

Original Article

Unlocking Insights: Exploring Knowledge and Attitudes on the WHO Surgical Safety Checklist among Operating Room Personnel in Police and Services Hospital, Peshawar, Pakistan

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ABSTRACT

Background: The World Health Organization's Surgical Safety Checklist (SSC) has been identified as a pivotal tool for enhancing patient safety in operating rooms globally. Despite its proven efficacy, varying levels of knowledge and attitudes towards the SSC among healthcare professionals can influence its successful implementation.

Objective: This study aimed to evaluate the knowledge and attitudes of operating room personnel towards the SSC at the Police and Services Hospital (P&SH) in Peshawar, Pakistan, identifying gaps and areas for improvement to facilitate better adoption and utilization of the SSC.

Methods: A cross-sectional survey was conducted from November 2023 to January 2024 among 30 permanent staff members in the operating theaters at P&SH, including surgeons, nurses, anesthetists, and technicians. Participants were selected using convenience sampling. The survey comprised demographic questions, knowledge-based questions regarding the SSC, and items assessing attitudes towards the checklist. Data were analyzed using descriptive statistics to summarize demographic information, knowledge levels, and attitudes.

Results: The study found that 93.3% of participants had heard of the SSC, with 93.3% demonstrating good knowledge and a positive attitude towards its implementation. However, 3.3% of the participants displayed poor knowledge, and a small fraction exhibited neutral or negative attitudes (6.7%). A significant majority (93.3%) expressed strong support for using the SSC in all surgical procedures, while concerns were raised about its potential to waste time and impact operating efficiency negatively.

Conclusion: The high level of awareness and positive attitudes among operating room personnel at P&SH towards the SSC is encouraging. Nevertheless, the presence of knowledge gaps and efficiency concerns highlights the need for targeted educational interventions and strategies to address misconceptions and operational challenges. Enhancing the understanding and efficient use of the SSC can further solidify its role as a cornerstone of patient safety in surgical settings.

Keywords: Surgical Safety Checklist, Patient Safety, Operating Room Personnel, Knowledge, Attitudes, Healthcare, Pakistan.

INTRODUCTION

Surgery stands as a cornerstone in the delivery of medical care, offering a lifeline through interventions aimed at saving lives, managing disabilities, and alleviating pain. Despite its indispensable role, surgical procedures are inherently associated with a greater risk of complications compared to other medical therapies, underscoring the imperative of ensuring patient safety during surgeries. This challenge is paramount in efforts to lower mortality rates and halt the global spread of diseases. Against this backdrop, the World Health Organization's Surgical Safety Checklist (SSC) emerges as an essential instrument designed to enhance safety within the operating room. Its effectiveness, however, is not merely a matter of existence but is deeply dependent on the informed and precise application by healthcare professionals, alongside several other factors (1, 2).

The SSC is heralded for its accessibility and cost-effectiveness, significantly elevating patient safety standards in surgical settings (3). Advocated vigorously by the WHO, the checklist aims to mitigate the inherent risks of surgical operations through a structured approach encompassing three critical phases: the pre-anesthesia verification, the pre-incision briefing, and the post-surgery debrief, each designed to ensure thorough preparation and vigilance at every step of the surgical process (4, 5). It is worth noting that while the SSC targets intraoperative incidents, a substantial fraction of surgical errors, estimated between 53 to 70%, occur outside the operating theater. This broader spectrum of patient safety is addressed by the Surgical Patient Safety System (SURPASS), which, despite its comprehensive coverage from admission to discharge, places a less pronounced emphasis on specific intraoperative issues, such as difficult airway management or significant blood loss, yet includes key elements like team introductions and readiness for unforeseen events (6, 7).

The utility of the SSC extends into identifying issues and delineating responsibilities for resolution, necessitating a collective approach among surgeons, anesthesiologists, and nurses to address highlighted concerns, such as delays in administering appropriate antibiotics, before proceeding (8). Despite the demonstrated success of the SSC in reducing mortality and morbidity in surgical interventions, its adoption, particularly in low- and middle-income countries, remains a concern. Research, including a pivotal study published in the *New England Journal of Medicine* in January 2009, showcased a remarkable reduction in mortality and complications following the checklist's implementation across diverse hospital settings (9). Furthermore, the WHO's "Safe Surgery Saves Lives" campaign, initiated in 2008 alongside the rollout of the SSC and related materials, saw participation from around 3900 hospitals in 122 countries, with approximately 1800 hospitals implementing the checklist in at least one operating room (10).

The essence of effective communication within operating room teams is underscored as critical for ensuring surgical success. This emphasizes the need for clear understanding and positive interactions among team members, which are pivotal for the seamless execution of surgical operations. The adoption of preoperative briefings, similar to pre-flight checks in aviation, is advocated to enhance teamwork, motivation, and discipline, thus addressing common preventable errors like surgical mishaps, retained instruments, and surgical fires. The SSC, complemented by initiatives such as the Joint Commission on Accreditation of Healthcare Organizations' (JCAHO) universal protocol, represents a robust framework for averting perioperative adversities (11, 12, 13, 14).

Moreover, the significance of non-technical skills—encompassing awareness, decision-making, communication, adaptability, teamwork, and leadership—is highlighted as crucial for both individuals and organizations, necessitating further development, especially in the context of lower and middle-income countries (15). Thus, the SSC not only underscores the technical aspects of surgical safety but also acts as a conduit for fostering a culture of comprehensive communication and teamwork within the surgical suite, aligning with the overarching goal of advancing patient care and safety standards globally.

MATERIAL AND METHODS

The enhancement of patient safety remains a pivotal aspect in diminishing perioperative morbidity and mortality. The study conducted was a cross-sectional analysis leveraging data from a survey carried out at the Police Services Hospital in Peshawar, Pakistan. This investigation aimed to evaluate the knowledge and attitudes of operating room (OR) personnel towards the implementation of the World Health Organization's Surgical Safety Checklist (SSC). The timeframe for this study was between November 2023 and January 2024, focusing on the permanent staff of the operating theaters within the hospital.

The cohort for this research consisted of permanent operating room staff, including surgeons, technologists, technicians, anesthesia providers, and nurses. Through the method of convenience sampling, a total of 30 individuals were selected to participate in this study. The inclusion criteria were specifically defined to encompass only permanent OR staff who voluntarily agreed to partake in the research. Conversely, students and visiting personnel within the operation theater were excluded to ensure the homogeneity and relevance of the collected data.

For the purpose of data collection, a detailed questionnaire was administered to the chosen participants. This questionnaire was meticulously crafted to explore both the knowledge and attitudes towards the SSC, incorporating 5 demographic questions aimed at gathering socio-demographic variables such as age, education, profession, experience, gender, and place of work. Additionally, the questionnaire was segmented into two parts: the first consisted of 14 bipolar questions designed to assess knowledge, while the second comprised 12 ranking questions aimed at evaluating attitudes. The majority of participants completed the questionnaire either following a procedure or during their scheduled break times. Although the questionnaire was generally well understood by doctors and most staff members, some technicians faced difficulties in understanding the translation, indicating a need for clearer communication in future surveys.

Data analysis was executed using the Statistical Package for the Social Sciences (SPSS), version 25, to ensure a more updated approach to statistical evaluation. The primary variables scrutinized in this analysis were the knowledge and attitudes of the OR

personnel with regard to the WHO SSC. This methodological approach facilitated a comprehensive understanding of the current perceptions and awareness levels among medical professionals in the context of surgical safety protocols.

In adherence to ethical considerations, the study was conducted following the approval of the relevant institutional review boards. All participants were assured of confidentiality and informed consent was obtained prior to their involvement in the survey. This study underscores the importance of continuous education and assessment of OR personnel's familiarity and compliance with global safety standards, such as the WHO SSC, to foster a culture of safety within surgical environments.

RESULTS

The study aimed to assess the knowledge and attitudes towards the World Health Organization's Surgical Safety Checklist (SSC) among operating room personnel at a hospital. The findings, encapsulated in three tables, reveal insightful data on demographic variables, knowledge levels, and attitudes towards the SSC. The demographic breakdown (Table 1) indicates a male predominance among participants, with males constituting 66.6% and females 33.3%. The age distribution shows a concentration in the younger age group (27-36 years) accounting for 60% of participants, suggesting a relatively young workforce. In terms of educational background, a significant majority hold a Diploma (56.6%), followed by those with an MBBS degree and Nursing qualifications, each representing 20%, and a minimal percentage holding a Bachelor of Science degree (3.3%). The professional composition of the participants primarily includes Technicians (43.3%), followed by Anesthesia providers (30%), Surgeons (20%), and Nurses (6.6%). Experience levels among the staff were skewed towards those with more than 10 years in their field, comprising 83.3% of the respondents, highlighting a highly experienced participant pool. Familiarity with the SSC was high, with 93.3% having heard of it, primarily through the operating theater (83.3%) as the main source of information, and all respondents having seen the SSC in their hospital setting, underscoring widespread awareness and exposure to the checklist within the institution.

Knowledge regarding the SSC was evaluated through specific questions (Table 2), where unanimous agreement (100%) was observed on the SSC being synonymous with the Team Time Out and its recommendation for antibiotic prophylaxis within 60 minutes before surgery. A significant majority (90%) acknowledged the checklist's requirement for exact documentation of used swabs, indicating a deep understanding of its contents. However, misconceptions were noted, such as the belief that the SSC supports inexperienced team members, which all participants disagreed with, and a near-universal agreement that the checklist is not exclusively for surgeons nor a means to attribute blame for mistakes to specific individuals.

Table 1 Demographic Characteristics

Category	Response	Frequency	Percentage (%)
Gender	Male	20	66.6
	Female	10	33.3
Age	27-36	18	60
	37-46	5	16.6
	47-60	7	23.3
Education	Diploma	17	56.6
	MBBS	6	20
	Nursing	6	20
	BS	1	3.3
Profession	Technicians	13	43.3
	Surgeons	6	20
	Anesthesia providers	9	30
	Nurses	2	6.6
Experience	>10 years	25	83.3
	5-10 years	4	13.3
	<5 years	1	3.3
Heard of SSC	Yes	28	93.3
	No	2	6.6
Seen SSC	Yes	28	93.3
	No	2	6.6
Source of SSC	OT	25	83.3

Category	Response	Frequency	Percentage (%)
	Internet	2	6.7
	Books	3	10
Seen SSC Location	P&SH OT	30	100.0

Table 2 Knowledge regarding WHO Checklist

#	Question	Yes	No
1	WHO-Checklist is a synonym for Team Time Out.	30 (100.0%)	0 (00.0%)
2	The WHO-checklist does not have to be signed by every member of the team.	1 (3.3%)	29 (96.6%)
3	The WHO-checklist asks for the exact documentation of the number of used swabs	27 (90.0%)	3 (10.0%)
4	The WHO-checklist exclusively addresses surgeons.	1 (3.3%)	29 (96.6%)
5	The WHO-checklist recommends an antibiotic prophylaxis within 60 minutes before surgery.	30 (100.0%)	0 (00.0%)
6	The WHO-checklist shall support inexperienced members of the team.	0 (00.0%)	30 (100.0%)
7	The WHO-checklist is a tool used to attribute mistakes and misses to specific persons.	29 (96.6%)	1 (3.3%)
8	The WHO-checklist aims at preventing accidental omissions within routine procedures.	26 (86.6%)	4 (13.3%)
9	The WHO-checklist aims at improving team communication.	30 (100.0%)	0 (00.0%)
10	The WHO-checklist may be used to document complications	30 (100.0%)	0 (00.0%)

Table 3 Attitudes towards application of WHO Checklist

Statement	Strongly Disagree	Disagree	Agree	Strongly Agree	Participants
I want the checklist to be used for all surgical procedures in this study.	0 (00.0%)	1 (3.3%)	1 (3.3%)	28 (93.3%)	30
The checklist seems like an unnecessary tick-box.	1 (3.3%)	29 (96.6%)	0 (00.0%)	0 (00.0%)	30
We can operate efficiently without having to use this checklist.	2 (6.6%)	28 (93.3%)	0 (00.0%)	0 (00.0%)	30
The checklist might waste time and make our operating theatres less efficient.	30 (100.0%)	0 (00.0%)	0 (00.0%)	0 (00.0%)	30
Surgical safety checklist causes irritation between staff members.	25 (83.3%)	5 (16.6%)	0 (00.0%)	0 (00.0%)	30
The checklist will improve communication and collaboration between staff in the operating room.	28 (93.3%)	2 (6.6%)	0 (00.0%)	0 (00.0%)	30
The checklist may not bring any extra value to existing safety procedures already in place in the theatre before...	24 (80.0%)	6 (20.0%)	0 (00.0%)	0 (00.0%)	30
Surgeons oppose to the use of Surgical Safety Checklist.	29 (96.6%)	1 (3.3%)	0 (00.0%)	0 (00.0%)	30
Nurses oppose to the use of Surgical Safety Checklist.	28 (93.3%)	1 (3.3%)	1 (3.3%)	0 (00.0%)	30
Surgical Safety Checklist contains ambiguous statements.	3 (10.0%)	27 (90.0%)	0 (00.0%)	0 (00.0%)	30
It is difficult to get the staff to listen to the timeout.	0 (00.0%)	1 (3.3%)	1 (3.3%)	28 (93.3%)	30

Attitudes towards the SSC (Table 3) revealed a strong endorsement for its use in all surgical procedures, with 93.3% strongly agreeing on its importance. Contrary views emerged on its perceived efficiency and potential to cause irritation among staff, where 100% strongly disagreed that it wastes time or makes operating theatres less efficient, and 83.3% strongly disagreed that it causes irritation among staff members. The majority (93.3%) also strongly disagreed with the statement that the checklist would not improve communication and collaboration, indicating a positive reception towards its role in enhancing teamwork and safety culture.

Interestingly, a significant portion of participants (96.6%) disagreed with the notion that surgeons oppose the use of the SSC, further reflected in the response to nurses' opposition, where 93.3% disagreed, showcasing broad support across professional roles.

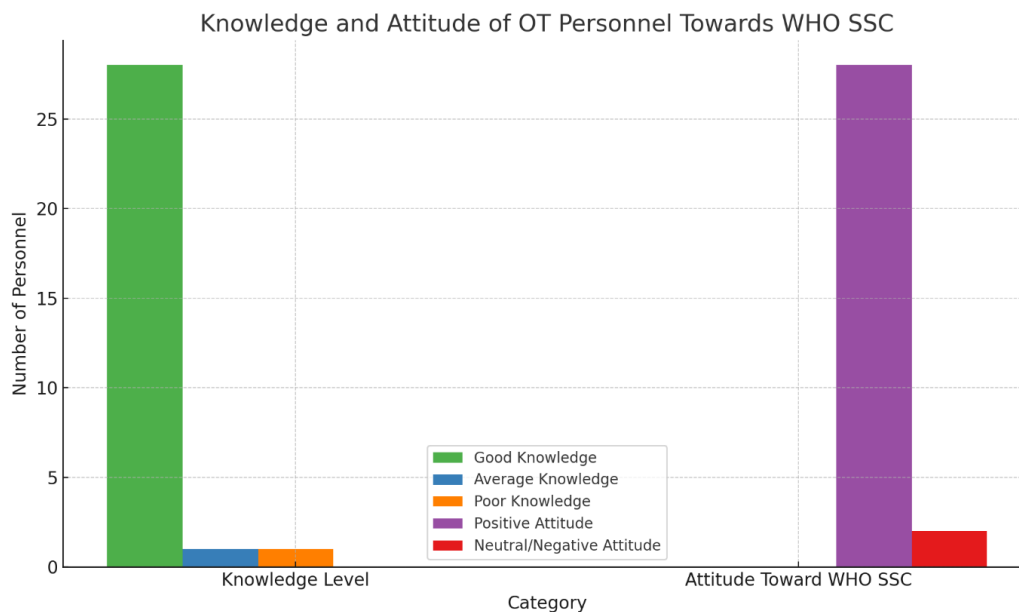


Figure 1 Knowledge and Attitude of OT Personnel towards WHO SSC

The graph above illustrates the knowledge and attitude of operating theater (OT) personnel towards the World Health Organization's Surgical Safety Checklist (WHO SSC). It shows a high level of good knowledge among the personnel, with 28 (93.3%) categorized under good knowledge, and a very small fraction, 1 (3.3%), each under average and poor knowledge levels. Regarding attitudes towards the WHO SSC, a significant majority, 28 (93.3%), have a positive attitude, while only 2 (6.7%) exhibit a neutral or negative attitude. This visual

representation underscores the strong knowledge base and overwhelmingly positive reception of the WHO SSC among OT staff.

DISCUSSION

This cross-sectional study conducted at the Police and Services Hospital (P&SH) in Peshawar, Pakistan, has illuminated the current landscape of knowledge and attitudes towards the World Health Organization's Surgical Safety Checklist (SSC) among operating room personnel. By dissecting the intricacies of staff perceptions and understanding, the research sheds light on both the commendable strides made in SSC implementation and the hurdles that remain. The high degree of SSC awareness among the staff, with 93.3% having heard of the checklist, mirrors the positive findings of similar research in Guatemala, which reported a 93.8% awareness rate (15). This parallel underscores the global momentum towards enhancing patient safety through the SSC and suggests that foundational efforts to introduce the checklist have largely succeeded.

Despite these advances, the presence of personnel with limited SSC knowledge, albeit a small fraction (3.3%), signals a pressing need for focused educational interventions. This necessity is particularly pronounced when considering misconceptions about the SSC's applicability, notably the false belief that it caters exclusively to surgeons. The study's qualitative facets paint a nuanced portrait of staff attitudes, revealing an overwhelming endorsement of the SSC's role in fostering communication and teamwork. Yet, it concurrently unveils apprehensions regarding the checklist's impact on operational efficiency, with a unanimous concern about potential time wastage.

The resistance observed, predominantly among surgeons (96.6%), might be reflective of broader issues of autonomy and administrative burden, a sentiment not entirely isolated to the P&SH context. Nurses exhibited more varied responses, hinting at the potential for nuanced, role-specific barriers to SSC acceptance. These findings not only echo the challenges documented in diverse healthcare settings worldwide but also highlight the criticality of customizing interventions to the unique dynamics of each institution.

The research stands out for its methodical approach to capturing a comprehensive snapshot of SSC perceptions within a specific healthcare milieu. Nevertheless, it acknowledges inherent limitations, including the potential for response bias and the challenge of generalizing findings across different contexts. The study's strength lies in its contribution to a growing body of evidence advocating for the SSC as a pivotal tool in surgical patient safety. Yet, it also calls attention to the necessity of refining SSC implementation strategies to address identified knowledge gaps and efficiency concerns (17, 19).

In light of these insights, the study advocates for a multifaceted strategy to fortify SSC implementation at P&SH. This entails not only bolstering educational programs to fill knowledge voids but also engaging in an open dialogue about the SSC's practical integration into surgical workflows. Such efforts should aim to alleviate concerns around efficiency without compromising patient safety.

Additionally, tailoring educational and operational interventions to the distinct needs and apprehensions of different staff groups, particularly surgeons and nurses, emerges as a critical pathway towards harmonizing perspectives on the SSC (18, 20).

In conclusion, this investigation into the SSC at P&SH reveals a landscape marked by both promising enthusiasm and significant challenges. The juxtaposition of high awareness with areas of misconceptions and operational concerns underscores the imperative for continuous, context-sensitive engagement with SSC implementation. By embracing collaborative approaches that address the unique contours of knowledge, attitudes, and operational realities, P&SH, and by extension the broader medical community, can advance towards a future where the SSC is not merely a checklist but a cornerstone of surgical safety culture.

CONCLUSION

The study conducted at the Police and Services Hospital (P&SH) in Peshawar, Pakistan, underscores the critical importance of the World Health Organization's Surgical Safety Checklist (SSC) in enhancing operating room safety and communication. While the findings reveal high awareness and a predominantly positive attitude towards the SSC among operating room personnel, they also highlight the necessity for targeted educational interventions and training programs to address existing knowledge gaps and misconceptions. These insights are instrumental for healthcare administrators and policymakers, suggesting that the successful implementation of the SSC not only requires widespread awareness and acceptance but also a concerted effort to ensure comprehensive understanding and efficient utilization across all levels of surgical staff. The study's implications resonate with the global endeavor to improve surgical safety, emphasizing the need for context-specific strategies that cater to the unique challenges and dynamics of each healthcare setting.

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