

AMELİYATHANE HEMŞİRELERİNİN İNTRAOPERATİF HASTA BAKIMI BİLGİ DÜZEYLERİ: AFYONKARAHİSAR İLİ ÖRNEĞİ

INTRAOPERATIVE PATIENT CARE KNOWLEDGE LEVELS OF OPERATING ROOM NURSES: A CASE OF AFYONKARAHİSAR

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ÖZET

AMAÇ: Ameliyathaneler, sağlık bakım alanları içerisinde stresin üst düzeyde yaşandığı ve hızlı karar vermenin gerekli olduğu alanlar olması nedeniyle hata yapma riskinin yüksek olduğu çalışma ortamlarıdır. Ameliyathane hemşirelerinin profesyonel bir şekilde rol ve sorumluluklarını yerine getirebilmesi alana özgü yeterli bilgi ve beceriye sahip olmasına bağlıdır. Ameliyathane hemşirelerinin intraoperatif dönem hasta bakımına hakim olmalarının, hasta güvenliğine yönelik düşme, basınç yarası, yanık, yabancı cisim unutulması, cerrahi alan enfeksiyonu gibi riskleri azaltacağı ve ameliyat kalitesini artıracığı düşünülmektedir. Bu amaçlarla çalışmamızda Afyonkarahisar ilindeki ameliyathane hemşirelerinin intraoperatif dönem hasta bakımı bilgi düzeylerinin belirlenmesi amaçlanmıştır.

GEREÇ VE YÖNTEM: Tanımlayıcı türde olan bu çalışma Ağustos - Eylül 2014 tarihleri arasında, Afyonkarahisar ili devlet ve özel hastanelerinde çalışan bilgilendirilmiş sözlü onamı alınan 60 ameliyathane hemşiresine uygulanmıştır. Çalışma verileri, iki bölümden oluşan anket formu ile toplanmıştır. Birinci bölümde katılımcıların sosyodemografik özelliklerini içeren 6 soru bulunmaktadır. İkinci bölümde ise araştırmacılar tarafından ilgili literatür doğrultusunda ve uzman görüşü alınarak hazırlanan ameliyathane hemşirelerinin intraoperatif hasta bakımına ilişkin bilgi düzeylerinin belirlenmesine yönelik 3'lü likert tipte, 36 madde bulunmaktadır. Verilerin değerlendirilmesinde ve analizinde SPSS for Windows 18.00 programından yararlanılmıştır. Araştırmadaki sürekli değişkenlere ait tanımlayıcı istatistikler için ortalama, standart sapma, median, minimum, maksimum değerleri, kategorik değişkenlere ait tanımlayıcı istatistikler frekans ve yüzde ile hesaplanmıştır.

BULGULAR: Çalışmaya katılan hemşirelerin yaş ortalamasının $32,03 \pm 7,32$ olduğu (min:19 max:50), %86,7'nin kadın, %45,0'inin lisans mezunu, %73,3'ünün hemşirelik mezunu olduğu, %61,7' sinin 6 yıldan daha uzun süredir meslekte ve %53,3'ünün 6 yıldan daha uzun süredir ameliyathane de çalıştığı saptanmıştır. Çalışanların intraoperatif dönem hasta bakım bilgi puanı ortalaması $26,13 \pm 5,42$ olarak bulunmuştur.

SONUÇ: Bu çalışmanın sonucunda Afyonkarahisar ili ameliyathanelerinde çalışan hemşirelerin intraoperatif dönem hasta bakımı bilgi düzeylerinin yeterli seviyede olduğu ancak düzeltilmesi ve geliştirilmesi gereken uygulamalar olduğu belirlenmiştir.

ANAHTAR KELİMELER: Intraoperatif dönem, Hemşirelik, Ameliyathane hemşireliği, Hasta bakımı

ABSTRACT

OBJECTIVE: Operating rooms are work environments where the risk of making mistakes is high in health care areas, as they are areas where stress is experienced at a high level and quick decision-making is required. The ability of operating room nurses to fulfill their roles and responsibilities professionally depends on having sufficient knowledge and skills specific to the field. It is thought the fact that operating room nurses have a grasp of intraoperative period patient care will reduce the risks such as falling, pressure wound, burns, foreign body forgetting, surgical site infection, and increase the quality of the surgery. For these purposes, we aimed to determine the intraoperative patient care knowledge levels of the operating room nurses in the city of Afyonkarahisar.

MATERIAL AND METHODS: This descriptive study was carried out with 60 operating room nurses working in the public and private hospitals of the city of Afyonkarahisar, after their informed verbal consent was obtained, between August and September 2014. The data were collected through a survey form consisting of two parts. In the first part, there are 6 questions about the socio-demographic characteristics of the participants. In the second part, a 3-point Likert type questionnaire consisting of 36 items designed by the researchers after the review of relevant literature and taking expert opinion was used to determine the knowledge levels of operating room nurses regarding intraoperative patient care. The SPSS for Windows 18.00 program was used in the evaluation and analysis of the data. Descriptive statistics of continuous variables were shown with mean, standard deviation, median, minimum and maximum values, while descriptive statistics of categorical variables were shown with frequency and percentage.

RESULTS: Of the nurses participating in the study, the mean age was 32.03 ± 7.32 (min: 19 max: 50), 86.7% were female, 45.0% had an undergraduate degree, and 73.3% were nursing graduates. It was determined that 61.7% of them had been in the profession for more than 6 years while 53.3% working in the operating room for more than 6 years. The intraoperative period patient care knowledge mean score of the nurses was found to be 26.13 ± 5.42 .

CONCLUSIONS: As a result of this study, nurses working in the operating rooms of the city of Afyonkarahisar were determined to have a sufficient level of intraoperative patient care knowledge, however, there have been practices identified that need to be corrected and improved.

KEYWORDS: Intraoperative period, Nursing, Operating room nursing, Patient care

Geliş Tarihi / Received: 03.03.2021

Kabul Tarihi / Accepted: 26.05.2021

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INTRODUCTION

According to the definition of the Association of periOperative Registered Nurses (AORN), operating room nursing is professional nursing in which care and coordinated with the nursing process are provided to meet the needs of patients who have lost their potential protective reflexes and self-control due to any surgery or invasive procedure (1). Operating room nursing has a special field within the nursing profession because of the rapid technological changes in the operating room, the need for effective teamwork, and the highest level of patient dependency (2). The primary responsibility of the operating room nurse is the patient. Nurses are legally responsible for the identification and solution of the patients' problems, managing the communication with other surgical team members, and the care quality of the patient in the entire process, from the arrival of the patient into the operating room until the patient is transferred to the recovery or the intensive care unit (3 - 5). Operating room nursing includes practices such as protecting patient privacy, monitoring physiological changes that may occur, maintaining body temperature, providing psychological support to the patient, aseptic control of the surgical field, and ensuring the safety of the individual and the environment (6, 7). The concept of patient safety in healthcare has become more visible in recent years and an issue that requires taking preventions (8). Studies are carried out on the analysis and prevention of errors. The fact that knowledge of the healthcare professionals on patient safety is not at the desired level increases the risk of making mistakes, leads to deterioration of the patient's clinical condition, prolonged hospital stay, and increased surgical site infections and mortality (9 - 11). Operating room nurses have important responsibilities in ensuring patient safety. It is stated in the literature that the roles and responsibilities of operating room nurses have shifted towards helping the patients (12). However, operating room nursing is an area where care is more important. The ability of operating room nurses to fulfill their roles and responsibilities professionally depends on having sufficient knowledge and skills specific to the field (12). In the literature, there are various

studies in which the knowledge level of nurses regarding surgical site infections and pressure injuries induced from the operating room has been determined (13, 14). However, there is no study examining the knowledge status of the nurses regarding the holistic care of patients during surgery. Therefore, this study aimed to determine the intraoperative patient care knowledge levels of the operating room nurses.

MATERIALS AND METHODS

Place and time of study

This descriptive study was carried out in the operating rooms of public and private hospitals (one university, one public, and 2 private hospitals) in the city of Afyonkarahisar between August and September 2014.

Population and Sample of the Study

A total of 80 operating room nurses working in the operating rooms of the hospitals included in the study created the population of the study. As it was aimed to reach the entire population in the study, sampling was not performed. However, nurses who were on leave within the data collection date and those who did not agree to participate were excluded from the study. A total of 60 nurses constituted the sample of the study as 75% of the population was managed to be reached.

Data Collection Tools

The data were collected through a survey form consisting of two parts in total. In the first part, there were 6 questions about the socio-demographic characteristics of the participants. The second part of the survey consisted of 36 items including intraoperative nursing diagnoses, foreign body forgetting, positioning, patient safety, surgical smoke, and duties of the operating room nurse. It was created by the researchers in line with the relevant literature and by taking expert opinion (15 - 19). The survey form was designed in a 3-point Likert type (Agree "1 point", neither agree or disagree "0 points" and disagree "0 points") While the lowest score that could be obtained from the Intraoperative Period Patient Care Information survey was "0", the highest score was "36". In this study, the level of knowledge of nurses who received 60% of the

total score (21.6 points and above) and above was considered sufficient (20, 21). Cronbach's alpha coefficient of the survey was calculated as 0.831 (22).

Getting Expert Opinion on Data Collection Tools

The content validity of the survey, designed to determine the knowledge level of operating room nurses regarding intraoperative period patient care, was evaluated by 2 scholars and 3 operating room nurses who are experts in surgical diseases nursing.

Collection of Data

After the nurses included in the study were informed about the purpose of the study and their verbal consents were obtained, they were ensured to respond to the data collection forms in a scheduled period of time when they were available in the nursing room of the operating room units, in a way that they did not have interaction with each other. It took the operating room nurses 15-20 minutes to answer questions on the data collection forms.

Evaluation of Data

The data were analyzed in SPSS (Statistical Package for the Social Sciences) 18.0 for Windows. Descriptive statistics of continuous variables were shown with mean, standard deviation, minimum and maximum values, while descriptive statistics of categorical variables were shown with frequency and percentage. Skewness-Kurtosis values and the Shapiro-Wilk test were used to evaluate the normal distribution of the data. Cronbach Alpha coefficient was used for reliability analysis of the Intraoperative Period Patient Care Information Survey.

Ethical Committee

In order to conduct the study, the approval was obtained from the Ethics Committee of Afyon Kocatepe University Faculty of Medicine (2014 /10-199). Written permissions were obtained from the management of the hospitals included in the study in addition to the approval of the ethics committee in order to conduct the study.

RESULTS

Of the nurses participating in the study, 86.7% were female, 45.0% had an undergraduate degree, 73.3% were nursing graduates, and the mean age was 32.03 ± 7.32 (min: 19 max: 50). It was determined that 61.7% of them had been in the profession for more than 6 years while 53.3% working in the operating room for more than 6 years (**Table 1**).

Table 1: Sociodemographic characteristics of participating nurses

Characteristics	Mean±SD	
	n	%
Age	32,03±7.33	
Sex		
Female	52	86,7
Male	8	13,3
Education Status		
Vocational School of Health Services	17	28,3
Associate degree	16	26,7
Undergraduate	27	45,0
Graduated Department		
Nursing	44	73,3
Emergency Medical Technician	6	10,0
Health Officer	2	3,3
Midwifery	8	13,3
Working Duration at the Profession		
0-12 months	7	11,7
13 Months-5 Years	16	26,7
6-10 years	12	20,0
11 years and above	25	41,7
Working Duration in the Operating Room		
0-12 months	7	11,7
13 Months-5 Years	21	35,0
6-10 years	15	25,0
11 years and above	17	28,3

In **Table 2**, the rates of responses to the questions used in the survey are given. Among the questions in the data collection form and evaluating the level of knowledge of intraoperative care, the nurses gave correct answers with the highest rate to the following statements "The belts used after positioning should be tied in a way that does not block the patient's circulation and create nerve compression"(100%), "It should be checked whether the patient has jewelry, nail polish, and makeup"(96.7%), " Before the patient is operated on, latex and drug allergies should be checked from the patient's file" (95%). The nurses gave correct answers with a rate of 93.3% to the 3rd, 18th, 26th, and 31st questions. While 91.7% of the nurses gave the correct answer to the question "Surgical hand washing should be 3-5 minutes in the first washing of the day in order to remove the contaminated flora completely and to reduce the permanent flora as much as possible", 90% of

the nurses gave the correct answer to the question "Patient privacy is not important in the operating room." However 6th and 8th questions on the positioning of the patient, 9th and 10th questions on monitoring blood loss, 13th question on surgical smoke, 14th, 15th and 16th questions on intraoperative nursing diagnoses, 22nd question on infectious diseases, and 25th question on the provision of sterile site were answered correctly with a rate below 50%. In **Table 3**, the intraoperative period patient care knowledge mean score of the nurses is given. The intraoperative period patient care knowledge mean score of the nurses was found to be 26.13 ± 5.42 . Most of the nurses were determined to have sufficient levels of knowledge.

Table 2: The rates of responses to the questions used in the survey

ITEMS	Agree		Not sure		Disagree	
	n	%	n	%	n	%
1 The intraoperative period is the process that begins with the patient arriving in the operating room until waking up or being transferred to the intensive care room.	44	73,3	6	10	10	16,7
2 During the operation, instrument, gauze sponge, and compress counts should be performed only before the patient's wound is closed.	16	26,7	2	3,3	42	70
3 Instrument, gauze sponge, and compress counts should be performed before the surgery starts.	56	93,3	2	3,3	2	3,3
4 During the transfer of the patient to the recovery unit or intensive care unit after the surgery is finished, the scrub / circulating nurse should be present next to the patient to perform the handover.	38	63,3	6	10	16	26,7
5 The nurse should be present next to the patient during the transfer of the patient from the stretcher to the operating table.	49	81,7	5	8,3	6	10
6 Positioning the patient is the responsibility of the nurse.	28	46,7	7	11,7	25	41,7
7 Positioning the patient is the responsibility of the staff.	18	30	9	15	33	55
8 Positioning the patient is the responsibility of the surgeon.	46	76,7	6	10	8	13,3
9 Monitoring of blood loss during the surgery is the duty of the nurse.	25	41,7	4	6,7	31	51,7
10 Monitoring of blood loss during the surgery is the duty of the anesthesiologist.	50	83,3	2	3,3	8	13,3
11 Monitoring of blood loss during surgery is the duty of the surgeon.	32	53,3	16	26,7	12	20
12 A cautery patient plate is not always required in small operations using cautery.	5	8,3	0	0	55	91,7
13 Surgical smoke cannot be evacuated by normal airflow.	28	46,7	15	25	17	28,3
14 Pressure ulcer risk is an intraoperative nursing diagnosis.	29	48,3	13	21,7	18	30
15 The possibility of deep vein thrombosis and pulmonary edema is an intraoperative nursing diagnosis.	22	36,7	17	28,3	21	35
16 Bleeding risk is not an intraoperative period nursing diagnosis.	22	36,7	9	15	29	48,3
17 It should be checked whether the patient has jewelry, nail polish, and makeup.	58	96,7	2	3,3	0	0
18 At the end of the surgery, the blood and antiseptic solution residues in the surgical area of the patient should be wiped off by the operating room nurses.	56	93,3	1	1,7	3	5
19 Before the patient is operated on, latex and drug allergies should be checked from the patient's file.	57	95	1	1,7	2	3,3
20 The scrub nurse does not need to change the sterile gown when switching from one surgery to another.	10	16,7	2	3,3	48	80
21 The time and duration of the tampons placed during the surgery should be recorded.	52	86,7	0	0	8	13,3
22 Infectious diseases such as Hepatitis, AIDS, CCHF, etc. must be recorded on the patient file.	51	85	1	1,7	8	13,3
23 Surgical hand washing should be 3-5 minutes in the first washing of the day in order to remove the contaminated flora completely and to reduce the permanent flora as much as possible.	55	91,7	2	3,3	3	5
24 The occurrence of hypothermia during the surgery is caused by the body cavities left exposed for a long time, irrigation with cold liquids, and the patient's operating position.	50	83,3	3	5	7	11,7
25 The circulating nurse can place the material she opened on the table in a sterile way.	42	70	2	3,3	16	26,7
26 The entire set must be counted before starting the surgery.	56	93,3	1	1,7	3	5
27 If bundles and packages are not used once opened, they can be closed and used in another operation.	2	3,3	2	3,3	56	93,3
28 Placement of the cautery patient plate is the responsibility of the nurse.	46	76,7	5	8,3	9	15
29 Being hypothermic in the intraoperative period affects the hemodynamic parameters in the postoperative period.	45	75	12	20	3	5
30 In order for the patient not to fall off the operating table, the patient should be tied from 5 cm above his or her knees.	56	93,3	3	5	1	1,7
31 No part of the body of the patient given the position should exceed the dimensions of the operating table or contact with the metal parts and open surfaces of the table.	56	93,3	2	3,3	2	3,3
32 The belts used after positioning should be tied in a way that does not block the patient's circulation and create nerve compression.	60	100	0	0	0	0
33 Patients who are given the lithotomy position should get anti embolic socks worn.	40	66,7	13	21,7	7	11,7
34 Patient privacy is not important in the operating room.	5	8,3	1	1,7	54	90
35 Before starting the surgery, only the items taken on the table should be counted in the set.	14	23,3	4	6,7	42	70
36 It is the duty of the nurse to fill in the surgical safety checklist before, during, and after the operation.	51	85	5	8,3	4	6,7

Table 3: Intraoperative Period Patient Care Knowledge Mean Score

	Minimum	Maximum	Mean	Standart Deviation
Intraoperative Period Patient Care Knowledge Mean Score	8.00	32.00	26.13	5.42

DISCUSSION

Intraoperative nursing care begins with the patient's admission to the operating room. The care process includes the basic factors such as physical care, information, support, respect, environment and the nursing interventions to be implemented in line with the determined patient needs (23). In our study, 73.3% of the nurses gave the correct answer to the question "The intraoperative period is the process that begins with the patient arriving in the operating room until waking up or being transferred to the intensive care room." Besides, 63.3% of the nurses gave the correct answer to the question "During the transfer of the patient to the recovery unit or intensive care unit after the surgery is finished, the scrub / circulating nurse should be present next to the patient to perform the handover." These results show that operating room nurses are highly aware that they are responsible for the patient not only in the operating room but also in the whole process defined as intraoperative.

Operating rooms are work environments with a high risk of making mistakes in health care areas, as they are areas where stress is experienced at a high level and quick decision-making is required (9, 24). In the literature, the happening rate of undesired events in operating rooms has been reported to be around 40%. It is also stated that 50% of these events happen because of preventable causes (25). Lack of knowledge and experience is one of the most important reasons for the occurrence of undesirable events (3). In our study, while almost half of the nurses have been working in the profession for more than 11 years, 35% have been working in the operating room for less than 5 years. The intraoperative period patient care knowledge mean score of the nurses participating in the study was determined to be 26.13 points. It can be said that operating room nurses have a sufficient level of intraoperative patient care knowledge. However, as in many nursing areas, the problem of specialty in operating room nursing remains

current. It is essential to increase the number of certified and nurses with a graduate degree as soon as possible and rapid steps should be taken towards professionalism. Of the nurses participating in the study, 45% of them had an undergraduate degree and 28.3% of them were graduated from the Vocational School of Health Services. In a study in the literature evaluating the effect of occupational professionalism of operating room nurses on the quality of intraoperative care, it was concluded that educational status and working duration in the profession affect occupational professionalism (23). In the Perioperative Nursing Practices Guide of the European Operating Room Nurses Association, updated in 2020, it is stated that nursing leadership is necessary for nurses to achieve higher education levels and to be educated in new ways, and to develop quality health services to meet the healthcare needs of the future (26). Considering the graduated program status of the health professionals working as operating room nurses, it is noteworthy that the graduates of the health officer, Emergency medical technician, and midwifery departments also work as nurses in the operating room. In complex units such as the operating room where the risk of making mistakes is the highest, it is necessary to first ensure consistency in nursing education and prevent other staff than nurses from working as operating room nurse.

In many studies conducted in developed countries, the rate of disability and mortality during the surgical procedure is reported to be 0.4-0.8%, and the incidence of complications is up to 3-16%. These data show that at least seven million patients a year experience complications due to the errors and mistakes experienced during the surgery, and at least one million patients die (27). In 2008, the 'Safe Surgery Saves Lives' project was established by the World Health Organization (WHO) and ten main objectives for safe surgery were determined. These objectives were embodied by the Surgical Safety Checklist (SSC) (28). The main goal of the SSC is to minimize the risks of common and preventable causes such as wrong patient, wrong-site surgery, medication administration errors, wrong surgical intervention, burns, infections, falls by ensuring the team follows the safety

steps (3, 29). While other health professionals may also be involved in the intraoperative application of SSC, circulating nurses generally take part in (3). It is stated in the literature that 78.7% of circulating nurses, 42.5% anesthesia technicians, and 33.9% scrub nurses are assigned as SSC coordinators. The most frequently assigned surgical team member as the coordinator is seen to be the circulating nurse (30). However, a scrub or circulating nurse is not the only person who needs to perform all the steps that need to be implemented in the SSC. The circulating nurse is responsible for controlling these steps. In our study, 85% of the nurses gave the correct answer to the question "It is the duty of the nurse to fill in the surgical safety checklist before, during, and after the operation." Also, 83.3% of the nurses gave the answer of the anesthesiologist, 53.3% the surgeon, and 41.3% the nurse to the questions on "Monitoring of blood loss during surgery is the duty of....." SSC is very important in terms of ensuring patient safety. However, there seems to be confusion about tasks in the application and control stages.

Giving the appropriate position to the patient on the operating table and supporting the body cavities is the responsibility of the entire surgical team. Surgical team members should be knowledgeable about the positions required for different surgical interventions and the physiological changes that may develop depending on the position (11, 31). In our study, surprisingly, 76.7% of the nurses gave the answer of a surgeon as the person responsible for giving the position of the patient while 30% gave the answer of a staff member. The patient taken to the operating table should be tied with a safety belt at least 5 cm above the knees to prevent falls, and these belts should be fixed in a way that does not cause nerve and tissue damage (11, 31). In our study, 93.3% of the nurses gave correct answers to questions about giving position, number 30 and 31. The majority of the nurses gave correct answers to the practices to be performed to prevent the risk of falling during surgery. But although the entire surgical team is responsible for giving the position, it suggests that there was confusion about who should take responsibility.

Pressure ulcers may occur due to the position of the patient and lengthy surgical procedures (32). In our study, although almost half of the nurses responded with "I agree" to the question "Pressure ulcer risk is an intraoperative nursing diagnosis", 30% of them answered, "I do not agree". This result shows that nurses are not sufficiently aware of their responsibilities on this issue.

In counts performed due to any invasive or surgical procedure, the aim is to prevent the tool used from being forgotten in the patient (33). The incidence of foreign objects forgotten inside the patient is stated to be around 1.32 events per 10,000 surgeries. Forgetting a foreign body is in the second place among patient safety problems and is a preventable problem at a rate as high as 61.1% (34). Forgetting a foreign body in surgical practices is not acceptable in terms of patient rights, ethical values, or professional philosophy. Although all surgical team members are responsible for this matter, the responsibility of operating room nurses is even greater (33). Among the foreign bodies forgotten during surgery, surgical sponges are in the first place (35). In a study, 94% of the operating room nurses were determined to have a suspicion of sponge counting, and 56% take part in a surgical procedure in which the sponge was forgotten (36). In our study, 86.7% of the nurses gave the correct answer to the question "The time and duration of the tampons placed during the surgery should be recorded." Also, 93.3% of the nurses gave the correct answer to the question "The entire set must be counted before starting the surgery." A total of 70 % of the nurses gave the correct answer to the other question on counting (before starting the surgery, only the items taken on the table should be counted in the set). Considering these results, it is possible to say that nurses know and apply counting principles correctly. In the study of Bozkurt (2019), 68.60% of the operating room staff participating in the study were concluded to check the counting of sponge, compress, instrument, and needle (3).

Another important issue that threatens patient safety in the operating room is the surgical site infections that may occur as a result

of non-compliance with aseptic and antiseptic principles. A sterile area should be established and maintained by nurses until the entire procedure of the surgery is completed (11). Infection control in the operating rooms can be achieved by preventing the use of inappropriate materials, checking the expiration dates of consumables, checking the sterilization times and suitability of the materials, determining infection control procedures, ensuring hand cleaning with appropriate antiseptics before surgery, and preserving the sterility of a gown and gloves of the surgical team during the operation (4, 37). A total of 80% of the nurses gave the correct answer to the question "The scrub nurse does not need to change the sterile gown when switching from one surgery to another", while 93.3% of them "If bundles and packages are not used once opened, they can be closed and used in another operation", by choosing "disagree". However, 70% of the nurses gave the "agree" answer to the question "The circulating nurse can place the material she opened on the table in a sterile way." These results show that nurses lack knowledge about providing sterilization. It also suggests that operating room nurses learn this information through a master-apprentice relationship without being included in the orientation program in many hospitals and that this information is perceived as correct as a result of the constant repetition of wrong practices. Therefore, the fact that most of the nurses gave the wrong answer to the question "The circulating nurse can place the material she opened on the table in a sterile way" can be thought to be the result of such a concept mentioned above. It is possible to develop a professional operating room nurse through a systematic and effective orientation program provided by nurse trainers (38).

Nurses are leading practitioners and supervisors of quality and patient safety. They are in a position that requires them to be present next to the patients in many potential situations where patients could be harmed. By using this position they have correctly and effectively, nurses can maintain patient safety at a high level. As a result of this study, nurses working in the operating rooms of Afyonkarahisar city were determined to have a sufficient level of

intraoperative patient care knowledge; however, there have been practices identified that need to be corrected and improved. The knowledge level of operating room nurses should be increased and their adaptation to developing technology should be ensured by their participation in certificate programs, postgraduate education processes, and in-service training to be given in the institutions.

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