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A Study to Assess the Effectiveness of Online Module on Knowledge Regarding Preparedness of Medical Emergencies among Staff Nurses Working in Selected Hospitals of Maharashtra

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Abstract.
An emergency is a medical condition that can occur at any time and requires immediate attention and successful management. Nurses play an important role in preventing unnecessary morbidity by raising awareness of life-threatening situations. As a result, the primary aim of this research was to assess the efficacy of an online curriculum on medical emergency preparedness awareness among staff nurses.
Method: Pre-experimental one group pre-test and post-test research method was used for the study. 40 medical department staff nurses were selected using Non-probability convenient sampling method and questionnaire were administered to assess their knowledge. Pre-test and post-test was conducted to find out effect of online module.
Result: The mean score of knowledge in the pre-test was 14.17 and in post-test was 21.67, and "p" value of the Wilcoxon Signed Rank Test is 0.001, which is highly significant. This shows that the online module is effective and hence, the null hypothesis is rejected.
Conclusion: The findings of the study demonstrate that being prepared for medical emergencies is highly necessary and should be a top priority for all nurses in the workforce. The post-test results showed that the online module was effective in increasing awareness of medical emergency preparedness among medical department staff nurses.The overall level of preparedness for medical emergencies was lacking. Staff nurses should incorporate theory and practise, teaching courses on medical emergency preparedness into the nursing curriculum.
Keywords: Effectiveness, Online Module, Knowledge, Preparedness, Medical emergencies, Staff nurses.

INTRODUCTION:

An emergency is a medical situation that calls for urgent treatment and effective leadership. At any moment, emergency situations will occur. In delivering treatment in emergency situations, nurses play a vital role. In order to prevent excessive morbidity, physicians should be mindful of life-threatening conditions[1]. There is one or more chronic illness or disorder in about half of the patients attending the hospital. During care or treatment, few conditions and their procedures lead to medical emergencies. Although a variety of studies have been undertaken to improvise the availability of emergency medications and supplies, lack of preparation and failure to deal with medical emergencies can have disastrous effects and even legal action[2].

The golden rule in treating every emergency is to include basic life support (BLS) and cardiopulmonary resuscitation (CPR) by following the basic concepts of location, airway, ventilation, drainage, and definitive therapy[3]. The most common medical emergencies are vasovagal syncope, angina pectoris, hypertensive crisis, and epileptic fits. All emergencies aren't usually life-threatening, however, a nurse's ability to treat them is critical in minimising morbidity and mortality[4]

Emergency nursing care is a specially built and configured facility staffed by trained personnel to provide

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dependent patients with life-threatening or partly life-threatening issues with appropriate and safe care[5]. Nurses should have additional experience in clinical evaluation, diagnosis, disease and injury control, including ordering and integrating test reports and administering medication. Health promotion and disease prevention are stressed through their activities[6]. The idea of Emergency Nursing Care was originated by the father of Modern Nursing, Florence Nightingale. For closer and better monitoring, she put chronically ill patients near the nurses' station[7]

Owing to the changing health care needs of society, the criteria for emergency nursing have been rising over the past 10 years. One out of every three individuals is seeking treatment in the emergency room because of the ongoing health care crisis[4]. People seeking hospital emergency treatment within a 24-hour period are also reported to have issues such as chest pain, diarrhea, dyspnea, unintentional injury, epilepsy, head injury, hemorrhage, dizziness, stomach pain, psychiatric problems and topological emergencies.

The aim of this study was to determine the level of preparedness of staff nurses working in hospitals in the event of a medical emergency. The study's objectives were to compare their ability to treat hospital patients, as well as the availability of emergency drug emergency kits, rapid medical emergency response, and knowledge of providing appropriate treatment in special cases[5].

METHOD:

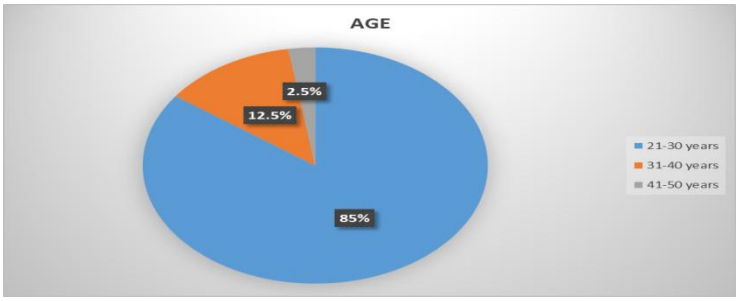
It is a quantitative study with a one-group pre- and post-test design. The study was carried out in selected hospitals of state of Maharashtra. Non-probability easy sampling was used to include 40 emergency department staff nurses in the sample. Nurses with a P.B. B.Sc., B.Sc., and M.Sc. degree were included. The participants in the study were given full details about the study and given their consent. Their anonymity and confidentiality have been protected. A self-structured questionnaire was used for the pre-test and post-test.

RESULTS:

Table no: 1: DISTRIBUTION OF STAFF NURSES AS PER THEIR AGE

DEMOGRAPHIC VARIABLE	FREQUENCY n	PERCENTAGE %
Age.		
21-30 years	34	85
31-40 years	5	12.5
41-50 years	1	2.5
51 and above	0	0

Fig No.1: Pie diagram showing the age of the staff nurses.



According to their age, 34(85%) of staff nurses were in the age group of 21-30 years, 5(12.5%) were in 31-40 years and similarly 1(2.5%) with age group of 41-50 years

Table no: 2: DISTRIBUTION OF STAFF NURSES AS PER THEIR GENDER

DEMOGRAPHIC VARIABLE	FREQUENCY n	PERCENTAGE %
Gender.		

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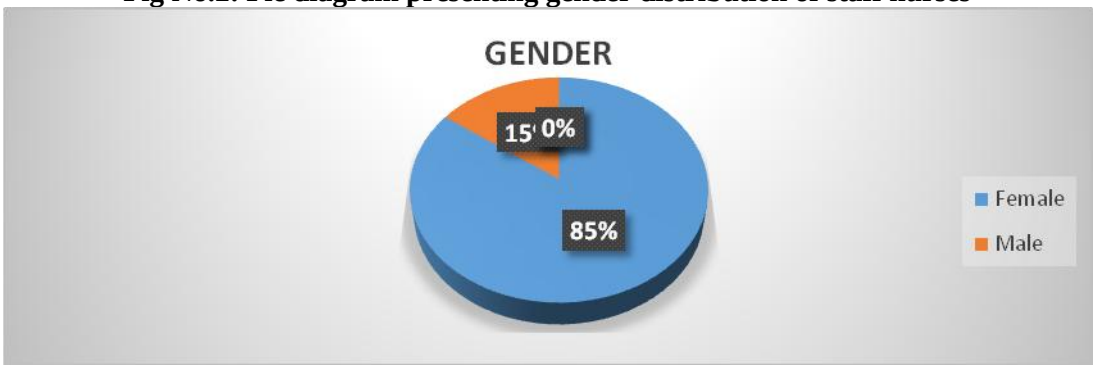
Female	34	85
Male	6	15

Fig No.2: Pie diagram presenting gender distribution of staff nurses



From the above data, it shows that 34(85%) of staff nurses were female and 6(15%) of them Are males.

Table no: 3: DISTRIBUTION OF STAFF NURSES AS PER THEIR EDUCATIONAL QUALIFICATION.

DEMOGRAPHIC VARIABLE	FREQUENCY n	PERCENTAGE %
Education.		
B.Sc. nursing	37	92.5
Post B.Sc. nursing	3	7.5
M.Sc. nursing	0	0

Fig No.3: Pie diagram presenting the educational qualification of the staff nurses.

According to the educational prerequisite around 3(7.5%) of staff nurses were with Post B.Sc. nursing qualification and 37(92.5%) were with B.Sc. nursing qualification.

Table no: 4: DISTRIBUTION OF STAFF NURSES AS PER THEIR YEARS OF EXPERIENCE.

DEMOGRAPHIC VARIABLE	FREQUENCY n	PERCENTAGE %
Years of experience.		
1-5 years	36	90
6-10 years	4	10
11-15 years	0	0
15 years and above	0	0

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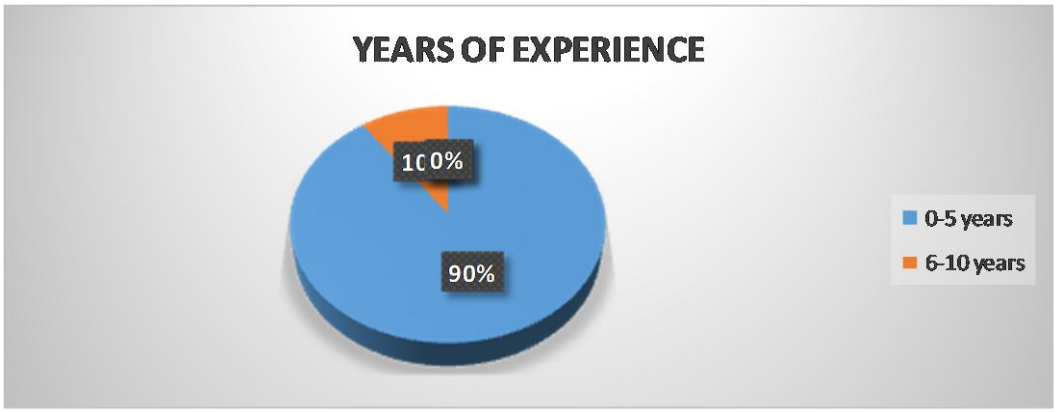
Fig No.4: Pie diagram presenting the years of experience of the staff nurses



According to the experience, 36(90%) was in 1-5 years of experience whereas 4(10%) was in 6-10 years of experience.

Table no: 5: DISTRIBUTION OF STAFF NURSES AS PER THEIR AREA OF EXPERIENCE

DEMOGRAPHIC VARIABLE	FREQUENCY n	PERCENTAGE %
Area of experience.		
Emergency department	6	15
Intensive care unit	7	17.5
Wards(private and general)	25	62.5
Operation theatre	2	5

Fig No.5: Pie diagram showing the area of experience of the staff nurses.

According to their area of experience, 6(15%) were in emergency department, 7(17.5%) were in ICU, 25(62.5%) were in wards (general and private) and 2(5%) were in operation theatre.

Table No: 6: Effectiveness of the online information module about medical emergency preparedness among staff nurses in terms of frequency and percentage.

PRE-TEST

KNOWLEDGE LEVEL	FREQUENCY n	PERCENTAGE %
Adequate knowledge	2	5
Moderately adequate knowledge	31	77.5
Inadequate knowledge	7	17.5

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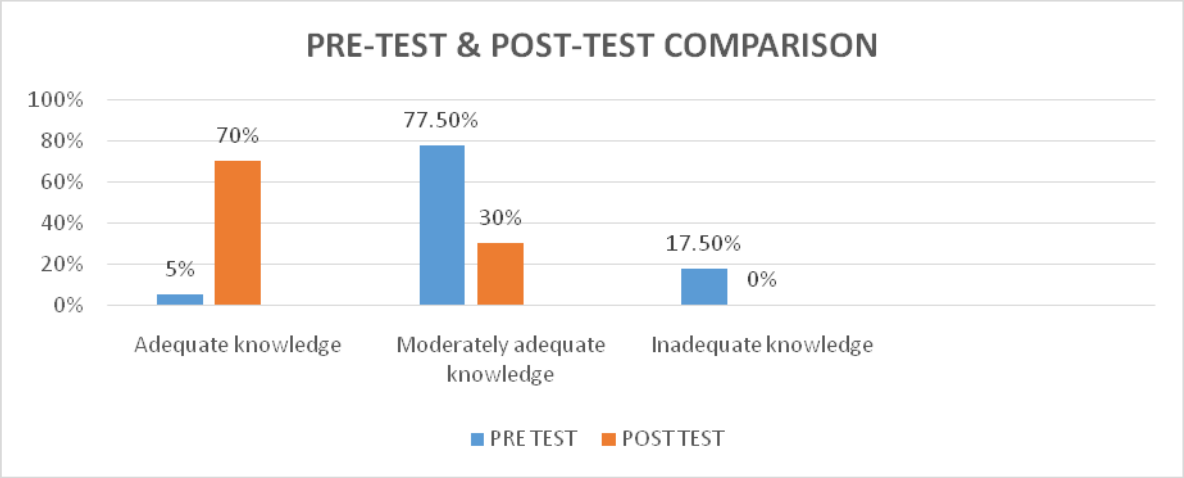
POST-TEST

KNOWLEDGE LEVEL	FREQUENCY n	PERCENTAGE %
Adequate knowledge	28	70
Moderately adequate knowledge	12	30

Fig No 6: Bar graph showing comparison of pre-test and post-test

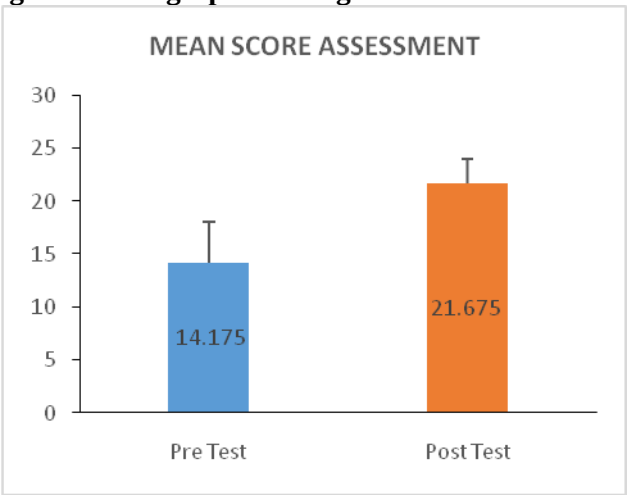


Above graph shows the scale wise comparison between pre-test & post-test score

Table no: 7 Mean score assessment

Variables	MEAN SCORE ASSESSMENT				
	Mean ± SD	Median(IQR)	Range	p value	Wilcoxon
Pre Test	14.1750±3.8755	13.20(11 - 17.50)	8 – 22	<0.0001	Z =-5.510932
Post Test	21.6750±2.2802	21.50(20 - 23)	17 – 27	Significant	

Fig No 7. Bar graph showing mean score assessment



Here the mean value with standard deviation of pre-test score is **14.1750+3.8755** and that of post-test is **21.6750+2.2802** which increases very effectively.

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Here, the normality of the variables before conducting any test is checked. As the data doesn't follow normality. So "t" test can't be performed. Instead Non-parametric WILCOXON SIGNED RANK TEST is used for checking effectiveness.

TESTING THE HYPOTHESIS:
H0: There is no significant effect of online module on knowledge of preparedness of medical emergencies among staff nurses.
H1: There is significant effect of online module on knowledge of preparedness of medical emergencies among staff nurses.

Shapiro Wilks Test for Normality

	Pre test	Post test
Sample size	40	40
Arithmetic mean	14.1750	21.6750
95% CI for the mean	12.9355 to 15.4145	20.9458 to 22.4042
Variance	15.0199	5.1994
Standard deviation	3.8755	2.2802
Standard error of the mean	0.6128	0.3605

Shapiro-Wilk test for Normal distribution of differences	W=0.9428 reject Normality (P=0.0429)

We reject null hypothesis because "p" value is less than 0.05, so inference can be made that the self-structured online module has proven to be successful in improving awareness among staff nurses on medical emergency preparedness

Wilcoxon Signed Rank Test

	Pre - test	**Post - test**
Sample size	40	40
Lowest value	8.0000	17.0000
Highest value	22.0000	27.0000
Median	13.5000	21.5000
95% CI for the median	12.0000 to 15.6611	21.0000 to 22.0000
Interquartile range	11.0000 to 17.5000	20.0000 to 23.0000

Wilcoxon test (paired samples)

Number of positive differences	40
Number of negative differences	0
Large sample test statistic Z	-5.510932
Two-tailed probability	P < 0.001

6
The null hypothesis will be denied since the "p" value in the Wilcoxon signed rank test is less than 0.05, i.e. 0.001, implying that there is a statistically significant difference between the mean pre-test and mean post-test score.

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Table no: 8. Association between knowledge score and demographical variables (PRE GROUP)

Pre Group							
	Poor Knowledge		**Average Knowledge**		**Good Knowledge**		
	F	**%**	**F**	**%**	**F**	**%**	
AGE							
21-30 Years	7	20.6	25	73.5	2	5.9	χ^2=2.049, df=4 P>0.05 Non Significant
31-40 Years	0	0	5	100	0	0	
41-50 Years	0	0	1	100	0	0	
EDUCATION							χ^2=5.824, df=1 P>0.05 Non Significant
B. Sc. Nursing	7	18.9	29	78.4	1	2.7	
Post B. Sc. Nursing	0	0	2	66.7	1	33.3	
GENDER							χ^2=2.868, df=4 P>0.05 Non-Significant
Male	7	20.6	26	76.5	1	2.9	
Female	0	0	5	83.3	1	16.7	
EXPERIENCE							χ^2=3.338, df=2 P>0.05 Non Significant
1-5 Years	5	13.9	29	80.6	2	5.6	
6-10 Years	2	50	2	50	0	0	
AREA OF EXPERIENCE							χ^2=5.091, df=6 P>0.05 Non Significant
Emergency department	1	16.7	4	66.6	1	16.7	
Intensive care unit	0	0	7	100	0	0	
Wards (Private and general)	6	24	18	72	1	4	
Operation theatre	0	0	2	100	0	0	

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Table no: 9. Association between knowledge score and demographical variables (POST GROUP)

Post Group					
	Average Knowledge		**Good Knowledge**		
	F	**%**	**F**	**%**	
AGE					
21-30 Years	10	29.4	24	70.6	χ^2=2.577,df=2 P>0.05 Non Significant
31-40 Years	1	20	4	80	
41-50 years	1	100	0	0	
EDUCATION					
B. Sc. Nursing	12	32.4	25	67.6	χ^2=1.355,df=1 P>0.05 Non Significant
Post B.Sc. Nursing	0	0	3	100	
EXPERIENCE					χ^2=0.05, df=1 P>0.05 Non Significant
1-5 Years	11	30.6	25	69.4	
6-10 Years	1	25	3	75	
GENDER					
Male	12	35.3	22	64.7	χ2=2.95, df=1 P>0.05 Non Significant
Female	0	0	6	100	
AREA OF EXPERIENCE					
Emergency department	1	20	5	80	χ2=5.23, df=6 P>0.05 Non Significant
Intensive care unit	2	28.6	5	71.4	
Wards (Private and general)	7	28	18	72	
Operation theatre	2	0	0	100	

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INTERPRETATION:

As the "p" value is not less than 0.05 which indicates that there is no association between knowledge regarding preparedness about medical emergencies with respective demographic variables.

DISCUSSION and SUMMARY:

In this current study, 40 nurses working in selected hospital sections were selected to participate in the study (Emergency Department, ICU, Wards-Private and General, and Operation Theatre). For study design, the pre-experimental one-group pre-test, post-test approach was used.85 percent of the staff nurses were 21-30 years of age, 85 percent of the nurses were females and 15 percent were males, among 40 nurses participated in the report, which clearly states that nursing in Indian is still a female dominated occupation. Pre-test information of staff nurses regarding medical emergency preparedness was tested using a questionnaire after their approval. After that, each participant was given the online module on preparedness in medical emergencies along with instructions to follow during its use. One week later, the post-test review was carried out using the same questionnaire. The mean information score was 14.175 in the pre-test and 21.675 in the post-test and the Wilcoxon Signed Rank Test's 'p' value is 0.001, which is highly important. This demonstrates that the online module is successful in improving awareness about preparedness during medical emergencies among staff nurses, and thus the null hypothesis is rejected.

Similarly study conducted by SG Joshi et al on effectiveness of training manual on disaster management found inadequate knowledge among participants and it was significantly increased after administration of manual[8].

Park and Kim also found that disaster nursing competencies showed a significant positive correlation with age and clinical experience due to their greater work experience[9]

CONCLUSION

The results of the study indicate that preparedness for medical emergencies is very critical and is a priority for all nurses in the workforce. The nurses are supposed to be competent and trained to manage emergency situations in each discipline. Because of their expertise and analytical skills, nurses are not left behind and, as such, have a major role to play in terms of preparedness for medical emergencies. The shortage of teaching services is a significant concern because health practitioners lack information about medical emergencies.Emergency preparedness must also be a part of the primary medical school curriculum and continuing medical education programmes offered by health facilities. Long-term formal education, such as undergraduate and post-graduate programmes, is planned. It is recommended that key staff from various organisations who participated in operational simulations focus on organisational training rather than individual training. This research used a module with the necessary details on medical emergency preparedness and its steps to assess its efficacy among the awareness of staff nurses. The results of the study showed that the awareness module among staff nurses on preparedness during medical emergencies operating in selected hospitals in Maharashtra is highly successful..

CONFLICTS OF INTEREST:

The author have declared no conflicts of interest

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