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EFFECTIVENESS OF SIMULATION BASED EDUCATIONAL PACKAGE ON THE KNOWLEDGE AND SKILLS REGARDING TRIAGE AMONG NURSES

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ABSTRACT

INTRODUCTION: The first personnel to care for patients in the triage area are nurses. The emergency nurses' expertise and experience are very important in making the right choices. Triage nurses must be capable of making the right decision quickly and frequently in challenging circumstances. Many studies found that nurses working in emergency rooms have insufficient knowledge & skills of triaging the patients. Assisting them in the development of effective nontechnical skills, practicing infrequent emergency situations, and presenting a variety of real lifethreatening events, simulation-based educational interventions in nursing can train both new and experienced nurses.

AIM: To evaluate the effectiveness of simulation based educational package on the knowledge and skills regarding triaging among nurses of selected hospital, Gurugram (Haryana).

MATERIAL &METHOD: A Quantitative research approach and Pre- experimental research design was used for the study. The sample for the study was 60 Nurses working in Emergency, ICU, and Wards of SGT Hospital were selected using convenient sampling techniques. .A self- administered questionnaire and checklist was used to assess knowledge and skills of nurses regarding triaging before and after giving simulation based educational package.

RESULT: The study revealed that out of 60 respondents, the mean pre-test knowledge score of the nurses was 10.46± 1.55 SD which increased to 14.73 ± 1.62 SD in the post-test and the difference in mean score was highly significant at $p<0.05$.The mean skills score of nurses improved in posttest 4.20 ± 0.776 SD as compared to pre-test skills score 2.78 ± 1.09 SD, which was highly significant at $p<0.05$.There was no significant association between post-test knowledge & skills regarding triaging with demographic variables expect for gender with skills.

CONCLUSION: The majority of the nurses were not much aware of triaging and this study showed the effectiveness of the simulation based educational package on triaging. Hence, simulation based training program in a regular period will help in gaining knowledge & improving skills regarding triaging among nurses.

KEYWORDS: Effectiveness, Triage, Nurses, Simulation Based Educational Package

INTRODUCTION

The expanding world population and increasing healthcare costs, more patients are also visiting emergency departments (EDs) around the world in order to save money and avoid attending distant meetings. Most emergency departments today utilize a triage system to determine which patients need urgent care.1

A hospital's emergency department (ED) works to provide prompt care for patients with urgent and critical needs. The initial interaction between patients and healthcare professionals occurs during triage after registration for emergency services.2

When a person enters an emergency ward, a continuous decision-making loop called triage decides if they need medical assistance. The kind and severity of the disease or damage are used to categorize and rank the requirements of patients in the emergency room.4

Triage nurses are crucial in prioritizing the needs of patients who are in urgent need of care and are in critical circumstances, so it is important to research and find strategies to improve their professional skill. Triage errors may occur if triage nurses are not competent enough, which can lead to other issues like patient lengthening of stay, delays in patient transfers to other hospital departments, crowding in the emergency room, a decline in the standard of care, and further complication of patients' conditions, which in some cases results in permanent harm or death.20

One of the most crucial steps in responding to mass casualty occurrences (MCIs) brought on by emergencies and disasters is the usage of triage systems.7

Systems with five levels of triage are preferred because they are more useful and effective than other systems. Internationally recognized five-level triage systems include the Emergency Severity Index, the Canadian Triage and Acuity Scale, the Manchester Triage System, and the Australasian Triage Scale (ATS).8

An increasingly common educational strategy is simulation-based nursing education. In addition to handling mannequins, it involves a variety of patient simulator-related activities that involve technology, skilled people, lifelike virtual settings, and role-playing. There aren't many studies on SBE involving triaging in adult patients in India, compared to the few studies that have been done in foreign contexts to evaluate the knowledge, skill, and accuracy of triage among nurses. As a result, the researcher thought that this investigation was necessary.21

METHODOLOGY

The present study aimed to assess to effectiveness of simulation based educational package on the knowledge and skills regarding triaging among nurses of selected hospital, Gurugram (Haryana).

A Quantitative research approach and Pre- experimental research design was used for the study. The sample for the study was 60 Nurses working in Emergency, ICU, and Wards of SGT Hospital

were selected using convenient sampling techniques. A self- administered questionnaire and checklist was used to assess knowledge and skills of nurses regarding triaging before and after giving simulation based educational package.

ANALYSIS

Subject's responses were coded and entered into SPSS (statistical package for social science program) version 20. Descriptive statistics was used to calculate the frequency and percentage distribution of subjects according to demographic variables, level of knowledge and Skills. In inferential statistics, Paired t-test test was used to compare the pre-test & post-test. Student t-test & One-way Anova was used to find association between knowledge, skills with demographic variables.

RESULT:

The data revealed that out of 60 participants half of the participants (30) were in the age group of 24-28 years followed by (20) participants in the age group of 21-23 years and (10) participants in the age group of 29 and >29, It revealed that more than half participants (36) were female and (24) participants were male, With regards of education, almost half of the participants (32) were having graduation followed by 14 participants with diploma and post-graduation, Majority of the participants23 were working in medical ward followed by 18 participants working in surgical ward, 10 participants working in emergency department and 9 participants working in intensive care unit, More than half of the participants 33 attended the before training and 27 participants had not attended any training regarding triage, Data revealed that 27 participants had ever done triage process before and 33 participants had not done triage in emergency.

Section I: Description of the Demographic Data.

TABLE – 1: Frequency and Percentage Distribution of Demographic Variables

(N=60)

Demographic Variable		**Frequency Percentage**
Age		
	1) 21-23 years	20(33.3%)
	2) 24-28 years	30(50%)

	3) 29 and above	10(16.7%)
Gender		
	1) Female	36(60%)
	2) Male	24(40%)
Education		
	1) Diploma	14(23.3%)
	2) Graduation	32(53.4%)
	3) Post- graduation	14(23.3%)
Area of working		
	1) Emergency	10(16.7%)
	2) Intensive Care Unit	9(15%)
	3) Medical Ward	23(38.3%)
	4) Surgical Ward	18(30%)
Years of experience		
	1) 0-1 year	17(30%)
	2) 1-5 years	27(43.3%)
	3) 5-10 years	12(20%)
	4) More than 10 years	4(6.7%)
Have you attended any webinar/ seminar/ workshop regarding (triaging in emergency)		
	1) Yes	33(55%)
	2) No	27(45%)
Have you ever triage a patient in emergency?		
	1) Yes	27(45%)
	2) No	33(55%)

Section II: Comparison between pre-test and post-test knowledge and skills score regarding triaging in adult patients among nurses

Table 2

Table 2: Comparison between pre-test and post-test knowledge and skills score regarding triaging in adult patients among nurses

(N=60)

	Knowledge			**Skills**		
	Mean±SD	**T value**	**P value**	**Mean±SD**	**T value**	**P value**
Pre-test	10.46± 1.55	13.31	0.000*	2.78 ± 1.09	8.76	0.000*
Post-test	14.73 ±1.62			4.20± 0.776		

Table 2 shows comparison between pre-test and post-test knowledge and skills scores regarding triaging of adult patients among nurses.

- The mean pre-test knowledge score of the nurses was 10.46± 1.55 which increased to 14.73 ± 1.62 SD in the post-test and the difference in mean score was highly significant at p 0.000*.
- The mean skill score of nurses improved in post-test 4.20 ± 0.776 as compared to pre-test skills score 2.78 ± 1.09, which was highly significant at p 0.000*.

Section III: To find association between post-test knowledge score and demographic variables of nurses.

Table 3: Association between post-test knowledge score and demographic variable of nurses.

(N=60)

Demographic Variable	**N**	**Mean ± SD**	**Calculated F & t value**	**df**	**P-Value**	**Test**
Age in year a. 21-23 years b. 24-28 years c. 29 & above	 20 30 10	 15.100±1.66 14.700±1.55 14.100 ±1.79	1.288	2	0.284	One-way Anova
Gender a. Male b. Female	 24 36	 15.208±1.58 14.416±1.59	1.889	58	0.810	t-test
Education a. Diploma b. Graduation c. Post-graduation	 14 32 14	 14.142 ±1.46 15.156 ±1.43 14.357 ±1.98	2.506	2	0.091	One-way Anova
Area of working a. Emergency b. Intensive care units c. Medicine wards d. Surgical wards	 10 9 23 18	 14.200 ±1.39 14.555 ±1.01 15.087 ±1.70 14.666 ±1.87	0.759	3	0.522	One-way Anova
Year of Experience a. 0-1year b. 1-5 year c. 5-10 years d. More than 10 years	 17 27 12 4	 14.705 ±1.64 14.888 ±1.60 14.500 ±1.88 14.500 ±1.29	0.186	3	0.905	One-way Anova
Have you attended any webinar/ seminar/ workshop 0 – 5 years a. Yes b. No	 33 27	 14.484 ±1.54 15.037 ±1.69	1..318	58	0.697	t-test
Have you ever triaged a patient in emergency a. Yes b. No	 27 33	 14.518 ±1.71 14.909 ±1.54	0.925	58	0.364	t-test

* =Significant $P \leq 0.05$

Table no. 3 revealed that there is no significant association between post-test knowledge and demographical variable

Section IV: To find association between post-test skill score of triage and demographic variables of nurses

Table 4: Association between post-test skill score of triage and demographic Variables of nurses

Demographic Variable	N	Mean ± SD	Calculated F & t value	Df	P-Value	Test
Age in year a. 21-23 years b. 24-28 years c. 29 & above	 20 30 10	 4.150 ± 0.81 4.233 ± 0.77 4.200± 0.78	0.067	2	0.935	One- way Anova
Gender a. Male b. Female	 24 36	 4.125 ± 0.89 4.250 ± 0.69	0 .607	58	0.026	t-test
Education a. Diploma b. Graduation c. Post-graduation	 14 32 14	 4.285 ± 0.726 4.218 ± 0.792 4.071 ± 0.828	0.279	2	0.757	One-way Anova
Area of working a. Emergency b. Intensive care units c. Medicine wards d. Surgical wards	 10 9 23 18	 4.300 ± 0.823 4.222 ± 0.833 4.173 ± 0.716 4.166 ± 0.857	0.074	3	0.974	One –way Anova
Year of Experience a. 0-1year b. 1-5 year c. 5-10 years d. More than 10 years	 17 27 12 4	 4.235 ± 0.831 4.259 ± 0.712 4.000 ± 0.716 4.250 ± 0.500	0.323	3	0.809	One –way Anova
Have you attended any webinar/ seminar/ workshop 0 – 5 years a. Yes b. No	 33 27	 4.212 ± 0.739 4.185 ± 0.833	0.133	58	0.308	t-test

Have you ever triaged a patient in emergency a. Yes b. No	 27 33	 4.296 ± 0.775 4.121 ± 0.780	 0. 867	 58	 0.712	 t-test

Table no. 4 revealed that there is no significant association between post-test skills and demographical variable expect for gender. Data showed that females' nurses have better skill of triaging as compared to male nurses.

DISCUSSION

Objective-1:

Current study finding: The mean score of knowledge is 10.46 ± 1.55 SD, out of maximum knowledge score is 20 and skills is 2.78 ± 1.09, out of maximum score is 5.

The above findings of this study were supported by a descriptive study conducted by BERNICE C. B. TANVERNER et al. (2013) to investigate nurses' understanding of triage in the emergency room validated the findings of this study. 100 nurses were selected using the non-probability purposive sampling method from the emergency rooms of three nearby teaching hospitals. Data were gathered using a questionnaire that was self-administered. The data was analysed using SPSS version IBM - 20 and presented as graphs, tables, and percentages. A significant portion of the participants (69%) in the self-administered questionnaires had insufficient knowledge, as evidenced by the fact that they correctly answered fewer than half of the questions. 43.22 percent of the participants' overall responses were accurate.41

The findings of current study is also in congruence with a study conducted in 2013 by ROBERT ALOYCEA, SEBALDA LESHABARIB, and PETRA BRYSIEWICZ, the researchers looked at the knowledge and skills of nurses working in the emergency rooms in Dar es Salaam, Tanzania. Descriptive cross-sectional and observational study approaches were employed to collect data utilising a structured questionnaire, an observation checklist, and a triage equipment audit record. The study included all nurses employed by the three municipal district hospitals in Dar es Salaam, as well as the emergency departments of the national hospitals. Of those surveyed, 33% were unaware of what triage was. 30 percent of the responders indicated there was a lack of information

on how to triage patients, despite the fact that they had attended training. 52 percent of respondents, or more than half, were unable to place the patient in the appropriate triage group. The waiting times for triaged categories were unknown to 58% of respondents. Only one nurse was solely responsible for patient triage at any of the four hospitals we visited. 84 percent of the triage nurses who were observed did not check the patients' respiratory rates. Only one out of every four emergency rooms surveyed had assessment and triage paperwork.42

Objective -2:

Current study finding: The mean score of knowledge is 14.73 ± 1.62 SD, out of maximum knowledge score is 20 and skills is 4.20 ± 0.776 SD, out of maximum score is 5.

A study was undertaken in 2013 by Hashem Rahmati, Mahboobeh Azmoon, and others to evaluate the impact of triage education on the knowledge, practise, and qualitative index of emergency room staff. 50 staff members from the emergency department, including nurses and emergency medicine technicians, were chosen for the study and met the inclusion criteria. A questionnaire with two parts (personal characteristics and knowledge) as well as a performance assessment checklist were used as data collection tools. Quder-Richardson 20 and the test-retest technique were used to assess the questionnaire's reliability. The reliability of the performance checklist was assessed using measures of interobserver reliability and the correlation between the two observers and imaging modalities. The participants completed the questionnaires and checklist prior to the programme, two days after it ended, and six weeks later. There was a workshop offered that was divided into two sessions of nine hours each. Prior to, two days after, and six weeks after training, the triage scores were 10.7, 3.1, 17.8, 1, and 16.1 correspondingly. Triage performance score went up from 48.9 9.9 prior to training to 59.8 7.6 two days later and to 59.7 8.1 six weeks later ($p=0.001$). In addition to giving nurses triage training, the emergency department's qualitative indices received a striking upgrade. Other findings revealed no relationship ($r=0.018$, $p=0.126$) between individual traits and personal knowledge of triage score six weeks after training. However, a strong positive link between the performance ratings six weeks after training and the type of employment, emergency room work experience, and nursing work experience was discovered ($r=0.258$, $p=0.032$). A study revealed that triage education influences nurses' practise and understanding and enhances emergency department quality indices. Therefore, it is advised that hospital nurses receive both theoretical and practical triage training.43

Objective III

Current study findings: There is no significant relationship between post-test knowledge and demographical variables.

The above findings of the study were supported by Alaa Mohammed Al Marzooq (2020) conducted a descriptive study to assess emergency department nurses' comprehension of triage at the emergency department of the King Fahad University Hospital in AL Khobar and Dammam Medical Complex in the Eastern Province of Saudi Arabia. Among emergency department nurses, the main findings were that there was no statistically significant relationship between age and knowledge (king fahad university hospital). Years of experience and expertise did not correlate in a statistically significant way.44

Objective IV

Current study findings: There is no significant relationship between post-test skills and demographical variable expect gender.

The research's conclusions were backed by a number of earlier studies that had been conducted on related topics. A few of these studies are displayed below.

Bereket Duko, Ephrem Geja, and others conducted a study in 2019 to assess the skills and knowledge of nurses working in the emergency departments of a specialised hospital in Hawassa, Ethiopia. A cross-sectional study with an institutional focus included 101 nurses as participants. Descriptive statistics and the chi square test were used to show the relationship between the independent factors and the dependent variable. The research participants' job experience (x2= 15.204, p.01), educational background (x2= 22.148, p.01), and triage experience (x2= 13.638, p.01) were all associated with triage knowledge. Work experience and triage competence were related variables (x2= 7.944 and 6.264, respectively, p.05).45

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