

Effect of Using Situation Awareness Technique on Intensive Care Units Nurses' Practices of Patient Safety Standards

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Abstract: situation awareness as one of this non-technical skill listed as most critical skill in healthcare areas, in lacking situation awareness, medical errors risk can increase. The mission of situation awareness is helping first responders see the bad things coming in time to change the outcome. SBAR is one of the various techniques had used in learning SA skill in clinical settings. SBAR is a communication tool to improve situational awareness, it helps staff to precisely state observations, make clear and concise questions accurately state concerns, Specify the feedback needed and Suggest solution. Critical care nurses should be able to recognize and analyze patient safety incidents using protocols, work in a team, learn from errors, and be able to identify actions and recommendations on how to prevent patient safety incidents by SBAR situational awareness technique. Nursing staff' should recognize process and understand what is going on around them .Consequently, they can plan with greater knowledge to patient safety. Method: A quasi-experimental research design was used in this study in which two tools were used for data collection: The study was carried out using the following tools for data collection. Nurses' practices of patient safety standards checklist and nurses' satisfaction regarding situational awareness technique in relation to patient safety practices questionnaire Results: There was a statistically significant difference within the study group before and immediately after application of SBAR technique in relation to all aspects of patient safety standards ($\leq 0.05^*$). There were statistically significant differences between study and Control group after application of SBAR technique in relation to most aspects of patient safety standards. Majority of study nurses get high satisfaction regarding handling of patient safety aspects using situational awareness skill (98.3%). Conclusion: In the current study, SBAR situation awareness technique was valuable to improve nurses situation awareness patient safety practice .

Keywords: Educational intervention, intensive care nurses, patient safety standards practice situation awareness and SBAR technique.

I. INTRODUCTION

Mitchell and Flin (2008) recounted that since 1980, health care professions became more aware of the role of "nontechnical" skills in the delivery of safe, high-quality medical care and acknowledged it in making improvements in care processes; prevent errors and enhancing patient safety in the future. Gluyas et al. (2019) density the important role of non-technical skills has brought an increased need for assessment, training and evaluation of these skills. Different two categories of nontechnical skills must be distinguished, first category is the cognitive and mental skills that include decision-making, planning, and situation awareness, second category is the social and interpersonal skills that include aspects of teamwork, communication, and leadership. Amanda and Gary (2014) describe situation awareness as one of this non-technical skill and the most critical skill in all healthcare areas. Situation awareness is reading of true, also it is

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conscious awareness of the current situation in relation to one's environment the mission of SA is simple; Help first responders see the bad things coming in time to change the outcome. Situation awareness is essentially, what psychologists call perception or attention. In 2015 , Endsley delineate, situation awareness is involves continuously monitoring what is happening in the task environment in order to understand what is going on and what might happen in the next minutes or hours. Our knowledge, education, and experience allow us to understand what is around us and to determine if it is safe. (McKenna et al., 2014).

Blom et al.(2015) found that SBAR is one of the various techniques had used in learning SA skill in clinical settings. SBAR is a communication tool to improve situational awareness, it helps staff to precisely state observations, make clear and concise questions accurately state concerns, Specify the feedback needed and Suggest solution. Holden(2019) indicate the use of the SBAR tool to guide information exchange resulted in the emphasis of situational information over ancillary background facts and improvement of overall handoff communication. Situation awareness listed as critical in all healthcare areas. It thought to be one of the most essential non-technical skills do reflect improvement in patient safety practice, supports prevention of errors through early detection and intervention and refining the quality of nursing care in general. (Rodze & Spross , 2014) . As such, The current study prominence situational awareness as “a vital skill for today’s healthcare professional”, there is a existing need for a better understanding of situation awareness and encompass it in training programs of ICU nurses regarding patient safety standards.

II. THE AIM OF THE STUDY

Is to determine the effect of using situation awareness technique on intensive care units nurses' practices of patient safety standards

Research Hypothesis

Nurses using situation awareness technique exhibit higher scores in patient safety practices

III. MATERIALS AND METHOD

Materials

Research Design; A quasi-experimental research design was used to conduct this study.

Settings; The study conducted at all intensive care units of six hospitals affiliated to Alexandria health affair directorate, in Alexandria city proper

Subjects: The subjects of this study comprised 118 nursing staff out of 167 intensive care unit nursing staff in Ministry of Health and Population hospitals in Alexandria. The subjects were assigned randomly into two equal groups; study and control, 58 nurses for each.

Tool: Nurses' Practices of Patient Safety Standards Checklist (NPPSSC).

This tool was developed by the researcher after extensive review of the Egyptian healthcare accreditation organization standards for hospital, patient safety standards to assess nurses' practices of patient safety in ICU. It was consisted of 102 items included in 12 sections; proper patient identification(14 items), proper communication (9 items), safe usage of medication (20 items), confirm right procedures /operation (9 items), minimizing hospital acquired infection (10 item), minimizing risk for fall (9 items), avoid tubes misconnection(6 items),safe use of restrain (7 items), avoid pressure sores(6 items), dealing with critical value (5 items), effectiveness of critical alarms (4 items), shift handover (3items) .Respondents interventions are measured using the 4 responses were either done correct / complete, done incorrect /incomplete, not done and not applicable. As done correct /complete had 1grade, done incorrect / incomplete had 0.5 grade and zero for not done .The total score was 102 which interpreted as following : from 102 to 69 had high level of patient safety practices, from 68 to 35 had moderate level of patient safety practices and from 34 to 0 had low level of patient safety practices,. Reliability of the tool was calculated using Cronbach's Alpha test, it was reliable and the test coefficient value was 0.747. In addition; socio demographic data as name, age, gender, job title, years of experiences and qualification were included.

Method

Official permission to conduct the study was obtained from the ethical committee, director of Alexandria Main Training Center and directors of the six hospitals affiliated to Alexandria health affair directorate. Written informed consent was obtained from every nursing staff to participate in the study after explaining the study's purpose with assurance of privacy and confidentiality of the obtained data, participation was on voluntary base. Tool content validity tested by a jury of five experts and necessary modifications were done. Tool tested for its reliability and was reliable. A pilot study was carried out on 10% of sample size and the result revealed that tool was clear, applicable and no modifications were done accordingly. The nursing staff selected randomly according to systematic random sampling (every other one) and allocated randomly as; study group: It comprised of 59 nursing staff who trained on patient safety standards using SBAR technique. Control group : It comprised of 59 nursing staff who trained on patient safety standards using traditional lecturing., data collection was carried out by the researchers .

Data collection:

Tool was used 3 times as follow: first time used as a pretest before conducting training for both the study and control groups, second times as a posttest immediately at the end of training program for both the study and control groups and the third time as retention test after 21 days from ending the training for the study group only. The researcher developed a situation awareness training unit (SATU) based on SBAR technique. Training carried out in 3 phases; the preparation, the implementation, and the evaluation phase.

1. The Preparation Phase:

In this phase, the researcher tried to find a real meaning of SA as a new concept and its implication in patient safety through proper preparation of the researcher, content, and assessment of training environment.

A. Researcher Preparation

- Reading the available evidence about situation awareness, from deep-rooted, recent evidence and up to the time of data collection from books, digital libraries and websites including national and international thesis.
- Attending patient safety training courses
- Researcher train herself clinically on patient safety practices using SBAR technique.

B. Content Preparation

Researcher designed a situation awareness training unit (SATU) which involved theoretical and practical training that covered all Egyptian patient safety standards.

C. Environment preparation

In environmental preparation researcher concerned with assessment, selection and preparation of theoretical and practical training environment which was Alexandria main training center for the theoretical training, the venue and ICU of the previously mentioned six hospitals affiliated to ministry of health for the practical training.

2. The Implementation phase:

In this phase the researcher carried out theoretical and practical part of situational awareness training units (SATU) which based on the application of SBAR as a communication tool in numerous patient safety situations. Researcher assessed both study and control groups using (NPPSSC) tool then start theoretical and practical training. **Theoretical training** Applied in Alexandria main training center for each sub group separately. Each subgroup attended 2 days, 4 educational sessions, 2 sessions daily and each session was about 2 hrs. Different teaching strategies and media were used . **Practical training** started directly after ending theoretical training in ICUs and was based on application of the SBAR technique in the 12 sections of patient safety standards and explained how to use SBAR in various safety situations possibly might be encountered within clinical area while caring of ICU patient. Each participant attended 24 educational sessions on

interrupted 12 days, 2 sessions per day. Clinical round and demonstration were the teaching strategies used during practical training; study sub groups finished practical training within 8 weeks.

3 -The Evaluation phase:

In this phase the researchers assessed study and control groups immediately after ending training, after 21 days study group evaluated as a retention test using (NPPSSC) tool.

Statistical analysis

Data were fed to the computer and analyzed using IBM SPSS software package version 20.0. (Armonk, NY: IBM Corp) Qualitative data were described using number and percent. Quantitative data were described using mean, standard deviation. Significance of the obtained results was judged at the 5% level.

The used tests were

1 - Chi-square test

For categorical variables, to compare between different groups

2 - Monte Carlo correction

Correction for chi-square when more than 20% of the cells have expected count less than 5

3 - Student t-test

For normally distributed quantitative variables, to compare between two studied groups

4 - Paired t-test

For normally distributed quantitative variables, to compare between two periods

IV. RESULTS

Table (1) shows the distribution of the studied critical care nurse according to their characteristics. In relation to demographic data, near half of the studied critical care nurses (42.4%-52.5%), of the study and control groups respectively were between 20-29 years old. majority of both study and control groups nurses were female (86.4%-91.5%). near half of nurses in study and control groups were nursing specialist with BSc degree (54.2% - 57.6%), more than one third of nurses in study group had less than 5 years' experience while less than half of nurses in control group had less than 5 years' experience (35.6 %-42.4%). As for attended training before, no nurses in both the study and control groups were attended any patient safety training before (100%). **Table (2):** illustrate a a comparison within study group according to their practices of patient safety standards before, immediate and 21 days after the application of SBAR technique. there was a statistically significant difference within the study group between before and immediately after application of SBAR technique in relation to all aspects of patient safety standards ($\leq 0.05^*$).Furthermore, statistically significant differences was noted within the study group between before and 21 days after application of SBAR technique in relation to to all aspects of patient safety standards except; reduce the risk of hospital-acquired infections, prevention of pressure ulcers development, dealing with critical values, improve the effectiveness of critical alarms and handover communications between shifts, **Table (3):** presents a comparison within the control group according to their practices of patient safety standards before and after finishing the training program , In which there was no statistically significant difference within the control group regarding their practices of all patient safety standards before and after training $p \leq 0.05$. **Table (4)** illustrates a comparison between descriptive levels of study and control groups according to their overall practices of patient safety standards before and after application of SBAR technique, there was statistically significant difference within the study group before, immediate and 21 after application of SBAR technique. In addition, It was found that there was statistically significant difference between the study and control group in the favor of study group after application of SBAR regarding practices of patient safety standards.

TABLE: I

Table 1: Distribution of study and control groups according to their personal profile

PERSONAL PROFILE	PARAMETER	STUDY (N = 59)		CONTROL (N = 59)		TEST OF SIG.	P
		NO.	%	NO.	%		
AGE (YEARS)	20 – 29	25	42.4	31	52.5	X ² =3.038	MCp= 0.399
	30 – 39	21	35.6	20	33.9		
	40 – 49	12	20.3	6	10.2		
	50+	1	1.7	2	3.4		
	MEAN ± SD.	31.63 ± 7.78		31.36 ± 7.89			
GENDER	MALE	8	13.6	5	8.5	X ² =0.778	0.378
	FEMALE	51	86.4	54	91.5		
OCCUPATION	SPECIALIST	32	54.2	34	57.6	X ² =0.138	0.711
	TECHNICIAN	27	45.8	25	42.4		
QUALIFICATION	BSC	32	54.2	34	57.6	X ² =0.138	0.711
	DIPLOMA	27	45.8	25	42.4		
YEARS OF EXPERIENCE	<5	21	35.6	25	42.4	X ² =3.358	0.340
	5 - <10	18	30.5	10	16.9		
	10 - <15	5	8.5	8	13.6		
	15+	15	25.4	16	27.1		
	MEAN ± SD.	9.19 ± 7.99		9.42 ± 8.41			
HAVE YOU EVER ATTENDED ANY TRAINING COURSES RELATED TO PATIENT SAFETY	NO	59	100.0	59	100.0	-	-
	YES	0	0.0	0	0.0		

χ²: CHI SQUARE TEST

MC: Monte Carlo

t: Student t-test

P: p value for comparing between the study and control group

TABLE: II

Distribution of nurses practices of patient safety standards among the study group before, immediately after and 21 days after

Patient Safety Standards	Study																P1	After 21 Days						P2
	Before						Immediate After						No.	%	No.	%		No.	%					
	Done		Done		Not		Done		Done		Not													
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%												
Part 1: Identify the	32	54.2	25	42.4	2	3.4	57	96.6	2	3.4	0	0.0	51	86.4	7	11.9	1	1.7	0.009*					
Mean ±SD	9.45 ± 2.31						12.12 ± 1.57						<0.001*	10.91 ± 2.13						0.008*				
Part 2: Improve	29	49.2	24	40.7	6	10.2	52	88.1	7	11.9	0	0.0	44	74.6	12	20.3	3	5.1	0.024*					
Mean ±SD	5.33 ± 1.92						7.37 ± 1.44						<0.001*	6.67 ± 1.99						0.001*				
Part 3: Use	26	44.1	28	47.5	5	8.5	55	93.2	4	6.8	0	0.0	44	74.6	11	18.6	4	6.8	0.010*					
Mean ±SD	12.75 ± 3.58						16.37 ± 2.26						<0.001*	14.39 ± 3.06						0.015*				
Part 4: Prepare patient	33	55.9	22	37.3	4	6.8	54	91.5	4	6.8	1	1.7	50	84.7	8	13.6	1	1.7	0.019*					
Mean ±SD	5.65 ± 2.14						6.60 ± 1.56						0.005*	6.55 ± 1.99						0.050*				
Part 5: Reduce the risk	34	57.6	25	42.4	0	0.0	51	86.4	8	13.6	0	0.0	48	81.4	11	18.6	0	0.0	0.053					
Mean ±SD	6.78 ± 1.95						8.64 ± 1.45						<0.001*	7.87 ± 1.60						0.006*				
Part 6: Reduce the risk	31	52.5	21	35.6	7	11.9	54	91.5	5	8.5	0	0.0	45	76.3	13	22.0	1	1.7	0.043*					
Mean ±SD	5.70 ± 1.95						7.57 ± 1.13						<0.001*	6.77 ± 1.77						0.014*				
Part 7: Misconnect	23	39.0	29	49.2	7	11.9	49	83.1	10	16.9	0	0.0	43	72.9	16	27.1	0	0.0	0.003*					
Mean ±SD	2.69 ± 1.07						3.74 ± 0.91						<0.001*	3.36 ± 0.84						0.001*				
Part 8: Use restraints	25	42.4	24	40.7	10	16.9	50	84.7	7	11.9	2	3.4	40	67.8	13	22.0	6	10.2	0.038*					
Mean ±SD	4.15 ± 1.92						5.76 ± 1.47						<0.001*	5.04 ± 1.78						0.022*				
Part 9: Prevent	39	66.1	17	28.8	3	5.1	56	94.9	3	5.1	0	0.0	52	88.1	6	10.2	1	1.7	0.059					
Mean ±SD	4.25 ± 1.46						5.31 ± 0.94						<0.001*	4.92 ± 1.09						0.017*				
Part 10: Deale with	35	59.3	17	28.8	7	11.9	48	81.4	10	16.9	1	1.7	47	79.7	8	13.6	4	6.8	0.107					
Mean ±SD	3.29 ± 1.25						4.19 ± 0.96						<0.001*	3.78 ± 1.08						0.030*				
Part 11: Improve	30	50.8	11	18.6	18	30.5	44	74.6	14	23.7	1	1.7	31	52.5	20	33.9	8	13.6	0.645					
Mean ±SD	2.24 ± 1.32						3.25 ± 0.82						<0.001*	2.63 ± 1.17						0.262				
Part 12: Handover	23	39.0	26	44.1	10	16.9	53	89.8	3	5.1	3	5.1	32	54.2	22	37.3	5	8.5	0.154					
Mean ±SD	1.56 ± 0.83						2.42 ± 0.77						<0.001*	1.93 ± 0.78						0.036*				

P : p value for Post Hoc Test (Dunn's) for Friedman test for comparing between Before, Immediately after and after 21 Days period

P 1: value for comparing within the study groups in Before and Immediate After Period

P 2: value for comparing within the study groups in Before and After 21 Days period

*: Statistically significant at p ≤ 0.05

TABLE: III

Distribution of nurses' practice of patient safety standards among the control group before and after training.

Patient safety standards	Control												p
	Before						After						
	Done correct /complete		Done incorrect /incomplete		Not done		Done correct /complete		Done incorrect /incomplete		Not done		
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Part 1: Identify the patient correctly	20	33.9	28	47.5	11	18.6	22	37.3	29	49.2	8	13.6	0.251
Part 2: Improve methods of effective communication	15	25.4	33	55.9	11	18.6	19	32.2	32	54.2	8	13.6	0.052
Part 3: Use medication safely	30	50.8	11	18.6	18	30.5	31	52.5	20	33.9	8	13.6	0.645
Part 4: Prepare patient before surgery/procedure properly	21	35.6	26	44.1	12	20.3	22	37.3	28	47.5	9	15.3	0.102
Part 5: Reduce the risk of hospital-acquired infections	35	59.3	17	28.8	7	11.9	21	35.6	38	62.7	0	0.0	0.107
Part 6: Reduce the risk of patient falling	28	47.5	22	37.3	9	15.3	28	47.5	26	44.1	5	8.5	0.206
Part 7: Misconnect Catheters and tubes	13	22.0	25	42.4	21	35.6	16	27.1	25	42.4	18	30.5	0.058
Part 8: Use restraints safely	29	49.2	26	44.1	4	6.8	28	47.5	30	50.8	1	1.7	0.414
Part 9: Prevent pressure ulcers development	23	39.0	26	44.1	10	16.9	32	54.2	22	37.3	5	8.5	0.154
Part 10: Deale with critical value	23	39.0	32	54.2	4	6.8	24	40.7	33	55.9	2	3.4	0.180
Part 11: Improve the effectiveness of critical alarms	16	27.1	34	57.6	9	15.3	16	27.1	34	57.6	9	15.3	1.000
Part 12: Handover communications between shift	18	30.5	30	50.8	11	18.6	19	32.2	31	52.5	9	15.3	0.317

p: p value for Marginal Homogeneity Test for comparing between before and after in control group

*: Statistically significant at $p \leq 0.05$

TABLE: IV

Comparison between practice levels of study and control groups according to their practices of patient safety standards before and after application of SBAR

	Study (n = 59)						Test of sig (p ₀)	Control (n = 59)				Test of sig (p ₀)	Test of sig (p ₁)	Test of sig (p ₂)
	Before		Immediately after		After 21 days			Before		Immediately after				
	No.	%	No.	%	No.	%		No.	%	No.	%			
Overall practices														
Low	1	1.7	0	0.0	0	0.0	Fr=40.436* (<0.001*)	3	5.1	3	5.1	MH=7.530* (<0.001*)	$\chi^2=8.912^*$ (0.007*)	$\chi^2=26.822^*$ (MCp<0.001*)
Moderate	35	59.3	2	3.4	16	27.1		37	62.7	34	57.6			
High	23	39.0	57	96.6	43	72.9		19	32.2	22	37.3			
Total score	63.67±14.52		83.09±9.63		73.6±12.68		F=42.537* (<0.001*)	70.34±20.33		68.0±21.82		tp=1.980 (0.052)	t=1.896 (0.060)	tp=4.861* (<0.001*)
Mean % score	63.69±14.99		83.72±9.57		73.64±12.84			69.89±20.14		67.59±21.68				

t: Student t-test

tp: Paired t-test

F: F test (ANOVA) with repeated measures

χ^2 : Chi square test

FE: Fisher Exact Fr: Friedman test

MH: Marginal Homogeneity Test

p₁: p value for comparing between the study and control groups in before period

p₂: p value for comparing between the study and control groups in immediately after period

p₀: p value for comparing between before and immediately after in each group

*: Statistically significant at $p \leq 0.05$

V. DISCUSSION

It is crucial to nursing education to distinguish methodologies that can finally support avoidance of error and preserve patient harm. Situation awareness significance was highlighted when used as an educational tool in critical care nurse that could vigorously enable nurses to recognize and understand what is going on around them, search for risk in a variety of domains, and identify actions and recommendations on how to prevent patient safety incidents then plan with greater knowledge to patient safety (Gregory et al., 2015). SBAR and situational awareness technique enable critical care nurses to recognize and analyze patient safety so, be capable to spot activities to inhibit patient harm. Cynthia & Bertram, 2009). In this regard, the current study concerned with determine the effect of situation awareness technique as educational tool in intensive care nurses' practices of patient safety standards, study finding revealed that initial assessment before the application of situation awareness show no statistically significant difference between the study and control groups in relation to nurses' practices of patient safety standards in intensive care units. In addition, unacceptable level of intensive care units nurses' practices of patient safety standards was noted. The potential sources of the noted unacceptable level of nurses' practices of patient safety standards might for the reason that nurses in both groups not attended patient safety training, also situation awareness was not included as educational intervention in training program implanted previously in the selected setting. This result came in congruence with the study of Phillips (2014) who used a mixed methods design to examine the situation awareness of the nursing, indicated that the nurses' situational awareness level was deficient. In 2013, Nancy concluded that; nurses' faults before implementing situation awareness which supports prevention of errors through early detection and intervention were associated with letdown in comprehend and inhibit in patient care.

In the current study, statistical significant differences were found between the study and control groups after application of SBAR technique in relation to all aspects of patient safety standards. In the same line, Brannick et al. (2009) conclude that participants demonstrated significant improvement in situation awareness. Conversely, prospectively collected complication reports showed significant decrease over time in complication and error rates. In addition, Hull et al. (2011) revealed that intervention resulted in significant improvement in patient safety and enhanced self-reported awareness of patient safety issues. Furthermore, Murray (2012) concluded that; the ability of the nurse to achieve optimal situation awareness impact nurses enactment patient they concerned. In the same vein, Green et al. (2017) asserted that; training of nursing leads to enhanced situation awareness and more proficient, safer clinical skills after application of the training intervention. In the current study, there was a statistically significant difference within the study group between before and immediately after application of SBAR technique in relation to all aspects of patient safety standards. This result came in congruence with the study of Guimond et al. (2009) who stated that; incorporation of situation awareness and decision making to inter-professional education improved nurse's collaborative working, enhance their professional cognition, and lead to effective decision-making. In the same vein, Endacott et al. (2010) revealed that; lack of situation awareness lead to interpret patient data as single elements rather than collectively by nurses. In 2011, Hinton concluded that; SBAR training were effective methods for promoting nurses behaviors aligned with patient safety and direct expertly clinical situations designed to provide opportunities for error correction, safe medication administration while situation awareness enriched. In the current study, there were statistically significant differences within the study group between before and 21 days after application of SBAR technique in relation to most aspects of patient safety standards. These results came in congruence with the study of Cooper et al. (2009) who stated an improved practice of patient safety standards; this improvement was generally persistent for two to three weeks after first feedback ended. In the same line, it was conclude that situation awareness training strategies mitigate error-provoking situations such as distractions and interruptions that are especially prone to errors and reduce error rates actually appear to have resulted in hyper-vigilance and subsequent non-completion of required tasks. (Raymond et al., 2016).

VI. CONCLUSION

Situation awareness is fundamental to the reduction of risk in safety sensitive endeavors. To this point, a representation of situation awareness has been described as an internal factor of primary decision-making that plays a critical role in ways patient care is provided and explained that preventable accidents occurred when there was a lack of situation awareness during handoff. Accordingly, in the current study, the SBAR situation awareness technique was used in training critical care nurses proved a significantly improved in patients' safety standards practices

VII. RECOMMENDATIONS

The findings of the current study support the need to incorporate SBAR situation awareness educational technique in training critical care nurses to increase improve their patients' safety standards practices. It is essential to encourage faculty members to use situation awareness in all clinical settings and simulation experiences. Further researches should be conducted to Replicate the study on a large group of nurses in different departments investigate the effect of SBAR situation awareness educational intervention on other clinical concerns in the critical care practice.

REFERENCES

- [1] Amanda, M., & Gary, L. (2013). A concept analysis of situational awareness in nursing . *Journal Of Advanced Nursing*, 69(12), 2613 – 2621. <https://doi:10.1111/jan.12130>.
- [2] Blom ,L., Petersson, P., Hagell, P.(2015) .The situation, background, assessment and recommendation (SBAR) model for communication between health care professionals: A clinical intervention pilot study. *International Journal of Caring Sciences*, 8(3), 530-535. <http://hkr.divaportal.org/smash/record.jsf?pid=diva2%3A871551&dswid=-8739>
- [3] Brannick, M., Fabric, P., Castro, J., Bryant , R. (2009). Evaluation of an error reduction training program for surgical residents. *Journal of the Association of American Medical College* ,84(12),1809-1814. <http:// doi: 10.1097/ACM.0b013e3181bf36b0>
- [4] Cooper, S., Kinsman, L., Buykx, P., McConnell, T., Endacott, R. (2009). Managing the deteriorating patient in a simulated environment: Nursing students' knowledge, skill and situation awareness. *Journal of Clinical Nursing* , 19 (15), 2309 -2318. <http://doi:10.1111/j.1365-2702.2009.03164.x>
- [5] Cynthia ,M.,& Bertram, E. (2009).The SBAR communication technique. *Nurse Educator Journal*,34(4), 176. <https://doi.org/10.1097/NNE.0b013e3181aaba54>
- [6] Egyptian healthcare accreditation organization.(2013).Standards for hospital. <https://www.academia.edu/15580307>
- [7] Endacott, R., Scholes, J., Buykx, P., Cooper, S., Kinsman, L. (2010). Final year nursing students' ability to assess, detect and act on clinical cues of deterioration in a simulated environment. *Journal of Advanced Nursing*, 66(12), 2722-2731. <https://. doi: 10.1111/j.1365-2648.2010.05417.x>.
- [8] Endsley, M. (2015). Situation awareness misconceptions and misunderstandings. *Journal of Cognitive Engineering and Decision Making*, 9(1), 4-32. <http:// doi:10.1177/1555343415572631>
- [9] Green, B., Parry , D., Oepen, R., Plint ,S., Dale , T., & Brennan,P.,(2017). Situational Awareness :What It Means For Clinicians, Its Recognition And Importance In Patient Safety .Onlinelibrary.<https://onlinelibrary.wiley.com/situational-awareness-what-it-means-for-clinicians-its-recognition-and-importance-in-patient-safety-/doi/full/10.1111/odi.12547>
- [10] Gregory, A., Hogg, G., Ker, J. (2015) .Innovative Teaching in Situational Awareness. onlinelibrary.<https://onlinelibrary.wiley.com/doi/full/10.1111/tct.12310>
- [11] Gluyas, H., Stomski, N., Andrus, P., Walters, J., Morrison, P. (2019). Performance based situation awareness observations in a simulated clinical scenario pre and post an educational intervention. *Nurse Education in Practice*, 61(36),20 -27. <https://doi.org/10.1016/j.nepr.2019.02.011>
- [12] Guimond, M., Sole, M., Salas, E. (2009). Teamstepps: An educational program seeks to improve teamwork and ultimately patient safety. *American Journal of Nursing*, 109 (11), 66-68. <https://doi: 10.1097/01.NAJ.000036359.84377.27>
- [13] Hinton, J. (2011). *Artificial Experience: Situation Awareness Training In Nursing*. ProQuest.<https://www.proquest.com/Artificial-experience-situation-awareness-training-in-nursing>
- [14] Holden, T. (2019). Acquiring Situation Awareness Through Hand-Off In A Critical Care Environment .ProQuest <https://.proquest.com/Acquiring-situation-awareness-through-hand-off-in-a-critical-care-environment-27664360>

International Journal of Novel Research in Healthcare and Nursing

 Vol. 8, Issue 2, pp: (217-225), Month: May - August 2021, Available at: www.noveltyjournals.com

- [15] Hull, L., Arora, S., Aggarwal, R., Aradarzi, A., Sevdalis, N. (2011). The impact of nontechnical skills on technical performance in surgery: a systematic review. *Journal of the American College of Surgeons*, 214(2), 214-230. [https://doi:10.1016/j.jamcollsurg.2011.10.016](https://doi.org/10.1016/j.jamcollsurg.2011.10.016).
- [16] McKenna, L., Missen, K., Cooper, S., (2013). Situation awareness in undergraduate nursing students managing simulated patient deterioration. *Nurse Education Today*, 34(6) 27-31. <https://doi.org/10.1016/j.nedt.2013.12.013>
- [17] Mitchell, L., & Flin, R. (2008). Nontechnical skills of the operating theatre scrub nurse. *Journal Of Advanced Nursing*, 63(1), 15-24. [https://doi: 10.1111/J.1365-2648.2008.04695.X](https://doi.org/10.1111/J.1365-2648.2008.04695.X). PMID: 18598248 Review
- [18] Murray, M. (2012). Implementing SBAR Training With Acute Care Nurses. SemanticScholar. [https://www.semanticscholar.org/paper/Implementing-SBAR-Training-with-Acute-Care-Nurses Murray/e370a22a43ce7adfab8a59b1a0014503bb8b0ec3](https://www.semanticscholar.org/paper/Implementing-SBAR-Training-with-Acute-Care-Nurses-Murray/e370a22a43ce7adfab8a59b1a0014503bb8b0ec3)
- [19] Nancy, L. (2013). Using the ABCs of situational awareness for patient safety. *Nursing202 1*, 43(4), 64-65. <http://doi:10.1097/01.NURSE.0000428332.23978.82>
- [20] Phillips, L. (2014). Undergraduate nursing student situation awareness during simulation. SemanticScholar. <https://www.semanticscholar.org/paper/6a531853bb3b89fa0c827dbf8cab1a754bd37cf9>
- [21] Raymond, J. (2016). Nursing Students and Patient Safety: Errors, Curriculum, and Perspectives By <https://qspace.library.queensu.ca/handle/1974/14154>
- [22] Rodzen, L., & Spross, G. (2014). Raising the SBAR: how better communication improves patient outcomes". *Nursing today*, 38 (3): 41-43. [https://doi: 10.1097/01.NURSE.0000312625.74434.e8](https://doi.org/10.1097/01.NURSE.0000312625.74434.e8)