature of BST allow it to be used by both medical and psychological specialists after a relatively short and straightforward training course.

For example, K. Zelenska and T. Kraskovska [18] studied 86 internally displaced persons (IDPs) aged 18–55 in 2014. Among the enrolled participants, 42,5% had acute stress, 35,2% anxiety–depression, and 22,3% mixed reactions. Those treated with BST (50 patients,

8 sessions) showed a greater reduction in Hospital Anxiety and Depression Scale (HADS) anxiety/depression scores than the control group (36 patients treated according to traditional protocols), shifting symptoms to subclinical levels.

O. Venger et al. [19] enrolled 165 participants; 114 completed BST (64 IDPs and the comparator group of 50 permanent residents [PRs]). At baseline (pre-BST), severe depression according to DASS-21 was found in 15,62% of IDPs and 4,00% of PRs. After the BST course (post-BST), the authors observed an increase of 17,18% (from 23,44% to 40,62%) and 18,00% (from 20,00% to 48,00%) in the frequency of normal DASS-21 depression scores among IDPs and PRs, respectively.

Severe anxiety, detected in 17,19% of IDPs and 14,00% of PRs before BST, was not observed in either group after treatment. Moreover, a normal DASS-21 anxiety level post-BST was recorded in 28,12% of IDPs (vs. 0 % pre-BST) and 34,00% of PRs (vs. 4,00% pre-BST). Stress levels also decreased: severe cases, observed initially in 17,19% of IDPs and 18,00 % of PRs, were absent after BST; finally, 26,56% of IDPs and 32,00% of PRs demonstrated normal stress levels upon completion of therapy.

Furthermore, normal sleep quality increased by 39,06% in IDPs (from 3,13% to 42,19%) and by 40,00% in PRs (from 18,00% to 58,00%). In addition, after BST, the proportion of IDPs who considered their quality of life to be high increased by 7,81%, while in the PR group it increased by 40,00%, and another 10,00% of PR respondents began to rate their quality of life as very high [19].

The study by O. Osokina et al. [20] adapted BST for use as a psychocorrection method for pain. The authors aimed to explore the potential of BST in managing patients with acute and chronic pain of various origins and locations in psychoneurological and dental practice. The pain was assessed using the McGill Pain Questionnaire (MPQ) in 148 patients who reported pain. The MPQ evaluates two key indicators: the Number of Chosen Descriptors Index (NCDI), which reflects the number of descriptive words selected, and the Pain Rating Index (PRI), representing the sum of the scores from all chosen descriptors. The study included 72 psychoneurological patients and 76 dental patients, with pain intensity, sensory, and emotional components tracked over time. The patients from the main group (82 respondents, including 40 psychoneurological and 42 dental profile patients), underwent a session of BST after the initial psychodiagnostic examination, followed by a repeat examination two hours later. The control subjects (66 people, including 32 and 34 patients of psychoneurological and dental profiles) decided to cope with the pain syndrome on their own. In the experimental group,

the average NCDI was  $6,6 \pm 1,9$ , compared to  $6,1 \pm 1,8$  in the control group (non-significant). The average PRI was  $32,4 \pm 2,0$  in the experimental group and  $20,6 \pm 2,1$  in the control group (non-significant). The study groups were also comparable in terms of baseline mean pain score ( $3,7 \pm 2,5$  vs.  $3,6 \pm 2,6$  in the experimental and control groups, respectively;  $3,5 \pm 2,6$  for psychoneurological patients and  $3,8 \pm 2,7$  for dental ones).

The study found that patients undergoing BST reported normalized emotional states, reduced anxiety, and decreased irritability. These changes influenced pain perception, leading to reduced pain intensity. In the experimental group, MPQ scores improved significantly post-BST, from  $3,8 \pm 2,5$  to  $2,1 \pm 2,4$  for psychoneurological patients, and from  $3,6 \pm 2,6$  to  $2,2 \pm 2,5$  for dental patients (both  $p < 0,05$ ).

Conversely, the control group showed non-significant changes in both MPQ components (NCDI:  $3,2 \pm 2,6$  initially to  $5,4 \pm 2,3$  after two hours; PRI:  $13,8 \pm 2,7$  to  $19,9 \pm 2,5$ ). The authors concluded that BST effectively targets the emotional aspects of pain, modifies sensory and subjective pain components, and can be used independently or alongside pharmacological treatments for pain management [20].

Let us return to the negative impact of war on the human psychological state. Armed conflict exerts profound and multifaceted effects on mental health, influencing emotional regulation, cognitive functioning, and overall psychosocial well-being. Exposure to the chronic stressors of war—including life-threatening situations, witnessing violence, loss of comrades, and prolonged uncertainty—triggers complex neurobiological and psychological responses. These effects are most pronounced among military personnel, who experience sustained exposure to traumatic events and extreme environmental stress. Consequently, soldiers often exhibit elevated rates of post-traumatic stress disorder, depression, anxiety disorders, and psychosomatic manifestations, which collectively contribute to long-term psychological maladaptation and impaired quality of life [21]. Recent studies show that BST improves the emotional well-being of military personnel. After soldiers received BST, the HADS test revealed a significant reduction in anxiety and depression levels. None of the participants exhibited clinically significant anxiety or depressive conditions after the treatment, and the majority transitioned to normal ranges, indicating the effective resolution of anxiety and depression issues. Additionally, the Beck Depression Inventory (BDI) results demonstrated a significant reduction in depressive symptoms. The number of military personnel without depressive symptoms increased from 2 to 18, while cases of moderate and severe depression decreased

significantly. No participants exhibited severe depression before or after therapy, suggesting stabilization of their emotional state. Overall, BST reduces anxiety and alleviates depressive symptoms in combat veterans. Based on these findings, practical recommendations were developed for integrating this method into rehabilitation programs [22].

The war affects not only military personnel but also adult civilians. A quantitative study was conducted to evaluate the efficacy of BST in alleviating anxiety and depression symptoms among Ukrainian civilians under martial law. The study by L. M. Prudka [23] examined the role of BST in reducing anxiety and depression levels within this group. It involved 100 participants, split into two groups: an experimental group (50 people) undergoing BST and a control group (50 individuals) receiving routine psychological assistance.

The effectiveness of the therapy was evaluated using the Beck Anxiety Inventory (BAI) and the Beck Depression Inventory (BDI) before and after an eight-session programme. In the experimental group, the baseline average score was 30 on the BAI (indicating elevated anxiety) and 28 on the BDI (suggesting moderate depression). Following BST, these scores decreased to 18 on the BAI (moderate anxiety) and 14 on the BDI (mild depression).

For the control group, the initial scores were 29 on the BAI and 27 on the BDI. These decreased to 25 and 23, respectively, which continued to reflect high anxiety and moderate depression. Conversely, the experimental group demonstrated a significant reduction in both anxiety and depression levels compared with the control group. Overall, the experimental group experienced a 40% decrease in anxiety and a 50% decrease in depression, versus 14% and 15%, respectively, in the control group [23].

As a result of the war, children and teenagers in Ukraine experience anxiety, fear, depression, and other psychological disorders that require medical and psychological rehabilitation. The effectiveness of BST in children and adolescents is demonstrated in the work of Y. Yashchyshyna [24]. The authors administered up to eight BST sessions for 46 children and adolescents in groups of 6–7 people. Initial and final measurements were performed according to the Children's Questionnaire of Neuroses (CQN) [25].

According to quantitative data analysis, 89,5% of the examined patients showed positive dynamics on at least one scale and specific changes during treatment. Following BST, indicators on the scales «Sleep disturbance» improved by 26%, «Depression» by 22,3%, «Vegetative disorders» by 16,5%, «Asthenia» by 11%, «Violation of behaviour» by 10,4%, and «Anxiety» by 8,1%.

Additionally, before and after the session, the emotional state evaluation method "Thermometer of Feelings", with a colour scale measuring well-being (from green [good] to red [bad]), was used to assess the results. The obtained data indicated that BST favourably changed the distribution of colour patterns: the «red zone» reduced from 13% to zero cases, the «orange zone» decreased from 19% to 6%, the «yellow zone» declined from 37% to 19%, and the «green zone» showed a more than twofold increase—from 31% to 75% [24].

Addiction's development is linked to modern issues such as the impact of virtual life on socialisation. The issue of Internet addiction in children and adolescents has recently gained prominence [26]. The potential of BST in the treatment of Internet addiction was investigated in the work of O. Venher and T. Ivanitska [27]. The Kimberly Young Internet Addiction Test (IAT) scale was used; Internet addiction was detected in 61 people aged 16 to 28 years (19 [31,2%] males and 42 [68,8%] females). Outcomes were assessed in three groups using psychometric scales. The Beck Depression Inventory (BDI-1A) scores decreased by 23,2% in group I (autogenic training), 46,6% in group II (CBT), and 33,3% in group III (BST), which was divided into subgroups IIIa and IIIb depending on patients' suggestibility.

Clinical anxiety levels according to the Sheehan Anxiety Rating Scale (ShARS) decreased by 49,2% in group I, 86,7% in group II, 66,7% in group IIIa, and 100% in group IIIb. Thus, CBT and BST methods were the most impactful, especially among respondents with high levels of suggestibility [27].

Psychological and emotional stress contribute to behavioral disorders in both children and adults, which can be accompanied by the development of speech disorders. One of the most common language disorders is stuttering, which in most cases is caused by logoneurosis. T. Nesterenko [28] demonstrated the efficacy of BST psychotherapeutic component in the correction of logoneurosis in adult patients. The study included 26 adult patients with logoneurosis aged 18 to 29 years. As a result, there was a normalization of the emotional background in the patients who underwent a BST course, primarily due to a decrease in the level of anxiety and irritability. The study confirmed the effectiveness of the BST method in achieving emotional and physical calmness and relaxation, which significantly facilitated further therapeutic work with patients suffering from logoneurosis [28].

Finally, regarding the war in Ukraine, we conducted our own research (O. Gubska et al. [29]) in April–July 2022 in the de-occupied areas of the Kyiv region. The BST was applied to 15 residents (mean age  $53,14 \pm 16,95$  years). As a result of 5 BST sessions, HADS (anxiety score)

decreased, sleep normalized, and abdominal pain (assessed by VAS) decreased significantly in the majority of patients. Thus, this small pilot study demonstrated the effectiveness of BST in war-related psychological stress.

We did not find any study dedicated to researching the use of BST in the treatment of DGBI. However, given the effectiveness of the method in treating psychosomatic disorders and the essence of the approach itself, it is likely to be effective in treating DGBI as well. Moreover, its versatility and ease of use suggest that it could be a suitable method for the non-pharmacological treatment of these diseases. As we already know, DGBI disorders are chronic stress-related, and we can therefore establish a link between the effectiveness of BST for stress-induced states and its possible positive therapeutic effect on DGBI patients. Based on the above, we propose investigating the effectiveness of BST in DGBI as a promising area for further research.

## CONCLUSIONS

The evidence reviewed in this article supports the efficacy and safety of BST as a promising therapeutic modality for the management of a wide range of stress-related and psychosomatic disorders across different age groups. The analysed studies consistently demonstrate that BST contributes to the alleviation of both psychological and somatic symptoms in patients with functional and chronic conditions, emphasising its potential as an integrative mind–body intervention. In the context of the ongoing war in Ukraine, the relevance of BST becomes even more pronounced, as it offers an effective, non-pharmacological approach for individuals exposed to prolonged stress and trauma-related psychosomatic disturbances. Further large-scale, controlled studies are warranted to better elucidate its underlying mechanisms, refine its clinical protocols, and expand its implementation within integrative and psychosomatic medicine.

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## CONFLICT OF INTEREST

The Authors declare no conflict of interest

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