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Meeting Report

For correspondence: 69 Pekarska Street, Lviv, Ukraine, 79010
 Twitter: @bekesevychnanna
 Email: bekesevychnanna@gmail.com

7th International Symposium “SMART LION”. Rehabilitation in Ukraine, September 26, 2023

Anna Bekesevych¹, Alla Lazko², Ihor Hresko¹

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¹Danylo Halytsky Lviv National Medical University, Lviv, Ukraine

²Municipal Institution of Higher Education Volyn Medical Institute Volyn Region Council, Lutsk, Ukraine

ORCID IDs

Anna Bekesevych
<https://orcid.org/0000-0001-9385-9786>

Alla Lazko
<https://orcid.org/0000-0002-7731-4361>

Ihor Hresko
<https://orcid.org/0009-0007-4992-5273>

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The seventh international symposium, SMART LION, was held on September 26, 2023. It was to celebrate the 150th anniversary of the Shevchenko Scientific Society and the 125th anniversary of the Medical Commission. The topics concerned the challenges our country faces today. Organizers of SMART LION 2023 are Professors Valentyna Chopyak, Oksana Zayachkivska, and Vassyl Lonchyna. They managed to gather almost two hundred participants offline and over a thousand guests online.

Author contributions:

Olena Lazareva, Vira Rokoshevskaya, Oleh Bilianskyi, Oksana Hdyria, and Oleh Fitkalo delivered their reports on the development of rehabilitation in Ukraine and its main avenues.

Concept creation: Anna Bekesevych;

The emergence of post-traumatic stress disorder (PTSD) is a critical challenge for contemporary Ukraine and has long been a significant obstacle for global medicine. That is the reason why Oleh Berezyuk, Head of the Mental Health Service of the UNBROKEN National Rehabilitation Center, brought up the matter of difficulties in correctly diagnosing and treating PTSD in the context of a multidisciplinary hospital, while Professor Valentyna Chopyak and MD Svitlana Zubchenko focused the attention of attendees on PTSD immune-rehabilitation.

Writing: Anna Bekesevych, Ihor Hresko, Alla Lazko;

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During the concluding block of the symposium, which focused on the contemporary interpretation of physical therapy and occupational therapy, as well as interprofessional education, communication, and cooperation, attendees were afforded the chance to listen to highly intriguing reports presented by Renata Roman (Canada), Ellen Godwin (USA), Karl J. Sandin (USA), David Omut (USA), and Oksana Zayachkivska (Ukraine, USA).

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The scientific event concluded with a round table on the future of physical therapy and rehabilitation in Ukraine, with its outcomes leading to the resolution of the seventh international symposium, SMART LION 2023.



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Video supplement: <https://www.youtube.com/watch?v=Osf5EilVWN0&t=18548s>

The seventh international symposium, SMART LION, held on September 26, 2023, was particularly to the point. It was dedicated to the 150th anniversary of the Shevchenko Scientific Society and the 125th anniversary of its Medical Commission. The international symposium was organized by the Shevchenko Scientific Society, Danylo Halytsky Lviv National Medical University, and the Ukrainian Catholic University with support from the Lviv Regional Military Administration, Lviv City Council, and Lviv Bureau of European Integration (Fig. 1).



Figure 1. Welcoming speech from organizers

Organizers of SMART LION 2023, professors Valentyna Chopyak, Oksana Zayachkivska, and Vassyl Lonchyna, were able to engage almost two hundred participants offline and over a thousand online listeners this year (Fig. 2).



Figure 2. Registration of symposium participants

This year's scientific forum, which was devoted to one of the most pertinent topics for Ukraine today, namely rehabilitation, brought together renowned specialists in this field, including physical therapists, occupational therapists, psychotherapists, psychologists, young and experienced scientists, doctors of diverse specialties, all of whom are engaged in the development of novel rehabilitation methods and programs of innovative technologies in medicine to guarantee high-quality medical care for Ukrainians who have been affected by russia's war against Ukraine.

Symposium attendees were warmly welcomed by Roman Kushnir, Head of the Shevchenko Scientific Society in Ukraine and an academician of the National Academy of Sciences of Ukraine. He emphasized that the society was a formidable scientific institution striving to support scientists' research, promote their ideas, and facilitate their implementation.

The Acting Rector of Danylo Halytsky Lviv National Medical University, Professor Orest Chemerys, MD, highlighted that our university had been designated as the customer for the construction of the National Center for Rehabilitation and Reconstructive Surgery, based on the intergovernmental agreement between Ukraine and Austria. This project presents significant challenges for the university. It serves as evidence of confidence in the professionalism of the employees of Lviv National Medical University and the Lviv medical community in Ukraine and the world.

Among the esteemed guests at the seventh symposium were Professor Serhii Ubobov, Head of the Department of Medical Personnel, Education and Science of the Ministry of Health of Ukraine, and Roman Shepeliak, Director of the Department of International Technical Assistance and International Cooperation of Lviv Regional Military Administration.

Anna Yarmola, Head of the Committee on Health and Maternity of Lviv Regional Council, presented certificates of appreciation to Professor Vassyl Lonchyna (University of Chicago, USA; UCU, Ukraine) and Oksana Hdyria, Head of the Rehabilitation Center of OKHMATDYT Lviv Regional Children's Clinical Hospital.

Andrii Moskalenko, First Deputy Mayor of Lviv, presented an award from the city community to Oleh Bilianskyi, Head of the UNBROKEN rehabilitation center of the 1st Territorial Medical Association of the city of Lviv, Associate Professor at the Department of Physical Therapy and Occupational Therapy at UCU (Fig. 3).



Figure 3. Awarding participants of the 7th International Symposium SMART LION 2023

The moderator of the first part of the symposium, Svitlana Kohut (UCU, Ukraine), introduced Olena Lazareva, the head of the Scientific and Methodological Subcommittee for the Development of Higher Education Standards "227 – Physical Therapy, Occupational Therapy" of the Educational and Methodological Council of the Higher Education Sector of the Ministry of Education and Culture of Ukraine, who spoke about the training base for physical therapists and occupational therapists in Ukraine and the challenges faced by stakeholders, the problems and peculiarities of training, the initial and subsequent steps in assessing the knowledge of bachelors and masters, as well as the issues with educational and methodological materials in Ukrainian. The new textbook written by experts from four national universities and the world's first recognized textbook for physical and occupational therapists were presented and translated as part of the Ukrothe project. The report focused on the standards of education, its quality, and the statistics regarding the number of training centers for specialists. Towards the conclusion of the presentation, the speaker provided information that would assist those in search of materials in finding them, and expressed her aspirations regarding the training of specialists and the potential for defending scientific papers in this field.

Vira Rokoshevska, Head of the Department of Physical Therapy and Occupational Therapy at UCU, physical therapist, and Yaryna Kolisnyk, Associate Professor, discussed the challenges of developing educational programs for students of higher education in physical therapy and occupational therapy. New circumstances in our country have led to a dramatic increase in the demand for the number of specialists in this field, and requirements for their quality have changed. Due to the uneven level of training of graduates from existing bachelor's programs in physical therapy in Ukraine, innovative changes in education are needed. In this particular context, it is imperative to ensure the

extensive involvement of rehabilitation experts with extensive experience in the development of professional training methodologies, taking into account the requirements of professional standards for bachelor's and master's education. Additionally, state authorities, such as the Ministry of Education and Science and the Ministry of Health, must be involved to support and facilitate the approval from international associations and to enhance cooperation between specialized educational institutions in Ukraine and abroad. The speakers discussed the work done at the UCU in this area, its methodologies, avenues, and achievements.

Picking up this topic, Mariia Balazh, an Associate Professor at the Department of Physical Therapy and Occupational Therapy at UCU, focused the attention of attendees on enhancing skills related to evidence-based practice among students pursuing higher education in the field of physical therapy and occupational therapy.

In his research, Oleh Bilianskyi (UNBROKEN National Rehabilitation Center, the 1st Territorial Medical Association of Lviv) analyzed in detail the role of a physical therapist within the interdisciplinary team. At the start of his speech, he emphasized the need for precise delineations of the doctor of physical and rehabilitation medicine, the significance of differentiation between specialists from related disciplines, elucidated the challenges of professional training of rehabilitation doctors, occupational therapists, physical therapists, and related legal aspects, as well as underscored the significance of comprehending the importance of specialist training for setting up interdisciplinary teams and their coordination to ensure quality rehabilitation. His presentation focused the attention of the audience on the importance of starting and continuing the rehabilitation process as soon as possible, as well as the need to involve the patient's relatives. A clinical case from the speaker's practice illustrated this point.

In her speech, Anna Kovalyk, an occupational therapist employed at the Physical Rehabilitation Department of the Hospital of the 1st Territorial Medical Association of Lviv, highlighted the fundamental principles and objectives of occupational therapy as a medical discipline. Initially, the speaker emphasized the significance of a patient-centered approach in occupational therapy, which allows for determining the treatment based on the individual needs of the patient, their diagnosis, and prognosis, thereby facilitating the quickest possible social integration. Being an active occupational therapist, she shared her elaborated methods and tools for working with patients with neurological disorders, cranial trauma, spinal cord injury, and even those with limb amputation.

Anna Kovalyk concluded her report by stressing the need to incorporate the global experience of the past hundred years into our medical practice in light of the ongoing conflict in our country. She emphasized the significance of ensuring high-quality training for occupational therapists as crucial members of a multidisciplinary team. Their domain of expertise encompasses a diverse range of patient injuries, and the quality of their services must be holistic, grounded in the principles of scientific evidence and the biopsychosocial model.

Oksana Hdyria, Head of the Rehabilitation Center at OHMATDYT Lviv Regional Children's Clinic Hospital, presented a report titled "Ukrainian Society of Physical and Rehabilitation Medicine in the Process of Shaping the Rehabilitation System in Ukraine." The report outlined not only the history of the Society and its path from its inception in 2014 to the present but also its development and collaboration with foreign professional communities of physical rehabilitation medicine. Additionally, it provided an in-depth understanding of the current events in the society and its plans for post-war development (Fig. 4).

The society was particularly pleased with the accomplishment of the project to develop a primary specialization training program for doctors of physical and rehabilitation medicine in Ukraine in 2019-2022, which was implemented with the assistance of the NATO Trust Fund for Supply and Rehabilitation. The project resulted in the completion of an internship for the first time by Ukrainian physical rehabilitation doctors under a program that meets the ESPRM requirements.

The Society, in collaboration with the Ministry of Health of Ukraine, USPRM, ESPRM, ISPRM, and RehabHubUA, has implemented a project that involves online training of physical rehabilitation specialists in military topics, delivered by the most renowned rehabilitation experts from the USA, Europe, and Israel. Lecture materials are publicly accessible on the Internet at (<http://www.htwb.org/rehabilitation-medicine>).

At the conclusion of her report, Oksana Hdyria reiterated that amidst the current challenges, we must remember that not only military personnel but also civilians, particularly children, require and will require the professional assistance of rehabilitation specialists, which serves as a catalyst for further advancement and training.



Figure 4. SMART LION 2023 Symposium participants from left to right: Oksana Hdyria, Vira Rokoshevskaya, Yaryna Kolisnyk, Valentyna Chopyak, and Svitlana Kohut

Maksym Vynohradov, the chief physical therapist at the Western Rehabilitation and Sports Center, focused the symposium participants' attention on the peculiarities of rehabilitation services for people affected by hostilities. He introduced participants to the nuances of the work under the program of rehabilitation for service members who sustained combat injuries and wounds, aimed at resuming their official duties, and its differences when adjusting them to civilian life. The speaker went into great detail about the approaches of his center, focusing on physical therapy and occupational therapy, neuropsychological, recreational, and sports therapy, and also focused on the main aspects of the latest psychophysical approaches that are currently being developed by the center specialists. The speaker demonstrated the materials about a clinical case from the practice of the center's team of specialists.

Valentyna Savych, the rehabilitation center of the SUPERHUMANS medical center, presented her report entitled "Practice of training multidisciplinary teams for the rehabilitation of patients with limb amputations" and compared the processes of training specialists in the field of rehabilitation in Ukraine and the USA. She particularly highlighted that the duration of training for doctors specializing in "Physical and Rehabilitation Medicine" lasts a total of 12 years, including 4 years of specialization, followed by 4 years of college and 4 years of medical school. She separately delved into the issue of training prosthetics specialists in Ukraine, which is a particularly pressing issue and demands a prompt solution. According to the speaker, not only higher medical educational institutions but also technical universities joined the initiative. In particular, these experts are trained at the Department of Chemical Technology of Plastic Processing at the Lviv Polytechnic National University (educational program "Technology of Orthopedic and Rehabilitation Medical Products").

Professor Valentyna Chopyak, Head of the Medical Commission of the Shevchenko Scientific Society, Vice President of the Ukrainian Society of Immunology, Allergology and Immuno-rehabilitation, highlighted the topic "Immunopathological Syndromes and Rehabilitation – Interdisciplinary Issues."

In her report, she discussed factors that lead to immune "exhaustion," resulting in cardiovascular diseases, complications of type 2 diabetes, mental disorders, and cancer. She emphasized the significance of the team of rehabilitation specialists' understanding of the clinical manifestations of immune system disorders, specifically chronic fatigue syndrome, depression, sleep disorders, and frequent colds, among others, to prevent complications and expedite the patient's recovery.

The professor emphasized key factors necessary to restore the immune system, in particular, the feeling of psychological security and healthy sleep. Hence, she emphasized the significance of collaboration between immunologists, oncologists, rheumatologists, rehabilitators and psychotherapists, physical therapists, and occupational therapists to restore the functions of the immune system as an integral component of the patient's complete rehabilitation.

Svitlana Zubchenko, MD, talked about the combination of post-traumatic stress disorder and related immune disorders. She noted the high percentage of diagnosed PTSD not only among military personnel who participated in

hostilities (up to 20%) but also many times higher among the civilian population affected by the war (up to 40%). She pointed out that acute viral infections or activation of latent viral or chronic bacterial infections are also factors that contribute to the emergence of post-traumatic stress disorder (PTSD). She focused on the role of herpesvirus infections in the development of PTSD. She noted that more than 80% of adults have latent EBV or HHV6 infections that don't may cause a silent epidemic and, when activated, cause chronic fatigue syndrome, lymphoproliferative diseases, and cancer. They also affect the PTSD severity, especially after COVID-19. The speaker emphasized that the occurrence of clinical symptoms and changed laboratory parameters (such as elevated levels of acute-phase proteins, liver transaminases, modifications in the functional activity of lymphocytes, and levels of immunoglobulins) against the backdrop of reactivation of herpes viruses can serve as early indicators of the PTSD onset.

Professor Viktoriia Serhiienko addressed the significance of the influence of stress on the health of patients following a combat injury. She extended an invitation to speak to Oleh Berezyuk, Head of the mental health service at the UNBROKEN National Rehabilitation Center.

In his speech, the speaker elucidated how the international collaboration that was established following the onset of the war between Ukrainian specialists and specialists from academic and clinical institutions of the member countries of the North Atlantic Treaty Organization and Israel, who shared their extensive theoretical and practical expertise, aided in the creation of a model for PTSD treatment in a multidisciplinary hospital (Fig. 5).

Before the full-scale war in Ukraine, the attitude towards mental disorders in patients with combat injuries and wounds was quite superficial. The attention was predominantly focused on physical injuries. Nonetheless, as demonstrated in practice, a significant share, over 28% of patients admitted following injury, experience post-traumatic stress disorder (PTSD), and mental disorders are prevalent among individuals who were exposed to stressful circumstances on the front line.

Oleh Berezyuk introduced the audience to the history of our doctors' acquisition of experience in the diagnosis of PTSD in military and civilian patients. There are many factors influencing its occurrence, as well as methodologies of collective work with such patients.

At the end of his report, he expressed hopes for the development, enhancement, and accessibility of psychiatric and psychotherapeutic help.



Figure 5. Oleh Berezyuk and Valentyna Savych on the rehabilitation in Ukraine

Oleh Fitkalo, Associate Professor at the Department of Psychiatry and Psychotherapy of Danylo Halytsky Lviv National Medical University confirmed the theses presented by Oleh Berezyuk with practical examples from the realities of war. His military background, backed by his expertise in psychiatry and narcology, allowed him to speak about issues with post-traumatic stress disorder and related complications, which are especially relevant for the military on the frontline.

Myroslava Bodakovska, a psychologist at the UNBROKEN National Rehabilitation Center, presented her report, "Neuropsychological tools in the rehabilitation of post-concussion syndrome at the multidisciplinary hospital." The significance of the international exchange of expertise, specifically with specialists from Tulane University (New Orleans, USA), was elucidated as an illustration of establishing a model of neurorehabilitation from post-concussion syndrome (PTS) in the work of a psychologist. She noted that the correct diagnosis and early neuro-rehabilitation were the keys to a favorable outcome for the patient.

A large proportion of patients who require the help of rehabilitation specialists are patients who have suffered a stroke or myocardial infarction. Actually, this was the topic of reports by Nazar Nehrych, PhD, and Andriy Yahenskyi, Head of Volyn Regional Center of Cardiovascular Pathology.

The main goal of Nazar Nehrych's speech was to demonstrate the scientific justification for the prompt start of post-stroke rehabilitation efforts and to emphasize the dependence of their intensity on the patient's health. The speaker also referred to the evaluation of the patient's cognitive abilities as a factor influencing the course and the result of the rehabilitation process.

Professor Andriy Yahenskyi highlighted organizational problems of cardiac rehabilitation, which are only developing in Ukraine. He also highlighted related challenges faced by doctors, the administration of healthcare facilities, educational and medical institutions, and the state in general.

Professor Vassyl Lonchyna, the final session moderator, invited Renata Roman, clinical director at RMR Therapy (Toronto, Canada), to speak. Renata is an old friend of Ukraine and dedicated her speech to cooperation between experts from different fields in Ukraine and other countries to exchange experience for the purpose of mutual development, developing skills of teamwork, and enhancing own teaching skills (Fig. 6). The speaker emphasized the intricate nature of the impact of competent, qualified rehabilitation on both the health of an individual patient and the overall state of society. This necessitates a suitable level of training for specialists, not only for large medical centers but also for individual work with patients in remote areas of the country.

Ellen Godwin (Long Island University, Brooklyn, New York, USA) devoted her report to the history of the emergence and advancement of physical therapy and rehabilitation in the United States following the poliomyelitis epidemic at the end of the 19th century, the First World War, the experiences throughout the 20th century and up to the present day, and the corresponding history of the development of specialized education.



Figure 6. Round table discussion: The future of physical and occupational therapy education in Ukraine

Karl J. Sandin (Creighton University School of Medicine, Omaha, Nebraska, USA) provided interesting and important details about the history and practice of rehabilitation in the United States and Europe. He talked about the problems and challenges faced by the professional community, such as insufficient attention and funding, lack of experts, and lack of understanding of the importance of rehabilitation by decision-makers. The speaker noted that for the

successful and high-quality development of rehabilitation in Ukraine, the main parameters should be achieved: timeliness, safety, efficiency, compliance, and a patient-centered approach.

The initiator of the event, Professor Oksana Zayachkivska, expressed her delight at the possibility of holding the symposium despite the challenging circumstances that have developed in the country. She also presented a joint report with David Omut (American University of Health Sciences, Signal Hill, USA) on the importance of interprofessional communication in modern medical education.

The professor emphasized the need to modify educational methodologies, shifting from the focus on the individual actions of a specialist to the cultivation of team skills. This involves instilling a comprehension of the division of duties, a precise understanding of the role of each team member, and a sense of respect for all members of the team. This will enhance the quality of the patient-centered medical care system, thereby enhancing efficiency by utilizing all available resources.

It was concluded by a round table on the future of physical therapy and rehabilitation in Ukraine, based on which the resolution of the 7th international symposium Smart LION 2023 was drawn up. It proposed educational and practical directions for the development of rehabilitation in Ukraine:

- Establish educational programs in the fields of physical therapy, occupational therapy, neuropsychology, and trauma psychotherapy, considering the prerequisites and standards of higher education for the first (bachelor's) and second (master's) levels of higher education;
- Develop a mechanism to support the Ministry of Education and Science and the Ministry of Health of Ukraine in the implementation of educational programs that will be approved by internationally recognized professional associations;
- Take into account the requirements of professional standards to improve higher education standards at both the bachelor's and master's levels;
- Recommend that the Ministry of Health of Ukraine involve rehabilitation experts as much as possible and take their opinions into account when making decisions about the regulation of professional activity;
- Foster cooperation between higher educational institutions in Ukraine and abroad, which train specialists in the speciality 227 Physical Therapy, Occupational Therapy;
- Promote the development of national rehabilitation centers as clinical training bases in different areas of rehabilitation;
- Implement a scientifically based multidisciplinary approach to clinical decision-making in the practical activities of health care specialists, in particular, doctors: physical therapists, occupational therapists, speech and language therapists, psychotherapists, recreational therapists, doctors of other specialties (as indicated): neurologists, psychiatrists, ophthalmologists, cardiologists, immunologists, endocrinologists, nutritionists, etc.