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Medical Journalism: Need of the Hour in the Digital Age

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ABSTRACT

Objectives: In the current digital era, medical journalism plays a crucial role in bridging the gap between scientific advancements and public understanding. It keeps the medical fraternity informed about the latest developments, enabling healthcare professionals (HCPs) to make informed clinical and shared decision-making choices aligned with current research findings and real-world practice patterns. With the dissemination of health information through social media, online platforms, and digital news outlets, the prevalence of misinformation and health myths has increased rapidly. The spread of medical misinformation has a profound impact on public health, underscoring the vital role of medical journalists. There is a need for accurate, reliable, and accessible health information to be disseminated with assistance from medical journalists.

Material and Methods: A literature review was conducted using the PubMed, Scopus, and Google Scholar databases. Peer-reviewed, open-access journals were analyzed to assess real-world cases of medical journalism. The search strategy employed a combination of Medical Subject Headings (MeSH) terms and keywords, including medical journalism, health misinformation, disinformation, infodemics, yellow journalism, health journalism, digital health media, social media, health reporting, medical ethics in journalism, and fact-checking health news

Results: Medical journalism influences public perception, informs health decisions, and promotes trust in healthcare systems by providing evidence-based reports, expert insights, and fact-checking of medical content.

Conclusion: This brief review examined the evolving landscape of medical journalism, its challenges, and the necessity for enhanced professionalism and ethics in the digital era, promoting effective health communication and advocating for a more informed and health-conscious India.

Keywords: Data Journalism, Digital media, Health Journalism, Medical Journalism, Medical misinformation

INTRODUCTION

Role of medical journalism and its impact on public health

Medical journalism disseminates medical and health information through media. This includes reporting on health news, medical research and publications, as well as health policies, programs, and criticisms across both print and digital media. It is of two types: one for laymen, featuring medical news in general publications such as newspapers, podcasts, social media, etc, and another for real-world clinicians and healthcare professionals (HCPs) in peer-reviewed journals. It also influences health-related behaviours and impacts global public health.[1] A variety of sources of health information and political, economic, cultural, and security sensors often lead to inaccurate reporting, jeopardising individual health and harming health policies. Thus, the inaccurate reporting of medical information has become a significant global concern for public health.

Misinformation Case Study: Guillain-Barré Syndrome (GBS) & its Impact

Recently, a cluster of Guillain-Barré syndrome (GBS) cases in regions such as Pune, Maharashtra, and Kolkata, West Bengal, India, raised concerns about potential outbreaks. However, it is known that GBS is rare. GBS is an acute, immune-mediated polyradiculoneuropathy that is a significant cause of acute flaccid paralysis (AFP) worldwide. Although some cases may be linked to bacterial infections, such as *Campylobacter jejuni*, the cause of the recent rise in Pune and Kolkata is still under investigation. Misinformation about GBS has spread rapidly, creating panic among nonspecialists and HCPs. A common false claim that made rounds on the internet was that GBS was highly contagious and could spread through direct contact. GBS is not contagious but is triggered by an autoimmune response to a previous infection, a post-infectious neurological disorder in which the immune

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system mistakenly attacks nerves. Although contaminated water can be linked to bacterial infections that may trigger GBS, this syndrome cannot be transmitted through water. In addition, GBS can be misdiagnosed as another neurological condition, owing to symptoms such as muscle weakness and paralysis.[2,3] Despite these known medical facts, several media reports have inaccurately linked GBS cases without substantial evidence, leading to fear and vaccine hesitancy.

Quality of published medical misinformation and its influence on public health

In India, concerns have been raised regarding the quality of health media coverage. A study on obesity by the National Institute of Nutrition in Hyderabad focused on the most sensational obesity-related coverage in six Indian newspapers.[4,5] Many studies on obesity have identified this as self-contradictory. In several media reports, the source of information was not mentioned, the research methodology was ignored, and study design flaws were rarely discussed.[4-6] Similarly, a study of H1N1 outbreak coverage in a leading newspaper in India showed that the newspaper framed H1N1 as a deadly disease, presenting death in a manner that producesuch d fear and panic among laymen.[4,6] This contributed to an exaggerated sense of uncertainty, anxiety, and fear. Such instances highlight the need for responsible medical journalism in the digital era, where unverified health news can significantly impact public health outcomes.[4,6]

Infodemic-rising threat to public health

India is recognised as the "pharmacy of the world," as it manufactures and distributes cost-effective pharmaceutical drugs, vaccines, and biologicals.[7,8] During the COVID-19 pandemic, India manufactured and distributed COVID-19 vaccines worldwide. The pandemic was accompanied by a severe "infodemic," an overabundance of accurate and inaccurate medical information. Misinformation about COVID-19 and vaccines has spread on social media at a rate that led the World Health Organization (WHO) to coin the term 'infodemic'.[9,10] WHO defines "an infodemic as too much information, including false or misleading information, in digital and physical environments during a disease outbreak." Circulated false information can be disinformation (false information with incorrect intentions) or misinformation (false information spread with or without incorrect intentions),[11-13] compromising the real-life fight against pandemics.[13,14] This spread of misinformation regarding vaccine development has led to fear of side effects, causing hesitation in administering the COVID-19 vaccine.[9]

The Bruno Kessler Foundation analysed 112 million COVID-related messages in 64 languages and reported that 40% of them came from unreliable sources. According to Global Tweet Statistics by the COVID-19 Infodemic Observatory, as of September 29, 2020, 42.3% of pandemic-related tweets were created by bots and 29.2% by unreliable sources.[15] News on social media and print media is pivotal in providing information and creating awareness. People respond to their surroundings based on perceptions that are significantly influenced by the media. However, these instances show that journalists, media agencies, and social media users have adopted news mongering to sensationalise content and increase their target rating points and personal benefits.[16]

Yellow journalism in health reporting

Yellow Journalism refers to the dissemination of biased and inaccurate news through television channels, social media profiles, newspapers, and videos on social media.[17,18] It is characterised by news that provides false information or has been embroidered. Some journalists and media departments utilise strategies that incorporate embellishments of news, events, exposure, and exaggeration for increased circulation.[19] According to a study by Khan *et al*. Yellow Journalism in India has a significant presence in the lives of Indian inhabitants. The media takes advantage of citizens by publishing exaggerated stories that attract genuine or misleading readership.[19]

Montalbano *et al*., in their research on "Preventing Yellow Jack and Yellow Journalism," highlighted the 1878 yellow fever epidemic. Newspapers in the Mississippi Valley reported on prevention strategies and critiqued the misinformation. Journalists in Vicksburg and New Orleans alleged that reporters elsewhere were sensationalising or understating the impact of the epidemic, undermining their ability to protect their hometowns from health threats, economic instability, and reputational damage. This yellow journalism highlighted the tensions between urban centres and their news outlets. Publications from the same city often disputed each other's epidemic coverage. Although public health, science, medicine, and journalism have evolved since 1878, this historical account stresses the significance of local news and citizen-journalist collaboration when confronting contemporary health crises such as COVID-19. The author concluded that without a robust foundation for covering epidemics locally, broader journalistic networks are less equipped to mitigate outbreaks.[20]

Barriers to healthy medical journalism

Nearly two decades ago, Larsson *et al*. identified nine major barriers to improving the informative value of

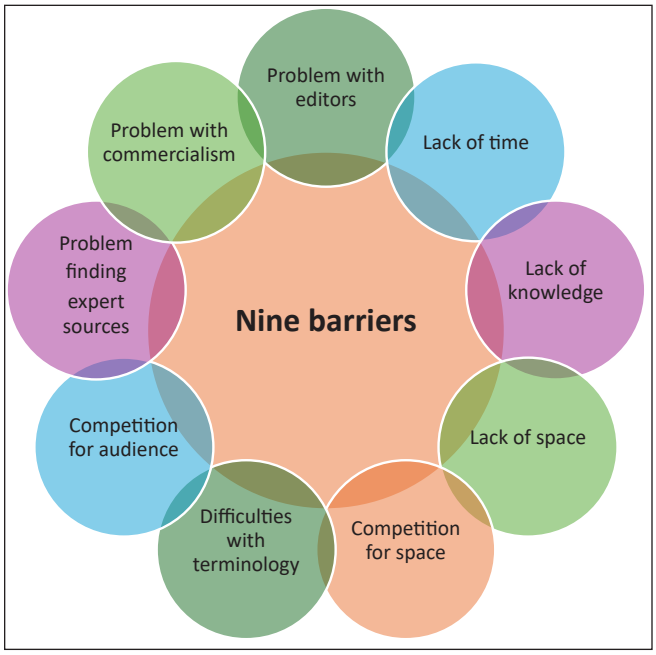

Figure 1: Nine major barriers to improving the informative value of medical journalism.

Figure 2: Strategies to improve the informative value of medical journalism.

medical journalism. These were "lack of time, space, and knowledge; competition for space and audience; difficulties with terminology, problem finding and using sources; and problems with editors and commercialism" [Figure 1].[21] The most common barriers identified were lack of time, space, and knowledge. The importance of different barriers varies depending on the type of media and the individual's experience.[21] Medical journalists often encounter difficulties in identifying independent experts willing to assist, and they perceive that editors require additional education to evaluate medical news critically. Having said that, they agree that the validity of medical reporting in mass media is essential.[21]

Strategies to improve the quality of medical journalism

Medical journalists require access to reliable, up-to-date medical information on various topics available on the Internet, access to experts in diverse health areas, strategies to prepare more informative and 'saleable' reports, interest in strategies for presenting research results, access to assistance with scientific and medical terminology translation, and access to methodological experts.[21] They were also interested in possible aids to improve the informative value of health stories. They were even willing to participate in a trial to evaluate strategies for overcoming the identified barriers [Figure 2]. Given the increasing volume of medical information that health journalists manage, collaborative initiatives between HCPs and journalists employing diverse strategies are necessary to address these constraints.

MATERIAL AND METHODS

Search strategy

A literature review was conducted using PubMed, Scopus, and Google Scholar databases. Peer-reviewed open-access journals were analysed to assess real-world cases of medical journalism. The search strategy employed a combination of Medical Subject Headings (MeSH) terms and keywords, such as *medical journalism, health misinformation, disinformation, infodemics, yellow journalism, health journalism, digital health media, social media, health reporting, medical ethics in journalism, and fact-checking health news*. Boolean operators were used to refine search results. Articles and reports published in English within the last 20 years discussing medical journalism, health journalism, digital health communication, misinformation, ethical considerations, best practices, etc, were considered.

RESULTS

Understanding trends and gaps in medical journalism

Ethical challenges and the need for training - existing evidence

Paul *et al.*[22] emphasise the importance of health journalism in disseminating medical information. They discuss challenges faced by journalists, such as interpreting complex medical language, verifying information, and accessing reliable sources. Many health journalists lack formal training, which

complicates their ability to report accurately. Ethical dilemmas arise, particularly in industry reporting, where journalism and marketing often overlap.[22] Physician journalists face conflicts between patient confidentiality and reporting responsibilities.[22] Inaccurate health research reporting can create unrealistic expectations, misguide treatment decisions, and negatively influence health policies, such as exaggerated vaccine side effect reports leading to hesitancy.[22] The authors call for specialised training, ethical guidelines, and regulatory supervision.[22] They advocate for reliable, accurate, ethical, and contextual reporting, as emphasised by the Association of Health Care Journalists (AHCJ). They also suggest comprehensive ethical guidelines and proactive regulatory bodies for responsible health journalism in the digital age.[22]

Boga *et al.*,[23] in their research, discuss ethical practices in Indian health journalism, clarifying journalists' views on ethics and dilemmas. They highlight the educational needs of health journalists in terms of ethics and professionalism. Daily routines, deadlines, and news selections are crucial for health news coverage.[23] Journalists identified competition, editorial bias, confidentiality, accuracy, privacy issues, lack of space for multidisciplinary stories, high story demand, under-reporting of health issues, lack of senior guidance, and tainted information as challenges. They sought specific ethical guidelines for clarity and consistency.[23] Journalists suggested including ethics education in health journalism courses, support from online forums, in-house workshops, and short ethics courses by journalism groups such as press clubs.[23]

Role of medical experts and healthcare professionals in combating medical misinformation-existing evidence

Sharma *et al.*[4] emphasised the critical role of medical journalism in countering infodemics and verifying medical information through mainstream media. They suggested free media as a counterbalance to medical misinformation, ensuring accurate health reporting.[4] To improve health news in Indian media, Sharma *et al.* proposed stronger collaboration between media, health experts, researchers, and policymakers.[4] Academic institutions and health organisations should communicate with journalists, offer expert insights to debunk misinformation, and contextualise their research.[4] They stressed evidence-based reporting and presenting medical developments with appropriate caveats to prevent sensationalism.[4] They recommended that media houses employ trained health journalists and fact-checkers to enhance the accuracy of medical information reporting. Investing in medical journalist education and workshops enhances health reporting standards.[4] Engaging the public in 'news literacy' initiatives would empower communities to identify medical misinformation and reinforce trust in credible sources.[4]

Larsson *et al.* [24], through interviews, focus groups, and a survey of 600 medical experts in 21 countries, examine the experiences and views of experts on participating in popular media. Experts expressed concerns about short deadlines and unreliable headlines jeopardising medical messages.[24] This suggests that high-quality medical journalism may be at risk in today's changing media environments. The risk is that laypeople will receive low-quality medical information, which could erode public confidence in science and medicine. Reasons include shorter production times, fewer specialised reporters, poorly phrased headlines, and expert comments despite conflicts of interest.[24] Medical experts proposed more frequent contact with journalists, regular meetings, and a network of experts for reporters to corroborate medical news. Training medical experts about media working conditions could enhance their understanding of the two professional cultures.[24]

Infodemic management and misinformation control - existing evidence

A rapid review by Skafle *et al.*[25] highlighted various concerns regarding the spread of medical misinformation. The association between COVID-19 vaccine misinformation and hesitancy persists on many social media platforms, as evidenced by several studies. However, this effect must be further examined using a more robust experimental design.[25] The authors suggest that ethical experimental studies be conducted in a laboratory setting to determine whether people can distinguish between false and accurate information. Such studies would require informed consent and ethics committee approval.[24] Observational studies extracting data from social media can be improved by gathering more representative data (e.g., from several platforms, audiences, and languages and covering longer periods).[25]

Eysenbach G *et al.* proposed a framework with four pillars of infodemic management: (1) information monitoring (infoveillance); (2) building eHealth Literacy and science literacy capacity; (3) encouraging knowledge refinement and quality improvement processes such as fact checking and peer-review; (4) accurate and timely knowledge translation, minimising distorting factors like political or commercial influences.[26]

Digital transformation and social media influence in combating medical misinformation- existing evidence

Pulido, C. M. *et al.* [27] introduce a new application of social impact in social media (SISM) methodology to identify false health information. Results indicated that social media interactions depend on the type of information shared by diverse audiences. Twitter, Facebook, and Reddit analyses

reveal different interactions regarding evidence or fake news, with more messages about events or fact-related information on topics such as Ebola, nutrition, and vaccines.[27] Two recommendations for public health professionals have been suggested: narrowing dissemination strategies to counteract fake news regarding health, considering the higher percentage of misinformation on Twitter on vaccines, and designing interventions for forums where health information is discussed to provide evidence of social impact[27] This shows that SISM is a replicable methodology for social media analytics in health and fake news, enabling the identification of evidence of social impacts and misinformation related to health.[27]

Kožuh *et al.*[28] research on Social Media Fact-Checking examines users' competencies and attitudes when assessing social media news. This study examines how fact-checking intent is influenced by news literacy and trust in the context of misinformation-prone social media environments. Structural equation modelling examined survey data from social media users.[28] Findings revealed that users' intent to fact-check information in social media news is influenced by (1) news literacy, such as awareness of techniques used to depict situations about the health crisis ex: COVID-19; (2) news trust, in terms of the conviction that news contains essential facts; and (3) intent to check information in multiple news pieces.[28] These findings may aid policymakers and practitioners in developing effective communication strategies for addressing users who are less likely to fact-check. The model offers a new understanding of news literacy as a tool for combating misinformation, equipping users with knowledge, and developing an attitude toward social media news fact-checking.[28]

DISCUSSION

The existing evidence mentioned in the results section highlights various key trends and specific gaps in medical journalism, including ethical challenges, the training needs of medical journalists, the role of healthcare professionals, and the impact of digital transformation in combating medical misinformation. The evidence further emphasises the crucial role of promoting ethically correct, accurate, and precise medical information in the digital era. Additional to these findings, we outline the need for strengthening regulatory frameworks and aligning with the recommendations of national and international guidelines for best ethical practice to address medical misinformation.

Need for strengthening regulatory frameworks and guidelines

Although some major technology companies, medical journalists, authors, and researchers have taken steps to combat misinformation, more action is required to curb this infodemic. The proposed approach to infodemic management includes information monitoring (infoveillance), enhancing eHealth and science literacy capacity, encouraging quality improvement processes, and promoting the accurate and timely translation of knowledge. Authors reporting clinical trials and other research findings should adhere to the guidelines established by the World Health Organization (WHO), the International Committee of Medical Journal Editors (ICMJE), the Committee on Publication Ethics (COPE), and the Centres for Disease Control (CDC). This adherence extends to responsible health journalism and primary media sources, such as The Lancet, the British Broadcasting Corporation (BBC), the New England Journal of Medicine (NEJM), and BioMed Central (BMC). This undertaking strikes a balance between the authors' right to express their views and strategies to counter misinformation.

Additionally, we recommend enhancing journalists' basic medical knowledge to produce more accurate and comprehensive coverage of medical issues in lay media. This can be achieved through regular meetings between medical experts and journalists to discuss important new findings. A network of experts in various health and medical areas available to journalists for expert opinions can help validate news stories before they are published. The ethics of journalism in India is considered poor due to the media and the unfettered rise of Yellow Journalism. Ethics education in health journalism courses and support from online forums, workshops, and short ethics courses by journalism groups can curb the spread of medical misinformation and correct facts in published news stories. Medical experts should be consulted, especially for fact-checking and cross-checking health information circulating on social media for the betterment of the community.

CONCLUSION

Although digital transformation offers broader engagement, it also brings challenges, such as medical misinformation, ethical conflicts, and the need for stronger regulations. Resolving these issues requires digital health literacy initiatives, fact-checking, and the ethical training of the stakeholders involved, including medical journalists, healthcare professionals, pharmaceutical advertisers, and news agencies, while adhering to national and global reporting guidelines. Collaboration among medical journalists, HCPs, and policymakers has ensured that medical journalism remains a reliable source of health information in the digital age. Medical journalism is thus crucial for influencing clinical decision-making, shared decision-making, policy decisions, public health awareness, and medical advancements.

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