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Original Article

Investigating Patient Privacy in the Operating Room: A Cross-sectional Study in Hamedan

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Abstract

Introduction: Respecting privacy is recognized as mandatory in healthcare organizations. Due to the special conditions of the operating room, privacy can contribute to the patient's desirability before and after anesthesia and reduce the need for premedication. Therefore, the purpose of this study was to investigate patient privacy in the operating room.

Methods: This cross-sectional study, conducted in 2022, assessed the privacy of surgical patients in the operating room of Besat Hospital in Hamedan. This study used a researcher-made checklist. After obtaining informed consent, the researcher evaluated the admitting nurses and patients admitted to the operating room during three stages before, during, and after surgery to assess privacy. SPSS version 22 software was used to analyze the data.

Findings: Most personnel involved in this study held an associate's or bachelor's degree relevant to the operating room, were married, and matched the gender of the patients. The lowest privacy score (10.08) was recorded during admission and transfer to the operating room, while the highest (10.80) was observed during the intraoperative phase. A significant relationship was found between patient privacy, educational degree, and personnel shift status ($P<0.05$).

Conclusion: The high level of privacy compliance in this study indicates that maintaining patient privacy is of particular importance to operating room personnel. However, staff awareness of patient privacy can be improved by holding training workshops.

Keywords: Privacy, Patient Privacy, Operating Room, Nursing

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Introduction

Patient rights constitute essential obligations that healthcare providers at all levels must uphold. These rights protect patients from abuse and discrimination, while promoting ethical practice (1). Patient rights encompass all legitimate and reasonable physical, psychological, and social needs. They are codified in healthcare standards, laws, and regulations that healthcare providers are obligated to comply with and implement (2). One of the most critical aspects of respecting patient rights is protecting their privacy. Maintaining patient confidentiality is considered a fundamental human right and represents one of the primary objectives of health service systems (3). Although there is no universally accepted definition of the term "privacy," a common and broadly acknowledged interpretation is that privacy constitutes a basic human need and right (4). Adherence to patient rights, as a critical ethical cornerstone in healthcare settings, plays a vital role in increasing patients' comfort and improving the condition of hospitalized individuals.

Furthermore, respecting patient rights leads to enhanced quality of care, improved relationships between patients and healthcare providers, and increased patient satisfaction (5). A key aspect of patient rights is the preservation of patient privacy; a right recognized as fundamental for

every human being and a primary objective of health systems (3). Although there is no single agreed-upon definition of "privacy," the widely accepted interpretation considers it an essential need and a fundamental human right (6).

Respecting patient privacy is a crucial factor in creating satisfaction among hospitalized individuals, which not only enhances their recovery but can also reduce hospital stays. In healthcare, privacy plays a key role in establishing effective interaction between nurses and patients (6, 7). The importance of this issue is such that maintaining privacy is recognized as a primary ethical obligation of healthcare providers and a fundamental responsibility of healthcare institutions, emphasized in the policy statements of most health centers (8, 9).

During medical care, especially in the operating room, it is sometimes necessary, due to specialized requirements, to partially remove patients' coverings, which may intrude on their privacy and increase their vulnerability. Sensitivity to this issue varies depending on patients' beliefs and values (10). Bloomberg and Bischolt (2018) categorized the responsibilities of operating room nurses into two main areas: first, possessing the professional skills and knowledge to prepare the patient and the necessary surgical equipment; and second, adhering to professional ethics and preserving patient privacy through respectful and professional communication. (5) Studies have shown that the quality of communication between healthcare staff and patients, along with adherence to ethical principles and the preservation of privacy, can positively impact patients' vital signs, such as blood pressure and heart rate. Given the unique conditions of the operating room, maintaining privacy improves patients' status before and after anesthesia and reduces the need for polypharmacy; therefore, strict adherence to ethical principles in this setting is of particular significance (11). Given the importance of this issue, the present study was conducted to evaluate the extent of patient privacy observance in the operating room of Besat Hospital in Hamedan city.

Materials and Methods

Study Design

This cross-sectional study was conducted in 2022 to evaluate the observance of patient privacy among surgical patients in the operating room at Besat Hospital, an affiliated hospital of Hamedan University of Medical Sciences. Data for the study were collected using a researcher-developed checklist. At the beginning of each work shift, the researcher entered the operating room and, after obtaining written consent and explaining the study objectives, assessed the admitting nurses and patients admitted to the operating room at three stages: before (during admission and transfer to the operating room), during (throughout the surgical procedure in the operating room), and after surgery (in the operating room and during transfer to recovery) to evaluate privacy observance.

Inclusion criteria for patients in this study included age over 18 years, consciousness, and awareness of time and place. The criteria for withdrawal from the study included unwillingness to participate, failure to complete the three stages of surgery (admission and transfer to the operating room, during surgery, and Post-Surgery), and cancellation of the surgery.

Statistical Methods

After completing the checklists, the data were analyzed using SPSS version 22. Demographic characteristics of participants were summarized using descriptive statistics, including frequency distributions, means, and standard deviations. Additionally, the Mann-Whitney, Kruskal-Wallis, and Spearman's correlation coefficient tests were used. The sample size was determined to be 200 based on a similar study and assuming an average privacy observance rate of 50% among patients, with a precision of 0.05 and a 95% confidence level (12).

Measurements

In this study, a researcher-designed checklist was used to assess patient privacy, and its validity and reliability were evaluated. The checklist consists of two sections: "demographic information" and "patient privacy assessment." The privacy assessment section includes 36 items rated on a dichotomous Likert scale ("Yes" or "No"). The checklist items were extracted from reference books on operating room technology. These books include Berry and Kohn (13) and Alexander's care of the patient in surgery (14). Since the checklist evaluates patient privacy across three phases—admission and transfer to the operating room, during surgery, and post-

surgery—the scoring range for each phase is 0-12. For scoring, each 'Yes' response was coded as 1 and 'No' as 0. Each of the three surgical phases includes 12 items; thus, for each participant, the raw score per phase ranged from 0 to 12. The mean (average) of these phaseraw scores across all participants was computed using SPSS v.22.

Based on the scores, individuals are categorized into three groups: poor privacy observance (scores 1–4), moderate (scores 5–8), and good (scores 9–12). During the psychometric evaluation of the checklist, both qualitative and quantitative methods were employed to determine face and content validity. Qualitative face validity was assessed through interviews with 20 specialists in the field, leading to the revision of 5 items and the addition of 4 new items. In the quantitative face validity stage, item impact scores were calculated using the item impact formula; all items achieved the minimum acceptable impact score. This phase involved completing the initial checklist for 20 patients from the surgical ward in the operating room.

For content validity, the qualitative phase included expert review, during which 4 items were modified, and 1 item was merged with others. Quantitative content validity was assessed using the Content Validity Ratio (CVR) and Content Validity Index (CVI), evaluated by 20 and 15 experts and specialists, respectively. All items met the minimum acceptable thresholds (CVR ≥ 0.42 based on Lawshe's table and CVI=0.79). The overall CVR and CVI of the checklist were reported as 0.92 and 0.90, respectively (15). The checklist's reliability was confirmed through internal consistency (Kuder-Richardson coefficient) and inter-rater reliability, with values of 0.67 and 0.62, respectively.

Ethical Considerations

This study was approved by the Ethics Committee of Hamedan University of Medical Sciences with the ethical code IR.UMSHA.REC.1400.748. All information obtained from the study participants was kept confidential, and participant names were replaced with codes.

Results

Table 1 presents demographic information for the admitting nurse at the pre-admission, intraoperative, and postoperative stages. In all three stages, gender matching between the nurse and patient was observed in most cases. During the admission and transfer to the operating room stage, most nurses held an associate or bachelor's degree in operating room technology, were married, worked the morning shift, admitted patients at the start of the shift, and had less than five years of experience. In the operating room during the surgical procedure, most admitting nurse held a bachelor's degree in operating room technology, were married, and worked the morning shift. Similarly, in the post-surgery and recovery stage, most nurse held an associate or bachelor's degree in anesthesia and were married.

The objective of this study was to assess the extent of compliance with patient privacy at different stages of the surgical setting. During patient admission and transfer to the operating room, the mean privacy observance score was 10.08±1.36, with a reported minimum of 7 and a maximum of 12. In the intraoperative phase (in the operating room), the mean privacy observance score was 10.80±1.02. Postoperative care (in recovery) showed a mean score of 10.78±1.03, with minimum and maximum scores of 9 and 12, respectively. The level of patient privacy observance during admission and transfer to the operating room was rated as good in 88% of cases. Moreover, privacy compliance was rated as good and high in 98% and 100% of cases during and after surgery, respectively (Table 2).

Table 3 shows the relationship between demographic variables of the admitting nurse and patient privacy observance at different stages within the surgical setting. The results indicated a significant association between educational qualification and adherence to patient privacy during admission and transfer to the operating room. Moreover, a statistically significant difference was observed between the timing of the work shift and patient privacy observance in the admission and transfer phase. Following post hoc tests, significant differences were found between the start and middle of the shift, as well as between the middle and end of the shift. At this stage, Friedman and Wilcoxon statistical tests were used for analysis.

During the intraoperative phase, results showed a significant difference in the observance of patient privacy between work-shift status and the presence of the scrub nurse. Additionally, follow-up tests revealed a significant difference between the morning and evening shifts.

Table 1: Demographic Information of Nurses Admitting Patients at Different Stages of Surgery

Phase	Variable		Frequency (%)
Patient Admission and Transfer to Operating Room	Nurse-Patient Gender Matching	Yes	128 (64%)
		No	72 (36%)
	Educational Qualification	Operating Room Associate/Bachelor	148 (74%)
		Anesthesia Associate/Bachelor	52 (26%)
	Marital Status	Single	60 (30%)
		Married	140 (70%)
	Work Shift	Morning	96 (48%)
		Evening	60 (30%)
		Night	44 (22%)
	Shift Timing	Start of Shift	132 (66%)
		Mid Shift	44 (22%)
		End of Shift	24 (12%)
	Work Experience	<5 years	68 (34%)
		5–10 years	56 (27%)
		11–15 years	20 (10%)
		16–20 years	28 (14%)
		>20 years	28 (14%)
In the Operating Room (During Surgery)	Scrub Nurse-Patient Gender Matching	Yes	136 (68%)
		No	64 (32%)
	Educational Qualification	Operating Room Associate	52 (26%)
		Operating Room Bachelor	148 (74%)
	Marital Status	Single	80 (40%)
		Married	120 (60%)
	Work Shift	Morning	96 (48%)
		Evening	60 (30%)
		Night	44 (22%)
	Shift Timing	Start of Shift	132 (66%)
		Mid Shift	44 (22%)
		End of Shift	24 (12%)
	Work Experience	<5 years	68 (34%)
		5–10 years	56 (27%)
		11–15 years	20 (10%)
		16–20 years	28 (14%)
		>20 years	28 (14%)
Post-Surgery (Recovery)	Nurse-Patient Gender Matching	Yes	60 (30%)
		No	140 (70%)
	Educational Qualification	Operating Room Associate/Bachelor	40 (20%)
		Anesthesia Associate/Bachelor	160 (80%)
	Marital Status	Single	52 (26%)
		Married	148 (74%)
	Work Shift	Morning	96 (48%)
		Evening	60 (30%)
		Night	44 (22%)
	Shift Timing	Start of Shift	132 (66%)
		Mid Shift	44 (22%)
		End of Shift	24 (12%)
	Work Experience	<5 years	68 (34%)
		5–10 years	56 (27%)
		11–15 years	20 (10%)
		16–20 years	28 (14%)
		>20 years	28 (14%)

Table 2: Patient Privacy at Different Stages of the Surgical Setting

Surgical Stage	Privacy Level Frequency (%)		Mean Score	Minimum	Maximum
Patient Admission and Transfer to Operating Room	Low	0 (0%)	10.08	7	12
	Moderate	24 (12%)			
	High	176 (88%)			
During Surgery (In the Operating Room)	Low	0 (0%)	10.80	8	12
	Moderate	4 (2%)			
	High	196 (98%)			
Post-Surgery (Recovery)	Low	0 (0%)	10.78	9	12
	Moderate	0 (0%)			
	High	200 (100%)			

Table 3: The Relationship between Demographic Variables of Patient Admitting nurse and Patient Privacy Observance at Different Stages of the Surgical Setting

Variable	Privacy		
	Patient Admission and Transfer to Operating Room	During Surgery (In the Operating Room)	Post-Surgery (Recovery)
	P-value	P-value	P-value
Gender Matching Between Scrub Nurse and Patient	0.492	0.714	0.665
Educational Qualification	0.009	0.312	0.047
Marital Status	0.081	0.399	0.475
Work Shift Status	0.064	0.003*	0.082
Work Shift Timing	<0.001	0.003*	<0.001
Work Experience	0.558	0.138	0.144

Furthermore, there was a significant statistical difference between the timing of the work shift and patient privacy observance during intraoperative care with the scrub nurse present. Significant associations were observed between the start and middle of the shift (P<0.05) and between the middle and end of the shift (P<0.05). No significant correlation was found between scrub nurse work experience and patient privacy observance during surgery. In the postoperative phase, significant associations were observed between educational qualification, timing of the work shift, and patient privacy observance, with significant differences between the start and middle of the shift, the start and end of the shift (P<0.05), and between the middle and end of the shift.

Discussion

The present study was conducted to examine compliance with patient privacy in the operating room of Besat Hospital in Hamedan city. In analyzing the nurse's demographic variables, most personnel held an associate or bachelor's degree in operating room technology, were married, and had less than 5 years of work experience. Similar demographic characteristics have been noted in comparable studies. For instance, Malek Mohammadi et al. (2021), in a study involving 204 operating room staff, reported that consistent with the current research, the majority of operating room personnel were married, held a bachelor's degree, and had less than five years of experience (16). Similarly, Mardin Shourji et al. (2019) conducted a study to assess compliance with patient privacy in the operating room. They found that 90% of staff held a bachelor's degree, and the majority (68%) were married (10).

Another result of the present study was the examination of patients' privacy observance scores in the operating room during three stages: patient admission and transfer to the operating room, during surgery, and post-surgery. It was observed that the lowest scores were in the admission and transfer stage, while the highest scores occurred during the intraoperative phase (in the operating room). No previous study similar to the present research was found that evaluated patient privacy observance in the operating room across these three distinct stages.

In a study by Noorian et al. (2016) conducted among surgical patients, the lowest level of privacy observance was reported in the social dimension (4%), and the highest in the physical dimension (58%) (17). In another study by Agha Mohammadi

et al. (2021), which explored the lived experiences of operating room personnel regarding ethical codes, operating room nurses identified maintaining patient dignity as a fundamental ethical value in the operating room (18). In another study by Mousavi Bazaz et al. (2022) on the observance of the Patient Bill of Rights among hospitalized patients in Mashhad, 20.75% rated privacy observance as satisfactory, while 21.1% rated it unsatisfactory (19). The present study also observed significant correlations between educational qualification and work shift type, and between the level of patient privacy observance and the three surgical stages; however, no significant relationship was found between marital status and patient privacy observance.

Consistent with the present study, in the research by Haji Babaei et al. (2021), it was observed that there is a relationship between educational qualification and the type of staff work shift with the observance of patient privacy (20). In the study by Mardani et al. (2019), no significant relationship was found between marital status and the level of patient privacy observance. However, contrary to our findings, that same study reported a positive and significant association between staff work experience and patient privacy observance (10).

In another study by Malek Mohammadi et al. (2021), it was observed that there is a relationship between the marital status of operating room personnel and the level of patient privacy observance (19). Given the differences in the tools used across studies to assess privacy status, varying results may arise from differences in the number of cases, classification of privacy dimensions, and scoring methods. Additionally, individuals' cultural sensitivities and the organizational cultures of different cities or countries can partially explain differences in results.

One of the strengths of this study is its comprehensive approach to assessing the extent of patient privacy adherence across three stages: admission and transfer to the operating room, during surgery, and postoperatively, which enables a more thorough analysis. Furthermore, categorizing privacy adherence levels into three groups—low, moderate, and high—enables identification of groups in need of educational interventions and can improve training programs and enhance patient privacy. Providing quantitative data, along with appropriate statistical indicators such as mean and score range, increases the clarity and accuracy of the analyses. Among the limitations of the study is the assessment of privacy adherence conducted in only one hospital within a single region, which limits the generalizability of the findings. The present study used an observational checklist filled out by trained nurse-observers. Although training and inter-rater reliability assessment were implemented (inter-rater reliability=0.62; internal consistency KR-20=0.67), we acknowledge that observer bias remains a potential limitation. Observers' expectations or interpretations might influence their recordings of checklist items, leading to over- or underestimation of adherence to privacy observance. Consequently, findings should be interpreted in light of this limitation.

Conclusion

The present study showed that the level of patient privacy observance in the operating room of Besat Hospital is good and maintained at a high standard. Educational level and type of work shift were also identified as influential factors in privacy observance, highlighting the vital role of staff qualifications and working conditions in ensuring patient privacy throughout all stages of surgery. Therefore, given variation in privacy observance across studies and differences in organizational and ethnic cultures, it is recommended that future research, using standardized tools and conducted in diverse settings, examine patient privacy observance on a broader scale to achieve more generalizable findings.

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Ethics Approval and Consent to Participate

This study was conducted in accordance with the Declaration of Helsinki and was approved by the Ethics Committee of Hamedan University of Medical Sciences. Ethical approval was obtained. (Ethics Code IR.UMSHA.REC.1400.748), accessible (https://B2n.ir/md7168). Participants were not required to provide their first or last names. Before completing the checklist, the study objectives were explained to the participants, and written informed consent was obtained from each participant. They were also assured that their information would remain confidential and

their privacy would be protected.

Data Availability

The datasets generated and/or analyzed during the current study are not publicly available but are available from the corresponding author on reasonable request.

Conflict of Interest

There are no conflicts of interest.

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