ABSTRACT

the dissertation of Mukhamediyarov Maidan Nagashybaevich on the topic «Use of Social Media in Healthcare: Trends, Perspectives, and Challenges», submitted for the degree of Doctor of Philosophy (PhD) in the educational program «8D10139 – Public Health».

Relevance of the study

The relevance of the study is related to the increasing role of social networks in healthcare and medical science. Currently, the results of scientific research are rapidly disseminated not only through traditional scientific journals and databases, but also through social networks. This allows medical professionals to quickly get acquainted with new research and increases the visibility and discussion of scientific papers. During the COVID-19 pandemic, online surveys, remote research, and digital platforms were widely used, which clearly demonstrated the importance of social media in the scientific community. The World Health Organization notes that social media has played an important role in accelerating the dissemination of health information during the pandemic, as well as contributing to the rapid spread of misinformation. In addition, social networks expand the audience of scientific journals, help attract attention and strengthen the scientific impact of research. In this regard, it is relevant to study the role of social networks in the dissemination of scientific research, increasing their accessibility and influence.

Today, social networks have become not only a means of disseminating information, but also an important medium for increasing the digital visibility of scientific results, discussing them in a professional environment and attracting public attention. Facebook Instagram, YouTube, X (Twitter), and Facebook platforms, in particular, allow for the rapid provision of medical information, scientific news, and research results to a wide audience. This will help strengthen the digital presence of scientific journals and increase their popularity among professional audiences.

The study of the impact of social media in the healthcare sector includes several important areas. These include the professional use of digital platforms by medical professionals, the dynamics of scientific publication activity, the activity of scientific journals in social networks, the level of public attention to scientific research, the quality of medical content, and the distribution of retraction publications in a digital environment. Such a comprehensive analysis allows for a deeper assessment of the place of social networks in medical science and practical healthcare.

The results of Cross-sectional studies show that social networks are widely integrated into the professional activities of healthcare workers and are used mainly for education, scientific information and professional development. There are also issues such as information overcrowding, the difficulty of critically evaluating content, and insufficient specialized training in the effective professional use of social media. This determines the need for a systematic introduction of digital and media literacy into the medical education system.

An altmetric analysis of research on social media and healthcare allows us to assess the resonance of scientific work outside the academic environment. The evaluation of medical videos on the YouTube platform shows that along with useful content, misleading or questionable information is significantly disseminated. In addition, the preservation of the digital footprint of retraction publications on social networks enhances the relevance of assessing the quality and reliability of scientific information.

In this regard, the study of the role of social networks in the dissemination of scientific research, increasing their visibility and influence, strengthening the digital reputation of scientific journals and influencing the quality of medical information is the most relevant for modern medical science and the healthcare system.

The purpose of the study

The purpose of the study is a comprehensive study of the use of social networks in the field of healthcare and scientific publications, the quality and reliability of content and communication with scientific activities.

Objectives of the research work

1. Research on the use of social media by medical professionals;
2. Analysis of the first 50 publications that received the most citations on the topic of social networks and healthcare.
3. Research of retraction publications on the topic of social networks.
4. Assessment of the quality and reliability of medical content on the YouTube platform;
5. Analysis of digital activity of publications and journals in social networks related to social networks in rheumatology

The object of research:

1. Features of the use of social networks by medical professionals for professional purposes.
2. The most cited scientific publications on the topic of social networks and healthcare.
3. Retractive scientific publications on the topic of social networks.
4. The quality and reliability of medical content on the YouTube platform.
5. Digital activity of scientific publications and journals related to social networks in the field of rheumatology.

Research methods:

1. Questionnaire survey (horizontal online survey; professional use, motivation, difficulties, need for training)
2. Altmetric Attention Score (AAS)
3. Journal analysis based on Scimago/Scopus (SoMe activity indicators + bibliometric indicators)
4. Bibliometric analysis (Web of Science; dynamics of publications, countries / journals / citations)
5. Content quality assessment (YouTube; GQS and modified DISCERNMENT)
6. Statistical methods (descriptive statistics; Spearman correlation; logistic regression, if necessary), (Microsoft Excel number (n), percentage (%) and median (minimum-maximum), nonparametric tests, statistical package for Social Sciences version 26.0 (SPSS Inc.), Chicago, IL, USA)).

Scientific novelty

1. For the first time in Central Asian countries, a study was conducted on the use of social media by medical professionals, which analyzed the purposes of use, preferred platforms, difficulties encountered and the need for training.
2. The most significant publications that have attracted the most public attention on the subject of social networks and healthcare have been identified. It was found that the median period from publication to retraction is 541 days, which is why such publications receive significant digital attention and are widely distributed on social networks; moreover, even after retraction, they retain their digital visibility and continue to spread in the information space.
3. It has been shown that the presence of official accounts of scientific journals in social networks is associated with high rates of publication activity and citations, which confirms the importance of digital participation in increasing the scientific visibility of journals.
4. The features of publication activity on the topic of social networks in rheumatology are revealed, the quality and reliability of medical content on the YouTube platform are evaluated.

Provisions to be defended:

1. Social media accelerates the dissemination of scientific research, increasing its visibility and readability among medical professionals. As a result, scientific information reaches a professional audience faster.
2. Published research in scientific journals active on social networks attracts more attention from a professional audience and is read more often. This enhances their accessibility and practical relevance.

3. The activity of scientific journals in social networks is associated with an increase in digital visibility, discussion and scientific impact of research. Thanks to this, the popularity and reputation of magazines are also growing.

4. During the COVID-19 pandemic, online platforms and social networks have become evident as an important tool for conducting and disseminating scientific research. Online surveys and remote research approaches were especially widely used.

5. Assessment of the quality and reliability of medical information disseminated through social networks is one of the most important areas of modern medical science. This is necessary for the proper use of scientific data and the prevention of misinformation.

Theoretical and practical significance

The theoretical and practical significance of the research lies in expanding scientific understanding of the role of social networks in healthcare and in substantiating their importance as a modern tool of scientific and professional communication. The results obtained deepen the understanding of the features of professional use of social platforms by medical professionals, publication activity on this topic, attention to scientific publications, as well as the quality and reliability of medical content in the digital environment. It is shown that the use of social networks by researchers and scientific journals helps to increase the visibility of scientific papers, expand their international audience and strengthen scientific influence, which confirms the expediency of introducing digital promotion strategies into scientific and editorial practice. In addition, the results of the study demonstrate the potential of social networks in more rapid dissemination of information about the retraction of publications, which is important for increasing the transparency and reliability of scientific information.

Results

1. As a result of studying the use of social networks by medical professionals, it has been established that social networks are widely integrated into the professional activities of healthcare professionals. They use social media mainly for professional development, training, and information exchange. YouTube and Instagram were identified as the most frequently used platforms.

2. An analysis of the first 50 publications that received the most citations on social media and healthcare topics showed that altmetric indicators are an important additional tool in assessing the public response of scientific papers. It has also been shown that the level of public interest does not always directly correlate with the number of academic citations.

3. In the course of a study of retraction publications on the subject of social networks, it was found that a significant part of such publications are published in open access journals and are widely indexed. The main reasons for the retraction were editorial investigations, unreliable results, and problems with publication quality. Some articles received significant digital attention before the official review.

4. As a result of an assessment of the quality and reliability of medical content on the YouTube platform, it was found that, despite the predominance of useful content, inaccurate and misleading information is also widespread. This pointed to the need to strengthen quality control of medical videos and increase reliable educational content.

5. As a result of the analysis of the digital activity of publications and journals on social networks related to social networks in rheumatology, a trend has been revealed towards a steady increase in the number of publications on this topic in the period from 2015 to 2024. Statistically significant positive associations were also found between the social media activity of journals in the field of rheumatology and their SJR index, the number of publications and citations.

Key findings:

1. Medical professionals actively use social media. They use them mainly to obtain professional information, improve their knowledge, track scientific news, and establish contacts with colleagues.

In addition, there is a high demand for training on the effective use of social networks for professional purposes.

2. Highly cited publications on social media and healthcare focus on areas such as public health, misinformation, mental health, and behavior. A positive relationship has been established between altmetric indicators and citation.

3. Violations of the publication process, unreliable results, and data-related problems were identified as the main reasons for the retraction of publications on the topic of social networks. Such publications continue to spread in the digital space even after the retraction.

4. It has been established that the quality and reliability of medical content on the YouTube platform are heterogeneous. Along with useful materials, misleading videos are also widespread.

5. There has been a steady increase in the number of publications related to social media in the field of rheumatology. Scientific journals that are actively represented on social media are characterized by higher scientific influence and digital visibility.

Approbation of research results

The main results of the dissertation work were tested and presented at the XII International Scientific Conference of Young Scientists and Students «Prospects for the development of biology, Medicine and Pharmacy» (October 17-18, 2024), organized by the Council for Science with the support of the National Academy of Sciences under the President of the Republic of Kazakhstan and SKMA JSC. Shymkent);

Conclusion

As a result of the conducted research, the role of social networks in healthcare has been comprehensively studied on the basis of a series of interrelated scientific papers. It is shown that social networks are firmly integrated into the professional activities of medical professionals and scientific communication, having a significant impact on the dissemination of medical information, scientific visibility of publications and the formation of public attention to health issues. It was found that medical professionals actively use social networks mainly for educational and professional purposes, but the effectiveness of their use is limited by the lack of systematic training and the risk of information overload. The bibliometric analysis revealed a steady increase in scientific activity on social media topics in medicine and confirmed the link between the quantitative participation of scientific journals and their academic influence. The altmetric analysis showed that social networks are an important channel for the dissemination of scientific knowledge outside the academic community, reflecting public interest in medical research. The results highlight the need for a systematic approach to the use of social media in healthcare, which includes the development of digital literacy among medical professionals, monitoring the quality of content, and the active participation of the professional community in scientific and medical communications.

Publications

According to the results of the study, 4 articles have been published in 2 quartile editions of the Journal Citation Reports (3 are the first author).

1. Social media landscape: a cross-sectional survey of health professionals (Rheumatology International, Germany; Q2 Journal Citation Reports (Clarivate Analytics) co-author)
2. Altmetric Activity and Scientific Integrity: A Retraction Analysis of PubMed-Indexed Social Media-Related Publications (Journal of Korean Medical Sciences, South Korea; Q2 Journal Citation Reports (Clarivate Analytics) First author)
3. Publication activity trends in the field of social media in rheumatology: a Web of Science-based bibliometric analysis (Rheumatology International, Germany; Q2 Journal Citation Reports (Clarivate Analytics) First author)
4. Social media landscape of rheumatology journals (Rheumatology International, Germany; Q2 Journal Citation Reports (Clarivate Analytics) First author)

Publications in journals recommended by the Committee for Quality Assurance in Science and Higher Education of the Ministry of Science and Higher Education of the Republic of Kazakhstan

1. Top 50 most cited articles on social media and healthcare: an altmetric analysis (Central Asian Journal of Medical Hypotheses and Ethics; First author, corresponding author)
2. Analysis of the quality and credibility of health-related content on YouTube: cross-sectional study (Central Asian Journal of Medical Hypotheses and Ethics; First author)
3. Social media and health care: a cross-sectional analysis of X (Twitter) posts using the NodeXL platform (Central Asian Journal of Medical Hypotheses and Ethics; First author)