Original Article

Patients' Privacy in the Operating Room: Perspectives from Patients in Academic Hospitals of Guilan (Iran)

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Abstract

Background: Privacy, recognized as a fundamental patient right, has become a focal point within the healthcare system. This study was conducted to evaluate the state of patients' privacy in the operating rooms of academic hospitals affiliated with Guilan University of Medical Sciences in Iran. **Materials and Methods:** This cross-sectional descriptive study was carried out between October 2022 and April 2023. Eligible patients completed a questionnaire that included four sections: demographic information and physical, informational, and social dimensions of patient privacy. **Results:** Data from 215 patients were analyzed. Younger (Mann–Whitney U = 4738, $Z = -2.44$, $p = 0.01$) and single (Chi_square χ_2^2 7.62, $p = 0.02$) patients significantly achieved higher scores. Male (Mann–Whitney U = 4918.5, $Z = -0.90$, $p = 0.36$) and rural (Mann–Whitney U = 5411, $Z = -0.43$, $p = 0.66$) patients also had higher scores; however, the differences were not significant. Comparing results across the five participating centers in three distinct dimensions, a significant variation was observed in the physical dimension (Chi_square $\chi_4^2 = 22.76$, $p < 0.0001$). However, no significant differences were noted in the informational (Chi_square $\chi_4^2 = 9.11$, $p = 0.05$) and social dimensions (Chi_square $\chi_4^2 = 8.78$, $p = 0.06$). Among hospital sectors, the Ophthalmic and ENT surgeries units' mean (SD) scored the highest 14 (1.53), closely followed by the obstetrics' mean (SD) 13.88 (1.98), while the cardiac surgery center's mean (SD) scored the lowest 12.3 (2.53). **Conclusions:** Patients' privacy was upheld, but there remains room for improvement by ensuring sufficient perioperative information is provided for the patients. Additional attention should be directed toward elderly patients and those with a history of divorce.

Keywords: *Hospitals, operating rooms, privacy*

Introduction

In today's health care landscape, where human rights are a central focus, the importance of privacy has gained increasing attention. Privacy stands as one of the fundamental rights of patients, and when upheld, it fosters a strong and positive relationship between patients and medical teams. Research has shown that patients who feel satisfaction and have trust in the system are more likely to engage cooperatively in their treatment, ultimately leading to improved health outcomes. This issue transcends barriers such as race, religion, gender, and social status.[1,2] To address this need, some studies have suggested the broader adoption of video recording during surgical procedures as a valuable practice in operating rooms.[3,4] Privacy is defined as the right or interest in limiting or controlling others access to oneself[5] and has physical, psychological, informational, and social dimensions.[6,7]

It means that patients' privacy covers a wide range of definitions, including personal space, freedom of decision-making, respecting patients, and also protection of their medical files.[8-10] The issue of patient privacy has increasingly shifted toward advanced techniques for medical data anonymization.[11] Privacy becomes even more critical in operating rooms (ORs), where it is sometimes necessary to remove the patient's covering and administer anesthesia, leaving patients potentially vulnerable. The impact of this vulnerability varies depending on the individual beliefs and values of the patients. Furthermore, factors such as teamwork dynamics, the diversity of procedures, workload demands, the occurrence of emergencies, unforeseen cases, and the need for swift action create

How to cite this article: Khoshrang H, Sedighinejad A, Taramsari MR, Azizinezhad N, Javanak M, Ahmadi M, *et al.* Patients' privacy in the operating room: Perspectives from patients in academic hospitals of Guilan (Iran). Iran J Nurs Midwifery Res 2025;30:491-6.

Submitted: 03-Jul-2023. **Revised:** 06-Apr-2025. **Accepted:** 07-Apr-2025. **Published:** 24-Jul-2025.

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Access this article online

Website: https://journals.lww.com/jnmr

DOI: 10.4103/ijnmr.ijnmr_193_23

Quick Response Code:

a unique environment in the OR, which significantly influences its ethical climate.[12] A number of previous studies in Iran showed the issue of patients' privacy was not in its optimal conditions.[13-15] In the studies conducted by Noorian *et al*. in Shahrekord and Mardani *et al*.in Fasaa, it was found that patients were dissatisfied with the privacy conditions in ORs.[14,15]

To the best of our knowledge, no comparable study has been conducted in the hospitals of Guilan University of Medical Sciences (GUMS). Given the impact of various factors, such as societal beliefs, cultural norms, values, patients' social status, and the specific characteristics of each hospital, the findings from these other studies cannot be generalized to different regions. The conditions of a private, local hospital naturally differ from those of a general referral governmental center. Each facility must independently examine this matter and remain mindful of its specific privacy conditions. In light of this, the present study is the first to evaluate the state of patient privacy in the ORs of academic hospitals affiliated with Guilan University of Medical Sciences in Iran.

Materials and Methods

This cross-sectional descriptive study was carried out on surgery patients from various departments in Guilan's academic hospitals between October 2022 and April 2023. The hospitals included Poorsina (General Surgery, Orthopedics, Neurosurgery), Razi (Thoracic Surgery, Urology), Alzahra (Obstetrics and Gynecology), Amir Al-Momenin (Ophthalmology, ENT), and Dr. Heshmat (Cardiology). The study's sample size was determined using the ratio estimation formula, referencing the findings of Noorian *et al.*, where the overall privacy compliance rate was estimated at $p = 0.168$. With a significance level of $\alpha = 0.05$ and a margin of error $d = 0.05$, the sample was selected through available sampling, resulting in a total of $N = 215$ participants. Patients over the age of 18, who consented to participate, demonstrated effective communication abilities, maintained stable hemodynamic status, and had no complaints such as pain, nausea, or vomiting, were included in the survey. Those unwilling to participate were excluded. A questionnaire adapted from the study by Noorian *et al.*[14] was completed the day after the operation through a face-to-face interview conducted by the responsible medical student in the ward. The initial section of the questionnaire gathered demographic details about the patient, including age, gender, educational level, length of hospitalization, marital status, place of residence, and the types of surgeries performed. The next part comprised 15 questions divided into three sections: Nine addressed various aspects of the physical dimension, three focused on the informational dimension, and three covered the social dimension. The content was reviewed by ten faculty members from the departments of anesthesiology, obstetrics and gynecology, and ethics. The Content Validity Index (CVI) and Content Validity Ratio (CVR) were calculated to be 0.94 and 0.95, respectively. The panel members found the questionnaire items to be highly relevant, indicating that no significant revisions were necessary. The reliability of the tool was assessed and validated through a questionnaire completed by 30 eligible patients. The split-half method was used, achieving a Spearman correlation coefficient of 0.89 between the two halves and 0.96 for the entire questionnaire. The data collected were analyzed with the Statistical Package for the Social Sciences (SPSS) software, version 21, developed by IBM Corp., Armonk, NY. The analysis included descriptive statistics such as prevalence, mean, and standard deviation, along with Chi-square tests and independent *t*-tests.

Ethical considerations

The study protocol received approval from the Honorable Vice-Chancellor of Research, and the ethics code IDIR. GUMS.REC.1401.375 was assigned. The research purpose, along with the voluntary nature of participation and assurance of confidentiality, was thoroughly explained to each patient, and informed consent was obtained from the participants. To safeguard participant privacy, all data were recorded anonymously.

Results

A total of 317 patients were invited to complete questionnaires. Among them, 91 declined to participate, and 11 faced communication barriers, including language differences. Ultimately, data from 215 patients, with a mean (SD) age of 44.63 (17.93) years (ranging from 18 to 90), from five academic hospitals equipped with ORs were analyzed [Table 1]. In terms of physical considerations, 94.41% of patients reported having adequate cover upon arriving in the OR. Additionally, 98.13% felt that the OR staff only removed clothing to the extent necessary for the procedure, while 99.53% confirmed that staff waited until they were fully unconscious before beginning to disinfect the surgical site. In this dimension, 99.10% reported that the medical team refrained from performing unnecessary physical examinations or touch in the OR, while 95.34% felt they were appropriately covered after surgery and prior to being moved to the ward. In the Information dimension, 97.70% of patients believed that details about their illness were not disclosed to unrelated individuals in the OR. Additionally, 98.13% reported that the OR staff refrained from asking unnecessary questions. In the social context, 91.62% of patients felt that the level of silence in the OR before anesthesia was appropriate, while 93.02% expressed satisfaction with the quietness after the procedure and prior to being transferred to the ward. The frequency of patients' responses is presented in Table 2. Younger individuals (Mann–Whitney U = 4738, $Z = -2.44$, $p = 0.01$) and those who were single (Chi_square $\chi^2_2 = 7.62$, $p = 0.02$) demonstrated significantly higher scores

concerning patients' privacy. Males and individuals from rural areas also exhibited higher scores; however, these differences were not statistically significant (Mann–Whitney U = 4918.5, $Z = -0.90$, $p = 0.36$, Mann–Whitney U = 5411, $Z = -0.43$, $p = 0.66$) [Table 3]. When comparing the five centers involved in the study across three distinct dimensions, a highly significant difference was observed in the physical dimension (Chi_square $\chi^2_4 = 22.76$, $p < 0.0001$). The difference, however, was not substantial when it came to information (Chi_square $\chi^2_4 = 9.11$, $p = 0.05$) and the social dimension (Chi_square $\chi^2_4 = 8.78$, $p = 0.06$) [Table 4]. A comparison of the average total scores across the three dimensions of patient privacy in five academic hospitals revealed a significant difference. Among them, the Ophthalmic and ENT and the Obstetrics and Gynecology hospitals achieved the highest scores, whereas the Cardiology hospital recorded the lowest score [Table 5].

Table 1: Demographic data of patients

Variables	Status	Number (Percent)
Gender	Male	76 (35.34)
	Female	139 (64.70)
Age (Years)	Less than 40	102 (47.44)
	More than 40	113 (64.70)
Age (Years)	Mean (SD (Min – Max)	44.63 (17.93) (18–90)
Education	Illiterate	27 (12.60)
	Elementary	61 (28.40)
	Until the diploma	87 (40.50)
	University degree	40 (18.60)
Marriage status	Married	156 (72.60)
	Single	50 (23.30)
	Divorced	9 (4.20)
Residency	Urban	127 (59.10)
	Rural	88 (40.93)
The hospital of the surgery	Poorsina (General Surgery – Orthopedics – Neurosurgery)	59 (27.44)
	Razi (Thoracic Surgery – Urology)	48 (22.32)
	Alzahra (Obstetrics and Gynecology)	36 (16.74)
	Amir Al-Momenin (Ophthalmic and ENT)	36 (16.74)
	Dr.Heshmat (Cardiology)	36 (16.74)

Discussion

This multicenter study examined patients' perceptions of privacy within the ORs of academic hospitals in Guilan (Iran). The findings highlighted that patient privacy was generally well respected in Guilan's academic hospitals in Iran. Patients undergoing ophthalmic and ENT surgeries, where only the head and neck areas were exposed, as well as those undergoing obstetrics and gynecology procedures—where all operating room personnel, including obstetricians, anesthesiologists, and staff, were women—received higher satisfaction scores regarding privacy. Conversely, cardiac surgery hospitals scored the lowest. It was noted that cardiac surgery patients are often older,

Table 2: The frequency of the answers to the questions of three dimensions of patient's privacy

		Yes Number (Percent)	No Number (Percent)
	Physical dimensions		
1	Entering the OR*, I was properly covered	203 (94.41)	12 (5.60)
2	In the OR, the person who transferred me was my same gender	181 (84.20)	34 (15.81)
3	Before the operation, the anesthesiologist gave me a brief explanation about the anesthesia planning	186 (86.51)	29 (13.50)
4	The OR staff removed my clothes only to the extent necessary for the operation	211 (98.13)	4 (1.90)
5	The OR staff did not begin disinfecting the surgical site until I was completely unconscious	214 (99.53)	1 (0.50)
6	In the OR, the medical team did not perform unnecessary physical examination or touching	213 (99.10)	2 (0.93)
7	Before the operation, the surgical team gave me a brief explanation about the surgery planning	184 (85.60)	31 (14.41)
8	Unnecessary people were not present in the OR during the examinations	81 (37.70)	134 (62.32)
9	After the operation and before I was transferred to the ward, I was properly covered	205 (95.34)	10 (4.70)
Mean (SD)		8.05 (1.2)	
	Information dimensions		
10	Information about my illness was not shared with unrelated people in the OR	210 (97.70)	5 (2.32)
11	The OR staff did not ask me unnecessary questions	211 (98.13)	4 (1.90)
12	The staff did not discuss the private and confidential information of my illness	78 (36.30)	137 (63.72)
13	Mean (SD)	2.58 (0.54)	
	Social dimensions		
14	In the OR, the staff did not use the cell phones in my presence	53 (24.7)	162 (75.3)
15	The amount of silence in the OR before anesthesia was appropriate	197 (91.6)	18 (8.4)
16	After the operation and before transfer to the ward, the amount of silence was appropriate	200 (93)	15 (7)
Mean (SD)		2.6 (0.7)	

*OR=Operation Room

Table 3: The relationship between patient`s answers to the questions of three dimensions of patients' privacy according to the demographic characteristics

Variables	Status	Number (Percent)	Mean (SD)	Median	*p*
Gender	Male	76 (35.34)	13.47 (1.92)	15	0.36
	Female	139 (64.70)	13.12 (2.17)	15	
Age (Years)	Less than 40	102 (47.44)	13.58 (1.94)	15	0.01
	More than 40	113 (64.70)	12.93 (2.18)	14	
Education	Illiterate	27 (12.60)	12.11 (2.35)	11	0.29
	Elementary	61 (28.40)	13.29 (1.95)	14	
	Until the diploma	87 (40.50)	13.6 (1.97)	15	
	University degree	40 (18.60)	13.15 (2.15)	14	
Marriage status	Married	156 (72.60)	13.17 (2.08)	15	0.02
	Single	50 (23.30)	13.78 (1.87)	15	
	Divorced	9 (4.20)	11.55 (2.5)	11	
Residency	Urban	127 (59.10)	13.18 (2.06)	15	0.66
	Rural	88 (40.93)	13.32 (2.14)	15	

Table 4: Comparison of the points obtained from each dimension; physical, information, and social according to type of surgery

Type of surgery	Number (Percent)	Mean (SD)	Median	Range of points earned	*p*
Physical dimensions					
Thoracic Surgery – Urology	48 (22.32)	8 (1.14)	8	4–9	<0.001
Obstetrics and Gynecology	36 (16.74)	8.61 (0.76)	9	6–9	
Ophthalmic and ENT*	36 (16.74)	8.58 (0.64)	9	7–9	
Cardiology	36 (16.74)	7.47 (1.5)	7	5–9	
General Surgery – Orthopedics – Neurosurgery	59 (27.44)	7.77 (1.28)	8	5–9	
Information dimensions					
Thoracic Surgery – Urology	48 (22.32)	2.58 (0.53)	3	1–3	0.05
Obstetrics and Gynecology	36 (16.74)	2.72 (0.51)	3	1–3	
Ophthalmic and ENT	36 (16.74)	2.66 (0.47)	3	2–3	
Cardiology	36 (16.74)	2.38 (0.54)	2	1–3	
General Surgery – Orthopedics – Neurosurgery	59 (27.44)	2.61 (0.58)	3	0–3	
Social dimensions					
Thoracic Surgery – Urology	48 (22.32)	2.45 (0.82)	3	0–3	0.06
Obstetrics and Gynecology	36 (16.74)	2.55 (0.9)	3	0–3	
Ophthalmic and ENT	36 (16.74)	2.75 (0.6)	3	1–3	
Cardiology	36 (16.74)	2.44 (0.69)	3	1–3	
General Surgery – Orthopedics – Neurosurgery	59 (27.44)	2.74 (0.43)	3	2–3	

*Ear, nose, and throat

Table 5: Comparison of the points obtained from the parameters of the assessment of privacy status (0–15 points) according to type of surgery

Type of surgery	Number of patients	Mean (SD)	Median	Range of points earned	*p*
Thoracic Surgery – Urology	48	13.04 (2.05)	13.50	9–15	<0.001
Obstetrics and Gynecology	36	13.88 (1.98)	15	10–15	
Ophthalmic and ENT*	36	14 (1.53)	15	11–15	
Cardiology	36	12.3 (2.53)	12	7–15	
General Surgery – Orthopedics – Neurosurgery	59	13.13 (1.96)	14	9–15	

*Ear, nose, and throat

are more vulnerable, and have heightened expectations for respect and privacy.

This is crucial because effective perioperative communication with patients and efforts to reduce their anxiety lead to improved outcomes. Additionally, 13.5% of patients had doubts and concerns about anesthesia that were not addressed. While this percentage may appear low, it is entirely unacceptable. Even in emergency surgeries,

there is usually enough time to speake with patients and provide reassurance. The study also revealed significant variations in the level of patient privacy across hospitals, which was inconsistent with the findings of Mardani's study.[15] Noorian *et al.* from Shahrekord (Iran) found that most of their patients in the OR felt their privacy was not respected.[14] Conversely, a separate study conducted in Zanjan (Iran) revealed that 86.4% of patients reported their privacy was upheld in the OR.[16] Sepehrirad *et al*.[7] from Ardabil (Iran) analyzed the key factors affecting patient privacy in ORs within academic hospitals. They stated that moral sensitivity emerged as the most crucial factor, whereas job strain showed a significant negative correlation with patient privacy. In the study of Mardani *et al.*,[15] the level of patient privacy in their academic centers was found to be moderate. In line with the study of Sepehrirad *et al*., OR staff reported a heightened awareness of patient privacy. This aligns with the notion that the unique regulatory environment of the OR influences the attitudes and behavior of its personnel.[7] Arman *et al.* investigated how OR staff perceive the respect given to patients' privacy, along with the factors influencing this perspective. Significant differences in privacy adherence were identified based on education and gender, particularly among individuals with a bachelor's degree. However, no significant differences were found in relation to marital status or age. The study concluded that prioritizing patient privacy is essential for enhancing the quality of care and fostering patient trust.[17] The results of similar studies have shown inconsistencies, which can be attributed to variations in study methodologies. Factors such as the demographics of the studied populations, including differences in gender, age, types of surgery, cultural and religious beliefs, socioeconomic status, and geographical diversity, are notably not uniform. In addition, the assessment tools varied across studies.[18] The type of hospital also plays a significant role as research showing that adherence to patients' rights is lower in teaching hospitals compared to private facilities. The unfavorable conditions in academic hospitals were attributed to the high influx of patient referrals, excessive workload, limited patient awareness, and inadequate knowledge among medical staff.[19,20] Alongside the specified date, it is important to take into account the role of artificial intelligence in various aspects of ORs, as well as the potential concerns regarding patient privacy and safety.[21] The summary of these findings indicates that implementing simple measures, along with fostering a culture of awareness and providing proper training for OR staff, can significantly enhance patient satisfaction regarding privacy in the OR. It emphasizes that respect for patient privacy should not be compromised when they are unconscious and must also be maintained throughout the anesthesia process. The perspectives of OR staff should also be taken into account. Additionally, future studies should consider evaluating the private sector and comparing the findings. The privacy of patients must be upheld throughout the anesthesia process and should not face any limitations. Additionally, the perspectives of OR staff should also be taken into account.

Conclusion

The findings of this study indicated that the privacy standards for patients in Guilan's academic hospitals of Iran were satisfactory. However, there is a need to enhance the delivery of perioperative information to help alleviate patient anxiety. Addressing this issue requires collaboration between surgeons and anesthesiologists. Particular focus should also be given to elderly and divorced individuals.

Acknowledgements

The authors of article with Approved code 1401041301 would like to thank the women for their willingness to participate to this.

Financial support and sponsorship

Nil.

Conflict of Interest

Nothing to declare.

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