

ORIGINAL ARTICLE

Patients' attitudes towards presence of medical students during ultrasonography

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ABSTRACT

Background: The consent and cooperation of patients regarding involvement of medical students in their care is crucial to medical education. The use of ultrasound as a teaching modality is being increasingly incorporated in integrated curriculum by medical schools. Patients' perceptions towards presence of medical students during ultrasound examination have not been explored in previous studies which mostly reported positive attitudes in respective specialty.

Aim: To examine patients' response to presence of medical students during ultrasonography and to assess if the student's gender has an effect on the patients' acceptability.

Methods: This is descriptive cross-sectional study was conducted at Radiology department of University of Lahore Teaching Hospital (ULTH). Two hundred and forty-two patients who came for ultrasound were interviewed during the month of June 2018 using a structured questionnaire.

Results: Two hundred and forty-two patients had answered all the questions with 100% response rate. The mean age of participants was 32.32 years with 57% of females. Majority were Muslims (94.6%) and 71% educated to secondary / university level. Of the 242 patients interviewed, 62% consented to the presence of medical students during ultrasonography. 58.3% of the patients approved of examination by students under supervision, while 74.4% refused to scan by medical students without supervision of a doctor. Most of the patients (79.3%) knew their right to approve or disapprove students' presence. 64.9% of patients preferred scanning by student of same gender and among them 96% were females.

Conclusion: In general, the patients had positive a positive response to the medical students' involvement during ultrasonography. It is important for both the clinical supervisors and their students to be aware of and respect the perceptions and integrity of patients involved in medical education.

Keywords: Ultrasonography, Medical Education, Patients' Attitudes, Medical Student

Introduction: The term "patient-centered medicine" was first introduced by psychoanalyst Michael Balint in medical field (Hudon,

Fortin, Haggerty, Lambert, & Poitras, 2011).

Patients have imperative role in clinical teaching of medical students and interaction with patients is vital for the education of medical students (Sayed-Hassan, Bashour, & Koudsi, 2012). Regular contact with patients has manifold advantages for medical students: it can hone communication and professional skills, foster context-based clinical learning, and promote development of a healthy doctor-patient relationship in future. Patients' involvement and readiness to collaborate in medical student's education and training can provide better teaching at multiple levels of patient care (Alawad & Younis, 2014). The

ultrasound is a rapid and non-invasive imaging modality. Its use has been greatly increased by clinicians over the past few decades. The portability of ultrasound system has further made it readily accessible to both inpatient and outpatient bedside settings (Brown, Adhikari, Marx, Lander, & Todd, 2012). The increased utilization of bedside ultrasound by medical specialties demands for early ultrasound exposure and teaching at medical student level. The medical schools have started integrating a vertical ultrasound education in their curriculum that also includes hands on training sessions (Cook, Hunt, & Hoppman, 2007) ("Ultrasound in medical education_ a vertical curriculum at the University of South Carolina School of Medicine," n.d.).

Different studies have been conducted to know about the attitudes of patients about the participation and immersion of medical students in their care. Some of these studies revealed that patients decline or feel negative about involvement of medical students in their care (Passaperuma, Higgins, Power, & Taylor, 2008). The comfort level of patients regarding

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medical students vary in different specialties like obstetrics and gynecology patients feel more comfortable with female students (Anfinan et al., 2014) while urology patients (Passaperuma et al., 2008) give preference to male students (Alawad & Younis, 2014). The use of ultrasound as a teaching modality is being increasingly incorporated in integrated curriculum by medical schools (Cook et al., 2007). Recent transitions in medical curriculum have also promoted early clinical visits to all specialties and so in ultrasound clinics. The University College of Medicine has been successfully running integrated modular system for the last three years. Early hospital visits and involvement in patient's care is also an integral part of this system.

The consent and cooperation of patients regarding involvement of medical students in their care is vital to medical education. No study has been conducted to see the feelings of patients about medical students involved in their ultrasound examination. Understanding of patient perceptions about students involved in their ultrasound examination is important as teaching medical institutes can develop models of care that can integrate teaching without affecting patient satisfaction.

Methods: Aim of this study is to determine patients' response towards presence of medical students during ultrasonography and to assess if the student's gender has an effect on the patients' acceptability.

Study design was Descriptive cross-sectional study and this study was conducted in ultrasound section of Radiology department, University of Lahore Teaching Hospital during the month of June 2018. All patients who came for ultrasound examination in Radiology department of University of Lahore teaching hospital during the month of June 2018 constitute the study population. There were total of 650 patients with an average of 25 patients per day. The sample size was 242 patients with 95% confidence level. Random sampling method was used.

The patients came for ultrasound examination in University of Lahore Teaching Hospital were included in study and Critically ill patients, Un-cooperative patients, Infants and children (< 12 years) were excluded. Approval from the Ethical Review Committee of University of Lahore was taken. The data collected from patients was strictly confidential and wasn't shared with anyone.

A structured questionnaire was drafted after a thorough review of similar medical studies published earlier (Alawad & Younis, 2014; Anfinan et al., 2014; Choudhury, Moosa, Cushing,

& Bestwick, 2006; Haffling & Hå kansson, 2008; Passaperuma et al., 2008; Sayed-Hassan et al., 2012; Sweeney, Magin, & Pond, 2010). The questionnaire was used for a pilot study on a sample of 20 patients for the purpose of face validity and clolagriy ty. It is to be noted that these interviews were conducted solely for purpose of pilot test and hence the data obtained was subsequently excluded from in-depth analysis of data. The

questionnaire was comprised of sixteen items, which included five questions for demographic data and eleven questions regarding patients' response towards presence of medical students during ultrasonography. Face-to-face interviews c o n d u c t e d using the structured questionnaire with yes, no or does not matter, were conducted by two staff nurses to maintain the homogeneity. Interviews were taken in the radiology department.

Data was analyzed by SPSS (statistical package for social sciences, version 25) and were collected in tabulated form using descriptive statistics. Simple frequencies and cross tabulation were performed.

Results: A total of 242 patients who came for ultrasound in clinical Radiology department of University of Lahore Teaching Hospital were interviewed. None of the patients refused to participate in the study. The demographic characteristics of patients including age, sex, and religion, educational and marital status are provided in Table 1.

Items	Patient's No.	Percentages
Table1: Demographic Age (years) characteristics of patients in study		
Mean	32.32	
	min= 13, max=86	
Gender		
Male	104	43
Female	138	57
Religion		
Muslim	229	94.6
Non-Muslim	13	5.4
Educational status		
Illiterate	21	8.7
Primary	46	19.0
Secondary / university	174	71.9
Marital status		
Single	76	31.4
Married	166	68.6

The sample of participating patients had an average of 32.32 years with a range of 13-86 years and 94.6 % were Muslims. Among 242 patients 43% were males and 57% females and 68.6% were married. Most of the participants were educated at secondary or university level with percentage of 71.9.

Table 2 summarizes the patients' attitudes towards presence of medical students during ultrasonography. In general, the response was positive with 151 (61%) of patients approving the

presence of medical students during ultrasonography. Majority of patients (54.5%) were comfortable in the presence of students while for other 19.5% of patients it did not matter. Most of the patients 58.3% allowed the students to perform ultrasound examination only under supervision and did not give permission to be examined in the absence of consultant (74.4%).

Most of the patients (52.9%) did not have problem if their clinical issue or disease discussed in front of them by clinical staff and medical students. Overall, 57% of patients' approval was affected if their body is examined in front of a medical student in the ultrasound scan.

79.3% of patients knew that they had a right to allow or disallow the presence of medical students during their ultrasound examination. Most of the patients 157 (64.9%) preferred to be examined by medical students of the same gender. In Cross tabulation (Table 3) it was calculated that 96% females and 61% males answered yes for same gender examination with a significant p value of less than 0.05.

Table 2. Patients' attitudes towards presence of medical students during ultrasonography

Item	Yes Frequency (%)	No Frequency (%)	Does not matter Frequency (%)
Do you approve the presence of medical students during ultrasonography?	151 (62%)	54 (22%)	37 (15%)
Do you feel comfortable in the presence of medical students?	132 (54.5%)	63 (26.0%)	47 (19.5%)
Do you approve ultrasound examination by medical students under supervision?	141 (58.3%)	71 (29.3%)	30 (12.4%)
Do you approve ultrasound examination by medical students in the absence of supervision?	38 (15.7%)	180 (74.4%)	24 (9.9%)
Do you think that you have the right to approve or disapprove the presence of medical students during ultrasonography?	192 (79.3%)	30 (12.4%)	20 (8.3%)

Do you prefer to have ultrasound examination by medical student of same gender as yours?	157 (64.9%)	56 (23.1%)	29 (12%)
Do you think involvement of medical students in patients' ultrasound examination is important for their learning purposes?	189 (78.1%)	30 (12.4%)	23 (9.5%)
Do you prefer to have the ultrasound examination by the medical students?	65 (26.9%)	157 (64.9%)	20 (8.3%)
What is your preferred number of medical students to exist during ultrasonography?	Nil 65 (26.9%) 1-3 155 (64%) 4-5 13 (5.4%) > 6 9(3.7%)		
Do you approve having your clinical problem discussed in front of you by clinical staff and medical students?	128 (52.9%)	71 (29.3%)	43 (17.8%)
Does the part of your body to be examined affects your approval of involving a medical student in the ultrasound scan?	138 (57%)	68 (28.1%)	36 (14.9%)

So, it can be concluded that female patients prefer getting an ultrasound scan done by female students more than the male patients examined by male students. The patients (78.1%) accepted that presence of medical students during ultrasonography was important for their learning as a future doctor but most of them (64%) only allowed presence of minimum (1-3) number of students.

Table 3: Correlation between gender of patient and attitude for presence of same gender medical student

		Gender of patients		Total
		Male	Female	
Do you prefer to have ultrasound examination by medical student of same gender as yours?	Yes	61	96	157
	No	26	30	56
	Does not matter	17	12	29
Total		104	138	242

Discussion: This contributes to understanding how patients react towards presence of medial students during ultrasonography. Mostly our patients had a positive response and accepted the presence of medical students during ultrasound scan which was in line with studies conducted in other medical specialties (Alawad & Younis, 2014; Anfinan et al., 2014; Choudhury et al., 2006; Sayed-Hassan et al., 2012). Most of our patient reported that they felt comfortable in the presence of medical students. Sayed-Hassan et al. explained the reasons in their study why patients feel comfortable in students' presence. Those reasons include the desire to contribute in the field of medical education, to spend more time with the doctors, and to learn more about their disease during consultant's teaching and case discussion with students. (Sayed-Hassan et al., 2012). Another study reported against the last-mentioned benefit as most of discussion is done in English using medical terminologies which is difficult to understand by most of patients (Alawad & Younis, 2014). The patients would allow the students to perform ultrasound examination in the supervision of consultant but this permission turns to only 15% in the absence of a radiologist. A study done in Marlborough hospital found the most common reason for this objection was privacy concerns and poor-quality care.

Before doing any clinical examination, a doctor must have the consent of patient. In this study 79% of patients knew their right to approve or disapprove any ultrasound examination done by medical students. Abdulghani and colleague reported that 55% patients had idea of their right to give permission to students for clinical examination (Azurah, Sanci, Moore, & Grover, 2013) while the results were contrary to Alawad and colleagues study in which 89% patients were unaware that they had a right to accept or deny the involvement of students in clinical examination (Alawad & Younis, 2014). Our patients accepted they would not agree to expose body parts if a medical student would be involved in ultrasound examination.

Most of our patients reported to be examined by medical students of their own gender (64.9%). Among them 96% female and 61% were male, so female preferred medical students of their own gender more than male patients. Such types of attitudes towards

patients are variable across different cultures like female gender, male medical student and Islam are few of those factors associated with greater refusal rates of presence of medical students during clinical examination (Salah, El Mhamdi, Bouanene, Sriha, & Soltani, 2015). This attitude was more commonly seen with female patients in obstetrics and gynecology departments (Anfinan et al., 2014; Rizk et al., 2002) and male patients with urogenital issues (Passaperuma et al., 2008). However, in a study conducted in Riyadh only 39% preferred while 61% of patients disagreed to have examination by student of same gender (Al Ghobain et al., 2016). So, correlating the results of this study with previous ones, the reason of larger female proportion demanding to be examined by student of their own gender could be due to their religion (94% Muslim females) and referral from obstetrics and gynecology department.

Another finding observed in this study was association of patients' attitudes with educational levels. Most of the study were educated at secondary or university levels (71.9). The 76% of illiterate and 80% of population with primary education level accepted the presence of medical students while only 55% of secondary or university level educated patients approved their presence during ultrasonography. So educated patients have more negative attitude toward presence of medical students during ultrasound examination, this result is in line with study done in University charity teaching hospital in Sudan (Alawad & Younis, 2014). However, this finding is in direct contradiction to the study of Shah khan & colleagues who concluded there is no relationship between patients' attitude and educational level (Shah-Khan, Chowdhry, Brand, & Saclarides, 2007).

The patients in current study acknowledged the educational benefits by involving the medical students in ultrasound examination but only 26.9% preferred to be examined by medical students. This result also supports the other studies where most of the patients, whether approving involvement of medical students in their care or not, recognize and value the educational benefits of student's participation in care as a means of improving practice and to become better future doctors (Al Ghobain et al., 2016). The current study also reported the preferred number of students who should be present during ultrasonography. Sweeney and colleagues suggested that supervising consultant must know the preferred number of students by the patient who must be present during clinical examination to overcome the fear and anxiety of patient. Most of patients (64%) preferred minimum numbers of students from one to three while 26.9% declared no student should be present. In a study done in Sudan hospital patients preferred the existence of up to eight students (Alawad & Younis, 2014). The importance of clinical experience with real patients cannot be disregarded. The results of current study may be helpful for other medical schools and health care centers in evaluating and refining their own patient- student interactions. The point unique to this study included the exploration of patients' attitude towards medical students during ultrasonography that was not investigated in

previous studies. Limitations: However, this study has several limitations. Due to smaller sample size, there may be possible bias in reporting the results. Furthermore, this is only conducted in ultrasound section of radiology department of one teaching hospital and did not include other radiology modalities like X-rays, fluoroscopic procedures etc. and survey from other nonteaching hospitals of the city. However, the tertiary care teaching hospital affiliated with a medical school is a place where most of clinical medical education occurs and where the issue of patient comfort with medical student involvement is most relevant. Further comprehensive studies are required to understand and evaluate the patients' perceptions about interaction with medical students.

Conclusion: The importance of clinical experience with real patients in medical education cannot be repudiated. The use of ultrasound as a teaching modality is being increasingly incorporated in integrated curriculum by medical schools. In a few years' time, these medical students will be involved in delivering patient care. Thus, patients have a vital role in medical education and so is their consent and cooperation. Although the majority of patients showed positive attitude about presence of medical students during ultrasonography, however this study has identified the variation in patient perceptions towards medical students according to gender, educational status and religion of patients. The students and clinical supervisors need to be taught about the ethics of medical examination and the rights of patients involved in medical teaching. The medical education stakeholders should collaborate in booming the patients' awareness and cooperation regarding the importance of medical student's participation in their care as a training of future doctor.

Declaration of interest:

The authors report no conflict of interest.

Author's contribution:

- Dr. Faiza Farooq: Conception and design of the work; & the acquisition, analysis, & interpretation of data for the work
- Dr. Rahila Yasmeen: Critical Review and final approval of the version to be published

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