

Use of social media by medical students: ethical implications

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Abstract

The use of social media by medical students in hospital environments raises ethical and privacy issues, as evidenced in this qualitative, cross-sectional, descriptive study conducted in Curitiba/PR between August 2023 and April 2024 with 167 students. All reported access to mobile internet, with a predominance of Instagram (89.8%) and 2.93 hours per day on average. Although 70.1% avoid using it during hospital activities, 61.7% discuss clinical cases online; 89.9% have witnessed inappropriate posts, but 56.3% did not react. Lack of knowledge of the Federal Council of Medicine's standards highlights gaps in academic training. Thus, the incorporation of the bioethical dimension, based on confidentiality, autonomy, beneficence, and non-maleficence, is essential to guide responsible conduct in the digital environment and ensure respect for patient privacy and strengthen medicine's social commitment.

Keywords: Ethics, medical. Education, medical. Social networking. Physician-patient relations. Codes of ethics.

Resumo

Uso de mídias sociais por estudantes de medicina: implicações éticas

O uso de redes sociais por acadêmicos de medicina no ambiente hospitalar levanta questões éticas e de privacidade, como evidenciado nesta pesquisa qualitativa, transversal e descritiva realizada, em Curitiba, entre agosto de 2023 e abril de 2024, com 167 estudantes. Todos relataram acesso à internet móvel, com predomínio do Instagram (89,8%) e média de 2,93 horas diárias. Embora 70,1% evitem o uso durante atividades hospitalares, 61,7% discutem casos clínicos on-line; 89,9% presenciaram postagens irregulares, mas 56,3% não reagiram. O desconhecimento das normas do Conselho Federal de Medicina evidencia lacunas na formação acadêmica. Assim, a incorporação da dimensão bioética, pautada em confidencialidade, autonomia, beneficência e não maleficência, é essencial para orientar condutas responsáveis no ambiente digital e assegurar respeito à privacidade dos pacientes e fortalecimento do compromisso social da medicina.

Palavras-chave: Ética médica. Educação médica. Rede social. Relações médico-paciente. Códigos de ética.

Resumen

Uso de las redes sociales por parte de los estudiantes de medicina: implicaciones éticas

El uso de las redes sociales por parte de los estudiantes de medicina en ambientes hospitalarios plantea cuestiones éticas y de privacidad, como se pone de manifiesto en esta encuesta cualitativa, transversal y descriptiva realizada en Curitiba/PR, entre agosto de 2023 y abril de 2024, con 167 estudiantes. Todos informaron tener acceso a internet móvil, con predominio de Instagram (89,8%) y un promedio de 2,93 horas diarias. Aunque el 70,1% evita su uso durante las actividades hospitalarias, el 61,7% discute casos clínicos en línea; el 89,9 % ha sido testigo de publicaciones irregulares, pero el 56,3 % no ha reaccionado. El desconocimiento de las normas del Consejo Federal de Medicina pone de manifiesto las lagunas en la formación académica. Así, la incorporación de la dimensión bioética, basada en la confidencialidad, autonomía, beneficencia y no maleficencia, es esencial para orientar conductas responsables en el entorno digital y garantizar el respeto a la privacidad de los pacientes y el fortalecimiento del compromiso social de la medicina.

Palabras-clave: Ética médica. Educación médica. Red social. Relaciones médico-paciente. Códigos de ética.

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With the evolution of technology since the 2000s, various forms of social interaction have emerged, consolidating the idea of social networks¹. Since then, the increasing use of social media by medical students in hospital settings warrants attention and in-depth analysis. As communication technologies evolve, students have increasingly incorporated social networks into their daily lives, including clinical settings. This phenomenon raises questions about the impacts, benefits, and challenges of using these platforms in the medical context.

In this sense, it is clear that, with the recent introduction of the internet in the health field, coupled with the increasingly constant presence of patients on social networks in search of information about diseases and professionals, in addition to the insertion of telemedicine in medical practice, technologies are invariably implemented in the medical field². Furthermore, it is worth noting that, while they strengthen the physician-patient relationship and contribute to the dissemination of knowledge, social networks can be harmful to both physicians and patients, with possible compromises of the principles established by the Code of Medical Ethics (CEM), and have been generating concerns in the medical field³.

A study published in the *Journal of Medical Internet Research*⁴ in 2020 showed that 78% of physicians reported a significant increase in the use of social networks for professional purposes during the pandemic. These professionals used platforms such as Twitter, Facebook, and LinkedIn to exchange information on treatment protocols, share experiences, and discuss clinical cases, which demonstrates the relevance of these tools to current medical practice.

Furthermore, the introduction and widespread adoption of telemedicine during the COVID-19 pandemic highlighted the potential of digital technologies to improve access to healthcare and maintain continuity of medical care in crises. Telemedicine not only allowed patients to continue receiving care without leaving home but also facilitated the exchange of information between healthcare professionals from different regions, promoting more effective and rapid collaboration⁵.

Considering the potential for interaction and learning provided by social media, it is

hypothesized that the conscious and ethical use of these platforms by medical students favors physician-patient communication, knowledge sharing, and the construction of a more connected academic community³. However, inappropriate use of social networks may also result in ethical violations, privacy breaches, and other problems, negatively impacting the hospital environment and medical training⁶.

This study aims to analyze medical students' behavior regarding the use of social networks and the internet in hospital settings, and the effects and consequences for medical practice.

Method

This study comprises applied, qualitative, cross-sectional, and descriptive research conducted in Curitiba/PR, between August 2023 and April 2024, with 167 medical students aged 18 or older, of both sexes, enrolled in curricular or voluntary clinical internships in the medical course. Minors, those who did not agree to participate, and those who did not sign the informed consent form were excluded. Data collection was conducted using a semi-structured online questionnaire with 26 questions, divided into four sections (consent form, demographic data, use of social networks, and knowledge of medical ethics), administered via Google Forms and distributed digitally and in person. The sample consisted of medical students completing clinical internships at university hospitals in Curitiba/PR. The approach chosen for data collection was a combination of digital distribution of the questionnaire and an active in-person search for responses in the university hospitals. The questionnaire was posted on Google Forms and sent to students digitally to reach a larger number of participants.

While the chosen approach was focused and relevant to the research context, difficulties arose in obtaining all the necessary responses for the study. Some challenges included students' unavailability to complete the questionnaire during their practical activities, an overload of academic commitments, and low participation among some students, despite several attempts to contact them. These difficulties limited the number of responses collected and, therefore, reduced n , which may

have affected the representativeness of the data and the scope of the study's conclusions.

These difficulties highlight the importance of adopting alternative strategies to increase response rates in future studies, such as conducting face-to-face data collection sessions or offering incentives to encourage participation.

The results were transferred to an Excel spreadsheet created specifically for this study. Data analysis was performed using the Statistical Package for the Social Sciences (SPSS) software (Version 22.0 IBM). Initially, a descriptive analysis of the dataset was performed: qualitative variables were expressed as frequencies and percentages, and quantitative variables as means, medians, minimum and maximum values, and standard deviations. Then, for distributional analyses, the Kolmogorov-Smirnov and Shapiro-Wilk tests were applied to quantitative variables. Significance was considered when $p > 0.05$.

Results

In total, 167 volunteers participated in the study. The results section is subdivided into the sections analyzed in the applied questionnaire.

The study yielded 167 responses from medical students in Curitiba/PR across five educational institutions. Among the participants, 113 were women, and 54 were men, with an average age of 21.9 years. The distribution of students across the academic cycle showed that 52.7% were in the basic cycle (1st to 4th semesters), 35.3% were in the clinical cycle (5th to 8th semesters), and 12% were in the internship (9th to 12th semesters).

Regarding activities in hospitals, clinics, or healthcare units, students reported varying levels of experience. The practice time ranged from one month to five years. In addition, the average number of hours that students spend in the hospital environment was estimated at 9.6 hours per week. Finally, 100% of students reported having access to mobile internet, and the most-used social network is Instagram. They spend approximately 3 hours a day on social networks, ranging from 1 to 10 hours.

Regarding social media use, 100% of students reported having access to mobile internet, and the

most-used social network is Instagram (89.8%), with an average daily use of 3.24 hours (ranging from 1 to 9 hours).

Regarding the presence of physicians on social networks, 100% of students follow other healthcare professionals. However, only 58.7% believe that physicians can post photos of patients with their authorization. In addition, 58.7% of survey participants believe that physicians can disseminate political content on their networks; 9% believe they can always do so, and 49.7% do so depending on the material. Furthermore, 70.9% believe that professionals can disseminate religious content, with 9% always and 61.1% depending on the material. Finally, 62.7% believe that experts can disseminate material regarding gender ideology on their media, with 9% saying always and 53.9% saying it depends on the material.

Most students (70.1%) report not using social media during activities in hospital settings. When asked about using social media to discuss clinical cases with other physicians or students, 61.7% of students reported discussing cases, with 10.8% always doing so and 50.9% depending on the case. Despite this, 56.3% report not disclosing the cases discussed to other personal groups.

Finally, 89.9% of students report noticing irregular posts (fake news/unethical) on social media. Of these, 56.3% say they did nothing about it, 14.4% say they posted in the group that such action is not correct, 9.6% talked to the author about the action not being correct, and 9.6% forwarded the post to colleagues.

Discussion

Analyzing these results, the students' opinions regarding social media in the context of medicine and their knowledge of medical ethics, it was evident that the professional use of social networks is viewed positively, and many students already use them for academic purposes, in addition to following other professionals on social networks. However, most students do not actually know the principles of the CEM, because, when questioned about certain situations, they opted for alternatives that do not correspond to the values expressed in the code^{7,8}. In this sense, there is a divergence

between the increased use of social networks and their effectiveness in the professional field, since irregular conduct⁹ can compromise future medical practice and violate the principles of non-maleficence and beneficence toward the patient.

A predominance of females was observed among the participating medical students, confirming data from studies indicating the phenomenon of the course's feminization¹⁰.

The entire sample of students uses social networks, has access to mobile internet, with Instagram being the most used network (89.8%). Its average usage is 3.24 hours per day, in line with data from the 2021 TIC Domicílios survey¹¹, which shows growth in internet and social network use among Brazilians, as well as an increase in time spent on these media.

The use of social media has become part of modern society, as reflected in the importance people place on networks for obtaining health information¹². Students are an example of this context, as 100% of participants say they follow other healthcare professionals on social networks, and 96.1% believe that informative health promotion publications on the physician's profile can encourage their patients to adopt healthy habits. For George, Roviniak, and Kraschenevski³, this would be a way for the physician to improve their relationship with patients further, engage them to follow healthier behaviors, and even encourage them to share their fears, motivations, and desires, thus creating a community that would result in greater comfort on the part of patients during the consultation.

Most students (58.7%) believe that physicians can post photos with their patients, as long as they have their permission. In this regard, it is important to highlight Resolution 1,974/2011⁸ of the Federal Council of Medicine (CFM), which sets out the rules of medical advertising and aims to prevent sensationalism, self-promotion, and commercialization of the medical act, as well as to avoid abuses in advertising and publicity. It is believed that physicians' social media posts often violate the CEM concept, even with patient consent. This practice also represents a risk to patient autonomy if they do not fully understand the implications of the disclosure.

Of the participants, 49.7% agree that physicians can post political content, depending on the material. Almost 70% believe it is valid for healthcare professionals to publish religious content on their social media, while 62.9% understand the same in relation to gender ideology, which shows that there is a divergence of opinions depending on the topic addressed. It is believed that this opposition occurred due to the theme, its content, and its relevance to the medical field; i.e., most consider information of a religious nature and gender ideology to be more significant and to present a lower level of controversy in the medical environment. These results reinforce the idea that the perceived relevance of the content influences students' ethical evaluations and highlight the need for greater training in the principles of justice and beneficence.

The majority (70.1%) say they do not use social media in the hospital environment. However, only 38.3% of participants report not discussing clinical cases on social media with physicians or students, suggesting inconsistent responses. These data suggest that although students recognize that using social media is not appropriate in the hospital environment, many continue to use these platforms to discuss clinical cases outside this context, such as at home. However, only 56.3% report not disclosing the cases discussed to other personal groups, meaning that almost half of the students participating in the research reveal confidential patient data to groups of individuals who are not necessarily related to the health field, which constitutes a risk to autonomy, justice, and non-maleficence. These results support research with 284 medical students in Paraná, which reported that students used Facebook to ask health questions (91.6%) and discuss clinical cases (31.9%)¹³.

Most participants (89.8%) reported having already noticed fake news or unethical posts on social media. Only 24% of participants who noticed the spread of fake news say they have done something about it, such as warning the group that the action is incorrect (14.4%) or talking to the author about the action being incorrect (9.6%). Research conducted in Pernambuco with 115 medical students also showed that most students report having seen physicians disseminating inaccurate/sensationalist

information to attract followers¹⁴. These findings indicate limitations in the ethical training of healthcare professionals and highlight the need for educational interventions.

Regarding the CEM, 73.7% of students claim to know the rules, but only 20.4% say they know CFM Resolution 1,974/2011⁸, which concerns medical advertising. This leads us to wonder if the participants actually know the CEM.

Regarding medical posts on social media, 39.8% of participants favor (agree or strongly agree) physicians posting images of patients on their profiles to publicize techniques, methods, or results. On the other hand, almost half (48.5%) of the students are against the dissemination of this material (disagree or strongly disagree), and 11.7% have no opinion on the matter. Only 29.1% agree that it is permissible to post thank-you notes and compliments expressed by clients, while 13.6% strongly agree. The majority (52.7%) are against posting before-and-after photos on a physician's profile with the patient's authorization; 35.9% strongly disagree, and 16.5% disagree. Therefore, a majority of participants oppose physicians disseminating such content on social media.

The vast majority (72.8%) of participants believe that healthcare professionals should have separate profiles, one professional and one personal. Regarding publications on personal profiles that may influence the reputation of healthcare professionals (photos at parties and photos with alcoholic beverages), 76.7% of participants say they could impact a physician's reputation; 42.4% agree, and 34% strongly agree. According to Ventola¹⁵, for many patients, seeing a physician using alcohol on social media can make them doubt the physician's professionalism, even if it happened during the professional's leisure time.

It should be noted that, since the beginning of the initial project, at the end of 2022, there have been changes to CFM Resolution 2,336/2023¹⁶, with the introduction of new guidelines for medical advertising to ensure clearer, more ethical, and transparent practices in communication between physicians and the public and to prevent commercialization. These rules reinforce respect for patient autonomy by balancing digital engagement with patient protection and the maintenance of professional trust^{17,18}.

One of the most significant changes is the permission to use patient images in medical promotional materials, provided they are used for educational purposes. They are directly related to the physician's specialty. They must be accompanied by explanatory text addressing therapeutic indications and possible complications, and cannot undergo any manipulation or enhancement. In addition, patient identification is prohibited, even with authorization, to ensure their anonymity and privacy^{17,18,19}.

The new resolution also allows physicians to use patient testimonials in their marketing materials, provided they are presented soberly and do not make promises of exceptional results. In addition, physicians can repost patients' praise on social media, as long as they respect the same conditions of sobriety and truthfulness¹⁷. Another novelty is the authorization to disclose consultation prices and to carry out promotional campaigns¹⁸, which expand the possibilities for communication between physicians and their patients and allow greater transparency regarding the costs of services provided.

The resolution also sets new rules for the disclosure of medical qualifications. Physicians with *lato sensu* postgraduate specializations must include the expression "NON-SPECIALIST" in capital letters in their disclosures. Physicians who hold a specialist title must provide the Specialist Qualification Registration (RQE) number registered with the Regional Council of Medicine (CRM)¹⁸. These measures aim to ensure that the public receives accurate information about professionals' qualifications.

Finally, the resolution advises physicians to avoid behaviors intended to attract clients or to promote exclusive methods during interviews. They must declare conflicts of interest and cannot disclose their physical or virtual addresses in interviews. The disclosure of medical bulletins must be done in a sober, impersonal, and truthful manner, always preserving medical confidentiality¹⁹. These changes seek to ensure that medical advertising is conducted ethically and responsibly, maintain the integrity of medical practice, and protect the public from misleading information.

Final considerations

The study, in accordance with the proposed objective, showed that medical students' use of social networks in the hospital environment is commonplace, with these platforms frequently used to discuss cases with colleagues and physicians, demonstrating the potential for exchanging experiences and learning. However, inappropriate use of media during internships was also observed, with violations of the CEM and a poor perception of irregular posts, revealing significant challenges and risks to professional practice.

In light of bioethics, inappropriate practices can violate non-maleficence by exposing patients to harm due to breach of confidentiality; compromise

autonomy when there is no clear consent in the sharing of information; weaken justice by promoting inequalities in access or in the form of exposure; and deviate from beneficence when the information disseminated does not contribute to care and well-being.


Therefore, educational institutions are recommended to strengthen ethical and bioethical training by promoting specific training on the conscious use of digital media in the medical context. For students, it is essential to develop critical thinking skills, adopt good online practices, and act as agents for promoting responsible information. In this way, it will be possible to integrate social media benefits into professional practice without compromising ethics, patient safety, and the fundamental values of medicine.

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Leticia Brunetto de Lara participated in the conceptualization, data curation, formal analysis, investigation, methodology, writing (original draft), writing, revision, and editing. Julia Caldas Alves and Laura Rubel Barzotto contributed in the data curation, formal analysis, investigation, methodology, writing (original draft), writing, revision, and editing. Adonis Nasr participated in the supervision, methodology, writing, revision, and editing.

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