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Research Article

Effectiveness of Timeout Procedure protocol on patient safety among operation theatre nurse (OT nurse)

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Abstract:

One of the core tenets of the healthcare delivery system is patient safety. Organizations should create a patient safety environment with clear regulations and leadership training since there is a certain amount of inherent safety in the caregiving process. Physicians, nurses, and other medical professionals benefit from patient safety. This is beneficial for all members of the healthcare team as well as the patients. According to WHO recommendations, "safe surgery saves lives." The purpose of this study was to evaluate the impact of the IEC package on OT nurses' understanding and proficiency with the timeout procedure protocol on patient safety. The researchers planned to investigate the relationship between the mean improved posttest level of knowledge and the posttest level of knowledge and ability. The researchers planned to investigate the relationship between the mean improvement posttest level of knowledge and skill and certain demographic characteristics, as well as the link between the posttest level of knowledge and competence. Sixty OT nurses from the operating room at Indira Medical College and Hospital in Thiruvallur were chosen based on the inclusion criteria. Lecture, discussion, and demonstration were used to administer the timeout procedure protocol. The structured knowledge questionnaire and the observational checklist, respectively, were used to gauge students' knowledge and competence levels. Among OT nurses, there was a substantial positive connection between knowledge and skill at the 0.01 level. The result shows that the Timeout procedure protocol was effective in improving the knowledge and skill and it can be utilized as a tool to evaluate the knowledge and skill of OT nurses.

Keywords: Patient safety, Timeout procedure protocol, Surgical safety checklist, Knowledge, Skill, Effectiveness.

INTRODUCTION

One of the core tenets of the healthcare delivery system is patient safety. Organizations should create a patient safety environment with clear regulations and leadership training since there is an inherent lack of safety at every stage of the caregiving process. Physicians, nurses, and other healthcare professionals benefit from patient safety. This is beneficial for all members of the healthcare team as well as patients. According to WHO recommendations, "safe surgery saves lives."

According to Jeff Woster (2023), pre-flight checklists and communication protocols were used in the aviation sector to lower errors and improve safety, which is where the idea of timeout originated. In the early 2000s, the healthcare industry adopted timeout as a routine procedure, taking inspiration from this achievement. According to Haytham Kaafarani, chief patient safety officer and medical director of the Joint Commission, team approaches can minimize incorrect patient, location, or technique. June is that "National timeout day." The WHO and JCI have unanimously endorsed the 14th. "Take time for timeout" is the theme of the timeout day.

J. Wilson (2022) reported in the British Medical Journal that 6 million errors occur in India each year in poor nations. The absence of qualified physicians and nurses is the cause of the clinical outcome. The majority (65%) were invasive treatments or surgeries carried out at the incorrect location. The Joint Commission established a sentinel event policy in 1996 to assist healthcare organizations in enhancing safety when they encounter significant adverse events. In 2022, 1,441 sentinel occurrences were reported, a 78% rise from 2020 and a 19% increase from 2021. to the organization.

In 2022, 90% of sentinel incidents were reported voluntarily. Patients or staff members reported the remaining 142 sentinel incidents to the organization.

In terms of patient safety in 2022, 16% experienced no injury, 35% required more care or a longer hospital stay, and 40% suffered significant harm. The most common item left behind was sponges (44%), whereas guide wire retentions decreased to 8% from 24% in 2021. "Avoid doing harm."

Invasive operations or surgeries carried out at the incorrect location, on the incorrect patient, or using the incorrect techniques are referred to as "wrong surgeries." In 2022, 85 sentinel events in India were categorized as incorrect procedures.

Leading sentinel events (2018–2022): (wrong surgeries in India) 2018–101 2019–126 2020–94 2021–119 2022–85 The Joint Commission provided the universal protocol for preventing incorrect patient, incorrect site, and incorrect procedures as well as reducing unwanted death, minor disability, and major disability. Conducting a pre-procedural verification, marking the procedure site, and performing a team timeout are the three primary procedures of universal protocol.

Healthcare professionals understand the value of the surgical safety checklist and are more inclined to collaborate, communicate, and speak up when surgical safety is in jeopardy. The safety of surgical care in the OT would be enhanced by educational initiatives emphasizing the value of cooperation and communication.

The National Patient Safety Joint Commission of India introduced the NPSG criterion in 2023.

NPSG1: Accurately identify patients
 NPSG2 – Improve effective communication
 NPSG3: Safe pharmaceutical use
 NPSG4: Safely use alarm
 NPSG5: Avoid infection
 NPSG6: Determine patient risks
 NPSG7: Boost equality in healthcare
 NPSG8: Prevent surgical errors (proper patient, correct place, correct techniques)

A study by Shreya Yadav, Jasmi Manu, et al. (2023) evaluated paramedical students' understanding of the time out method for patient safety. One hundred paramedical students were chosen using a purposive sampling technique and a descriptive study design. The information was gathered, arranged, and examined using both descriptive and inferential statistics. The results showed that 13 (13%) had adequate knowledge, 53 (53%) had intermediate knowledge, and 34 (34%) had inadequate understanding. According to the exam, there is no meaningful correlation between the variables and their knowledge score. The study came to the conclusion that paramedical students should be trained and educated to fully understand the time out protocol for patient safety.

A study by Emily JD, Sasikala S, Jolly R, Kanchana S, Celina D, et al. (2019) evaluated and contrasted the impact of the Timeout procedure protocol on operating room nurses' patient safety knowledge and proficiency. The effectiveness of the Timeout procedure protocol on the knowledge and skill regarding patient safety among 60 operating room (OR) nurses was evaluated using a pre-experimental post-test only design and a quantitative approach.

The study's results showed that the study group's post-test knowledge mean score was 14.60 with SD of 2.66 and the control group's was 9.40 with SD of 1.93. The study group's post-test skill mean score was 9.77 with SD of 1.17 and the control group's was 4.63 with SD of 1.82. For knowledge and skill, the computed student independent "t" values were 8.66 and 12.96, respectively. This showed that the statistical significance was quite strong ($p < 0.001$). The outcome showed that the Timeout Procedure Protocol was successful in raising knowledge and proficiency.

METHODOLOGY

The pre-experimental one group pre test and post test design used as a quantitative approach. On probability convenient sampling technique was adopted. The study will be conducted in Indira Medical College and Hospital, Tiruvallur, which is an 4 operation theatre each OT contains 6, OT nurses (24) per day 3 shift, totally 72 OT nurses on duty per day.

Operating room nurses who had registered nursing qualification of Nurse with M.Sc., Nurse with B.Sc. and Nurse with P.B. Sc, Diploma nursing. Who had experience of more than 6 months in the operating room as a circulatory or scrub Nurse.

Basic Demographic data and structured knowledge questionnaire and WHO Standardized surgical safety checklist was used to assess the effectiveness of Information Education Communication package on knowledge and skill regarding Timeout procedure protocol.

In structured knowledge questionnaire it consists of 25 questions and it is categorized as Adequate, moderately adequate, Inadequate knowledge and the Observational checklist consists of 10 points and it is categorized as Good, Fair, Poor skill. The Karl Pearson's correlation value of $r = 0.335$ shows a positive correlation between knowledge and skill found to be highly statistically significant. at $p < 0.001$.

RESULT AND DISCUSSION

Table 1 shows that 60% of operation theatre nurses were aged 22–30 years, 68.4% were female, and 40% had a B.Sc. Nursing qualification. Regarding OT experience, 46.6% had more than six months of experience, while 56.7% worked as scrub nurses. Additionally, 61.7% had not attended an in-service education programme during the previous six months.

Table 2 shows that, during the pre-test, 53 nurses (95%) had inadequate knowledge and 7 (5%) had moderately adequate knowledge. Following the intervention, 54 nurses (90%) achieved adequate knowledge, while 6 (10%) had moderately adequate knowledge regarding the Timeout Procedure Protocol.

Table 3 indicates that, in the pre-test, 56 nurses (93.33%) had poor skills and 4 (6.67%) had moderate skills. Following the intervention, 41 nurses (68.33%) achieved good skills, while 19 (31.67%) demonstrated moderate skills regarding the Timeout Procedure Protocol.

Table 4 demonstrates that the mean knowledge score increased from 7.63 ± 1.75 in the pre-test to 21.31 ± 2.02 in the post-test, with a mean difference of 13.68. The paired t-value was 63.771 ($p < 0.001$), indicating a statistically significant improvement in knowledge following the IEC package.

Table 5 shows that the mean skill score increased from 3.58 ± 1.06 in the pre-test to 7.60 ± 1.02 in the post-test, with a mean difference of 4.02. The paired t-value was 21.909 ($p < 0.001$), indicating a statistically significant improvement in skills following the IEC package.

Table 6 reveals that the pre-test correlation between knowledge and skill was positive but not statistically significant ($r = 0.226$, $p = 0.083$). In the post-test, a statistically significant positive correlation was observed between knowledge and skill ($r = 0.335$, $p = 0.009$), indicating that higher knowledge scores were associated with higher skill scores.

Table 7 shows that educational qualification was significantly associated with post-test knowledge regarding the Timeout Procedure Protocol ($\chi^2 = 4.444$, $p = 0.035$). Table 8 indicates that job position in the operation theatre was significantly associated with post-test skill ($\chi^2 = 4.450$, $p = 0.035$).

CONCLUSION

The OT nurses' knowledge and proficiency with the timeout procedure protocol are positively correlated. Additionally, evaluate the efficacy of the Timeout method protocol's pretest and posttest levels of knowledge and proficiency. The purpose of the study was to evaluate the efficacy of an information education communication package on OT nurses' knowledge and proficiency with reference to timeout procedure protocol on patient safety. The study's findings demonstrated that OT nurses' knowledge and proficiency with timeout procedure protocol on patient safety had improved following the information education communication package. As a result, the study hypothesis was approved. In conclusion, as operating room nurses, we must the information education communication package. Hence the research hypothesis was accepted. To conclude as an operating room nurse we have to “ Raise Awareness Increase Engagement: Be a Time Out Super Hero”

Nursing Implications

The current study focused on OT nurses' knowledge and proficiency with timeout procedure protocol on patient safety. The Timeout procedure's implementation:

- Prevents injury in the operating room.
- Enhances the standard of patient care in the operating room
- Improves the surgical team's performance.
- Facilitates better communication among members of the surgical team.
- It facilitates standardized monitoring of every facet of the business.
- creates a culture of patient-centered safety in the operating room.
- It gives the team members a chance to express their opinions about surgical intervention.
- In the end, follows the "Do no harm" rule of ethics.
- It fosters a culture of trust where employees feel confident to disclose patient safety incidents without worrying about retaliation.
- By creating a shared mental model of the operation during the time-out, the team increases the likelihood that everyone will have the situational awareness required to prevent damage.
- It creates leadership training for the team and gives everyone the authority they need to act on behalf of the patients.
- Gave nurses the authority to take on the role of "Nurse Advocate."

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Table 1: Frequency and percentage distribution of demographic variables of Operation Theatre Nurses

Demographic Variables	Frequency (f)	Percentage (%)
Age (in years)		
22 – 30	36	60.0
31 – 40	13	21.7
41 – 50	6	10.0
>50	5	8.3
Gender		
Male	19	31.66
Female	41	68.4
Transgender	-	-
Educational qualification		
Nurse with M.Sc.	14	23.3
Nurse with B.Sc.	24	40
Nurse with P.B.B.Sc.	22	36.6
University under Graduated		
The Tamil Nadu Dr.M.G.R. Medical University	36	60.0
Deemed University	24	40.0
Number of years experience in OT		
>6 month	28	46.6
1 – 2 years	13	21.7
3 – 5 years	18	30.0
>5 years	1	1.7
Total years of experience		
>6 month	18	30.0
1 – 2 years	17	28.3
3 – 5 years	12	20.0
>5 years	13	21.7
Job position in OT		
Scrub nurse	34	56.7
Circulatory nurse	26	43.3
Did you attend any In-Service education programme within 6 months		
Yes	23	38.3
No	37	61.7

Table 2: Level of knowledge regarding Timeout Procedure Protocol on patient safety among operation theatre

Level of Knowledge	Pretest		Post Test	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Inadequate knowledge ($\leq 50\%$)	53	95.0	-	-
Moderately Adequate knowledge (51 – 75%)	7	5.0	6	10.0
Adequate knowledge ($>75\%$)	-	-	54	90.0

Table 3: Level of skill regarding Timeout Procedure Protocol on patient safety among operation theatre nurse.

Level of Skill	Pretest		Post Test	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Poor skill ($\leq 50\%$)	56	93.33	0	0
Moderate skill (51 – 75%)	4	6.67	19	31.67
Good skill ($>75\%$)	0	0	41	68.33

Table 4: Effectiveness of IEC package on knowledge regarding Timeout Procedure Protocol on patient safety among operation theatre

Variables	Mean	S.D	Mean Difference Score	Paired “t” & p-Value
Pretest	7.63	1.75	13.68	t = 63.771 p=0.0001, S***
Post Test	21.31	2.02		

Table 5: Effectiveness of IEC package on skill regarding Timeout Procedure Protocol on patient safety among Operation Theatre Nurse.

Variables	Mean	S.D	Mean Difference Score	Paired “t” & p-Value
Pretest	3.58	1.06	4.02	t = 21.909 p=0.0001, S***
Post Test	7.60	1.02		

Table 6: Co-relation between knowledge and skill regarding timeout procedure protocol on patient safety among operation theatre nurse.

Test	Variables	Mean	S.D	Karl Pearson’s Correlation ‘r’ p-Value
Pretest	Knowledge	7.63	1.75	r = 0.226 p=0.083, N.S
	Skill	3.58	1.06	
Post Test	Knowledge	21.31	2.02	r = 0.335 p=0.009, S**
	Skill	7.53	1.04	

Table 7. Significant association between post-test knowledge and demographic variables

Demographic variable	Category	Moderately adequate f (%)	Adequate f (%)	χ^2 value	df	p-value
University of graduation	Tamil Nadu Dr. M.G.R. Medical University	6 (10.0)	30 (50.0)	4.444	1	0.035*
	Deemed University	0 (0.0)	24 (40.0)			
Total		6 (10.0)	54 (90.0)			

Table 8. Significant association between post-test skill and demographic variables

Demographic variable	Category	Moderate skill f (%)	Good skill f (%)	χ^2 value	df	p-value
Job position in OT	Scrub nurse	7 (11.7)	27 (45.0)	4.450	1	0.035*
	Circulatory nurse	12 (20.0)	14 (23.3)			
Total		19 (31.7)	41 (68.3)			

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