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A STUDY TO ASSESS THE EFFECTIVENESS OF INFORMATION, EDUCATION AND COMMUNICATION ON KNOWLEDGE AND PRACTICE REGARDING TRIAGE PROCESS AMONG B.SC. NURSING STUDENTS AT MEENAKSHI COLLEGE OF NURSING IN CHENNAI

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Abstract:
Background: The Nursing has been evolving for the last 150 years and started as a Nightingale's in the midst of 1850s. It is still a fearful fact that floats in the hearts when there is an emergency situation. The knowledge and practice on triage will help them to handle the emergency situation at ease. The focus of this study sought to evaluate the understanding of knowledge and practice about the process of triage by the third-year B.Sc. nursing students at Meenakshi College of Nursing and the result of receiving information, education, and communication (IEC).
Methodology: The proficiency in the triage process was assessed among the students by preforming a pre-test and post-test approach. This study also assessed the association between demographic variables with the level of understanding on the triage knowledge and practice.
Results: Findings revealed that the triage intervention significantly with both knowledge and practice, indicating an overall score of 11.66±1.45 for knowledge with a ($p < 0.000$) and practice (3.14±0.88, $p < 0.000$). However, no significant association was observed between demographic variables of the students' and the level of knowledge and practice.
Conclusion: The study concludes that IEC is an effective, simple, and cost-efficient intervention that enhances the understanding of triage process among nursing students, emphases the need for a frequent practical training for the nursing students to ensure effective prioritization of patient and to deliver timely care.

INTRODUCTION:

Triage patients in the Emergency Departments (ED) is a worldwide healthcare concern and is defined as a critical practice in ED in categorizing the patients based on the priorities, thus reducing the time in decision-making and improving the quality of health care [1,2]. The undemocratic patient distribution during triage may result in adverse effects as stated by Afaya et al.[3].
The importance of triage is felt during large casualties, disasters, and wars. Different triage systems are employed around the globe, and five different systems used widely are the Australian Triage Scale (ATS), Canadian Triage and Acuity Scale (CTAS), Manchester Triage System (MTS), and Emergency Severity Index (ESI), out of which CTAS, MTS, and ATS are being widely used in European countries [4, 5, 6, 7].
In low-income and developing countries, the triage system incorporated in ED is still believed to be a weak point in healthcare. Many hospitals, especially in low-income countries, do not have a proper triage system protocol [8]. The harsh reality of triage is that many nurses in healthcare sectors lack adequate awareness, education, and training to effectively implement a triage system, which could lead to deadly delays in treatment procedures, especially for critically ill patients who require immediate medical attention [9].
However, the aftermath of it is influenced by various factors like the triage system type, the efficiency of the system, and the knowledge and skill of the staff in the ED. India has the second largest population and faces a significant burden in ED[10]. In India, the ED was established during the 21st century, and it has evolved continuously in the past two decades, and many institutions and hospitals have established or adapted triage systems[11,12].At the All India Institute of Medical Sciences (AIIMS), New Delhi, the premier medical institute in our country, has framed and followed the ED triage protocol since 2010. In triage, the patients were divided into the four urgency categories (UC): 1 (Red), immediate assessment; 2 (Yellow), assessment within 20 minutes; 3 (Green), assessment within 60 minutes; and 4 (White), assessment within 120 minutes. The thorough understanding of triage by the health care professionals in emergency departments can help to diagnose a patient as soon as possible rather than waiting for a doctor. With this basic understanding about triage this study was

designed and conducted among the nursing student to assess the level of knowledge and practice skill about triage system in ED [13].

METHODOLOGY

Research Approach

A quantitative approach was used to investigate the numerical and statistical data in a systematic manner. One-group pre-test-post-test research design with a non-probability convenience sampling technique was employed to assess the data before and after the interventions, a total of 50 students were incorporated in this study.

Variables of the Study

Information Education & Communication, Level of knowledge and practice with respect to triage midst nursing students, age, gender, and religion was recorded for every participant in this study.

Criteria for Sample:

Inclusion Criteria includes nursing students who has given willingness to be the part of the study. The Exclusion Criteria includes nursing students who were unavailable during the data collection procedure.

Data Collection Procedure:

Formal permission was obtained from the principal of Meenakshi College of Nursing, Chennai. Fifty students were selected using the convenience sampling technique. The investigator provided a brief introduction to the study, ensured confidentiality, and obtained written informed consent.

Data Collection Timeline:

Pre-test (Day 1): Knowledge and practice on triage were assessed using a structured questionnaire. Intervention (Day 2): All students gathered in a common room for a 60-minute PowerPoint presentation. A 30-minute case scenario demonstration was conducted the next day. Post-test (Day 8): Knowledge and practice were reassessed.

Data Analysis:

Data recorded or collected throughout the course of the study was further analysed using the Statistical Package for the Social Sciences (SPSS version 25). In this study both descriptive and inferential statistics were used to correlate the obtained data. The descriptive variables give the mean and standard deviation for the data analysed and by inferential statistics was used to get the Chi-square value and find the statically significant p value between the variables.

RESULTS

Table 1 showed the distribution of the demographic variables among nursing students included in the study. The major age groups involved in this study were 15-20 and 20-25, as well as the female population, which was as high as 64%, followed by males at 36%.While looking at the religion-wise distribution, Hindus contributed the highest with 70% followed by Christians with 24%, and for further details, refer to Table 1.

Table 1: Distribution of Demographic variables among Nursing Students

Demographic variables	Individual=50	
	Frequency	Percentage (%)
1. Age		
a. 15-20 years	23	**46.0**
b. 21-25 years	27	**54.0**
2. Gender		
a. Male	18	**36.0**
b. Female	32	**64.0**
3. Religion		
a. Hindu	35	**70.0**
b. Christian	12	**24.0**
c. Muslims	1	**2.0**
d. Others	**2**	**4.0**

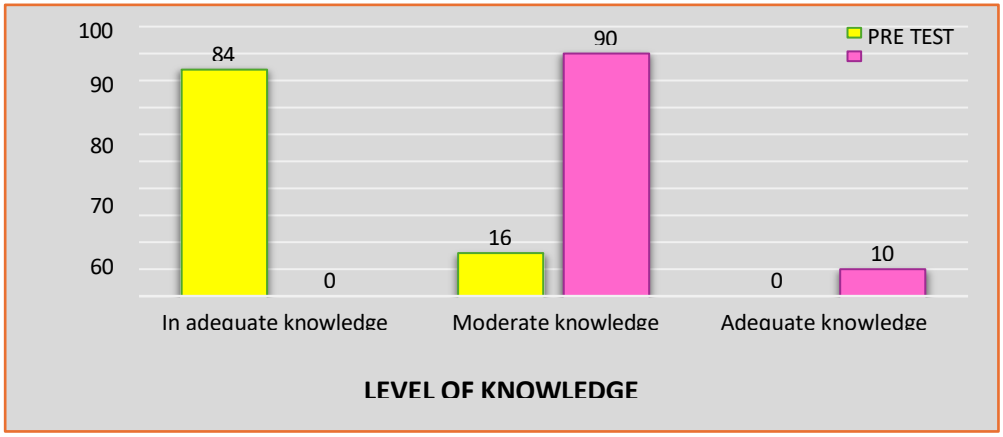
The triage knowledge of third-year nursing students is included in Table 2, which was categorized as inadequate, reasonably adequate, or adequate according to their pre- and post-tests. Prior to the intervention, 84% of students performed poorly and 16% performed moderately well, as reflected in the pre-test. In the triage post-test, moderately adequate knowledge

increased to 90%, while the proportion of students with poor knowledge decreased to 0%. These results proved that the triage intervention positively impacted the nursing students' level of knowledge. The figure 1 illustrates the bar diagram showing the Level of Knowledge on Triage for both Pre-test and Post-test where the yellow color bars indicate the score acquired from the pre-test and the pink color bars represent the values of the post-test scores. This bar diagram illustrates that there was a notable improvement in triage knowledge following the intervention study.

Table 2: Level of Knowledge on Triage among Nursing Students in Pre-test and Post test

Level of Knowledge	Pre-test		Post test	
	No.	Percentage (%)	No.	Percentage (%)
Inadequate knowledge	42	84.0	0	0.0
Moderately Adequate knowledge	8	16.0	45	90.0
Adequate knowledge	0	0.0	5	10.0
Total	**50**	**100**	**50**	**100**

Figure 1: Level of Knowledge on Triage among Nursing Students in Pre-test and Post test



The evaluation of nursing students' triage practice levels revealed significant improvement after practice interventions. The assessment categorized students into three levels: inadequate, moderate, and adequate practice. Notably, after the intervention, 66% of students demonstrated a moderate level of practice, while 34% reached an adequate level. This highlights the effectiveness of the training in enhancing their triage skills. For a detailed breakdown, refer to Table 3. Additionally, Figure 2 presents a bar diagram comparing pre-test and post-test results, with green bars representing pre-test scores and violet bars representing post-test scores across different criteria.

Table 3: Assessment of Level of Practice on Triage among Nursing Students in Pre-test and Post test

Level of Practice	Pre-test		Post test	
	No.	%	No.	%
Inadequate practice	21	42.0	0	**0.0**
Moderate Practice	29	58.0	33	**66.0**
Adequate Practice	0	0.0	17	**34.0**
Total	**50**	**100.0**	**50**	**100.0**

Figure 2: Level of Practice on Triage among Nursing Students in Pre-test and Post test

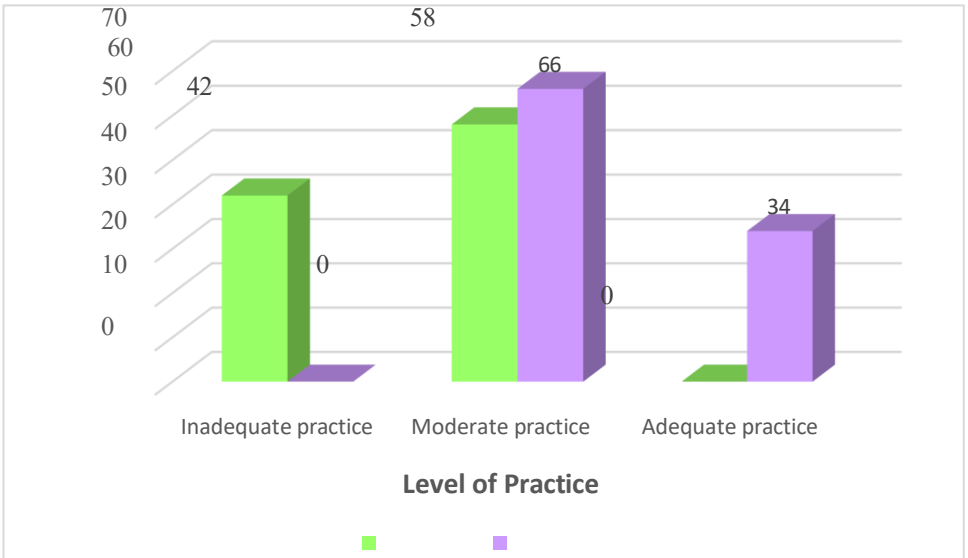


Table 4 displays the total score summary for knowledge and practice-based triage intervention in pre-test and post-test evaluations. The overall knowledge-based pre-test score was 5.66±2.20, with the post-test value showing a boost to 11.66±1.45. The practice-based intervention study yielded comparable outcomes, with pre-test scores of 1.66±0.63 and post-test scores of 3.14±0.88.

Table 4: Effectiveness of Intervention on Knowledge of Triage among Nursing Students

Descriptive Statistics	**Knowledge/Practice score (n=50)**		
	Pre-test	Post test	**Difference (post-pre)**
Mean/SD (Knowledge)	5.66±2.20	11.66±1.45	**6.00±2.82**
Mean/SD (Practice)	1.66±0.63	3.14±0.88	**1.48±0.97**
P<0.000 * **			

Note: *** - p<0.00 Level of Significant

When we look at the statistical aspect of these figures, both interventions demonstrate statistical importance with p<0.00***. Researchers also examined the obtained data on knowledge and practice intervention alongside demographic information. However, this analysis failed to establish any meaningful link in either the knowledge- or practice-based intervention studies.

DISCUSSION:

Lack of an adequate perception of waiting time limits can create ineffectual delays in delivering timely emergency care, which increases the likelihood of avoidable deaths and disabilities. Triage in an emergency department is important to facilitate the treatment of patients in accordance with the urgency of their medical needs; ensuring patients receive treatment in a timely and appropriate manner [14, 15]. The lack of such training is associated with incorrect triage decisions, as proficiency in triage is recognized as a fundamental element influencing the precision of triage outcomes in emergency care[16] This study points out that wrong triage decisions not only take time away from patients arriving in emergency care, they cost patients and the hospital unnecessary costs [14].

The findings of the study indicated that the demographic factors of nursing students did not significantly relate to nursing students' knowledge and practice of triage. The demographic factors which were considered were age, gender, and religion, which were collected to describe a general profile of the students. The largest demographic group was ages 21-25 years (54%), and 64% of the population sample was female. The largest representation of religion was Hindus at 70%. These findings were comparable to those of MH Patil [17], who noted 66% of students were Hindus and noted that 98% had knowledge of triage, in the academic average category, at the time of an emergency. The difference from this study is that students were not acted upon during triage care. Many studies, including I Twagirayezu et al[18], H Rahmati et al[19], B Duko et al[20] and D Kalal et al[21], also identified the level of knowledge and level of practice of triage among emergency department nurses, and determined the need for

additional training. While nursing students are taught knowledge of triage throughout their nursing education, training in practice was yet to be determined. Their interest in triage was shared through lectures, practical wards, conferences and courses in the hospital.
R Farhadloo[22] and colleagues had conducted a similar study in which a total of 70 students were involved and male population was higher than the female population. The study was conducted before and after the intervention on triage. I was observed that there was a great progress in the development of knowledge and practice skill after the intervention the knowledge was significantly improved from 4.6±1.94 before training to 7.40±1.35 after training. Their performance significantly increased from 4.90±1.6 to 8.30±1.5. YH Seo[23] and his group have reported on the knowledge and practice of triage in a Korean college nursing department. It was observed out of the 76 students participated in the study 39 was assigned as experimental group and 39 was assigned the control group, after the pre and post study it was observed that the experimental group showed a significant improvement in Triage knowledge and triage performance ability than the control group was 11.36 ± 0.32 to 15.41 ± 0.35 respectively and triage performance from 2.92 ± 0.23 to 5.31 ± 0.24 respectively which correlates with the present study. The demographical data showed that women candidates were higher of 37% compared to the male candidates.

CONCLUSION:

The Triage interventions are an important practice in emergency department of medical hospitals. It is a cost effective and simple intervention that served effectively in improving the knowledge and skill among nursing students. These findings highlighted that health care professional especially nursing students should be trained continuously in triage managements interventions, so that they can professionally assess the patients at the right time to receive the deserved attention and treatment.

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