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“THE EFFECTIVENESS OF APPLYING ARTIFICIAL INTELLIGENCE TECHNOLOGIES IN NURSING PRACTICE”

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Abstract

Innovation as a process of generating and implementing new developments in various fields of activity, including medicine, has also influenced medical education. In order to provide high-quality patient care, it is necessary to be a highly qualified specialist. In this regard, there is a growing need for integrated knowledge, innovative professional practical skills, and the improvement of already acquired competencies.

Artificial Intelligence has taken an important place in improving the efficiency of documentation work, and the number of medical errors has decreased. All this has contributed to the early detection of patient health problems at early stages. AI has freed nurses from routine tasks, increasing their time for nursing care, education, and professional development, allowing them to stay updated with the latest achievements. This has led to a reduction in stress among nursing professionals and an improvement in the quality of medical care provided to patients.

Keywords

integration, artificial intelligence (AI), nursing, professional skills.

“ҲАМШИРАЛИК ИШИДА СУНЪИЙ ИНТЕЛЛЕКТ ТЕХНОЛОГИЯЛАРИНИ ҚЎЛЛАШ САМАРАДОРЛИГИ”

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Respublika o‘rta tibbiyot va farmasevtika xodimlari malakasini oshirish va ularni ixtisoslashtirish markazi Qo‘qon filiali

Аннотация

Инновациялар — турли фаолият соҳаларида, жумладан тиббиётда ҳам, янги ишланмаларни яратиш ва жорий этиш жараёни сифатида тиббий таълимга ҳам ўз таъсирини кўрсатган. Беморларга сифатли тиббий ёрдам кўрсатиш учун юқори малакали мутахассис бўлиш зарур. Шу муносабат

билан интеграциялашган билимлар, инновацион касбий амалий кўникмалар ва мавжуд компетенцияларни такомиллаштиришга эҳтиёж ортиб бормоқда.

Сунъий интеллект тиббий ҳужжатлар билан ишлаш самарадорлигини оширишда муҳим ўрин эгаллаб, тиббий хатолар сонининг камайишига олиб келди. Бу эса беморлардаги муаммоларни эрта босқичларда аниқлашга хизмат қилди. Сунъий интеллект ҳамшираларни такрорланувчи вазифалардан озод қилиб, уларнинг бемор парвариши, таълим ва касбий ривожланишга кўпроқ вақт ажратишига имконият яратди. Бу эса ҳамширалик мутахассислари ўртасида стресс даражасининг пасайишига ва беморларга кўрсатилаётган тиббий хизмат сифатининг ошишига олиб келди.

Калит сўзлар

интеграция, сунъий интеллект (СИ), ҳамширалик иши, касбий кўникмалар.

«ЭФФЕКТИВНОСТЬ ПРИМЕНЕНИЯ ТЕХНОЛОГИЙ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА В СЕСТРИНСКОМ ДЕЛЕ»

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Аннотация

Инновации как процесс создания и внедрения новых разработок в различных сферах деятельности, включая медицину, оказали значительное влияние и на медицинское образование. Для обеспечения качественного ухода за пациентами необходимы высококвалифицированные специалисты. В связи с этим возрастает потребность в интегрированных знаниях, инновационных профессиональных практических навыках и совершенствовании уже имеющихся компетенций.

Искусственный интеллект занял важное место в повышении эффективности работы с документацией, что привело к снижению числа медицинских ошибок. Всё это способствовало раннему выявлению проблем со здоровьем пациентов на начальных стадиях. Искусственный интеллект освободил медицинских сестёр от рутинных задач, увеличив их время для сестринского ухода, образования и профессионального развития, позволяя им быть в курсе последних достижений. Это привело к снижению уровня стресса у специалистов сестринского дела и повышению качества медицинской помощи пациентам.

Ключевые слова

интеграция, искусственный интеллект (ИИ), сестринское дело, профессиональные навыки.

Introduction. In connection with the global changes taking place in the economic and social spheres of the Republic of Uzbekistan, the education system faces the need for deep modernization and a transition to an innovative development strategy. Secondary specialized education is no exception. It is intended to integrate the best practices of both domestic and international educational systems.

The main prerequisites for developing new approaches to the training of nursing specialists include:

- the social demand of the population, established in regulatory documents regulating the improvement and development of the nursing education system;
- foreign and domestic experience in developing healthcare competencies based on the integration of humanitarian, social, and medical disciplines;
- changing conditions for the development of professional competence and professional mobility of nursing specialists;
- new requirements for specialists who must not only provide competent medical care to patients but also continuously improve their professional level in response to rapid changes in the healthcare system and technological advancements.

In the era of digital transformation, education is undergoing fundamental changes driven by the rapid development of artificial intelligence (AI). According to UNESCO data, by 2025, at least 80% of educational institutions worldwide will integrate AI into their processes, making this topic one of the most relevant in pedagogical science [1].

The world of work is rapidly changing under the influence of digitalization and artificial intelligence (AI), which is at the center of transformations in all areas of social life. It creates new challenges arising from the complexity of the interaction between modern humans and technologies, considering both positive and negative consequences, the fundamental limitations of computational theories of consciousness, and new configurations of subjectivity in the digital era [2].

With the development of new medical fields, improvement of technologies and healthcare services, and the emergence of advanced medical technologies and materials, there is a need for timely adjustment of specialist training capable of mastering new functions, types of activities, and knowledge-intensive technologies.

Nursing Education and Practice. Therefore, the training of nursing specialists requires the implementation of modern approaches alongside traditional ones that correspond to the renewal of the healthcare system. In modern society, a demanded nursing specialist is a professional trained to solve medical and social problems of the population, possessing professional and research competencies, and continuously improving qualifications.

Since society is interested in high-quality training of specialists for professional activity at a high level and in accordance with modern medical standards, medical educational institutions are searching for the most effective approaches to solve this task.

Training in the "college – medical organization" environment as a key pedagogical principle allows coordination of methodological work of medical colleges in improving both the structure and integrated content of nursing education programs. Personnel training is carried out based on practical needs.

Training in advanced medical institutions allows students to become familiar with new technologies and modern forms of organizing the nursing process, as well as to ensure quality control of training and mastery of general and professional competencies. These competencies enable nurses not only to perform their direct functions effectively but also to process a large flow of professionally significant information by integrating knowledge from various fields into their practice [3].

Role of Artificial Intelligence. Artificial Intelligence introduces fundamentally different methods, principles, and forms for simulation-based strategic management of real-world problems, which have acquired the characteristics of network relations not only in cyberspace but also in the global system [4].

AI expands human activity in economics, culture, and healthcare. At the same time, it creates new societal challenges such as the digital divide, unequal access to technologies, changes in the labor market, rising unemployment, and the use of neural networks in criminal activities [5].

The importance of managerial decisions made at different levels increasingly depends on data, which has become one of the most significant resources.

AI in Nursing Practice. Nurses are the unseen heroes of healthcare, standing at the forefront of protecting public health. With the introduction of AI into healthcare systems, an important integration element has emerged: nurse–artificial intelligence collaboration.

In clinical practice, AI automates routine tasks. For example, electronic document management systems with AI elements simplify medical documentation:

intelligent algorithms assist in forming nursing records, suggest standard phrases automatically, and detect potential errors in documentation.

AI also helps in calculating medication dosages, minimizing errors during infusion and drug therapy.

Patient monitoring systems based on AI continuously track vital signs and detect anomalies in real time, enabling early identification of deteriorating conditions.

Requirements and Educational Applications. There are important requirements for nursing professionals, and solutions are being sought to improve the quality and efficiency of nursing work. According to global practice, proper utilization of nursing staff not only improves quality but also ensures accessibility and cost-effectiveness of healthcare services, including disease prevention.

Moreover, nursing practice should be directed not only toward individual patients but also toward families and community groups [6].

A nursing specialist is a competent nurse with integrated basic training. In education, AI-based medical simulators model clinical scenarios, adapting complexity to the learner's level and analyzing student performance.

Examples include realistic patient simulators with symptoms of diseases and emergency conditions such as cardiac and respiratory arrest for cardiopulmonary resuscitation training.

Personalized learning is also implemented: based on test results, individualized learning programs are suggested to eliminate knowledge gaps.

AI-based clinical case analysis allows rapid evaluation of patient histories and laboratory results, identifying positive or negative treatment dynamics and suggesting alternative treatments or individualized drug dosages.

AI also supports skill acquisition by analyzing nursing procedures (e.g., intramuscular injection) and correcting learner actions [7].

Conclusion. The integration of Artificial Intelligence not only optimizes administrative functions in educational organizations but also radically transforms the pedagogical process, from personalized learning to automated knowledge assessment.

However, despite obvious advantages such as increased student engagement and teaching effectiveness, AI implementation also raises serious challenges: ethical dilemmas, risks of inequality in access, and the need for retraining educators.

Practice has already shown that artificial intelligence has produced positive results in healthcare systems. Nursing care has become more individualized due to improved patient monitoring, which previously required a significant amount of nurses' working time.

Importantly, AI is more than just a new technology; it is a tool for modernizing the work of nursing and junior medical staff to ensure qualified and dignified healthcare for the population.

AI does not aim to replace the professional skills of nursing specialists but opens new opportunities. It is important to note that clinical and critical thinking, as well as decision-making responsibility, remain with humans.

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