

A Smartphone use in Medical Photography

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BACKGROUND

The modern era is becoming more and more digital. The use of smartphones for taking photos is widespread in the medical field. Most often, these photos are used for patient care, but also these photographs are used for educational and teaching purposes. Through a survey carried out among our university hospital doctors (HU), we wanted to establish an inventory of current practices in terms of taking but also using and storing medical photos and/or videos.

Methods

Prospective cross-sectional study, carried out among 1400 HU teaching doctors affiliated with the Faculty of Medicine of Tunis, via a Google Forms questionnaire pre-established by the digital pedagogy committee, and sent by email through institutional mailing lists.

Results

We received 223 (15.9%) survey participants, divided into 52 specialties. Only 2.7% did not use their “smartphones” to take medical photos. Smartphones were used for taking photos and/or videos of patients (76.7%), medical records (70.9%), and slides, samples or radiological images (72.2%). Twenty-two percent of respondents were reluctant to use a smartphone for taking medical photos, due to the risk of loss or theft of the phone (69.2%) and a question of confidentiality and ethics (59.3%). The taking of medical photos and/or videos was for patient care (81.6%), for educational purposes or for research (90.6%), for personal reference (39.5%), for entertainment or for social networks (0.9%). The smartphone would be the most accessible and the easiest to use (non-accessibility of a traditional camera (58.7%)). The classic camera, on the other hand, is considered the most secure. Nearly half of doctors (48.4%) stored their medical photos in a dedicated database, 21.5% with their personal photos and 42.2% on their personal computer. An inter-colleague exchange of medical photos via instant messaging on social networks in 47.3% of cases. The patient’s oral consent is always requested in 58.3% (46% however consider this to be insufficient). Written consent is obtained in 4.5%. However, 7.6% do not request any. The need to establish legal procedures for taking these photos, by establishing standardized consent forms, was mentioned by most of the responses.

Conclusions

The use of smartphones for taking medical photos and/or videos is widespread, easy and useful. However, consent must be detailed. Standardized procedures must be put in place to protect patients but also doctors.

Key words: oral consent, medical photo, smartphone use

INTRODUCTION

The modern era becomes more and more digital with powerful technological innovations, such as Smartphones (SP) which have become an essential work tool. Likewise, the camera integrated into most electronic devices such as SP makes the photos acquisition more accessible and easier even in a medical context. Indeed in the medical profession, the medical photos taking (MP) by SP is a common practice for medical purposes on the one hand and lucrative and educational purposes on the other. However, although SP is a privilege tool due to their accessibility, other ethical and legal problems arise, related to personal patients data security. The work purpose is to establish the current practices in PM taking in terms of the use and the storage of photos and/or medical videos and the ethical aspects.

METHODOLOGY

A prospective study interesting professors at the Faculty of Medicine of Tunis (FMT) was carried out. A questionnaire was previously established by the digital pedagogy committee.

The questionnaire consisted of 3 parts:

- MP taking by SP versus a standard camera.
- MP storage
- Ethical issues

This questionnaire was sent by email through the institutional mailing lists affiliated with the FMT. Data and results were collected via Google Forms. The term 'smartphone' is used to include all mobile phones with a built-in camera.

RESULTS

We received 223 responses i.e 16%. Fifty-two specialties were participated: 38 medical specialties and 14 surgical ones. The largest proportion of participants were orthopedists.

MP taking by smartphone versus a standard camera

The answer showed that 171 doctors took MP and/or videos of patients by the SP i.e 76.7%. One hundred and fifty-eight doctors (71%), took MP of the medical files, while 161 HU doctors (72%) took photos of surgical documents, radiological images, or slides or samples from patients. Only 6 doctors did not take photos with their Smartphones. There is a difference between the use of SP and the camera in PM taking according to 159 participants or 71.3%. In fact, the majority of participants (80%) found that SP using is easier because of its availability. The SP use appeared reducing the doctors credibility according to 180 responders. On the other hand, the majority consider that the standard camera use is more secure, more professional with better photo quality. Two hundred participants found that the major risk of the SP use in photography is the inappropriate use and the confidentiality stake. From the other side, the MP per SP is shared, stored and deleted once used, easier.

Reasons for taking photos using smartphones

PM taken by SP is used in 81.6% to facilitate doctor-patient, doctor-doctor communication (opinions, staff, integration into the medical file, monitoring or by telemedicine). According to 91% of participants, the PM taking purpose is educational and lucrative: (publications, teaching). The SP use is justified by the absence of a conventional camera nearby in 60% of cases. Taking photos by Smartphones was also for personal

reference among 40%. Less than 1% took photos for entertainment or for social networks. Most of the participants (n= 152 or 70%) were reluctant of MP taking due to SP lost. One hundred and thirty-one participants (60%) noted the ethics and confidentiality issues. Legal risks and lack of professionalism were also mentioned, respectively, by 56 responders (25.3%) and 48 responders (21.7%). There is no reason reported by 35 doctors (15.8%).

Storage of medical photos taken with Smartphones

Forty-eight percent of doctors stored photos in a database dedicated to this task while 22% saved them with their personal photos. Removing PM after its intended use was mentioned by 28% of participants. Storage was mainly done on a personal computer (42%), on a laptop (12%). We found that the majority (n=150) had not used PM outside of medical practice. However, a minority of participants responded yes to the use of PM outside of the medical context, whether accidentally or on purpose: Sharing PM in discussion groups was mentioned among more than half of the participants (53%); communication with their colleagues via digital means (Whatsapp, Messenger, etc.)

Ethics and taking medical photos

Fifty-eight percent of doctors requested oral consent from patients to take PM while only 4.5% requested written consent. Consent was never requested by 38% of participants. It is sometimes requested in 24% of cases. Oral consent patient was not sufficient to protect their privacy according to 120 responders. One hundred and fifty participants found that consent is necessary when the photos are for purely clinical purposes, while nearly 200 responses are necessary when the purpose is educational. However, photos of an operating room or when the identity of patients is “hidden” did not require consent according to 80 responses to this question. Fifty participants didn’t know the answer. Sixty-five percent responded that there is no legal procedure for PM taking in the hospital where they work. An available written consent form for PM taking would be used by 49% of participants, while 36% found it not practical and 6% found it unnecessary. The presence of medical photographers in each hospital would be a good solution according to 33% and of no interest for 41.4% of participants. In 26% of cases thought it might be necessary.

DISCUSSION

It’s the first Tunisian study with a population including several specialties (52 specialties). However, the participation rate is very low as only 16% of all HUs participated. This expose to bias risk. It should encourage doctors to participate to this study type to enhance its robustness.

The results showed that the SP use in PM taking is common. Most doctors find that this practice facilitates diagnosis and monitoring. It also improves communication with other healthcare professionals. The PM further serve as an educational resource for medical students. The transmission of photos and videos by SP is cost-effective and can help with medical coverage in “medical desert” regions. These data are similar to those found in the literature. An Australian study carried out in a hospital showed that more than 50% of clinicians took their PM through their own SP (1). In the same context, a Canadian study showed that the SP use in PM concerned 89% of plastic doctors and that 57% stored these PM on SP. PM storage was done with personal photos of responders in 73% of cases (2). These international data join our data and agree on the fact that SM is an accessible and easy tool for recording PM and/or medical videos and even in storage and sharing. However, the ethical issue constitutes the main limitation because the patient’s consent and its data confidentiality are at stake.

According to the same Australian study cited above (1), PM was mainly taken after verbal consent. Written consent was rarely used. The published reasons were either that patients could not understand or the consent was inaccessible at the time of PM taking. These data are similar to the data from the Canadian study where

75% of responders obtained only verbal consent although 83% of participants admitted that written consent would be more ethical. Furthermore, 26% of participants (31 out of 119) showed accidentally clinical photos stored on their phone to their friends or family (2). The ethical issues are an international debate that allows to reflect and the need to undertake actions and recommendations in order to protect the dignity and personal patients data (3). An Italian magazine forbided the PM taking in the operating room after a photo was circulated on social networks(4). Moreover, an Iranian study (4) carried out in a dermatology department assessed the patient satisfaction with PM taking for educational purposes. All patients agree that only their attending physician has to access to their photo. Sixty-two percent of them prefer a hospital camera ($p=0.002$) and 49.8% do not want a photo taken ($p=0.001$).

Among these recommendations (3) (5):

- The physician must obtain explicit consent from patients to use medical photographs and videos for educational or promotional purposes
- If consent is obtained verbally, record the discussion in the patient's medical record.
- As a precaution, ask the patient to sign a consent form
- The physician must remove any personal identifiers to preserve patient confidentiality
- Know the institution's policies and procedures regarding the use of photographs and videos.

Efforts should be done to make doctors conscious about ethical concerns with detailed analysis among different specialities (medical, surgical ones) to identify potential variations and then tailor recommendations among.

CONCLUSION

SPs are widely used in medicine to obtain photographs and/or videos for medical and educational purposes. However, conditions are required and guidelines must be established in order to respect patient confidentiality and dignity.

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REFERENCES

1. Burns K, Belton S. Clinicians and their cameras: policy, ethics and practice in an Australian tertiary hospital. *Aust Health Review*. 2013;37(4):437.
2. Chan N, Charette J, Dumestre DO. Should 'smartphones' be used for patient photography? 2016;24(1).
3. Payne KF, Tahim A, Goodson AM, Delaney M, Fan K. A Review Of Current Clinical Photography Guidelines In Relation To Smartphone Publishing Of Medical Images. *Journal of Visual Communication in Medicine*. 35(4).
4. Amirian A, Amini M, Sagheb M, Ghahartars M, Neshatavar R, Tabari P, et al. Study of patients' satisfaction toward photographing their skin lesions for educational purposes. *J Edu Health Promot*. 2021;10(1):308.
5. Alsaleh M, Alomar N, Alarifi A. Smartphone users: Understanding how security mechanisms are perceived and new persuasive methods. Choo KKR, éditeur. *PLoS ONE*. 15 mars 2017;12(3):e0173284.