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Study of patients' satisfaction toward photographing their skin lesions for educational purposes

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Abstract:

BACKGROUND: Medical images have been widely used for various aims, especially for the educational purposes. Patient confidentiality and consent should be deemed crucial. In this study, we sought to assess patients' satisfaction with taking medical photos of their skin lesions and giving their physicians consent to use them for educational purposes.

MATERIALS AND METHODS: This multi-method study included quantitative and qualitative phases and was performed from April to November 2018 in the Dermatology Department of Shiraz Faghihi Hospital in South Iran. Demographic information was analyzed using the descriptive statistics. To resolve the simultaneous effect of demographic variables on patient satisfaction, we conducted linear regression. All the tests were analyzed at the 0.05 significance level.

RESULTS: In this study, all the patients except one (99.5%) preferred that only a physician who had a direct role in their care can access their digital photos. Of 200 patients, 134 patients (62.33%) preferred the utilization of hospital cameras in photographing their skin lesions ($P = 0.002$). On the other hand, 131 patients (49.81%) did not give consent about using a personal phone camera for photographing their skin lesions ($P = 0.001$). In the qualitative phase, two major themes (trusting attending physician and paying attention to patient confidentiality) and five sub-themes (considering their physicians as professional people who always do the right thing, allowing physicians to use their images for educational purposes, covering patient's face, using hospital cameras, and obtaining informed consent from patients) were derived from qualitative semi-structured interviews.

CONCLUSION: The results showed that there is a need for developing international and national photography guidelines in the era of technology development.

Keywords:

Confidentiality, dermatology, informed consent, patient rights, photography

Introduction

By proceeding with the technology, the role of digital photography in the medical education has become more evident. Nowadays, we use digital medical photography in many areas, including medical references, educational lectures, and medical articles.^[1,2] It is also essential in diagnosis, patients' follow-up, and response to treatment.^[1,3] The application of digital medical photography in fields

such as dermatology, maxillofacial surgery, and nursing is more common than in other areas.^[3] Photograph-dependent specialties such as dermatology need pictures for the diagnosis and treatment and follow-up.^[4] Based on the study conducted in Australia, digital medical photography usage in dermatology falls into five categories: Consultation, treatment, education, sharing with physicians, and research.^[5]

As mentioned, medical images have been used for various aims, especially for

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educational purposes, such as utilizing them in scientific articles or educating medical students. Patient confidentiality and consent should be deemed crucial in this matter.^[6] In dermatology, patient privacy is a matter of concern in the field of photography. This issue would be more highlighted when the photos are used in the medical articles available to the public.^[7] In the medical ethics field, patient autonomy is considered the power and ability of patients to make decisions with full understanding and under no pressure or influence.^[8] Accordingly, there must be ethical considerations in medical photography. It is argued that publishing personal photos might have a psychological impact on patients. Therefore, informed written consent is necessary when using their images. All the potential applications of the medical images should be clarified for patients,^[9] including the degree of photo dissemination, stating if they might be utilized for a small audience, large audience, journals, or available through the Internet.^[10] Hence, the physicians should be conscious of ethical and legal considerations when taking photos of patients' skin lesions.^[11]

A study in Nigeria demonstrated that patients are more convenient when the physicians take non-identifiable digital photos of their body parts and do not use personal cameras. The patients were also satisfied with giving consent every time before using their medical pictures.^[2] In the research conducted by Hsieh *et al.*, the researchers assessed patients' preference concerning whether hospital cameras or cameras of personal smartphones be utilized for medical photography. Similar results were obtained from this study too. Patients highly preferred hospital cameras rather than other types of cameras.^[12]

The balance between technology and ethics is of great importance. Paying attention to considering ethics in using technologies leads to more patients' reliance on their physicians, leading to avoiding legal consequences.^[13] As stated earlier, autonomy is one of the most critical medical ethics subjects and has increasingly received researchers' attention.^[8] The patient has the right to participate in her or his treatment.^[1]

However, little is known about patient insights concerning the application of digital photographs in clinical settings. Patients do not have much information about the digital photos taken from them, while they are entitled to know how their therapists use their images. Therefore, it is necessary to survey patients' perceptions and satisfaction regarding digital medical photography, especially in dermatology. Consideration of patient satisfaction and consent may help physicians to provide a proper protocol for taking patients' digital photos and using them to educate medical students. The present study aimed to measure patients' satisfaction with taking

medical pictures of their skin lesions and giving their physicians consent to use them for educational purposes.

Materials and Methods

Study design and setting

The present study was a qualitative and quantitative study performed from April to November 2018 in the dermatology department of Shiraz Faghihi hospital in South Iran.

Study participants and sampling

The samples were selected based on the census method. Therefore, the questionnaires were distributed to all patients referred to the clinic ($n = 210$). In total, 200 questionnaires were answered.

Data collection tool and technique

The data collection tool was a modified version of the valid and reliable Persian translation of a questionnaire that was originally developed by Lau *et al.* based on the study of Hacard *et al.*^[3,13] The reliability of the instrument was 0.8 based on Cronbach's alpha coefficient.

After selecting the mentioned questionnaire as a data collection instrument, two domain experts translated the original version of that tool to the Persian language. Subsequently, two other experts did back translation to evaluate the quality of a translated version and to ensure that the Persian questionnaire exactly resembling the questions of the original one. We should mention that the translators were independent, and they translated the questionnaire simultaneously. Afterwards, the instrument was given to five faculty members to determine the content validity based on quantitative and qualitative methods; they were asked to give comments on using suitable words, following grammatical rules, simplicity, clarity, relevance, and necessity of each question.^[14]

The mentioned questionnaire aimed to assess the patients' satisfaction with the ethical policies of photographing their skin lesions. In the two-point Likert scale questions, we assigned "1" to "No" and "2" to "Yes." In the three-point Likert scale, we ascribed "1" to "No," "3" to "Yes," and "2" to "No opinion." Consequently, the highest grade represented full consent.

The questions' aspects were: (1) Patients' consent on using their digital photos in the field of education, medical articles, and websites, and specialized medical E-mails in two-point Likert scale (Yes and No), (2) the type of digital photography equipment consists of personal mobile phone cameras, personal professional cameras, and hospital cameras in three-point Likert scale (Yes, No, No opinion), (3) individual's authorization, and the right of accessing patients' personal digital photos.

Individuals include physicians with a direct role in the patient's care, all physicians, medical students, and paramedical students of nursing, rehabilitation, or other majors. They were Yes-No question type.^[13] We also added demographic information such as age, gender, level of education, and place of residence to the questionnaire. Furthermore, we used free-response questions as well as multiple-choice ones. We also utilized some open-ended questions and a semi-structured interview about the patients' viewpoints about taking digital photographs from their lesions. The semi-structured interviews were done by a researcher familiar with conducting this kind of interview.

Statistical analysis

After collecting the questionnaires, demographic information was analyzed using descriptive statistics (mean and standard deviation, frequency, and frequency percentage). We used the Chi-square test to investigate the correlation. To resolve the simultaneous effect of demographic variables on patient satisfaction, we also conducted linear regression to identify the strength of the independent variables' impact on a dependent variable. Subsequently, IBM SPSS Statistics Version 22.0 (IBM Corp., Armonk, NY, USA) was used to analyze the gathered data. All the tests were analyzed at the 0.05 significance level.

Qualitative interview

In the qualitative phase, the participants' responses to the open-ended questions were categorized into two major themes. The retrieved reports and interpretations were reviewed to confirm the validity and accuracy of the collected data. After this step, using the peer debriefing method, the accuracy and validity confirmed. In this way, a neutral researcher examined the information of the previous phase more closely. This investigation included identifying points that were overemphasized, identifying points that were not sufficiently emphasized and not expanded, and identifying possible ambiguous descriptions in the presented text and general errors in collected data.

Ethical consideration

The Ethics committee of Shiraz University of Medical Sciences ethically approved this research (Ethical approval code: IR.SUMS.MED.REC.1397.309). Written Informed consent was acquired for participating in the study. All the patients participated in this study voluntarily and anonymously.

Results

The present research population was patients referred to the Dermatology Clinic of Shiraz Faghihi Hospital in South Iran. Data collection and sampling duration

were 8 months (from April to November 2018). Two hundred patients responded to our survey. Therefore, the response rate was around 95%. The age range was between 10 and 90 years old, in which the mean of this variable was 37.80 ± 14.71 . The demographic characteristics of participants are shown in Table 1.

All the patients except one of them (99.5%) preferred that only a physician who had a direct role in their care can access their digital photos. Besides, 75 patients (75%) did not choose that paramedical students access their photos. The results are shown in Table 2.

Of 200 patients referred to the dermatology clinic, 134 patients (62.33%) preferred the utilization of hospital cameras in photographing their skin lesions ($P = 0.002$). Furthermore, 131 patients (49.81%) did not give consent to use personal phone camera in photographing their skin injury ($P = 0.001$) [Figure 1].

Table 1: Demographic information of patients

Variable	Frequency, n (%)
Age category (years)	
<30	73 (36.5)
30-60	110 (55)
>60	17 (8.5)
Sum	200 (100)
Gender	
Male	78 (39)
Female	122 (61)
Sum	200 (100)
Residence	
Urban	151 (75.5)
Suburb	49 (24.5)
Sum	200 (100)
Level of education	
Under diploma	51 (25.5)
Diploma	56 (28)
Higher education/university education	93 (46.5)
Sum	200 (100)

Table 2: Patients' preferences for accessing their digital photos

Individuals	Number of respondents, n (%)
Physicians with a direct role in patients' care	
Yes	199 (99.5)
No	1 (0.5)
All physicians	
Yes	99 (49.5)
No	101 (50.5)
Medical students	
Yes	78 (39)
No	122 (61)
Paramedical students	
Yes	50 (25)
No	150 (75)

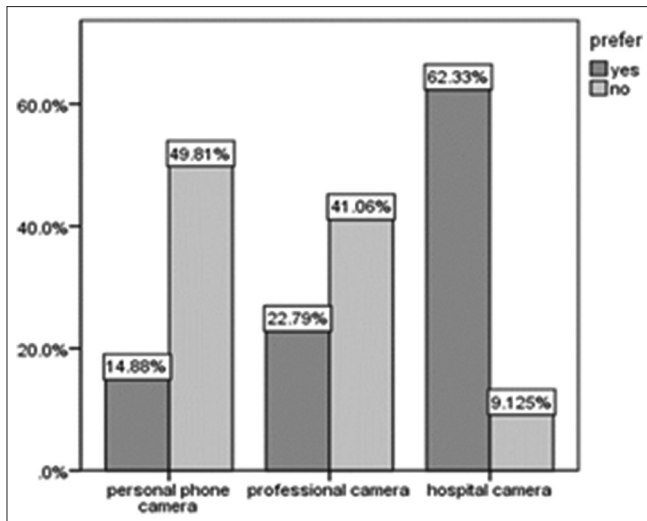


Figure 1: Patients' preferences in using medical photography device

In general, 135 patients (67.5%) were satisfied with taking the pictures from their lesions. We applied a linear regression model to determine the effect of all four demographic variables on patients' consent to use the digital photos of their skin lesions for educational purposes. According to Table 3, by applying this model, we found out that "gender" and "level of education" variables directly impacted patients' consent rate considering the P value and confidence interval.

In the categories of "male" gender (compared to female gender) and "under diploma" level of education (compared to higher education), there was more satisfaction with using the pictures, and this difference was statistically significant ($P < 0.05$). The results are shown in Table 3.

In the open-ended questions, two major themes (trusting attending physician and paying attention to patient confidentiality) and five subthemes are derived, as summarized in Table 4. The results showed that patients trust their doctors and allow photographing their skin lesions.

Discussion

In general, almost all the patients in our study preferred that only a physician who had a direct role in their care can access their digital photos. In addition, more than half of patients preferred the utilization of hospital cameras in photographing the lesions.

Photographing skin lesions is a methodology that has extensively been used in the field of dermatology. There are some categories in which medical photos are being utilized including research, academic, clinical, and commercial fields.^[11] Czerninski *et al.* showed a favorable attitude toward clinical and educational photography for

Table 3: Linear regression for determining the effect of patients' demographic variables on their consent

Variable	β	95% CI	P
Gender			
Male	0.727	0.141-1.312	0.01
Female	Reference population	-	
Residence			
Urban	0.398	-0.270-1.067	0.24
Suburb	Reference population	-	
Level of education			
Under diploma	0.760	0.039-1.558	0.04
diploma	-0.015	-0.675-0.646	0.96
Higher education/ university education	Reference population	-	-
Age (years)	0.013	-0.009-0.035	0.25

CI=Confidence interval

various teaching and clinical indications, demonstrating its importance.^[15] The growing use of digital medical photography has raised many alarms, such as ethical, moral, and legal limitations. Knowing patients' concerns about using their digital photographs, especially in the dermatology domain, is crucial. There are insufficient published articles discussing patients' attitudes regarding medical pictures of their skin lesions. Hacad *et al.* showed a high satisfaction rate among patients regarding taking digital medical photography from their wounds.^[3] Two further surveys stated that patients realized the essential role of digital medical photography and agreed with using the photos in the clinics.^[13,16]

In our study, most patients were comfortable only with hospital cameras rather than personal cameras. Lau *et al.*'s survey showed the same results: There was a preference for using hospital cameras among patients.^[13] Similar results were reported in two other studies which reported a high degree of acceptance for using hospital cameras.^[3,12] Another study by Nair *et al.* revealed different results; most patients were comfortable with personal and hospital cameras.^[17] The preference for hospital cameras in the present study and other similar studies may be due to the sense of security between patients. They may think that accessing hospital cameras only during working hours and in the hospital environment will add another level of protection to their digital photos and is considered as a part of data security. At the same time, personal phones are available all the time and may not be secure. Besides, there is an assumption that smart devices such as personal cellphones are connected to the internet, which may raise unethical use of the patients' digital medical photos.

The patients' preference for the physician's access to digital photographs was reported in our survey. The reason may be the fact that patients trust their physicians more than other health-care staff. The same results were reported in Nair *et al.* study.^[17] Male patients and

Table 4: The results of analyzing key concepts in patients' preference for taking photographs of their photos

Theme	Subtheme
Trusting attending physician	Considering their physicians as professional people who always do the right thing Allowing physicians to use their images for educational purposes
Paying attention to patient confidentiality	Covering patient's face Using hospital cameras Obtaining informed consent from patients

those with under diploma educational degrees showed more consent in using the pictures from their lesions. Some female patients need their husband's permission to take photographs. Furthermore, patients with lower educational levels may lead to less understanding of the patients' rights. Similar results were reported in Adeyemo *et al.*'s study in Nigeria.^[2]

In the survey about digital medical photography, Scheinfeld reported that strict legal and ethical rules should be developed for taking photos of patients' skin lesions. The promotion of patient rights in European health is considered as valuable.^[18] In the qualitative semi-structured interview, two major themes and five subthemes were derived. The results showed that patients trust their doctors and allow photographing their skin lesions. To the best of our knowledge, there is not any qualitative study in this field.

A medical photography consent form must clarify all the possible usage of clinical photographs, such as possible publication in journals, medical books, presentations, websites, and even patient information material. However, Devakumar *et al.* highlighted that during the procedure of taking patients' consent, some issues including literacy hurdles and not understanding the provided information may be emerged.^[10]

The study's limitation was that this study was conducted solely in one teaching hospital of Shiraz University of Medical Sciences. Responses may represent an urban viewpoint; therefore, the results may not be generalized.

Conclusion

The results showed that there is a need for developing international and national photography guidelines in the era of technology development. These guidelines should focus on both the educational and ethical aspects of taking photographs. In this context, it is vital that the patients give their consent to utilizing the photos of their skin lesions for educational purposes.

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Conflicts of interest

There are no conflicts of interest.

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