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OPINIONS OF OPERATING ROOM AND SURGICAL WARD STAFF TOWARD SURGICAL SAFETY CHECKLIST

Ameliyathane ve Cerrahi Servis Çalışanlarının Güvenli Cerrahi Kontrol Listesine İlişkin Düşünceleri

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This study presented as the oral presentation at the 13th World Congress of Nurse Anesthetists, which was in Budapest, Hungary between the dates 18-20 June 2018.

Abstract

Aim: This research is aimed at evaluating operating room and surgical ward staff's opinions regarding the WHO surgical safety checklist.

Materials and Methods: The questionnaire includes questions about gender, age, job role, and years of experience. Every item on the checklist was evaluated, and responders were permitted to provide freehand comments on the subject. The researchers visited a hospital and collected data from December 2017 - January 2018. The sample population includes 27 surgeons, 34 anaesthetists, and 19 operating room and 38 surgical ward nurses at a university hospital in western Turkey. The collected data were analysed using SPSS 18.0 with frequencies, percentages, mean, and standard deviation.

Results: Of the sample population 61% were women, 47% were under 30 years old, and 83.1% had over 1 year of job experience. The mean score of item importance varied from 4.25 to 4.79. The items "patient's identity, procedure, operation site verification" (4.79±0.50) and "preoperative fasting" (4.76±0.53) had the highest scores. "Blood glucose control" (4.25±1.08) and "team members introduced" (4.32±0.53) had the lowest scores. It was suggested that "allergy" and "prophylaxis of antibiotic and deep vein thrombosis" be transferred to the "before the patients leave the ward" section. It was also suggested to add a compact checklist for local and emergency surgeries and employ artificial intelligence, like chatbots, to prevent surgery from starting before the checklist is completed.

Conclusion: All checklist items were considered necessary. However, "Patient's identity, procedure and site verification" was perceived as the most important item on the checklist. It was also suggested to add a compact checklist for local and emergency surgeries.

Keywords: Patient safety, operating room, surgery.

Öz

Amaç: Bu araştırmanın amacı, ameliyathane ve cerrahi servis çalışanlarının DSÖ Güvenli Cerrahi Kontrol Listesine ilişkin düşüncelerini belirlemektir.

Materyal ve Metot: Bu çalışma tanımlayıcı bir anket çalışmasıdır. Araştırma, Aralık 2017-Ocak 2018 tarihleri arasında, bir üniversite hastanesinde görev yapan 27 cerrah, 34 anestezist, 19 ameliyathane ve 38 cerrahi servis hemşiresi olmak üzere, 118 kişiyle gerçekleştirildi. Veriler cinsiyet, yaş, meslek, çalışma deneyimi gibi soruları içeren yapılandırılmış bilgi formu ve Güvenli Cerrahi Kontrol Listesi kullanılarak toplandı. Çalışanlar, Güvenli Cerrahi Listesindeki her bir maddenin önemini 5'li likert ölçek üzerinde değerlendirdi ve açık uçlu sorular aracılığıyla listeye ilişkin yorumlarda bulundu. Elde edilen veriler SPSS 18.0 paket programı ile yüzdelik, sıklık, ortalama ve standart sapma kullanılarak değerlendirildi.

Bulgular: Örneklem grubunun %61'i kadın, %47'si 30 yaşın altında, %83,1'i 1 yıldan fazla mesleki deneyime sahiptir. Maddelerin önem derecelerinin ortalamaları 4.25 ile 4.79 arasında değişmektedir. 'Hastanın kimlik bilgilerinin, ameliyatının ve bölgesinin doğrulanması'' (4.79±0.50) ve ''hasta aç mı'' (4.76±0.53) en önemli görülen maddeler olurken, ''Kan şekeri kontrolü gerekli mi?'' (4.25±1.08) ve ''Ekipteki kişiler kendilerini ad, soyad ve görevleri ile tanıttı mı?'' (4.32±0.53) maddelerdi ise en önemsiz algılanan maddelerdi. Çalışanlar, ''Hastanın bilinen bir alerjisi var mı? ve ''Derin ven trombozu ve antibiyotik profilaksisi sorgulandı mı?'' maddelerinin listenin ''klinikten ayrılmadan önce'' kısmında kontrol edilmesini önerdi. Ayrıca çalışanlar, lokal ve acil cerrahi girişimler için daha kısa bir kontrol listesinin oluşturulmasını ve kontrol listesi tamamlamadan ameliyatın başlamasını önleyecek sohbet botları gibi yapay zeka ürünlerinin kullanılmasını önerdi.

Sonuç: Çalışanlar, Güvenli Cerrahi Kontrol Listesinde yer alan tüm maddelerin önemli olduğunu düşünmektedir. Bununla birlikte, "Hastanın kimlik bilgilerinin, ameliyatının ve ameliyat bölgesinin doğrulanması" kontrol listesindeki en önemli madde olarak algılandı. Ayrıca, lokal ve acil cerrahi girişimler için daha kısa bir kontrol listesinin oluşturulması önerildi.

Anahtar Kelimeler: Hasta güvenliği, ameliyathane, cerrahi.

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INTRODUCTION

If implemented correctly, the WHO Surgical Safety Checklist reduces complications after surgery [1,2,3,4,5] and improves communication and teamwork between surgical team members [6]. However, among operating room staff, who are the most regular users of the checklist, there is a lack of overall familiarity with all of the checklist items. Although this lack of familiarity results in extremely poor implementation of the checklist, the implementation gap was unknown to the hospital because of the well-documented compliance[7]. Therefore, it is necessary to consider its adoption by staff and to highlight the barriers to effective use [8]. It is easy to not use the WHO Surgical Safety Checklist properly, especially when users do not perceive certain items as important. Thus, the perceived importance of checklist items by all team members is an essential factor that affects checklist implementation [9,10]. This descriptive questionnaire study is aimed at evaluating the operating room and surgical ward staff's opinions regarding the WHO surgical safety checklist. The following two research questions were answered:

Question 1: How do operating room staff and surgical ward nurses perceive the importance of the items on the WHO Surgical Safety Checklist?

Question 2: Do distinct sub-teams (anaesthetists, surgeons, OR and surgical ward nurses) differin their opinions about the importance of WHO Surgical Safety Checklist items?

MATERIAL AND METHOD

Sample and Settings

The study was carried out at a 350-beduniversity hospital in western Turkey. The hospital has 12 ORs (neurosurgery, pediatric surgery, general surgery, ENT surgery (otorhinolaryngology), urology, obstetrics and gynaecology, cardiovascular surgery, thoracic surgery, aesthetic and plastic surgery, orthopaedics & traumatology, ophthalmology) conducting approximately 9000 operations annually. Thirty-four anaesthesia team members (6 anaesthetists, 8 assistant anaesthetists, and 20 nurse anaesthetists), 53 surgical team members (33 surgeons and 20 assistant surgeons), 100 preoperative ward nurses, and 19 OR nurses were on duty during the data collection period. In this study, it was aimed to reach to all 206 staff on duty. However, 118 staff comprised the total sample population, which included 19 OR nurses (16%), 34 anaesthesia team members (29%), 27 surgical team members (23%), and 38 perioperative ward nurses (32%). The response rate was 57% for all staff (118/206), 51% for the surgical team (23/53), 38% for preoperative ward nurses (32/100), and 100% for OR nurses (19/19) and the anaesthesia team (34/34).

The Questionnaire

The questionnaire consisted of questions about participant's characteristics, including their gender, age, job role, and years of job experience[11,12,13]. The responders' opinions regarding every item on the WHO Surgical Safety Checklist were evaluated on a 5-point scale with the higher score indicating that they viewed that item to be of greater importance. Furthermore, the questionnaire included an open-ended question that allowed staff the opportunity to include any additional opinions about the subject. The Turkish version of the SSC consisted of 4 sections and 30 items. In Turkey, the adaptation of the WHO Surgical Safety Checklist is administered in the following 4 "domains": before a patient leaves the ward,

when a patient arrives in the operating room (SIGN-IN), before surgical incision (TIME-OUT), and before a patient leaves the operating room (SIGN-OUT).

Data Collection

Data were collected from December 2017 to January 2018.The researchers visited the hospital, information about the study to the staff, and distributed the questionnaire to volunteer participants. The participants were given 2 days to answer the questionnaire and return it to the researchers. The participants answered the questionnaire anonymously, and the questionnaire took approximately 5 minutes to complete.

Ethical Considerations

The study was approved by the Ethical Committee of Namık Kemal University Medical Faculty, No: 2017/128/12/16. Permission to perform the study was also endorsed by the hospital management. Responders agreed to participate by answering the questionnaire. The study complied with the Helsinki Declaration.

Statistical Analysis

The collected data were analysed using SPSS 18.0. Descriptive statistics such as frequency, percentage, mean, and standard deviation were used.

RESULTS

The sample population included 71 women (61%). Forty-seven percent (n=55) of the sample population were under 30 years old, 39% (n=46) were 30-39 years old, and 14% (n=17) were 40 years old or older. Eighty-three per cent (n=98) of the sample population had more than one year of job experience (Table 1).

Table 1. Demographics of the study participants

Characteristics	n	(%)
Gender		
Male	46	39
Female	72	61
Age (Years)		
<30 years	55	47
36-39 years	46	39
40-49 years	17	14
Job experience		
6-12 months	20	17
13 months-5 years	55	47
>5 years	43	36
Job Title		
OR Nurse	19	16
Anaesthesia team (Anaesthetist+Assistant Anaesthetist+Nurse Anaesthetist)	34	29
Surgical Team (Surgeon+Assistant surgeon)	27	23
Surgical ward nurse	38	32
Total	**118**	**100**

The mean scores of the staff's opinions regarding item importance according to the 5-point scale varied from 4.25 to 4.79. The items perceived as most important by the staff were "patient, site and procedure verification" (4.79±0.50) and "preoperative fasting check" (4.76±0.53) in the "before a patient leaves the ward" domain. "Team members introduced" (4.32±0.53) and "blood glucose check" (4.25±1.08), both of which are in the in "TIME-OUT" domain, were ranked as the least important items (Figure1).

Opinions broken down by sub-team are presented in Table 2. OR nurses perceived "The specimen labelled" (4.95±0.23) item as the most important, while the anaesthesia team (4.85±0.39) perceived the "patient, site, procedure, and informed consent verified" item as the most important. Both of these items are in the "SIGN-IN" domain. The surgical team (4.70±0.67) and ward nurses (4.84±0.44) both perceived the "patient, site, procedure, and informed consent verified" item in the "Before a patient leaves the ward" domain as the most important item.

Figure1. The mean scores of item importance for the Surgical Safety Checklist

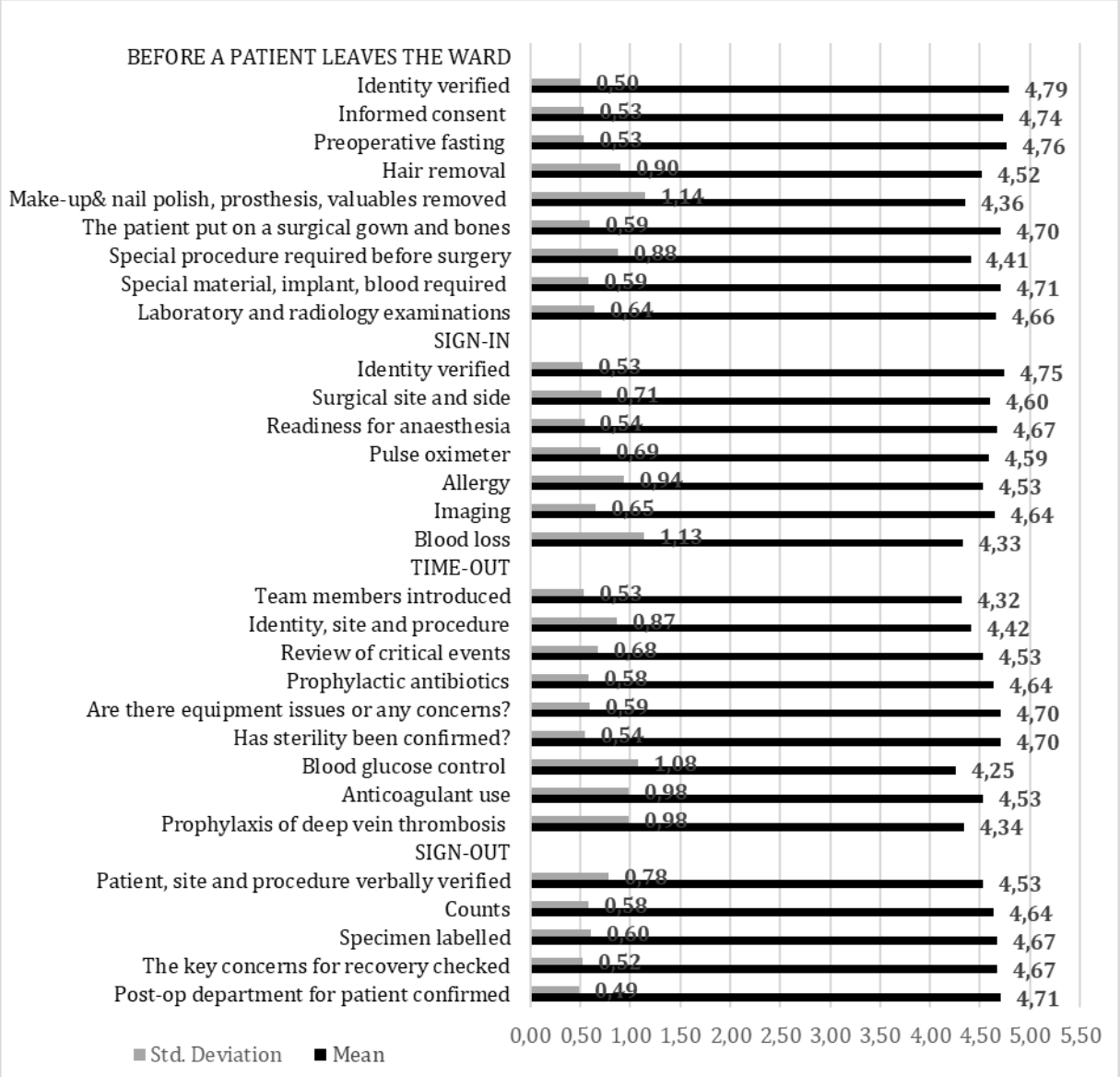

Table 2. The mean scores of item importance for the ''before a patient leaves the ward'' section of Surgical Safety Checklist according to sub-teams

Before a Patient Leaves the Ward	**OR nurses**	**Anaesthesia team**	**Surgical team**	**Ward nurses**
Patient, site and procedure verified	4.89±0.32	4.74±0.51	4.70±0.67	4.84±0.44
Informed consent checked	4.89±0.32	4.65±0.60	4.67±0.68	4.79±0.41
Preoperative fasting checked	4.84±0.38	4.79±0.41	4.63±0.84	4.79±0.41
Hair removal checked	4.79±0.54	4.47±0.96	4.30±1.20	4.58±0.72
Does patient have makeup & nail polish, prosthesis, valuables?	4.84±0.38	4.24±1.28	3.89±1.37	4.55±0.98
Did the patient clothes have been removed entirely and put on a surgical gown and bones?	4.79±0.42	4.62±0.82	4.59±0.57	4.82±0.39
Is there any special procedure required before surgery?	4.68±0.82	4.35±0.92	4.22±0.97	4.45±0.80
Confirmation of special material, implant, blood, or blood product required for the operation	4.63±0.83	4.71±0.68	4.67±0.48	4.79±0.41
Does the patient have the necessary laboratory and radiology examinations?	4.68±0.58	4.53±0.90	4.70±0.54	4.74±0.45
SIGN-IN				
Patient, site, procedure and informed consent verified	4.84±0.50	4.85±0.39	4.68±0.75	4.79±0.41
Is the surgical site/side marked?	4.74±0.56	4.79±0.48	4.63±0.94	4.61±0.68
Readiness for anaesthesia checked	4.79±0.42	4.79±0.41	4.68±0.58	4.63±0.63
Pulse oximetry checked	4.74±0.45	4.79±0.48	4.41±0.69	4.47±0.89
Known allergy checked	4.37±1.26	4.53±1.16	4.30±0.87	4.79±0.41
Readiness for necessary imaging devices checked	4.74±0.56	4.82±0.36	4.48±0.75	4.53±0.76
Risk of >500ml blood loss?	4.37±1.26	4.32±1.30	3.96±1.22	4.58±0.76

Table 2. The mean scores of item importance for the ''before a patient leaves the ward'' section of Surgical Safety Checklist according to sub-teams (Continue)

TIME-OUT	OR nurses	Anaesthesia team	Surgical team	Ward nurses
Team members introduced	4.47±1.02	4.26±1.08	4.15±1.20	4.42±0.79
Patient, site and procedure verbally verified	4.74±0.45	4.56±0.75	3.93±1.17	4.47±0.76
Critical events reviewed (operative duration, anticipated blood loss, critical or unexpected steps, possible anaesthesia risks, patient position)	4.68±0.67	4.56±0.66	4.44±0.64	4.50±0.73
Has antibiotic prophylaxis been given within the last 60 minutes?	4.89±0.32	4.71±0.52	4.41±0.80	4.61±0.50
Are there equipment issues or any concerns?	4.89±0.32	4.65±0.81	4.67±0.56	4.68±0.47
Has sterility been confirmed?	4.84±0.38	4.68±0.68	4.67±0.56	4.68±0.47
Is blood glucose control necessary?	4.16±1.43	4.29±1.12	3.85±1.13	4.55±0.69
Is anticoagulant used?	4.42±1.26	4.38±1.16	4.44±1.09	4.79±0.41
Is prophylaxis of deep vein thrombosis necessary?	4.42±1.17	4.35±1.18	3.96±0.81	4.55±0.72
SIGN-OUT				
Patient, site and procedure verbally verified	4.74±0.45	4.62±0.65	4.07±1.21	4.66±0.48
Instrument, sponge and needle counts are correct	4.89±0.32	4.68±0.59	4.52±0.70	4.55±0.56
The specimen is labelled (Including patient name, and the site that the specimen taken from)	4.95±0.23	4.76±0.50	4.41±0.84	4.63±0.54
Surgeon, anaesthesia professional and nurse reviewed the key concerns for recovery and management of the patient	4.79±0.54	4.71±0.52	4.59±0.50	4.63±0.54
The department that patient will go after surgery will confirmed	4.84±0.38	4.74±0.51	4.63±0.49	4.68±0.53

Seven respondents suggested transferring “allergy” in the SIGN-IN domain and “prophylactic antibiotic” and “prophylaxis of deep vein thrombosis” in the TIME-OUT domain to the “before a patient leaves the ward” domain. Eight people suggested creating a compact checklist for local and emergency surgeries. Furthermore, several others suggested employing artificial intelligence, like chatbots, to prevent surgery from starting before the checklist is completed.

DISCUSSION

Understanding how all team members perceive the importance of all checklist items is crucial for identifying possible improvements to the checklist. The mean scores of item importance varied from 4.25 to 4.79. The majority of respondents considered all items important. “Patient’s identity, procedure, operation site verification” was perceived as the most important item on the checklist. Similar to this finding, Levy et al.’s study found that confirmation of patient name and procedure are the most commonly performed checkpoints [7]. This result is normal because any problem detected in this item can cause direct harm to the patient. Moreover, near misses with regard to correct patient identity, surgical site, or procedure are not unusual [11].

Of the two items perceived to have the least amount of importance, both are located in the TIME-OUT domain. This is supported by Rydenfältet et al.’s [10] results, which showed that TIME-OUT is not always applied and may be seen as a double-checking routine. OR staff usually do not consider “team members introduced” to be important [12,13,14]. This was similar to our findings; staff perceived this item as one of the least important. However, the practice of “introducing all team members themselves by name and role” is not only to ensure that everybody knows who is doing what in the operating room, but also to ensure that all team members feel included and free to express their concerns [14].

Operating room nurses perceived “checking the specimen labelling” to be the most important item on the checklist, which differed from the selection of other sub-teams. This is probably due to the fact that operating room nurses experience the greatest amount of problems when transferring specimens to the laboratory.

It was suggested that “allergy” and “prophylaxis of antibiotic and deep vein thrombosis” be transferred to the “before a patient leaves the ward” domain. However, this move is controversial because surgeons are absent in the “before a patient leaves the ward” domain. Thus, they cannot confirm the need for an antibiotic and prophylaxis of deep vein thrombosis. Creating a compact checklist for local and emergency surgeries was also suggested. In Helmiö et al.’s study, a compact checklist, especially for operations under local anaesthesia, was also suggested by OR staff [12]. The checklist should be customized for different surgical working environments to ensure optimal safety. However, in order to design a customized checklist without losing its benefits, the process must be critically reviewed [12,15,16,17]. Using artificial intelligence, like chatbots, to prevent surgery from starting before the checklist is completed was also suggested. Recently, chatbots have started to be adopted into the healthcare sector [18,19,20]. Therefore, a chatbot that coordinates the team to approve each of the checklist items is worth consideration.

Limitations

Data were collected from a single Turkish hospital. Therefore, the results of this study cannot be generalized to all Turkish hospitals. The second limitation is the response rate (57%). Although the response rate is not atypical of a questionnaire of this type [14,21,22], the findings should be regarded with some degree of caution.

Conclusions

The majority of respondents considered all items important. However, “Patient’s identity, procedure and site verification” was perceived as the most important item on the checklist. Furthermore, the staff suggested implementing a compact checklist for local and emergency surgeries and an artificial intelligence assisted application that prevents procedures from starting before the checklist is completed.

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