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PATIENTS' ATTITUDES TOWARDS MEDICAL STUDENTS' PARTICIPATION IN PROCEDURES AND CLINICAL EXAMINATIONS IN LEBANON

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PATIENTS' ATTITUDES TOWARDS MEDICAL STUDENTS' PARTICIPATION IN PROCEDURES AND CLINICAL EXAMINATIONS IN LEBANON

Abstract

Medical practice revolves around patients' safety and ensuring their well-being. Patients' cooperation with medical students in their examination and management is an indispensable aspect of clinical education. They have the right to accept or refuse the participation of students in their care. However, students need to be integrated in this learning process. This presents a conflict between patients' healthcare rights and medical students' learning opportunities. Therefore, this study aims to explore patients' attitudes towards the participation of medical students in procedures and examinations in Lebanon and identify the factors that affect their participation. A descriptive cross-sectional study was conducted using a 34-item questionnaire in Arabic language that was distributed via WhatsApp online platform among the Lebanese adult population in the different governorates during January and February 2021. A total of 729 participants with a mean age of 30.8 completed the survey. Overall, participants showed a positive attitude towards medical students' involvement in their care. It was noted that 61.7% were knowledgeable of their right to accept or refuse medical students' participation in procedures. Participants showed a great acceptance towards medical students' presence in outpatient clinics (71.74%), reading medical files (80.24%), and history taking (81.6%). However, their negative attitude was towards the student's involvement in performing genital/rectal examination (54.5%), giving an epidural injection (69.7%) and prescribing medications (53.2%). Patient's medical condition was the main reason that influences participants' decisions about medical students' presence during their procedures (43.8%). A positive attitude towards medical students' participation in procedures and examinations was reflected by the Lebanese population. Patients' medical conditions, personalities and religious beliefs were the main reasons affecting participants' decisions.

Keywords

Patients, Medical students, Clinical education, Procedures, Examination, Lebanon

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1. INTRODUCTION

Medical students might not always be directly involved in patients' care but any contribution from their side adds to their clinical sense and reasoning. Healthcare's main foundation is ensuring the safety of the patients on the basis of "Do No Harm" principle. Doctors were once students who encountered numerous patients, promoting their contextual and clinical learning, improving their skills, and initiating a future doctor-patient relationship. This demonstrates the vitality of clinical teaching to medical students' education (Sayed-Hassan et al., 2012). However, does this trust from the patients transfer to those still studying or in practice such as medical students?

The importance of medicine lies within the fact that a doctor holds a life in his or her hands. Therefore, doctors need to be supplied not only with sufficient knowledge but also with a practical skill set that can only be acquired by interacting with patients (Begum et al., 2022; Temesgen, 2013). The famous physician Sir William Osler, though being a pathologist, recognized and advocated for the importance of physical examination and bedside teaching, and revolutionized the classical medical education (Stone, 1995). A doctor-patient relationship has always been a pillar in the success of the medical profession; however, the relationship between medical students and patients is still a concept in progress. Medical students strive for experience and knowledge. Performing procedures is one of the most beneficial ways to gain experience in the medical field by improving the student's clinical reasoning and manual skills (Mwaka et al., 2022).

According to the American Medical Association's Code of Medical Ethics, full disclosure is essential for patients to exercise their right to privacy by accepting or refusing the involvement of medical students in their case (Martinez, 2005). It should also be noted that it is considered a privilege for students to be able to participate in checkups and perform procedures on patients, and that patients may withdraw their consent at any later time (Allan, 2016). Therefore, gaining consent is an integral part of the process. This decision could vary widely from patient to patient, depending on more than one factor relating to patients, students, and the type of procedure. Factors that relate to the patients include their gender, age, sociocultural and educational levels (Aljoudi et al., 2016).

On the other hand, factors relating to the students involve the way they are introduced, their age, gender, attire, communications skills as well as their clinical skills which could also be significant determining aspects in the patient's comfort and decision in having them involved in their care (Al-Khatib et al., 2016). Medical students' skills and technique are considered some of the most significant factors that could affect the cooperation of their patients with them (Aljoudi et al., 2016). Patients are often cooperative but are concerned when the students converse in their own language, i.e. using the medical terminologies (Shetty et al., 2021). When unattended or unsupervised, procedures performed by medical students may be carried out in a suboptimal way that may have dangerous sequelae. This could raise fear in patients, leading them to refuse their incorporation in their health care. Furthermore, the type of procedure is another determinant leading a patient to refuse students involvement in his or her treatment. Based on the previous literature, patients would prohibit medical students to perform their first procedure on them, no matter what the procedure is and a considerable number of patients would never allow a student to perform any of the procedures, thought to be more invasive, such as lumbar puncture, intubation, or placing a central line (Graber et al., 2003).

After proving their competence in the basic sciences (pre-clerkship phase), medical students are fostered into the clinical phase that consists of a number of rotations in different specialties such as family medicine, internal medicine, obstetrics and gynecology, pediatrics, psychiatry, surgery, among others where they have the privilege to be involved in certain procedures throughout these rotations. In these fields, they spend years experiencing patient-based clinical teaching; some of them perform clinical examinations on their own, later they report their findings to the supervising attending physician who corrects or confirms these findings and demonstrates the correct examination (Ben Salah et al., 2015). Hence, medical students have a long way to go before dealing with patients without supervision.

Studies from several countries and in different specialties examining patients' attitude towards medical students in teaching facilities reflected an overall positive attitude (Passaperuma et al., 2008; Ramanayake et al., 2012; Sayed-Hassan et al., 2012). Patients' awareness about their own rights is increasing, they now understand that they have the choice to trust medical students in performing their procedures or not. Despite the surge in awareness, insufficient research is present on patients' attitudes and opinions on students' participation in their care. In Lebanon, a gap in the literature was noted regarding studies assessing patients' attitude towards medical students' involvement in their care. Therefore, this study aims to explore patients'

attitudes towards the participation of medical students in procedures and examinations in Lebanon and identify the factors that affect their participation.

2. METHODOLOGY

A descriptive cross-sectional study was conducted among the adult Lebanese population between the 20th of January and the 2nd of February 2021. Participants were chosen by convenience sampling and were requested to complete a self-administered questionnaire in Arabic language structured via Google forms and distributed via WhatsApp online platform.

The inclusion criteria of the research required participants being Lebanese and older than 18 years. Medical students were excluded. A total of 729 valid responses were reached. The distribution of the participants among the five main governorates (Beirut, Mount Lebanon, North, South and Beqaa) reflects the resident population distribution issued by the ministry of public health in Lebanon in 2019 (Ministry of Public Health, 2019).

The survey was developed by the authors based on a thorough literature review. A pilot study was done on a sample of 14 individuals to ensure the clarity of the survey's questions and time needed to fill it. An informed consent was present at the beginning of each survey explaining the purpose of the study and assuring the participant's confidentiality. The questionnaire was reviewed and approved by Beirut Arab University Institutional Review Board code 2020-H-0107-M-R-0445.

The questionnaire was made-up of 34 questions divided into 3 main sections. The first section elicited the basic demographic information of our participants including questions about age, gender, marital status, educational level, occupation, monthly income, and residence as well as place of birth, current medical problems, and hospitals previously admitted to by the participants.

The second section included a series of 9 questions regarding previous patients' encounters with medical students and a table of 19 items assessing the patients' attitude towards students' participation in various types of medical procedures.

The final section was formed from a series of 11 questions about participants' perception of students' involvement in their care and its importance for the students' learning process.

Collected data was tabulated after checking for missing fields, and then transferred into an Excel spreadsheet (version 2019) to display descriptive data.

3. RESULTS

3.1 Demographic characteristics of participants

The socio-demographic characteristics of the participants in this study are presented in Table 1. The mean age of the participants in the study is 30.8 (SD \pm 12.6) with approximately two thirds of them being females (65.6%). The majority of the participants reached a university level of education (82.3%) and were non-healthcare workers (84.8%). More than half of the participants were single (56.24%) and about 66.5% had a monthly income less than 1,500,000 L.L. In this study, 61.3% of the participants visit private hospitals as their usual destination when seeking medical care. To note that the majority of the participants have been previously admitted to the hospital (74.2%) with only 13.4% of them suffering from chronic health conditions, mainly hypertension (33.7%), diabetes mellitus (23.5%) and cardiovascular diseases (15.3%). Only 27.4% of the participants had previously lived abroad.

Table 1. Socio-demographic characteristics of the study participants (N=729)

Characteristics	N (%)	
Age	Mean +/- SD	30.8 +/- 12.6
Gender	Male	251 (34.4%)
	Female	478 (65.6%)
Marital status	Single	410 (56.24%)
	Married	294 (40.33%)

	Divorced	19 (2.61%)
	Widowed	6 (0.82%)
Educational level	No formal education	21 (2.9%)
	Elementary	22 (3%)
	High school	86 (11.8%)
	University	600 (82.3%)
Working in the health sector	Yes	111 (15.2%)
	No	618 (84.8%)
Monthly Income	< 1500000 L.L	485 (66.5%)
	> 1500000 L.L	244 (33.5%)
Place of residency	Beirut	127 (17.4%)
	North	171 (23.4%)
	South	94 (12.9%)
	Mount Lebanon	210 (28.8%)
	Beqaa	104 (14.3%)
	Abroad	23 (3.2%)
Hospitals that participant usually attends	Private	447 (61.3%)
	Governmental	76 (10.4%)
	Both	206 (28.3%)
Previously admitted to a hospital	Yes	541 (74.2%)
	No	188 (25.8%)

3.2 Participants' attitude and acceptance of medical procedures done by students

It was noteworthy that 61.7% of the participants were knowledgeable about their right to accept or refuse the presence of a medical student during their clinical encounter. Only half of the participants had personally encountered a medical student during their medical examination or history taking where 42.7% of them had a good experience. In addition, 77.1% of the participants had relatives being medical students. Moreover, 53.1% of the participants believed that the part of their body being examined affects their approval of involving medical students during their clinical encounter and approximately two thirds (66.7%) of participants thought that their medical condition affects their cooperation with medical students.

The patients' acceptance of medical students doing certain procedures taking students' gender into consideration is shown in Table 2. It was noted that in all procedures, the acceptance of both genders was high. However, it was obvious that the percentage of acceptance of female medical students was higher when compared to male students' preference in all procedures. Participants were most comfortable with medical students' taking history (81.6%), reading medical files (80.24%), and being present in outpatient clinics (71.74%). However, they were least comfortable with medical students' giving an epidural injection (69.7%), performing genital/rectal examination (54.5%), and prescribing medications (53.2%).

Table 2. Patients' acceptance to medical students in Lebanon (N=729)

Are you comfortable with medical students?	N (%)			
	Male only	Female only	Both	Neither
Reading your medical file	20 (2.74%)	62 (8.51%)	585 (80.24%)	62 (8.51%)
Being present in outpatient clinic	19 (2.61%)	76 (10.43%)	523 (71.74%)	111 (15.22%)
Taking your medical history	19 (2.6%)	45 (6.2%)	595 (81.6%)	70 (9.6%)
Prescribing your medications	7 (1%)	15 (2%)	319 (43.8%)	388 (53.2%)
Chest examination				
Being present	21 (2.88%)	162 (22.22%)	395 (54.2%)	151 (20.7%)
Performing	23 (3.1%)	158 (21.8%)	331 (45.4%)	217 (29.7%)
Abdominal examination				
Being present	17 (2.3%)	139 (19.1%)	430 (59%)	143 (19.6%)
Performing	17 (2.33%)	135 (18.52%)	374 (51.3%)	203 (27.85%)
Genital/rectal examination				
Being present	38 (5.2%)	163 (22.4%)	174 (23.8%)	354 (48.6%)
Performing	35 (4.8%)	152 (20.8%)	145 (19.9%)	397 (54.5%)
Operative theatre				
Being present	19 (2.6%)	74 (10.2%)	504 (69.1%)	132 (18.1%)
Participating	14 (1.9%)	53 (7.3%)	352 (48.3%)	310 (42.5%)
Delivery room*				

	Being present	3 (0.6%)	140 (30%)	200 (43%)	123 (26.4%)
	Participating	1 (0.2%)	112 (24.3%)	139 (30.2%)	209 (45.3%)
<hr/>					
	Giving an intravenous injection	15 (2%)	43 (5.9%)	384 (52.7%)	287 (39.4%)
	Giving an intramuscular injection	19 (2.6%)	61 (8.4%)	426 (58.4%)	223 (30.6%)
	Giving a subcutaneous injection	16 (2.2%)	42 (5.8%)	476 (65.3%)	195 (26.7%)
	Giving an epidural injection	22 (3%)	32 (4.4%)	167 (22.9%)	508 (69.7%)
	Taking a nose or a throat swab	20 (2.7%)	48 (6.6%)	521 (71.5%)	140 (19.2%)

* Question only applies for female participants so total might be less than 478 due to missing data.

3.3 Reasons that alter participants’ approval on participation of medical students

Patient’s medical condition was the main reason that influenced participants’ decisions about medical students’ presence during procedures (43.8%). Other reasons are shown in Figure 1.

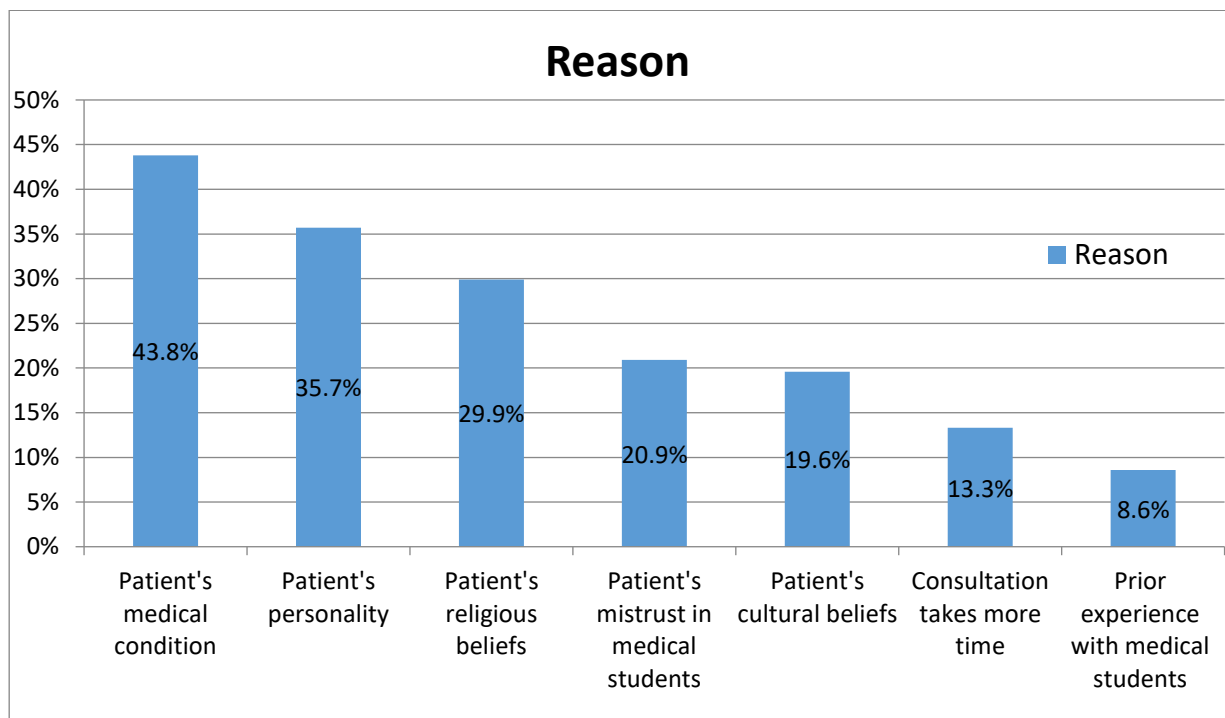


Figure 1. Reasons that affect the participants’ decisions about the presence of medical students during their procedures in (%).

3.4 Participants attitude towards medical students’ involvement

Table 3 summarizes the attitude of participants towards medical students’ involvement in their care. Their attitude appeared positive in general as 71.7% of the study participants found their integration in the medical students’ learning journey an exciting experience. Only about 35.8% of the participants believed that the medical students’ appearance affects their decision with approximately 56% of them preferring students showing up in formal attire. Regarding student’s academic level, more than two thirds (69.8%) believed that it greatly influences their decision, preferring more students being in senior years (97.4%). More so, the majority of participants deemed it necessary to cooperate with medical students the same as they do with physicians (90.5%) and that medical students’ participation in examinations would enhance their medical knowledge (97.8%). Approximately 43% of the participants were comfortable with only one or two students being a part of their health care.

Table 3. Participants’ attitude towards medical students’ involvement in their care (N=729)

Questions	Answers N (%)	
	Yes	No
Does it seem exciting for you as a patient to be integrated in a medical student’s learning process?	523 (71.7%)	206 (28.3%)

Does the general appearance of the medical student affect your decision?		261 (35.8%)	468 (64.2%)
Which of the following appearances would you prefer the medical student to show up in?	Formal (white gown with a shirt & tie)	146 (55.94%)	
	Casual (white gown with a jeans & polo)	64 (24.52%)	
	Medical (white gown with surgical scrub)	51 (19.54%)	
Does the student's academic level affect your decision?		509 (69.8%)	220 (30.2%)
Specify which level of student training would you be with?	Junior years	13 (2.6%)	
	Senior years	496 (97.4%)	
Do you think medical students can provide useful information about your health problems?		516 (70.8%)	213 (29.2%)
Do you think that anonymously discussing your case as a patient is beneficial for medical students?		707 (97%)	22 (3%)
Do you think patients should cooperate with medical students as they do with attending physicians?		660 (90.5%)	69 (9.5%)
Do you think that medical students' participation in your examination would enhance their medical knowledge?		713 (97.8%)	16 (2.2%)

4. DISCUSSION

This study aimed to explore patients' attitudes and the factors affecting the participation of medical students in procedures and examinations in Lebanon. Our study showed that more than two thirds of participants had a positive attitude toward medical students' involvement in their care, similar to what was documented in studies done elsewhere (Ben Salah et al., 2015; Choudhury et al., 2006; Iqbal et al., 2020; Mol et al., 2011; Mwaka et al., 2022). In the literature, the patients' positive attitude and acceptance were explained by various factors including hopes to get better cared for and understand their medical condition in more depth (Al-Khatib et al., 2016; Mavis et al., 2006).

Patients might feel better taken care of when medical students are involved in their care, because doctors tend to accord more time listening to patient concerns in hopes of teaching the students. Since taking a patient's history is the cornerstone of the clinical approach to their care, having additional information—which is often only done by doctors, but is now also done by medical students—will help to ensure that no information from the patient's medical history is overlooked. Furthermore, the patient's case is being discussed by the doctor and his or her students, allowing further involvement of the patient (Shetty et al., 2021).

We also noticed that most of the participants were pleased to be a part of the medical students' learning process, reflected by their willingness to cooperate with medical students the same way they do with attending physicians. The satisfaction of being involved in doctors' training might explain and highlight the importance of incorporating patients in medical students' learning processes from an early phase (Al-Khatib et al., 2016; Mwaka et al., 2022). Considering the fact that our study was done during the COVID-19 pandemic, we can appreciate that medical students played an important role aiding in multiple clinical roles during the crisis witnessed worldwide on the healthcare system which might have affected our results (Miller et al., 2020).

Furthermore, the majority of the participants believed that medical students' participation in clinical examination is critical for advancing their knowledge. Even though half of the participants had encountered a medical student during their medical examination or history taking, only 42.7% reported a good experience. We believe that previous unpleasant experiences, poor communication skills or even lack of knowledge of the students could explain these patients' negative attitude (Al-Khatib et al., 2016; Onotai et al., 2012).

In contrast to a study from Syria that showed a low level of patients' awareness of their right to approve or disapprove medical students' presence during their examination, the participants in this study showed a high level of acquaintance with this right (Sayed-Hassan et al., 2012). This finding may be attributed to the fact that, in Lebanon, many patients seek medical care in private hospitals, noting that a good proportion of these are university hospitals that accommodate medical students, therefore increasing their awareness of this right. A considerable number of our participants had relatives who are medical students; this could be one

of the main influences behind the overall positive attitude of Lebanese population towards medical students' involvement in their care and the appreciation of the importance of clinical encounters with medical students. One potential drawback of our research could be the absence of a specific question on the participants' degree of relationship to the medical students.

Participants were more receptive towards medical students' presence in outpatient clinics, where the latter take history, perform physical examinations, and document their findings in the medical charts, rather than their participation in procedures. This behavior is most probably due to the type of involvement being observational and noninvasive (Mavis et al., 2006; Subki et al., 2018). Participants' negative perceptions towards students' involvement in genital/rectal examination may be related to the intimacy of the exam (Abdulghani et al., 2008; Ben Salah et al., 2015; Koehler & McMenamin, 2012; Mavis et al., 2006); and their negative perception towards prescribing medications might be explained by their mistrust in medical students who could lack experience (Brinkman et al., 2018). Hence, medical educators should find alternative methods for teaching students particularly for the genital/rectal exam where many patients are reluctant to be examined by students notably male students. Simulation sessions can therefore be a suitable alternative, since they have been proven to be effective while preparing students for their next encounter with the patients (Al-Elq, 2010; So et al., 2019).

It is noteworthy to state that participants accepted female medical students more in taking part in medical procedures. The fact that two-thirds of our participants are females may make it justifiable. Our findings align with studies done in other countries where female patients preferred to be examined by students of their same-sex (Begum et al., 2022; Marwan et al., 2012; Sayed-Hassan et al., 2012). On the other hand, a study done in Uganda elicited that gender is not a trivial determining factor in their choice of health care (Mwaka et al., 2022). This could be due to certain religious beliefs or cultural norms seen in different regions and not others, and it could be noticed that as time passes by, acceptance towards medical students' participation in the care is expanding likely due to better understanding of their vital role as they are doctors in training. In our study, some female patients objected to being exposed to male medical students highlighting the importance of listening to a patient's preference, thus enhancing patient-student communication (Basyal & Sigdel, 2020).

More so, half of the participants were comfortable with only one or two students being involved in their health care. Likewise, studies done in the US and Saudi Arabia underlined patients' preference to a lower number of medical students during the consultation (Al-Khatib et al., 2016; Goerl & Ofei-Dodoo, 2018). This could be due to the fact that an increased number of personnel in the patient's room where one is sharing his or her private matters could lead to a higher level of unneeded stress (Shetty et al., 2021).

Our results show that two-thirds of the participants pay close attention to the academic level of medical students, leaning towards cooperating more with students in their senior years. It should be noted that students in their junior years lack the interpersonal and intrapersonal communication skills (Mavis et al., 2006; Nilsson & Pilhammar, 2009; Taveira-Gomes et al., 2016), mainly due to the low number of patient encounters (Shetty et al., 2021). This made them easily distinguishable from their senior counterparts, similarly to the seniors and junior doctors' difference as projected in our results (Nilsson & Pilhammar, 2009; Passaperuma et al., 2008). This could reveal a crucial reality, namely that patients must be properly informed about the healthcare provider they are dealing with, whether it be a medical student, a resident doctor, or an attending physician. This protects the patient's right to give their informed consent prior to receiving any medical treatment (Mwaka et al., 2022).

Moreover, almost 65% of our participants were not swayed by the medical student's attire; yet those who were, preferred the formal attire as shown in Table 3. This contradicts the findings of studies performed in regional countries as in Saudi Arabia where 82% of the participants based their decision on the attire of the medical student (Abdulghani et al., 2008). This emphasizes the negative impact casual attire can have on a patient's acceptance towards medical students and perhaps to doctors as well (Petrilli et al., 2018).

Finally, this study revealed that the medical condition is the most common reason affecting the participants' decision regarding the presence of medical students during procedures and examinations. In contrast, in a study done in Saudi Arabia, the most cited reason behind patients' disapproval was their religious beliefs (Anfinan et al., 2014). Lebanon is a country of multicultural aspects around 18 religious sects coexist, leading to undermining the religious beliefs as a factor affecting patients' decisions, in comparison with the Saudi Arabia study.

4.1 Limitation and strength

The strength of this study lies in its originality, as it is the first one in Lebanon exposing patients' attitudes and views towards medical students' involvement in their care. The fact that the survey only included a subset of the population with higher literacy and excluded the opinions of a sizable portion of the public are among the study's limitations that limit its generalizability. This study, however, is cross-sectional. The surveys were distributed through an online platform, which raises the possibility of selection bias considering the extent of online literacy contribution to the exclusion of some members of the public who are unable to complete online surveys. Nonetheless, the geographic distribution of the sample size was sufficient to reduce this bias by covering the residential population of the five main governorates of Lebanon.

4.2 National and International Context

This study reveals the Lebanese patients' attitudes and their views towards medical students' involvement in their care in hospitals around Lebanon. This also allows us to understand various reasons why patients may refuse students' participation in their care and provides us insight on what can be done to increase the rate of their acceptance. On an international scale, this study is compared with several similar studies done around the world and in the region. This allowed us to understand the similarities and differences in the reasons stated by the patients according to geographic locations as well as religious, ethnic and cultural norms.

5. CONCLUSION

The Lebanese population has shown an overall positive attitude towards medical students' participation in procedures and examinations. Patients' medical conditions, their personalities and religious beliefs were the main factors that affected the participants' decisions about the presence of medical students during their procedures. More focus needs to be directed towards enhancing communication skills of medical students to equip them well before their encounter with patients. Moreover, medical staff need to further encourage, support and respect medical students' effort which would reflect on patients' attitude toward students' involvement in their care. Lastly, medical educators are compelled to overcome the obstacles they may face should patients refuse medical students' participation in their care by improvising alternative learning methods; simulation sessions can be quite helpful and prepare the students for their next real encounter.

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Conflict of Interest

The authors declare that they have no conflict of interest.

REFERENCES

- Abdulghani, H. M., Al-Rukban, M. O., & Ahmad, S. S. (2008, Jul). Patient attitudes towards medical students in Riyadh, Saudi Arabia. *Educ Health (Abingdon)*, 21(2), 69.
- Al-Elq, A. H. (2010, Jan). (Simulation-based medical teaching and learning. *J Family Community Med*, 17(1)), 35-40. <https://doi.org/10.4103/1319-1683.68787>
- Al-Khatib, T., Othman, S., & Eldeek, B. (2016, 01/01). Patients' Perception toward Medical Students' Involvement in Their Surgical Care: Single Center Study. *Education Research International*, 2016, 1-8. <https://doi.org/10.1155/2016/8234841>
- Aljoudi, S. B., Alsolami, S. S., Farahat, F. M., Alsaywid, B., & Abuznadah, W. (2016, Sep-Dec). Patients' attitudes towards the participation of medical students in clinical examination and care in Western Saudi Arabia. *J Family Community Med*, 23(3), 172-178. <https://doi.org/10.4103/2230-8229.189133>
- Allan, J. (Spring 2016). Medical students seeking consent. *O&G Magazine*, 18(3). <https://www.ogmagazine.org.au/18/3-18/medical-students-seeking-consent/>
- Anfinan, N., Alghunaim, N., Boker, A., Hussain, A., Almarstani, A., Basalamah, H., Sait, H., Arif, R., & Sait, K. (2014, Mar). Obstetric and gynecologic patients' attitudes and perceptions toward medical students in Saudi Arabia. *Oman Med J*, 29(2), 106-109. <https://doi.org/10.5001/omj.2014.26>
- Basyal, K., & Sigdel, D. (2020, 09/11). Patients' attitude towards medical students at a teaching hospital, Bharatur, Nepal. *International Journal Of Modern Pharmaceutical Research*, 4(4). https://ijmpronline.com/home/article_abstract/271
- Begum, N., Nasrin, A., Rahman, M. M., & Islam, M. T. (2022). Patients' attitude towards medical students at Combined Military Hospital, Dhaka. *Journal of Armed Forces Medical College, Bangladesh*. 17(2), 12-16. <https://doi.org/10.3329/jafmc.v17i2.58360>

- Ben Salah, A., El Mhamdi, S., Bouanene, I., Sriha, A., & Soltani, M. (2015, Dec 25). Patients' attitude towards bedside teaching in Tunisia. *Int J Med Educ*, 6, 201-207. <https://doi.org/10.5116/ijme.5669.ea24>
- Brinkman, D. J., Tichelaar, J., Graaf, S., Otten, R. H. J., Richir, M. C., & van Agtmael, M. A. (2018, Apr). Do final-year medical students have sufficient prescribing competencies? A systematic literature review. *Br J Clin Pharmacol*, 84(4), 615-635. <https://doi.org/10.1111/bcp.13491>
- Choudhury, T. R., Moosa, A. A., Cushing, A., & Bestwick, J. (2006, Nov). Patients' attitudes towards the presence of medical students during consultations. *Med Teach*, 28(7), e198-203. <https://doi.org/10.1080/01421590600834336>
- Goerl, K., & Ofei-Doodoo, S. (2018, Nov). Patient Perception of Medical Learners and Medical Education during Clinical Consultation at a Family Medicine Residency. *Kans J Med*, 11(4), 102-105.
- Graber, M. A., Pierre, J., & Charlton, M. (2003, Dec). Patient opinions and attitudes toward medical student procedures in the emergency department. *Acad Emerg Med*, 10(12), 1329-1333. <https://doi.org/10.1111/j.1553-2712.2003.tb00006.x>
- Iqbal, M. Z., Bukhamsin, E. Y., Alghareeb, F. Y., Almarri, N. M., Aldajani, L. M., & Busaleh, H. A. (2020, Jul). Participation of medical students in patient care: How do patients perceive it? *J Family Med Prim Care*, 9(7), 3644-3651. https://doi.org/10.4103/jfmpc.jfmpc_130_20
- Koehler, N., & McMenamin, C. (2012, 07/01). Would you consent to being examined by a medical student? Western Australian general public survey. *Medical Teacher*, 34(7), e518-e528. <https://doi.org/10.3109/0142159X.2012.668628>
- Martinez, W. (2005, Apr 1). "Trust Me. I'm a Doctor.". *Virtual Mentor*, 7(4), 301-305. <https://doi.org/10.1001/virtualmentor.2005.7.4.con11-0504>
- Marwan, Y., Al-Saddique, M., Hassan, A., Karim, J., & Al-Saleh, M. (2012). Are medical students accepted by patients in teaching hospitals? *Med Educ Online*, 17, 17172. <https://doi.org/10.3402/meo.v17i0.17172>
- Mavis, B., Vasilenko, P., Schnuth, R., Marshall, J., & Jeffs, M. C. (2006, Mar). Medical students' involvement in outpatient clinical encounters: a survey of patients and their obstetricians-gynecologists. *Acad Med*, 81(3), 290-296. <https://doi.org/10.1097/00001888-200603000-00023>
- Miller, D. G., Pierson, L., & Doernberg, S. (2020, 07/21). The Role of Medical Students During the COVID-19 Pandemic. *Annals of Internal Medicine*, 173(2), 145-146. <https://doi.org/10.7326/M20-1281>
- Ministry of Public Health. (2019). *Statistics 2019*. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKewilqtPpnof3AhWI8bsIHWYcAzgQFnoECAyQAQ&url=https%3A%2F%2Fwww.moph.gov.lb%2FDynamicPages%2Fdownload_file%2F5766&usq=AOvVaw2usKY6MeQv9t09TQXx_YSE
- Mol, S. S., Peelen, J. H., & Kuyvenhoven, M. M. (2011). Patients' views on student participation in general practice consultations: a comprehensive review. *Med Teach*, 33(7), e397-400. <https://doi.org/10.3109/0142159x.2011.581712>
- Mwaka, A. D., Taremwa, S., Adoch, W., Achan, J., Ainembabazi, P., Walego, G., Ntayi, M. L., Bongomin, F., & Ibingira, C. B. (2022, 07/02). Patients' attitudes towards involvement of medical students in their care at university teaching hospitals of three public universities in Uganda: a cross sectional study. *BMC Medical Education*, 22(1), 519. <https://doi.org/10.1186/s12909-022-03576-4>
- Nilsson, M. S., & Pilhammar, E. (2009, 05/21). Professional approaches in clinical judgements among senior and junior doctors: implications for medical education. *BMC Medical Education*, 9(1), 25. <https://doi.org/10.1186/1472-6920-9-25>
- Onotai, L. O., Asuquo, E. O., Amadi, E. C., Amadi-Oparelli, A., & Ali, D. U. (2012). Patients' perception and attitude towards medical students' involvement in patients care at a Nigerian University Teaching Hospital. *Educational Research*, 3, 732-743.
- Passaperuma, K., Higgins, J., Power, S., & Taylor, T. (2008, Feb). Do patients' comfort levels and attitudes regarding medical student involvement vary across specialties? *Med Teach*, 30(1), 48-54. <https://doi.org/10.1080/01421590701753443>
- Petrilli, C. M., Saint, S., Jennings, J. J., Caruso, A., Kuhn, L., Snyder, A., & Chopra, V. (2018, May 29). Understanding patient preference for physician attire: a cross-sectional observational study of 10 academic medical centres in the USA. *BMJ Open*, 8(5), e021239. <https://doi.org/10.1136/bmjopen-2017-021239>
- Ramanayake, R. P., Sumathipala, W. L., Rajakaruna, I. M., & Ariyapala, D. P. (2012, Jul). Patients' attitudes towards medical students in a teaching family practice: a sri lankan experience. *J Family Med Prim Care*, 1(2), 122-126. <https://doi.org/10.4103/2249-4863.104982>
- Sayed-Hassan, R. M., Bashour, H. N., & Koudsi, A. Y. (2012, Mar 22). Patient attitudes towards medical students at Damascus University teaching hospitals. *BMC Med Educ*, 12, 13. <https://doi.org/10.1186/1472-6920-12-13>
- Shetty, P. A., Magazine, R., & Chogtu, B. (2021, Feb). Patient outlook on bedside teaching in a medical school. *J Taibah Univ Med Sci*, 16(1), 50-56. <https://doi.org/10.1016/j.jtumed.2020.10.002>
- So, H. Y., Chen, P. P., Wong, G. K. C., & Chan, T. T. N. (2019, Mar). Simulation in medical education. *J R Coll Physicians Edinb*, 49(1), 52-57. <https://doi.org/10.4997/jrcpe.2019.112>
- Stone, M. J. (1995, Feb 1). The wisdom of Sir William Osler. *Am J Cardiol*, 75(4), 269-276. [https://doi.org/10.1016/0002-9149\(95\)80034-p](https://doi.org/10.1016/0002-9149(95)80034-p)
- Subki, A. H., Algethami, M. R., Addas, F. A., Alnefaie, M. N., Hindi, M. M., & Abduljabbar, H. S. (2018). Women's perception and attitude to medical students' participation in obstetrics and gynecology care. *Saudi medical journal*, 39(9), 902-909. <https://doi.org/10.15537/smj.2018.9.22668>
- Taveira-Gomes, I., Mota-Cardoso, R., & Figueiredo-Braga, M. (2016, Nov-Dec). Communication skills in medical students - An exploratory study before and after clerkships. *Porto Biomed J*, 1(5), 173-180. <https://doi.org/10.1016/j.pbj.2016.08.002>

- Temesgen, W. A. (2013, Jul). Patients' attitude towards medical students involvement in their health care at Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia, 2010. *Ethiop J Health Sci*, 23(2), 158-164.