Effectiveness of Module on Knowledge and Practice Regarding Prevention of Medication Errors among Critical Care Nurses in Selected Hospital

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Abstract

Introduction and objective: Medication administration is the major tasks of each nurses in their clinical practice. Medication administration errors are preventable if the nurses have adequate knowledge and practices regarding the medications. Hence the main objective of this study was to determine the effectiveness of module on knowledge and practices regarding prevention of medication errors among critical care nurses**.**

Methodology: Pre experimental one group pretest and posttest research method used for the study. 50 critical care nurses were selected using convenient sampling method and given questionnaire to assess their knowledge in pretest and posttest done after 1week of intervention. Checklist used to assess their practices in pretest and posttest**.**

Result: The mean score of knowledge in pre-test was 13.2 and in post-test was 21.5 and the t-value was 27.7 The p value was less than 0.05. The mean score of practice in pre-test was 35.3 and in post-test was 48.0, and the t value was 55.3 The p value was less than 0.05. This shows that the module is effective. Hence the null hypothesis is rejected.

Conclusion: The improvement found in the post test proved that the module is effective in improving the knowledge and practices regarding prevention of medication errors among critical care nurses.

Keywords: *Effectiveness, Module, knowledge and practices, medication errors, critical care nurses*

Introduction

During recent years, health care demand is greatly increased. Due to technological advancements and increased globalization the need for patient safety is in high demand. An error in the health care supply can put the organization and also the patients' health in jeopardy. Nurses play a key role in any health care services. Thus, medication administration safety is mainly depending upon the nurses' knowledge and practices. Medication errors have been assumed to count for over one fourth of causes of adverse drug event. Such errors can occur anytime in the process of medication handling by the health care workers or even by the consumers and they are preventable [(1)]. Medication errors are a frequent reason for iatrogenic adverse events. They can lead to severe morbidity, prolonged hospitals stay, unnecessary diagnostic tests, unnecessary treatments, distrust in the healthcare system, severe injury or even patient death [(2)].

Presently in world there are more than 20 thousand variety of drugs available. In spite of their therapeutic effects they all come with their own side effects and complications too. So, it is essential for nurses and nursing students to have the updated pharmacological knowledge to hamper any potential harms [(3)]. Research

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has shown that the rate of medication errors by nurses and nursing students is high; however, the report of these errors by them is low [4]. Medication errors are multifaceted problems and to avoid them we need to discover proper standardised solutions. Many standard protocols provided by WHO, NABH etc will be helpful in preventing medication errors to a greater extent if they are properly followed. In day to day life the major function of nurses involves implementing the medication orders by doctors which is the essential part of the patient care and treatment, thus, in turn leads to patient safety [5].

Medication errors are a grave problem in the world and any one medication error can threaten the patient safety and may lead to even death of them. Medication errors are a constant problem in every hospital. Studies shows that medication errors and adverse drug reactions (ADRs) are one of the important elements for unfavourable events in hospitals which prone to disability and death in up to 6.5% of hospital admissions. Medication error is recognized as the eighth leading cause of death. A medication error is any preventable action which in return lead to inappropriate medication use or patient harm while the medication is in the control of healthcare professional, patient or consumer.

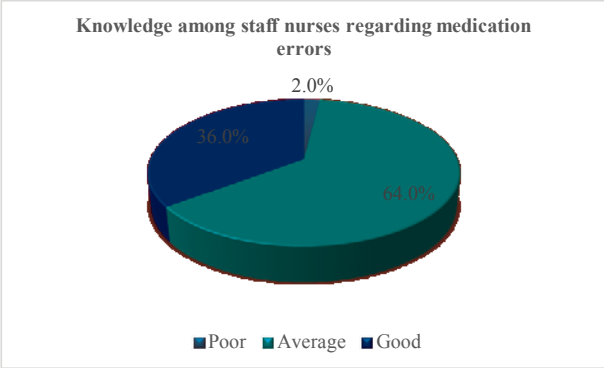
Material and Methods

A Pre-Experimental one group pretest posttest design with quantitative approach was used, as this study was aimed, the approach was found to be most appropriate. The group received module regarding the prevention of medication error (contains basic rights, common conversions, drug and fluid calculation formulas, LASA drugs, medication storage, common emergency drugs, common abbreviations, and instructions for prevention of medication errors) This study was conducted in selected hospital of Pune city. The selection was based on easy accessibility, cooperation and availability of samples. Total 50 Critical care unit staff nurses of selected hospital, Pune city who met the inclusion criteria were selected. Tool used for the collection of data by demographic data and self-structured questionnaire on assessment of knowledge and Checklist to assess on practice.

Findings: The analysis and interpretation of the data collected to determine the Effectiveness of module on knowledge and practices among critical care nurses which is carried out based on objectives set by the researcher taking the level of significance as 0.05

Figure No . 1: Pie diagram on assessment of knowledge regarding medication errors among staff nurses

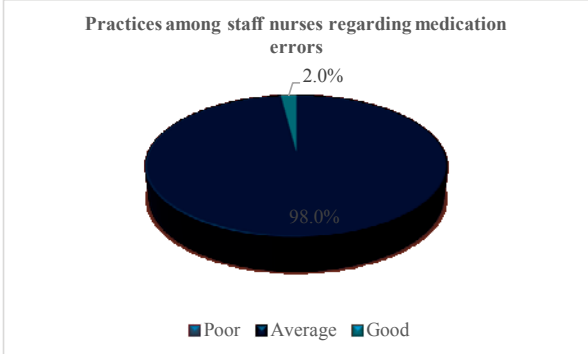
N=50



the pie diagrams state 2% of the nurses had poor knowledge (score 0-7), 64% of the staff nurses had average knowledge (score 11-20) and 36% of them had good knowledge (score 21-30) regarding medication errors.

Figure No . 2: Pie diagram on assessment of practice regarding medication errors among staff nurses

N= 50



The pie diagram show that 98% of the staff nurses had average practices (score 28-39) and 2% of them had good practices (score 40-51) regarding medication errors

Table No 1: Effectiveness of hand module on knowledge regarding medication errors among staff nurses

N=50

Knowledge	Pretest		Posttest	
	Freq	%	Freq	%
Poor (score 0-7)	1	2.0%	0	0.0%
Average (score 8-14)	32	64.0%	0	0.0%
Good (score 15-22)	18	36.0%	50	100.0%

In pretest, 2% of the staff nurses had poor knowledge (score 0-7), 64% of the staff nurses had average knowledge (score 11-20) and 36% of them had good knowledge (score 21-30) regarding medication errors. In posttest, all of them had good knowledge (score 21-30) regarding medication errors. This indicates that the knowledge of staff nurses improved remarkably after hand module regarding medication errors.

Table No 2: Paired t-test for effectiveness of hand module on knowledge among staff nurses regarding medication errors

N=50

	Mean	SD	t	df	p-value
Pretest	13.2	2.2	27.7	49	0.000
Posttest	21.5	0.7			

Researcher applied paired t-test for effectiveness of hand module on knowledge among staff nurses regarding medication errors. Average knowledge score in pretest was 13.2 which was 21.5 in posttest. T-value for this test was 27.7 with 49 degrees of freedom. Corresponding p-value was small (less than 0.05), the null hypothesis is rejected. It is evident that the hand module is significantly effective in improving the knowledge of staff nurses regarding medication errors.

Table No.3: Effectiveness of hand module on practices among staff nurses regarding medication errors

N=50

Practices	Pretest		Posttest	
	Freq	%	Freq	%
Poor (Score 17-27)	0	0.0%	0	0.0%
Average (Score 28-39)	49	98.0%	0	0.0%
Good (Score 40-51)	1	2.0%	50	100.0%

In pretest, 98% of the staff nurses had average practices (score 28-39) and 2% of them had good practices (score 40-51) regarding medication errors. In posttest, all of them had good practices (score 40-51) regarding medication errors. This indicates that the practices of staff nurses improved remarkably after hand module regarding medication errors.

Table No IV.4: Paired t-test for effectiveness of hand module on practices among staff nurses regarding medication errors

N=50

	Mean	SD	t	df	p-value
Pretest	35.3	2.7	55.3	49	0.000
Posttest	48.0	1.1			

Average practices score in pretest was 35.3 which was 48 in posttest. T-value for this test was 55.3 with 49 degrees of freedom. Corresponding p-value was small (less than 0.05), the null hypothesis is rejected. It is evident that the hand module is significantly effective in improving the practices of staff nurses regarding medication errors.

Fisher's exact test was used for the association of knowledge of the nurses with selected demographic variables. All the p-values are large (greater than 0.05), none of the demographic variables was found to have significant association with the knowledge among staff nurses working in critical care unit regarding medical errors.

Fisher's exact test was used for the association of practices of the nurses with selected demographic variables. All the p-values are large (greater than 0.05), none of the demographic variables was found to have significant association with the practice among staff nurses working in critical care unit regarding medical errors.

Discussion

In the present study, 50 staff nurses working in critical care unit were selected to participate in the study. Pre experimental, one group pre-test, post-test method has been used for the study design. Among the 50 nurses participated in the study 68% of the staff nurses were of 21-25 years of age, thus, proving majority of the critical care nurses are freshly completed their degrees, 76% of nurses were females and 24% of them were males, this clearly says that nursing in India is still a female dominated profession. When asked about barriers of practicing safe medication administration 34% nurses replied that time and work pressure is always the barrier followed by 22% nurses felt interruption during medication process is always the barrier. Multiple medication due at time was 8% and personal family issues 4%.Pre-test knowledge and practice of staff nurses regarding prevention of medication errors was assessed using questionnaire and checklist. Module which has information regarding safe medication administration given to every participants and instructions given about the usage of the module. Post-test assessment done after 1 week using the same questionnaire and checklist. The mean score of knowledge in pre-test was 13.2 and in post-test was 21.5 and the t-value was 27.7 with the degree of freedom 49. The p value was less than 0.05. the mean score of practice in pre-test was 35.3 and in post-test was 48.0, and the t value was 55.3 with the degree of freedom 49. The p value was less than 0.05. Hence the null hypothesis is rejected. This shows that the module is effective in improving the knowledge and practice of staff nurses in preventing medication errors.

Conclusion

Medication errors are a major concept of debate during the recent years in the health care system. Nurses are a key member in this debate as they handle the majority of medication administration and spend much of their times near the patients. Many research studies states that nurses commit majority of the medication errors when compared with other health care staffs. The factors causing medication errors among nurses can be due to administration factors, or maybe personal factors. Proper guidelines and protocol are required to minimize these errors. This study used a module with some necessary information regarding safe medication practices to find its effectiveness in preventing medication errors. The findings of the study proved that there is a highly significant effectiveness of the module on knowledge and practices regarding preventing medication errors among staff nurses working in critical

care unit.

Conflict of Interest – Nil

Source of Funding- Self

Ethical Clearance – Obtained from Institutional Research Committee of Symbiosis College of Nursing

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