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МАТЕРІАЛИ
З НАУКОВО-ПРАКТИЧНОЇ КОНФЕРЕНЦІЇ З МІЖНАРОДНОЮ УЧАСТЮ
"МЕДИЧНА СИМУЛЯЦІЯ- ПОГЛЯД У МАЙБУТНЄ"

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У тезах доповідей науково-практичної конференції з міжнародною участю лікарів, науковців та молодих учених, подаються стислі відомості щодо результатів наукової роботи, виконаної учасниками конференції.

М 42 Медична симуляція — погляд у майбутнє (для лікарів, науковців та молодих учених): наук.-практ. конф. з міжнар. участю.

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SIMULATION-BASED TRAINING HAS BECOME AN ESSENTIAL COMPONENT OF MEDICAL EDUCATION, BRIDGING THE GAP BETWEEN THEORETICAL KNOWLEDGE AND PRACTICAL APPLICATION

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Aim of the Study. Simulation-based training has emerged as a vital tool in medical education, offering a hands-on approach to bridging the gap between theoretical knowledge and clinical practice. This study aims to evaluate the effectiveness of simulation-based training in enhancing clinical skills, its realism in replicating real-life medical scenarios, and the challenges faced by trainees. Additionally, it examines participant satisfaction and suggests improvements to optimize the learning experience.

Materials and Methods

A structured survey was conducted using Google Forms, targeting medical students from third-year to sixth-year, including recently graduated students who had undergone simulation-based training. A total of 20 students participated in the study, providing insights into their experiences. The survey consisted of both quantitative and qualitative questions:

Effectiveness of Training: Rated on a 10-point scale (1 = Not Effective, 10 = Highly Effective).

Realism of Simulations: Assessed using categorical responses (Very Realistic, Somewhat Realistic, Neutral, Not Realistic).

Skill Improvement: Participants selected the most improved clinical skills, including clinical decision-making, procedural techniques, and communication.

Challenges Faced: Respondents identified obstacles such as limited practice time, lack of realism, and technical difficulties.

Instructor Feedback and Overall Satisfaction: Rated on a 5-point scale to measure the quality of guidance and support provided.

The collected data were analyzed using descriptive statistics to identify trends and areas for improvement in simulation-based medical training.

Results and Discussion.The findings demonstrate a strong positive perception of simulation-based training among participants:

Effectiveness: 80 % of respondents rated the training between 8–10, indicating a high level of perceived benefit.

Bridging Theory and Practice: 70 % of students found simulation to be «Very Well» or «Somewhat Well» aligned with real clinical scenarios.Skill Improvement: The top three improved skills were:

-Clinical Decision-Making (most commonly reported) Hands-on Procedural Skills (e.g., patient care techniques).Communication with Patients and Team Members.

-Realism of Simulations: Over 60 % of respondents found the scenarios either «Very Realistic» or «Somewhat Realistic.» However, some participants noted that certain cases lacked complexity.

Challenges Faced: The most commonly reported issues included:

-Limited Practice Time (mentioned by the majority)

-Lack of Realism in Some Cases

-Technical Issues with Equipment

-Insufficient Feedback from Instructors (reported by some)

-Instructor Feedback and Satisfaction: 95 % of participants confirmed receiving constructive feedback from instructors. Despite this, some requested more personalized guidance to enhance learning.

Overall Satisfaction: The average satisfaction score was 4 out of 5. Many participants suggested increasing practice time and incorporating more complex real-life cases to improve training outcomes.

These findings highlight the effectiveness of simulation training while emphasizing areas for enhancement, particularly in expanding practice opportunities and improving scenario realism to better reflect actual medical settings.

Conclusions Simulation-based training is a highly effective educational tool, significantly improving clinical decision-making, procedural competence, and communication skills. However, optimizing the training experience through

longer practice sessions, more realistic scenarios, and enhanced instructor feedback can further strengthen its impact. Future research should explore advanced simulation technologies, such as virtual reality (VR) and artificial intelligence (AI), to create even more immersive and interactive learning environments. By continuously refining simulation training methodologies, medical educators can ensure that students and future healthcare professionals are well- prepared for real-world clinical challenges.

USE OF VIRTUAL REALITY LABORATORIES FOR THE STUDY OF BIOORGANIC AND BIOLOGICAL CHEMISTRY

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In the contemporary context of medical education, there is an imperative for innovative approaches to learning that facilitate not only the transmission of knowledge but also the cultivation of practical skills in highly realistic conditions. Virtual reality laboratories emerge as a potent instrument for simulation training, integrating interactivity, visualisation of intricate processes, and the capacity to emulate real-life scenarios [1].

The utilisation of virtual reality laboratories in the domain of biochemistry confers several key advantages, including:

— the visualisation of complex structures that students frequently encounter, such as the quaternary structure of haemoglobin, determining the site of oxygen binding, or the study of allosteric regulation of enzyme activity;

— the modelling of interactive chemical reactions, which are difficult to create in real life, allows for observation of changes at the atomic level and analysis of the results. The modelling of reactions between amino acids and the formation of a peptide bond, obviating the need for chemical reagents, and the subsequent analysis of the enzyme chymotrypsin's role in catalyzing peptide bond hydrolysis reactions [2];

— the safety of experiments is a salient consideration, with students permitted to conduct experiments with hazardous substances such as acids, bases, or toxic reagents without risk to health or the environment;

— the accessibility and cost-effectiveness of the reagents, equipment, and waste disposal are significant factors in the reduction of costs. For instance, conducting DNA synthesis reactions in a virtual environment with the capacity to analyse the replication process in detail;