

PROSPECTS ON THE IMPLEMENTATION OF THE TRAINING COURSE
"PSYCHOPHYSIOLOGY OF CONSCIOUS COMMUNICATION
IN CRISIS CONDITIONS" FOR INTERNATIONAL MEDICAL STUDENTS

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<https://doi.org/10.35339/ic.2026.13.1.vak>

ABSTRACT

Background. Prolonged crisis conditions, including the coronavirus disease 2019 pandemic and the full-scale war in Ukraine, have significantly affected higher medical education. International medical students are particularly vulnerable due to stress, intercultural adaptation challenges, language barriers, and difficulties in academic communication. Under these circumstances, the development of conscious communication skills and emotional self-regulation becomes an important component of professional training.

Aim. To substantiate the development and implementation of the course "Psychophysiology of Conscious Communication in Crisis Conditions" for international medical students, considering psychophysiological aspects of communication under stress and contemporary educational approaches.

Materials and Methods. The study was based on the analysis of contemporary scientific literature on communication competence, neurophysiological mechanisms of communication, emotional regulation, and communication training in medical education during crisis conditions. Educational materials developed within the Ukrainian-Swiss Project "Medical Education Development" were adapted. Based on this framework, the authors developed the course "Psychophysiology of Conscious Communication in Crisis Conditions", integrating a neurophysiological component developed at the Department of Physiology of Kharkiv National Medical University. The conceptual structure of the course was developed by the authors, while ChatGPT (GPT-5.5, OpenAI) was used solely for visualization of the course framework.

Research Ethics. The article describes the development of an educational course and does not involve human participants or biomedical experimentation. Therefore, ethical approval was not required.

Results. Chronic stress affects communication, emotional regulation, and adaptation processes. Analysis of educational practices revealed limited integration of psychophysiological approaches into communication training. A course concept (1.5 European Credit Transfer and Accumulation System credits) is proposed, combining psychophysiological knowledge, conscious communication skills, and practice-oriented learning in blended and online formats.

Conclusions. The proposed course may enhance communicative resilience, emotional self-regulation, and adaptive capacity among international students, contributing to a psychologically safe educational environment in crisis conditions.

Keywords: *soft skills, communicative resilience, neurophysiological component, emotional self-regulation, educational environment.*

Introduction

The full-scale war in Ukraine has led to profound transformations in the system of higher me-

dical education, making relevant not only the issue of ensuring the continuity of the educational process, but also the need to support the psycho-emotional stability of students and teachers. In conditions of prolonged stress, security threats and instability, communicative competence, the ability to emotional regulation and the formation of psychologically safe educational interaction become of particular importance. Under such circumstances, not only the transfer of knowledge to students becomes a priority, but also the creation of a supportive educational environment focused on preserving the psycho-emotional well-being of students and developing their professional stability [1–3].

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A particularly vulnerable category is international medical students studying in Ukrainian Higher Education Institutions (HEIs). In addition to the general challenges associated with martial law, they face difficulties in intercultural adaptation, language barriers, distance learning formats, and limited opportunities for direct communication with the academic environment. Taken together, these factors create an increased burden on psychophysiological adaptation mechanisms, which directly affects the academic performance, motivation, and professional development of future doctors [4–7].

Scientific studies in the field of psychophysiology indicate that chronic stress disrupts cognitive processes, emotional regulation, and interpersonal communication, reducing the ability to effectively communicate professionally [3; 8–10]. In medical education, where communication is a key tool for interacting with patients, colleagues, and interdisciplinary teams, these disorders have not only educational but also potential clinical consequences. At the same time, traditional educational programs of medical institutions of higher education, as a rule, do not provide for systematic training of students for conscious communication in conditions of crisis stress [11].

Separate training initiatives and short-term educational events conducted in various Ukrainian HEIs during martial law, aimed at developing communication skills, do not ensure the holistic and sustainable formation of psychophysiological resilience and conscious interaction, in particular among international students. The lack of structured educational modules integrated into formal educational programs taking into account the European Credit Transfer System (ECTS), leads to the fragmentation of approaches and limits their long-term impact [5; 12].

In this context, the need to create and implement a training course that combines psychophysiological knowledge, principles of conscious communication and practice-oriented teaching methods in crisis conditions is becoming more urgent [13–15]. Such a course should be aimed at developing the ability of international students to emotional self-regulation, empathetic interaction and professional communication in complex educational and clinical situations.

The **aim** of this study was to substantiate the development and implementation of the course "Psychophysiology of Conscious Communication in Crisis Conditions" for international medical students, taking into account psychophysiological

aspects of communication under stress and current challenges facing the medical education system of Ukraine under martial law.

Materials and Methods

The study was based on the analysis of contemporary scientific literature concerning communication competence, neurophysiological mechanisms of communication, emotional regulation, and communication training in medical education under crisis conditions. Educational materials developed within the Ukrainian-Swiss Project "Medical Education Development" were reviewed and adapted. Based on this framework, the authors developed the course "Psychophysiology of Conscious Communication in Crisis Conditions", integrating a neurophysiological component developed at the Department of Physiology of Kharkiv National Medical University. The conceptual structure of the course was developed by the authors. ChatGPT (GPT-5.5, OpenAI) was used solely for visualization of the course framework.

Research Ethics

The article describes the development of an educational course and does not involve human participants, personal data processing, or biomedical experimentation. Therefore, ethical approval was not required.

Results

Based on the analysis of contemporary scientific literature, the key psychophysiological factors influencing communication under crisis conditions were identified. Particular attention was paid to the effects of chronic stress on cognitive functioning, emotional regulation, empathy, and interpersonal interaction. These findings provide a theoretical basis for the development of the training course "Psychophysiology of Conscious Communication in Crisis Conditions" for international medical students.

Psychophysiological principles of communication in stress conditions

Communication as a complex multilevel process is based on the integration of cognitive, emotional and physiological mechanisms. Under normal conditions, effective interpersonal interaction is ensured by the balanced work of the central nervous system (CNS), coordinated regulation of emotions and the ability to consciously control behavioural reactions [16; 17]. At the same time, the impact of chronic stress significantly changes the psychophysiological foundations of communication, which is manifested in impaired attention, reduced cognitive flexibility, increased emotional reactivity and reduced empathic sensitivity [3; 8; 10].

From the perspective of psychophysiology, stress is considered as a systemic multilevel reaction of the body in crisis situations, for example, when exposed to threatening or excessive factors. Under stress conditions, a nonspecific adaptation reaction develops, which is accompanied by activation of the hypothalamic-pituitary-adrenal system and sympathoadrenal mechanisms, which leads to changes not only in visceral but also in cognitive functions of the body [9]. Current studies have demonstrated that prolonged (chronic) stress causes morphological changes in certain brain structures involved in the regulation of emotional state, memory and learning, thinking, language, decision-making and social behaviour [8]. It has been experimentally proven that chronic stress leads to atrophy of basal ganglia neurons, partial degeneration of the grey matter of the prefrontal cortex and the limbic system of the brain, which is also observed in patients with mental illnesses accompanied by depression. It is likely that under conditions of chronic stress, morphofunctional changes in the indicated neural structures cause a violation of a person's communicative abilities. Under such conditions, communication increasingly becomes reactive, which complicates constructive dialogue and mutual understanding [13].

Of particular importance in the context of communicative interaction is the impact of stress on the emotional sphere. Disruption of the balance between the processes of excitation and inhibition, reduced tolerance to frustration, and the dominance of negative emotional states contribute to the formation of protective or unique behavioural patterns [16; 17]. In the educational and clinical environment, this can manifest itself in various manifestations of disorders of the higher integrative functions of the CNS, in particular, a decrease in willingness to cooperate, difficulties in perceiving feedback, conflict or, conversely, excessive passivity in communication [13; 14]. For medical education, these psychophysiological changes are of fundamental importance, since the professional activity of a doctor involves constant interpersonal interaction in conditions of emotional tension and high responsibility. Insufficient development of emotional self-regulation skills and conscious communication under stress can negatively affect both the quality of the educational process and future clinical practice after graduation [9; 10; 18].

Conscious communication, in the psychophysiological dimension, is considered as the ability of the subject to maintain awareness of his own emo-

tional and bodily reactions, regulate them and build interaction taking into account the psychoemotional state of the interlocutor [17–21]. It is based on the development of metacognitive processes, empathy and self-observation skills, which allows reducing the level of emotional tension and maintaining the psychological safety of the communicative space even in crisis conditions [22–26].

In the context of the formation of psychologically safe communicative interaction, it is advisable to use metaphorical models as a didactic tool that facilitates the internalization of complex psychophysiological and behavioural mechanisms. In particular, the metaphor of a "friendly, non-aggressive presence" (conditionally – friendly brontosaurus) can be considered as a generalized image of a stable, predictable and supportive communicative position of the subject [25]. Such a position implies the ability to regulate one's own emotional reactions, reduce reactivity and maintain a benevolent style of interaction, which contributes to the formation of psychological safety of the communicative space. In conditions of chronic stress and intercultural interaction, this approach can be considered as an effective tool for the development of conscious communication and increasing the adaptive resilience of international medical students [18; 25; 27].

Thus, the psychophysiological approach to the analysis of communication under stress allows us to substantiate the need for targeted educational influence aimed at developing awareness, emotional regulation, and sustainable communication competencies. For international medical students who are in a situation of multifactorial stress, including intercultural adaptation and learning in crisis conditions, this approach becomes particularly relevant.

Features of adaptation of international medical students in crisis conditions

Indeed, adaptation of international students to study in higher medical education institutions is a very complex multidimensional process that always includes psychophysiological, emotional, cognitive and sociocultural components [27–30]. Under normal conditions, this process involves the gradual formation of new models of behaviour, communication and professional identity. At the same time, crisis conditions caused by global and local challenges significantly complicate the course of adaptation mechanisms and increase the risk of developing maladaptive reactions [1–7; 31; 32].

In recent years, the higher education system has been operating under conditions of prolonged crisis load, associated, on the one hand, with the COVID-19 pandemic and the forced transition to distance and blended learning formats, and on the other hand, with the full-scale war in Ukraine [5; 31–36]. The combination of these factors has formed a persistent stress background, accompanied by uncertainty, limited social interaction, reduced sense of security and disruption of habitual communicative practices [37; 38]. For international medical students, this situation creates a particularly difficult context of adaptation [27–30; 39].

International students are in a situation of complex stress, which includes the need to master academic requirements, professional competencies, as well as adaptation to a new cultural and educational environment [40]. Crisis conditions exacerbate these challenges due to limited opportunities for social integration, the distance nature of education in front-line regions or hybrid (in other regions of Ukraine), information instability and emotional exhaustion. Taken together, this leads to an increased load on the psychophysiological resources of the individual and reduces the effectiveness of adaptation mechanisms [41].

An important factor in adaptation in these conditions is the linguistic aspect of communication. In the educational and everyday environment, communication is carried out in both Ukrainian and English, and for most international students, neither of them is their native language. This creates additional cognitive and emotional burden, especially in stressful or emotionally charged communicative situations [28–29].

The Ukrainian language in the modern educational context performs not only an educational, but also an integration function. Its study and practical application are a necessary condition for the inclusion of international students in the academic and social environment of the university and Ukrainian society in general [42]. At the same time, the process of mastering the Ukrainian language and using it in real communicative situations requires significant psychophysiological resources, especially in times of crisis, when stress tolerance decreases and emotional reactivity increases [29]. English, which is traditionally considered a universal means of international academic communication, in practical terms also does not always provide effective interaction. For some international students, English is not their native language, and the level of proficiency in it

can differ significantly. In addition, English is not widely used in the extra-academic student environment, which limits the possibilities of social integration and contributes to the formation of additional communicative barriers. Under such conditions, English can perform not only a communicative, but also a stress-producing function [27; 28].

The heterogeneity of language competence, the need for constant switching between languages, and limited opportunities for full self-expression in crisis conditions contribute to increased emotional tension, decreased confidence in one's own communicative abilities, and the formation of unique behavioural strategies. In the educational process, this can manifest itself in decreased activity, difficulties in receiving feedback, limited participation in group work, and decreased motivation to learn [43; 44].

Practical experience of working with foreign medical students in crisis conditions shows that it is precisely communicative difficulties caused by psychophysiological exhaustion, language barriers, and intercultural differences that are one of the key factors of maladaptation [27–30; 39]. In the absence of targeted educational support, communication loses its adaptive and supportive function and can turn into an additional source of stress [2; 28; 29; 31].

In the context of medical education, these problems are of particular importance, since communicative competence is a fundamental component of a doctor's professional training. The formation of the ability to conscious communication, emotional self-regulation and flexible use of language resources in a multilingual and intercultural environment is a necessary condition for both successful training and further clinical practice.

Thus, the adaptation of international medical students in conditions of prolonged crises – both global and local – requires a systemic educational approach that combines psychophysiological knowledge, the development of conscious communication and practice-oriented teaching methods taking into account the multilingual and intercultural context. The absence of such integrated modules in formal educational programs necessitates the creation of a specialized training course aimed at supporting adaptation processes and increasing the communicative resilience of international students [11; 45].

Analysis of existing educational approaches to the development of communicative competences in Ukraine shows that in recent years, Ukraine has seen an increase in attention to the problem of de-

veloping communicative competences in higher education, in particular in the medical field. This is due to both global transformations of the educational process associated with the COVID-19 pandemic and local crisis challenges caused by martial law [5; 12; 32]. In response to these challenges, a number of educational initiatives have been implemented aimed at supporting psychological resilience, developing effective communication skills, and improving the quality of interaction in the educational environment [1; 19–26].

The most common forms of such initiatives are short-term trainings, seminars, schools, and online courses focused on developing communication skills, emotional intelligence, or psychological support. For example, within the framework of international projects and donor programs, educational activities are implemented for teachers and students that cover issues of conscious communication, empathy, psychological safety and leadership. In particular, within the framework of the Ukrainian-Swiss project "Development of Medical Education", educational initiatives aimed at developing conscious communication, psychological safety and resilience in medical education are implemented [46; 47]. An important role in this process is played by inter-university initiatives and international technical assistance projects that contribute to the introduction of modern educational approaches.

The analysis of educational approaches in Ukrainian higher medical education institutions also demonstrates the presence of separate academic disciplines aimed at developing communicative competencies. For example, the Bukovina State Medical University has introduced an elective course "Medical Communication in the System of Doctor-Patient Relations and Conflict Management in a Medical Organization", aimed at developing practical skills in professional interaction, analysing communicative situations, and developing conflict management skills in medical practice. In addition, the university implements educational programs and trainings to develop a doctor's communicative competence, which include developing verbal and non-verbal communication skills, emotional self-regulation, and stress tolerance [48; 49].

At the same time, the analysis of existing practices shows that most of such initiatives are fragmentary and are not integrated into the main educational programs of higher education institutions. Educational activities, as a rule, do not provide for a systematic assessment of learning outcomes, are

not related to the ECTS and do not provide a long-term educational effect [2; 5; 12]. In addition, they are mostly focused on general communication skills and do not take into account the specifics of psychophysiological processes that underlie communication in conditions of chronic stress. Taking into account the cross-cultural context, effective communication requires a deeper understanding of the social, cultural and behavioural features of interaction, which is confirmed by modern research, in particular in the Ukrainian context [40–42].

Special attention should be paid to issues of linguistic and intercultural communication. Existing courses and trainings rarely consider communication in a multilingual environment as a psychophysiological challenge, focusing mainly on language training or general aspects of intercultural interaction [27–29]. At the same time, for international medical students studying in Ukrainian higher education institutions, communication in Ukrainian and English in times of crisis is associated with additional emotional and cognitive load, which remains outside the focus of most educational programs [30; 39].

In medical education in Ukraine, issues of communicative training are traditionally integrated within individual disciplines or practical classes focused on doctor-patient interaction [15; 48; 49]. However, such elements, as a rule, do not form a holistic view of the psychophysiological mechanisms of communication and are not aimed at the development of conscious interaction in times of crisis. This is especially true for educational programs for international students, which require adapted and interdisciplinary approaches.

Thus, despite the presence of some positive practices and educational initiatives, Ukraine currently lacks a systematic training module integrated into the formal educational programs of medical higher education institutions and focused on the development of psychophysiological foundations of conscious communication in crisis conditions, taking into account the multilingual and intercultural context. This gap necessitates the development and implementation of a specialized training course.

Concept and educational logic of the training course "Psychophysiology of conscious communication in crisis conditions"

The proposed training course "Psychophysiology of conscious communication in crisis conditions" is designed as an integrated educational response to modern challenges in medical education, caused by prolonged crisis conditions of

a global and local nature. The concept of the course is based on a combination of a psychophysiological approach, principles of conscious communication and practice-oriented teaching methods adapted to a multilingual and intercultural educational environment.

The course is structured in the form of three content modules that provide a step-by-step formation of knowledge, skills and abilities – from theoretical awareness of the psychophysiological foundations of communication to their practical application in real and simulated situations (*Fig.*). Such a structure corresponds to the principles of student-centred learning and the logic of the ECTS.

The first module of the course covers the study of psychophysiological mechanisms of stress, emotional regulation and their impact on communicative behaviour. Within the framework of this course, students form a basic understanding of changes in cognitive and emotional processes in crisis conditions, as well as the peculiarities of adaptation of international students in a multilingual and intercultural environment.

The second module focuses on developing skills of conscious communication, empathic interaction and self-regulation. Special attention is paid to communication in Ukrainian and English in conditions of different levels of language competence, as well as building psychologically safe interaction in the educational environment. Practical classes involve the use of interactive methods, analysis of communicative cases and work with emotionally difficult situations.

The third module is practice-oriented and aimed at applying the acquired knowledge in simulation and digital learning environments. Within the framework of this module, distance and blended learning tools are used, which allow practicing communication skills in an online format, modelling crisis scenarios and reflecting through structured debriefing. This contributes to the formation of professional resilience and readiness for communication in real clinical and educational situations.

The total volume of the training course is 1.5 ECTS credits (45 hours), which includes lectures, practical work and independent activities of stu-

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COURSE STRUCTURE

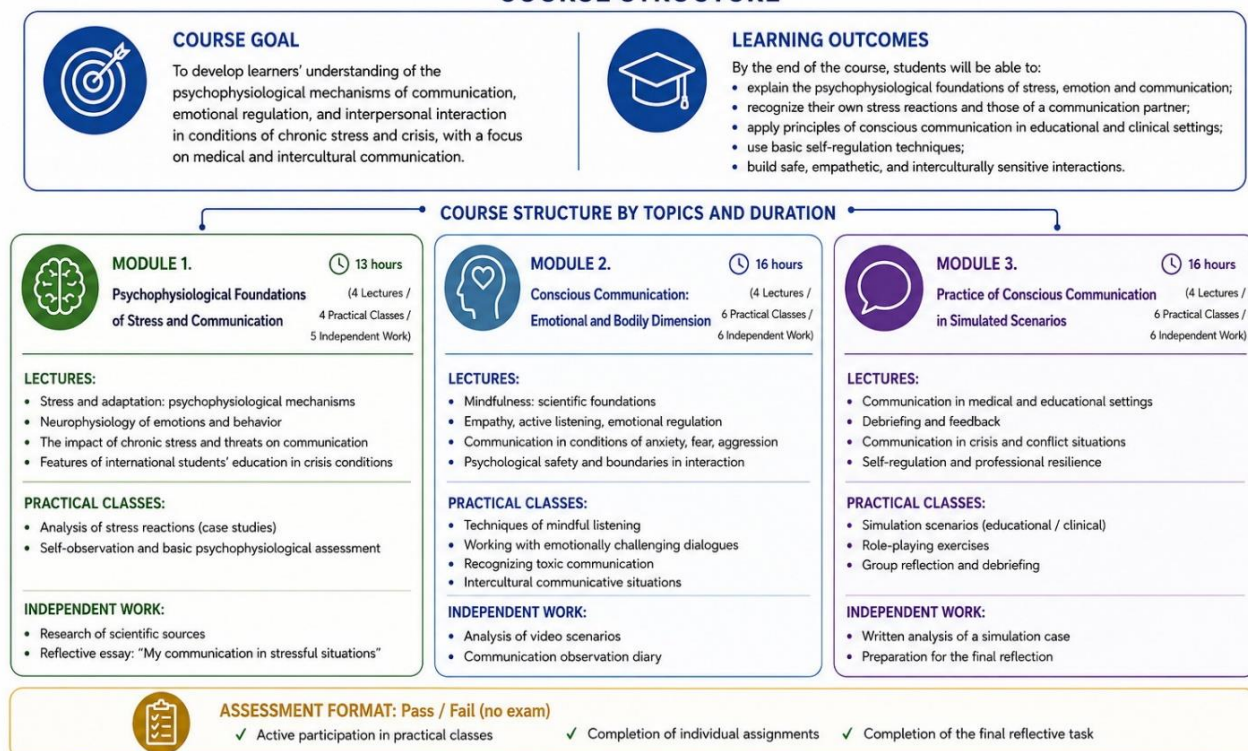


Fig. The structure of the author's original course "Psychophysiology of conscious communication in crisis conditions".

dents. This approach provides a balance between theoretical training, practical development of skills and reflective understanding of experience.

The educational logic of the course involves a consistent transition from awareness of the psychophysiological foundations of communication to their integration into the professional activities of a future doctor. This allows us to consider the training course as an important element of systemic support for adaptation, communicative competence and professional stability of international medical students in conditions of prolonged crisis challenges.

Discussion

The results of theoretical analysis and generalization of practical experience indicate that the proposed training course "Psychophysiology of conscious communication in crisis conditions" meets the current challenges of modern medical education and fills the existing gap between academic training and the real communicative needs of international students [1; 5; 27–30; 33; 37; 43]. Unlike fragmentary trainings and short-term educational initiatives, the course is systemic in nature, integrated into the formal educational program and coordinated with ECTS [50; 51].

A feature of the proposed course is an interdisciplinary approach that combines psychophysiological knowledge, principles of conscious communication and modern digital educational tools. Such integration allows us to consider communication not only as a social or linguistic skill, but as a complex psychophysiological process, sensitive to the influence of stress, emotional exhaustion and crisis factors. This is especially important for international medical students who study in a multilingual and intercultural environment. When discussing the prospects for the implementation of the course, it should be noted its flexibility and adaptability to various learning formats. The modular structure and the use of digital tools for distance and blended learning create conditions for the implementation of the course both in person and online. This is a significant advantage in the context of possible restrictions associated with pandemic, war or other crisis situations that affect the organization of the educational process.

An important prospect is the possibility of scaling the course and adapting it for other categories of students – domestic students, interns, interns and teachers of medical higher education institutions. The course content can be modified taking into account the level of professional training and the specifics of clinical activity, which allows it to

be used as an element of continuous professional development in the field of medical education. The potential of the course in the context of the internationalization of education and the development of international academic cooperation deserves special attention. The introduction of a training course for international students contributes to improving the quality of the educational environment, the formation of a positive academic experience and strengthening the reputation of KhNMU as an institution that implements innovative and humanistically oriented approaches to the training of future doctors. A promising direction for further research is to assess the effectiveness of the course implementation by analysing the dynamics of the psycho-emotional state of students, the level of their communicative confidence and adaptive stability. The results obtained can serve as a basis for further improvement of the course, as well as for the development of similar educational programs in the field of medical and intercultural communication.

Thus, the proposed training course has significant potential for practical implementation and development, as it combines scientific validity, pedagogical feasibility and compliance with modern challenges of medical education in conditions of prolonged crisis transformations.

Conclusions

1. Adaptation of international medical students in conditions of prolonged crisis challenges caused by global (COVID-19 pandemic) and local (martial law in Ukraine) factors is a complex psychophysiological and communicative process that requires systematic educational support.

2. Communication in a multilingual and intercultural educational environment under stress is accompanied by increased cognitive and emotional stress, which negatively affects the adaptation mechanisms, educational activity and professional development of international medical students.

3. Analysis of existing educational approaches in Ukraine showed the lack of integrated training courses that combine psychophysiological principles of communication, conscious interaction and the use of modern digital educational tools in the context of crisis conditions.

4. The proposed training course "Psychophysiology of conscious communication in crisis conditions", structured in the form of three content modules and calculated for 1.5 ECTS credits, is a scientifically sound and pedagogically appropriate

response to the identified challenges of modern medical education.

5. The integration of the psychophysiological approach, principles of conscious communication and digital tools of distance and blended learning creates conditions for the formation of communicative resilience, emotional self-regulation and adaptive readiness of international medical education applicants.

6. The introduction of the training course has the potential for scaling, adaptation to various learning

formats and use in the system of continuous professional development, and can also become the basis for further scientific research on the effectiveness of educational interventions in crisis conditions.

Funding and Acknowledgments

The research was conducted as a private initiative of the authors, did not receive funding from grant programs, and the research topic was not officially registered in the state register of scientific topics.

Authors' Contributions

Contribution	A	B	C	D	E	F
Authors						
Vasylieva O.V.	+	+	+		+	+
Karmazina I.S.		+	+	+	+	+

Notes: A – concept; B – design; C – data collection; D – statistical processing and interpretation of data; E – writing or critical editing of the article; F – approval of the final version for publication and agreement to be responsible for all aspects of the work.

Declarations

Conflict of interest is absent.

All authors have given their consent to the publication of the article under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License and the public agreement with the publisher, to the processing and publication of their personal data.

The authors confirm that during the preparation, writing and editing of this manuscript, generative Artificial Intelligence (AI) tools were used only within the limits permitted by the Generative AI Delegation Taxonomy (GAIDeT, 2025). Specifically, ChatGPT v5 (OpenAI, USA) with DALL·E image generation was used to create the figure, and the current version of the conversational AI assistant was used to verify the quality of the translation. All other stages of the work (from the formation of the scientific idea to the final revision of the text) were carried out by the authors personally without the involvement of generative AI technologies. The authors take full responsibility for the accuracy and integrity of the submitted material.

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Received: 01 Dec 2025

Accepted: 29 Mar 2026

Published: 31 Mar 2026

Cite in Vancouver style as: Vasylieva OV, Karmazina IS. Prospects on the implementation of the training course "Psychophysiology of conscious communication in crisis conditions" for international medical students. Inter Collegas. 2026;13(1):11p. In press. <https://doi.org/10.35339/ic.2026.13.1.vak>

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