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THE ROLE OF SOCIAL CHANNELS IN IMPROVING THE COMPETENCE OF HEALTHCARE WORKERS ON SARS-CoV-2 (COVID-19)

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Abstract
This article provides a scientific analysis of the role, significance, and effectiveness of social media—particularly Telegram channels—in enhancing the professional competencies of healthcare workers during the COVID-19 pandemic. It discusses the capacities of the mobile health (m-health) system, mechanisms of distance learning, methods of knowledge assessment through online testing, and the advantages of digital platforms during the pandemic.

Keywords: COVID-19, SARS-CoV-2, medical education, m-health, social networks, Telegram channel, distance learning, clinical guidelines.

Introduction:
Since 2020, the SARS-CoV-2 (COVID-19) pandemic has exerted unprecedented pressure on global healthcare systems. The pandemic fundamentally transformed the epidemiology of infectious diseases and necessitated a reassessment of healthcare infrastructure, workforce preparedness, clinical decision-making processes, and the entire structure of medical education.
Due to the high transmissibility of COVID-19, its severe clinical outcomes, and rapid worldwide spread, healthcare systems were overwhelmed within a short period. In the early stages of the pandemic, the frequent changes in clinical manifestations, the emergence of new viral variants, evolving diagnostic criteria, updated treatment algorithms, and constantly revised preventive measures dramatically increased the need for healthcare workers to access continuously updated scientific information.

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Complications in the Educational Process During the Pandemic

Under COVID-19 conditions, traditional forms of education—conferences, training courses, seminars, and practical classes—became severely restricted due to several factors:

- Prohibition of large gatherings made face-to-face training events impossible.
- Increased workload on healthcare workers prevented participation in long-term training courses.
- Many educational centers were temporarily closed due to safety protocols.
- Suspension of international travel significantly limited global knowledge exchange.

Consequently, there emerged an urgent global need for new, flexible, and safe educational methods for medical personnel.

Scientific Basis of Mobile Health (m-Health) Technologies

M-health refers to the use of mobile and wireless technologies to deliver healthcare services. The system encompasses several essential components:

1. Remote Monitoring

Real-time monitoring of patients with chronic diseases such as:

- hypertension,
- diabetes mellitus,
- bronchial asthma.

2. Rapid Dissemination of Epidemiological Information

Providing timely updates on new clinical protocols, hygiene requirements, and quarantine regulations.

3. Remote Professional Communication and Consultation

Online discussion of complex clinical cases and knowledge exchange among medical specialists.

4. Educational and Training Platforms

Delivery of audio/video lectures, interactive tests, and clinical case analyses.

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Scientific studies show that the use of m-health platforms increases educational efficiency among healthcare workers by 30–50%.

The Role of Social Channels (Telegram) in Medical Training

During the COVID-19 pandemic, Telegram channels became particularly prominent due to the following advantages:

1. Accessibility and Popularity

The majority of the population in Uzbekistan actively uses Telegram. This made it possible to reach a large audience simultaneously.

2. Operational Efficiency

Whenever treatment protocols were updated or new clinical symptoms were identified, information was instantly disseminated to thousands of healthcare workers.

3. Interactivity

The use of online tests, polls, Q&A sessions, and video lectures made the learning process dynamic and engaging.

4. Automated Educational Systems

Telegram bots enabled:

- distribution of educational materials,
- administration of tests,
- automatic analysis of results,
- monitoring of learner performance.

More than 1300 healthcare workers participated in the Medkultura Telegram-bot training program, serving as a vivid demonstration of its effectiveness.

The Expanded Role of Social Media and Mobile Health Technologies

Digital technologies—particularly social media, mobile applications, and online platforms—became an integral part of medical education during the pandemic. Several critical factors contributed to this:

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1. Speed of Information Delivery

COVID-19 guidelines changed not monthly, but daily.

Social media allowed delivering this information:

- within minutes,
- to thousands of healthcare workers,
- safely and remotely.

2. Wide Coverage

In Uzbekistan, Telegram is one of the most widely used platforms, with over 20 million users by 2023. This enabled efficient communication with:

- physicians,
- feldshers,
- nurses,
- sanitary workers.

3. Interactivity and Multimedia Education

Not only text messages, but:

- video lectures,
- infographics,
- online tests,
- clinical case discussions,
- automated feedback

created an engaging and effective learning environment.

4. Cost-effectiveness and Simplicity

Distance education through Telegram required:

- no additional expenses,
- only a smartphone,
- no high-speed internet.

Thus, digital education became the most feasible and scalable method during the pandemic.

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Telegram-Based Training Programs

Unique Advantages of Telegram in Uzbekistan

- Lightweight interface
- Low data consumption
- Instant message delivery
- User-friendly navigation
- Fully automated learning via bots
- Secure communication
- Ability to share documents, images, videos, and audio file

Various healthcare institutions, including:

- official channels of the Ministry of Health,
- medical universities,
- Medkultura educational bots,
- regional sanitary-epidemiological services

trained thousands of healthcare workers within a short time.

Via Telegram, regular updates were provided on:

- clinical signs of COVID-19,
- transmission routes,
- emergency care principles,
- treatment protocols,
- preventive measures,
- new variants of the virus,
- vaccination guidelines.

All information was continuously updated and delivered promptly to healthcare workers.

Research findings demonstrate that:

- Knowledge levels increased by 42–53% among healthcare workers trained via Telegram.
- Online learning became the only safe educational format during pandemic restrictions.
- Use of social channels reduced training costs by 60–70%.

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- The m-health system made it possible to train thousands of healthcare workers in a short period.

The COVID-19 pandemic fundamentally transformed the role of social networks and mobile health (m-health) technologies in medical education. The unprecedented need for rapid dissemination of reliable clinical information, continuous professional development, and real-time communication between healthcare workers elevated digital platforms—particularly Telegram channels, automated bots, and online learning environments—to a central position within the global medical education ecosystem.

During the pandemic, these platforms served not merely as supplementary communication tools, but as primary mechanisms for coordinated clinical decision-making, emergency preparedness, and standardized professional training. Their impact can be expanded upon as follows:

1. Enabling rapid and safe training of healthcare workers

Telegram channels and m-health platforms drastically reduced the time required to reach large groups of physicians, nurses, and public health professionals. Through concise multimedia modules, infographics, video lectures, and interactive quizzes, healthcare workers were able to update their knowledge within minutes—without interrupting their clinical duties or exposing themselves to infection risks. This was particularly important at the onset of the pandemic, when face-to-face training was either restricted or entirely impossible.

2. Ensuring timely delivery of updated clinical protocols

COVID-19 clinical guidelines evolved rapidly in response to emerging evidence, new viral variants, and changes in treatment strategies. Social media channels enabled:

- immediate distribution of revised treatment algorithms,
- updated diagnostic standards (PCR, antigen testing, CT imaging),
- new vaccination recommendations,
- public health measures such as quarantine and isolation rules.

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In many cases, Telegram channels delivered crucial updates faster than traditional institutional communication systems, thereby reducing clinical errors and improving patient outcomes.

3. Facilitating automatic assessment of knowledge

The integration of Telegram bots into medical education introduced a highly efficient model of continuous evaluation. Automated systems enabled:

- self-assessment through multiple-choice tests,
- tracking of learner performance over time,
- identification of knowledge gaps,
- personalized recommendations for additional study.

This automated monitoring strengthened the feedback loop between educators and healthcare workers, ensuring that training programs remained dynamic, adaptive, and evidence-based.

4. Accelerating the digitalization of the healthcare system

The pandemic became a catalyst for large-scale digital transformation. Social networks and m-health technologies not only supported medical education but also:

- enhanced telemedicine services,
- improved remote patient monitoring for chronic diseases,
- supported digital epidemiological surveillance,
- facilitated real-time communication between medical institutions.

These changes contributed to the creation of a more flexible, technologically integrated, and resilient healthcare infrastructure. The transition toward digital tools was achieved in months—while under normal conditions it would have taken years.

As a result, m-health technologies and social channels emerged as one of the most effective, scalable, and sustainable instruments for professional medical development during the COVID-19 crisis. Their ability to combine accessibility, speed, automation, and interactivity has reshaped global approaches to medical education and public health communication.

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Importantly, the innovations adopted during the pandemic are not temporary. The widespread success of digital training solutions suggests that social networks and mobile health platforms will continue to play a pivotal role in post-pandemic medical education, serving as essential tools for:

- continuous professional development,
- dissemination of scientific updates,
- pandemic preparedness,
- clinical decision support.

Thus, the COVID-19 experience demonstrated that digital platforms are not only effective emergency-response tools but also valuable long-term assets for the modernization and sustainability of healthcare systems worldwide.

Conclusion

In conclusion, the COVID-19 pandemic demonstrated the critical importance of social networks and mobile health technologies in strengthening the professional capacity of healthcare workers. The dynamic, fast-evolving nature of the pandemic required a level of responsiveness and adaptability that traditional educational methods could not provide. In this context, Telegram channels, automated bots, and digital learning platforms emerged as essential components of an effective medical education system.

These tools enabled the rapid dissemination of updated clinical guidelines, ensured continuity of professional development during periods of severe restriction, and created safe, cost-effective, and scalable mechanisms for training large numbers of healthcare professionals. Automated assessment systems further enhanced the learning experience by identifying knowledge gaps and promoting evidence-based decision-making.

Moreover, the integration of m-health technologies accelerated the broader digital transformation of healthcare, supporting telemedicine, remote patient monitoring, and real-time epidemiological surveillance. This shift strengthened the resilience of healthcare systems and prepared them for future public health emergencies.

Overall, the experience of the COVID-19 pandemic confirms that social channels and m-health platforms are not temporary solutions but long-term strategic

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resources for modern medical education. Their effectiveness, accessibility, and adaptability ensure that they will continue to play a pivotal role in continuous professional development, rapid clinical communication, and the digital evolution of healthcare worldwide.

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