

Original Article



# Social network using rate among medical students and awareness of ethical issues of clinical photography sharing

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## Article info

### Article History:

Received: March 25, 2024

Accepted: June 5, 2024

ePublished: January 5, 2025

### Keywords:

Social media, Social networking,  
Attitude, Medical students,  
Ethics, Iran

## Abstract

**Introduction:** Clinical photography is a practical tool in the area of training and research of medical science. The goal of this research is to determine the rate of social network using and the level of awareness and attitudes toward the ethical considerations of sharing clinical photos of patients on social networks by medical students and medical assistants.

**Methods:** In a cross-sectional study, the population of the study including the medical assistants(residents) and students at Urmia University of Medical Sciences. Their awareness and attitudes regarding ethical issues in sharing clinical photos on social networks have been evaluated using a standardized questionnaire.

**Results:** This study was conducted with 450 participants. 96.6% of the participants use smartphones, and 432 (96%) of them had an account at least in one social networks. 92% of the participants had an account on Instagram, 22% on Facebook, 74% on Telegram, and 38% on LinkedIn. 46% of participants have been a member of more than one social networks. Also, 42% had more than one account on social networks. In 68% of participants, the clinical or photography findings of patients were shared on social networks. General awareness of ethical guideline in sharing clinical findings of patients was 10.6% (32 cases) in medical students and 18.6% (28 cases) in residents.

**Conclusion:** The use of social networks by smartphones among medical students in Iran is increased like to the other countries, and there is low awareness of ethical issues in regard to sharing or posting medical photography in medical professional setting.

## Introduction

With the rapid advancement of smartphone technology and development of social networks, the connection between individuals and the relations between people in society have accelerated. Nowadays, using smartphones and social media has gained significant attention.<sup>1</sup> New social networks are used by individuals employed in health care systems like others in the society to communicate with patients and transfer essential information about diseases. Physicians and medical staff use social networks to communicate with other individuals about important health issues and collect necessary information from their patients.<sup>2</sup> Social networks have the ability to record the process of diseases before the publication of official information.<sup>3</sup> Nowadays, social networks are widely used in studies on the personalities and behaviors of young individuals and juveniles. These networks are also applied to employ participants and gather information in a study, which can be ethically challenging.<sup>3</sup> Various social networks including Instagram, Twitter, and Facebook are

formed and applied by people employed in the health care centers.<sup>4</sup> In a study that was conducted in Iran, about 71.3% of individuals in different communities use at least one of the applications in social networks. <sup>1</sup>social networks with electronic communication has made the transfer of data, personal messages, and ideas fast and easy. Physicians and medical staff share clinical imaginal findings and photographs such as radiographs, computed tomography (CT) scans, and magnetic resonance imaging (MRI) of the patients on social networks to show their expertise and experience in the treatment and management of diseases.<sup>5</sup> Clinical images and photography findings of the patients can be shared on social media without any restrictions regarding time and place. This approach has some advantages such as acquainting patients with treatment and prevention methods. These approaches also have some disadvantages, such as sharing patients' information without their informed consent is one of the disadvantages. So that it causes the disclosure of patients' information and the violation of individuals' privacy.<sup>1-3</sup>

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There is not enough information about the level of awareness and familiarity of physicians and medical staff about ethical issues, sharing clinical photos, and the extent of their social networks usage in developing countries like Iran. Considering the mentioned subjects regarding the necessity for confidentiality about the clinical images of patients and acquiring their informed consent in time of sharing these images, and also considering that medical residents and students encounter these challenges during clinical training and practice, we aimed to study determination rate of social network using by medical students and medical assistants(residents), also evaluation the level of awareness and attitudes about the ethical considerations of sharing clinical photos of patients on social networks.

## Methods

A cross-sectional study was conducted from October 2021 to September 2023, and the population of the study was the medical assistants(residents) and students including interns at Urmia University of Medical Sciences (UMSU). All medical students from faculty of medicine (UMSU, Iran) work in the clinical wards of educational hospitals were enrolled. All of them receiving information about the study and who were not interested in participating in this program were excluded. The sample size included all clinical residents and interns who worked in the Imam Khomeini hospital, Urmia, Iran. during the studied years.

Tools for collecting data included a two-part questionnaire. The first part of the questionnaire contained questions regarding personal information such as gender, clinical course, age, numbers of account, kind of social network using, time spent and field of study of residents based on surgical or non-surgical fields. The second part of the questionnaire contained questions in regard to using social networks and sharing clinical photographs and patient findings. Also, the level of awareness and attitude was prepared and designed in the Persian language based on previous research in this area.<sup>6</sup> This questionnaire had twenty-eight questions divided into two parts. So that the first part of the question was about the views of the participants. The second part was related to the performance of the participants in the field of ethical considerations of clinical imaging sharing on the social networks. Ethical considerations of clinical photographs have been evaluated using Likert scale survey questions containing five options of absolutely right, right, no opinion, wrong, and absolutely wrong. Then, the score acquired from each participant and the total scores were calculated, and the level of awareness was estimated based on scores. According to the questionnaire, a max score of 140 shows complete awareness and positive attitude and a min score of 28 shows complete unawareness.<sup>6</sup> General awareness was determined based on earn a minimum score above the average level (>70). The reliability (and validity) of the questionnaire was validated using

the Cronbach's alpha (coefficient alpha) method. Participation in this study was voluntary.

A face-to-face interview was conducted in about 10 minutes. The software of SPSS 17.0 for Windows was applied for statistical data analysis. A chi-squared test was used for qualitative variables, and an independent t-test was used for quantitative variables. A *P* value below 0.05 is considered a statistical significance.

## Results

This study was conducted by 450 participants, including 150 residents and 300 medical students. The average age of the participants was  $27.8 \pm 4.3$ . The demographic findings of the participants are indicated in [Table 1](#). 96.6% of the participants use smartphones and 432 (96%) of them had an account at least in one of the social networks. 92% of the participants had an account on Instagram, 22% on Facebook, 74% on Telegram, and 38% on LinkedIn. 46% of participants have membership of more than one social network. Also, 42% of the participants had more than one account on social networks, and in 35% of the cases involved professional use. In 68% of participants, clinical findings of patients or photography findings have been shared on social networks. General awareness of ethical issues guidelines in sharing clinical findings of patients was 10.6% (32 people) in medical students and 18.6% (28 people) in residents. The demographic findings of the participants related to awareness and attitude are indicated in [Tables 1](#) and [2](#). The score acquired regarding the ethical issues performance was  $48.4 \pm 12.3$  in medical students and  $64.5 \pm 5.8$  in medical residents. Also, there was a statistically significant difference ( $P=0.04$ ). The score of attitudes about clinical photography sharing in the social network was  $65.4 \pm 10.2$  and  $68.3 \pm 5.4$  respectively without significant difference between medical student and residents. There was no sign of the statistically significant difference between the gender of individuals and the percentage of awareness about the ethical issues of sharing clinical photographs [Table 3](#).

**Table 1.** Demographic findings of the participants in study

Variable	Number (%)
Male	190 (42.3)
Female	260 (57.7)
Medical student on internship	300 (66.6)
Resident of surgery fields	75 (16.6)
Resident of non-surgical fields	75 (16.6)
Previous history of working on clinics or hospital	110 (24.4)
Sharing patient's information such as files, pictures, x-rays, and other	306 (68)
Communicate with patients	58 (12.8)
Daily spending time (h)	$4.6 \pm 1.1$
Professional account of medical information	37 (8.2)
Join to the one of social networks	414 (92)

**Table 2.** Considerations of ethical issues in clinical photography sharing on the social network.

Variable	Medical student (n=300)	Residents (n=150)
Obtain written or oral consent from the patient before photographing or imaging	32 (10.6%)	28 (18.6%)
Giving information to the patients about sharing images on social network	4 (1.3%)	8 (5.3%)
I present myself on social network	38 (12.6%)	88 (58.6%)
Do you know the guidelines for publishing clinical photography on social networks?	2 (0.6%)	4 (2.6%)
Did you take a picture in the operating room during the patient's anesthesia?		
Yes	88 (29.3%)	65 (43.3%)
No	212 (70.6%)	85 (56.7%)

**Table 3.** Considerations of ethical issues in clinical photography sharing on the social network based on sex

Variable	Male (N=190)	Female (N=260)
The score of attitudes about clinical photography	63.5 ± 4.8	66.4 ± 9.4
The score acquired regarding the ethical issues performance	58.2 ± 5.4	60.2 ± 10.3
Obtain written or oral consent from the patient before photographing or imaging	15 (7.8%)	45 (17.3%)
Giving information to the patients about sharing images on social network	3 (1.5%)	9 (3.5%)
I present myself on social network	112 (58.9%)	12 (5.3%)
Do you know the guidelines for publishing clinical photography on social networks?	1 (0.5%)	5 (2.6%)
Did you take a picture in the operating room during the patient's anesthesia?		
Yes	98 (51.5%)	55 (21.1%)
No	92 (48.5%)	205 (78.9%)

## Discussion

Iranian society, like other countries, benefits from technological advances, mass communication, and media. Medical assistants(residents) and students representing a young population of society widely use social networks.<sup>1</sup> Based on the results of the study, 96% of medical students are members of at least one social network. This is while in a previous study in 2011 by Erfanian et al the use of social media by medical students was 22.5%.<sup>7</sup> These statistics indicate a notable increase in using social networks in medical assistants (residents) and student's communities in the year 2020 in Iran. The effect of social networks on growing knowledge and exchanging information between individuals is undeniable. Therefore, it provides benefits for ordinary people of society to access medical and health information easily and quickly. However, there are concerns about the unintentional and unauthorized publication of patients' information and their clinical photos on social networks.<sup>1-5</sup>

Clinical photography refers to the use of photographs of patients in the field of health care, which is used to show the course of treatment and the progress of the patient's condition.<sup>8,9</sup> This type of imaging is used in many fields, including dermatology, oncology, plastic surgery, orthopedics, and emergency medicine.<sup>9-13</sup> Clinical photography can be done by a clinical photographer or a member of the medical staff, and the difference between these two is that clinical photographer is qualified and trained in this field, while the knowledge of other health care professionals regarding this type of photography depends on their area of expertise.<sup>14,15</sup> Even though

clinical photography is mainly used to help patients in their health care (the primary purpose of clinical photography), sometimes this type of photography is applied to achieve other goals, including research and educational purposes (secondary purpose of clinical photography). This issue makes the clinical images of patients likely to be exposed to any viewer that plays no role in the patient's course of treatment and care. This aspect shows the significance of clinical photography.<sup>13-15</sup> If one wants to use clinical images for primary purposes, the informed consent acquired from the patient at the beginning of the course of treatment can also be applied for this type of photography. However, if one wants to use the clinical images for secondary purposes, medical staff must obtain new informed consent from the patient to use these images.<sup>14,15</sup>

Ethics refers to a discipline dealing with moral duties and obligations. In this regard, medical ethics is referred to the physician-patient relationship and the physician obligations to protect the confidentiality and information of patients.<sup>1</sup> social networks have made the communication of individuals fast and unrestricted and can play an essential role in sharing patients' information and clinical images.<sup>1-4</sup> Based on the findings of our study, 92% of cases among medical students used Instagram and 43% of cases had more than one account. Also, in 68% of the cases, there was a high rate of sharing clinical images or other photography findings, including MRI, CT scan, and radiography on social media. In the study conducted by Aboalshamat et al in Saudi Arabia with the statistical population of dental students in 28.7% of cases, patient information

was shared including clinical images without patients' informed consent on social networks.<sup>6</sup> In our study, 35% of the medical students shared clinical images without obtaining informed consent. The general awareness of how to share clinical images and observation of medical ethics in sharing clinical images among medical students was 10% and residents were 18%. The variety of social networks has provided rapid and large-scale publication. In this regard controlling publication has become more difficult for relevant authorities. Accordingly, Instagram is the most used social media in Iran. This is while in the study conducted by MacDonald et al the most used social media by medical students in the United States has been Facebook, and in most cases, the privacy settings were not enabled.<sup>16</sup> Failing to activate privacy options makes information about patients and their clinical images exposed to the public.<sup>16</sup> In the study conducted by Ricciardelli et al, 96% of the medical students use social media, and 15% of the cases posted and shared clinical images.<sup>17</sup> Due to the significance of the subject in this area, the required guidelines have been compiled and prepared. The necessary guidelines for sharing clinical images often apply to five primary issues, which include consent, retention, storage, audit, and transmission.<sup>18</sup> The study conducted by Chan et al in Canada indicates that 89% of surgeons and surgery residents have taken clinical images of patients with smartphones.<sup>19</sup> Also, in Australia, 50% of dermatology residents have shared or posted clinical images of patients on social networks.<sup>20</sup> In our study, 43% of medical residents and students in the operating room took clinical photos of patients, which is a high percentage. The significance of acquiring informed consent before taking a patient's clinical photo has been approved in various communities and there are strict rules in this regard. Even collecting and saving these images is subject to its own rules. An article by Dong et al explains the necessary guidelines for sharing clinical images based on various medical branches, including pathology, radiology, etc. In short, a legal requirement has been provided in regard to publishing clinical images and represents other necessary instructions.<sup>21</sup> In our study, however, medical assistants (residents) scored higher on awareness about clinical photography sharing but the score was lower than the total average (<70). Also, the level of awareness and attitude was not related to the gender of the participants. It appears that in Iran, authorities and educational centers should take necessary measures to acquaint medical residents and students with guidelines and teach them how to share clinical photos. It seems that the majority of students, physicians and healthcare employers usually use the clinical photographs of patients and posting them without obtaining their informed consent or meeting the confidentiality terms because they are mostly unaware of ethical guidelines.

## Conclusion

Social networks and clinical photographs sharing mostly

## Study Highlights

### What is current knowledge?

- Considering the expansion of social networks and the use of smartphones in medical treatment services, it is very important educated of ethical conditions for used of social network by medical students and medical assistants(residents), to increased the level of awareness and attitude for patients images and information.

### What is new here?

- There were very few Studies, in the how to published patients' imaging and information in the social network by medical student. Current practice effort to investigated the level of familiarity of medical students with medical ethics in this field.

used by Iranian medical students and physicians. There is low awareness of ethical issues regarding to sharing these images. Therefore, providing guidelines and necessary training for medical students is very important, particularly for surgical residents.

## Authors' Contribution

**Conceptualization:** Ali Tabrizi.

**Data curation:** Sina Dindarian, Sedra Mohammadi.

**Investigation:** Ali Tabrizi.

**Methodology:** Ali Tabrizi.

**Project administration:** Hamid Hosseinpour.

**Supervision:** Hamid Hosseinpour.

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**Writing—review & editing:** Sina Dindarian.

## Competing Interests

There is no conflict of interest to be reported.

## Ethical Approval

The study was confirmed by the ethics committee of Urmia University of Medical Sciences (The ethics code: IR.UMSU.REC.1397.434).

## Funding

This study was financially supported by Students' Research Committee of Urmia University of Medical sciences.

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