A Study to Assess the Effect of Structured Teaching Programme on Knowledge and Attitude regarding Medication Error among Staff Nurses of Intensive Care Units in Selected Hospitals, Guwahati, Assam

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Abstract: *Medication misadventure can occur anywhere in the healthcare system and many errors are preventable and nurses have an active role in the appropriate use of drugs.The aim of the study was to assess the level of knowledge and attitude regarding medication error among staff nurses of ICUs before and after administration of structured teaching programme. Pre experimental one group pre-test post-test design and nonprobability convenience sampling technique was used for obtaining the adequate sample for the study. Study was undertaken on 62 staff nurses working in CTVS ICU and ICCU of selected hospitals of Guwahati, Assam.The calculated value of 'Z' (11.57) was more than the tabulated value (1.64) at 0.05 level of significance for knowledge and the calculated value of 'Z' (4.78) was more than the tabulated value (1.64) at 0.05 level of significance for attitude which signifies that STP was effective in increasing the knowledge and attitude of staff nurses.There was significant association between pretest knowledge regarding medication error and professional qualification and special training attended on medication error whereas there was significant association between pre-test attitude regarding medication error and special training attended on medication error.*

Keywords: Assess, Medication error, Structured teaching programme, Attitude, Intensive care unit

1. Introduction

"Primum nil nocere = First do no harm"

Many factors influence health status and a country's ability to provide quality health services for its people.Medication plays a very vital role in a hospital to provide proper care and cure to a patient. Its proper and rational use leads to effective care management and helps in early recovery.

However, with substantial and increasing medication use comes a growing risk of harm. This is compounded by the need for an ageing population with increasingly complex medical needs and the introduction of many new medications.In hospitals, errors occur in every step of medication use process starting from procuring the drug to prescribing, transcribing, dispensing, administering and monitoring its effect.

A medication error is any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer.

Medication errors are the most common medical errors. The first reports were made in 1940 [1]. It is a common cause for iatrogenic adverse events. They can lead to severe morbidity, prolonged hospital stay, unnecessary diagnostic tests, unnecessary treatments and even death. It has a huge impact on health care system, patients and payers alike.

Fathi A.et al.(2016) conducted a study on medication errors among 500 nurses in teaching hospitals of Iran which showed that the prevalence of MEs was 17.0% with most common typewere administering medications at the wrong time (24.0%), dosage errors (16.8%), administering to wrong patient (13.8%) and 45% of nurses did not report MEs. [2]

Within five years, the investigator has observed several medication errors ranging from mild to severe patient outcomes among which 4 patients with permanent damage and death of 5 patients within 24 hours of drug administration. Among these severe 9 cases, only 2 cases were reported. The number of damage and death secondary to medication error was difficult to estimate. The main reason for medication error among nurses was the lack of knowledge about the drugs and patient's disease condition followed by heavy workload.

2. Literature Survey

In 2016 a United Kingdom study found that 12% of all primary care patients may be affected by a prescribing or monitoring error over the course of a year, increasing to 38% in those 75 years and older and 30% in patients receiving five or more drugs during a 12-month period. A Swedish study found a medication error rate of 42% but two-thirds were related to a failure to state the purpose of the treatment on prescriptions and only 1% of errors resulted in an incorrect dose. Another study in Mexico observed that 58% of prescriptions contained errors, with dosage regimen accounting for most cases (27.6%). This data has shown that ME are a global issue. [3]

It is estimated that 237 million medication errors occur at some point in the medication process in England per year. This is a large number, but 72% have little/no potential for harm. [4]

Each year, in the United States alone, 7,000 to 9,000 people die as a result of a medication error. Additionally, hundreds to thousands of other patients experience but often do not report an adverse reaction or other complication related to a medication. The total cost of looking after patients with medication-associated errors exceeds $40 billion each year. In addition to the monetary cost, patients experience psychological and physical pain and suffering as a result of medication errors. [5]

A descriptive study was conducted by Samundeeswari A, Muthamilselvi G in 2018 on Nurses knowledge on Prevention of Medication Error among 50 nurses in Pondicherry. It is shown that 34% of nurses are average in the knowledge on prevention of medication error. 30% have poor knowledge, 28% have very poor knowledge and only 8% of nurses had good knowledge on prevention of medication error with mean of 13.26% and standard deviation of 6.31. This shows nurses had poor knowledge on prevention of medication error. [6]

Objectives:
a) To assess the level of knowledge regarding medication error among staff nurses of ICUs before and after administration of structured teaching programme.
b) To assess the attitude regarding medication error among staff nurses before and after administration of structured teaching programme.
c) To determine the effect of structured teaching programme on knowledge and attitude regarding medication error.
d) To find the association between pretest knowledge and attitude regarding medication error with selected demographic variables.

3. Method/Approach

In this study considering the objectives, pre experimental one group pre-test post-test design was adopted to assess the effect of Structured Teaching Programme.

Setting of the study
The present study was conducted at two private Hospitals of Guwahati, Assam.
a) Health City Hospital, Khanapara
b) GNRC Hospital, Dispur

Target populations
Target populations were staff nurses working in ICCU and CTVS ICU

Sampling technique
Convenience sampling technique

Sample and sample size
62 staff nurses working in CTVS ICU/ICCU of selected hospitals of Guwahati, Assam who fulfils the inclusion criteria.

Description of the tool
The tools used for the study consisted of three sections:

Section I: Demographic variables: Age, gender, professional qualification, total working experience, total working experience in CTVS ICU/ICCU, working area, any special training attended on medication error

Section II: Structured knowledge questionnaire: The 26 questionsassess the level of knowledge on Introduction, Definition of medication error, Incidence, Causes, Classification, Types of medication error and methods to minimize, Factors contributing to medication errorand Strategies to prevent medication error

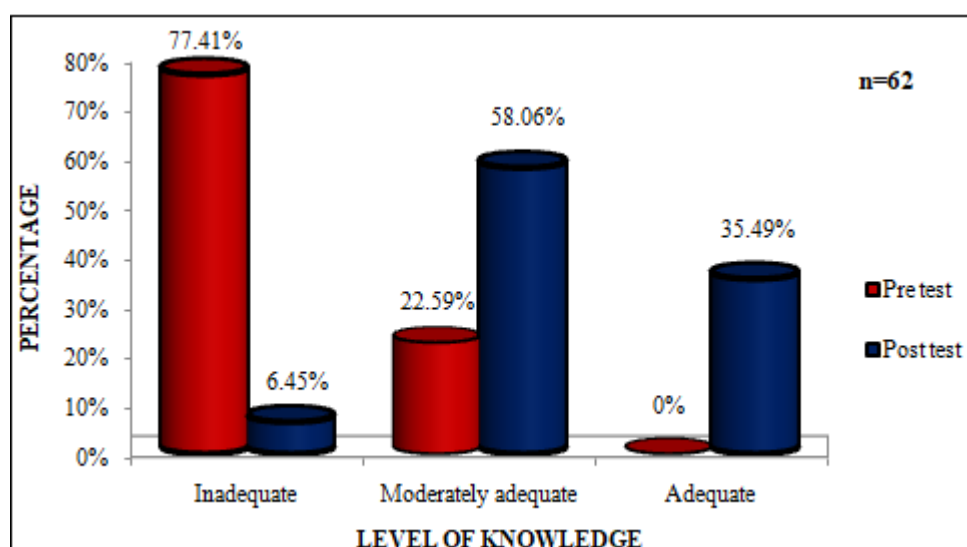**Section III: Attitude scale**: 20 questions based on 3point Likert scale

4. Results

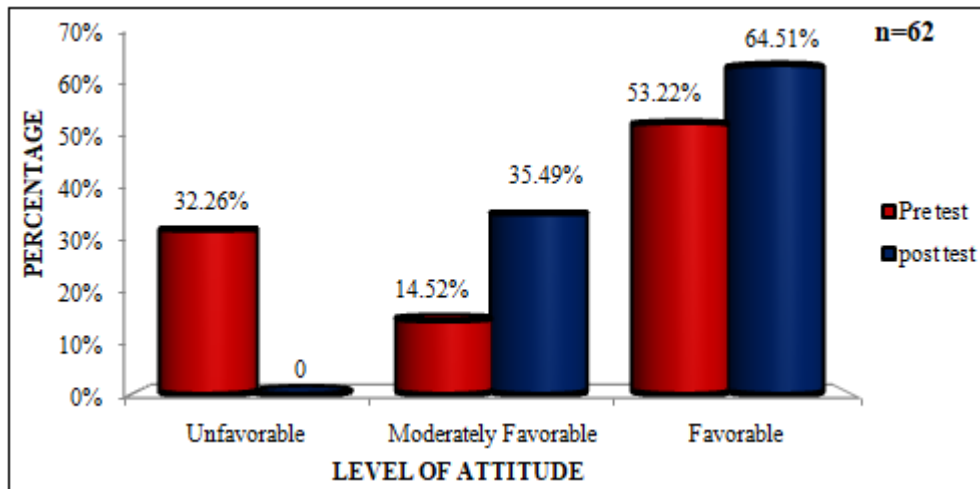**Figure 1:** Percentage distribution of staff nurses knowledge level

Figure 2: Percentage distribution of staff nurses attitude level

Table 1: Evaluation of the effect of structured teaching programme on knowledge regarding medication error among staff nurses

Knowledge	Mean	SD	P – value	Calculated Z - value	Table Z – value
Pre – test	10.61	3.85	0.05	11.57	1.645
Post - test	18.48	2.41			

Table no.1 depicts that the calculated value of "Z" (11.57) is more than the tabulated value (1.645) at 0.05% level of significance.So it indicates that the mean post test knowledge is significantly higher than the pretest knowledge. This indicated that the structured teaching programmeregarding Medication Error is effective in improving the knowledge of the staff nurses.

Table 2: Evaluation of the effect of structured teaching programmeon attitude regarding medication error among staff nurses

Attitude	Mean	SD	P – value	Calculated Z - value	Table Z – value
Pre – test	34.37	21.32	0.05	4.78	1.645
Post - test	47.77	3.52			

Table no.2 depicts that the calculated value of "Z" (4.78) is more than the tabulated value (1.645) at 0.05% level of significance.So it indicates that the mean post-test attitude is significantly higher than the pre-test attitude. This indicated that the structured teaching programmeregarding Medication Error is effective in improving the attitude of the staff nurses

Table 3: Association of pre-test knowledge with selected demographic variables

Variables	IA < 50%	MA 51-75%	Frequency	Level of significance	Chi square Cal value	Chi square Table value	df	Remarks
Age								
21 -30 years	39	9	48	0.05	1.78	3.84	1	**NS**
>31 years	9	5	14					
Total	48	14	62					
Professional Qualification								
GNM	33	5	38					
B.Sc& Post basic B.sc Nursing	15	9	24					
Total	48	14	62	0.05	4.98	3.84	1	**S**
Total working experience								
<5 years	36	7	43					
>5 years	12	7	19	0.05	3.18	3.84	1	**NS**
Total	48	14	62					
Total working experience in CTVS ICU/ICCU								
<5 years	41	10	51					
>5 years	7	4	11	0.05	1.45	3..84	1	NS
Total	48	14	62					
Working area								
ICCU	28	8	36					
CTVS ICU	20	6	26	0.05	0.06	3.84	1	**NS**
Total	48	14	62					
Special Training attended on medication error								
Yes	10	9	19					
No	38	5	43	0.05	9.62	3.84	1	**S**
Total	48	14	62					

Table 4: Association of pre-test attitude with selected demographic variables

Variables	Above Mean >34	Below Mean <34	Frequency	Level of significance	Cal value	Table value	df	Remarks
Age								
21 - 30 years	29	19	48					
>31 years	9	5	14	0.05	0.06	3.84	1	**NS**
Total	38	24	62					
Professional Qualification								
GNM	24	14	38					
B.Sc & Post Basic B.sc Nursing	14	10	24	0.05	0.14	3.84	1	**NS**
Total working experience								
<1 year	5	6	11					
1 - 5 year	18	14	32					
>5 years	15	4	19	0.05	4	5.99	2	**NS**
Total	38	24	62					
Total working experience in CTVS ICU/ICCU								
<1 year	13	11	24					
1 - 5 years	18	9	27					
>5 years	7	4	11	0.05	0.86	5.99	2	**NS**
Total	38	24	62					
Working area								
ICCU	21	15	36					
CTVS ICU	17	9	26	0.05	0.31	3.84	1	**NS**
Total	38	24	62					
Special Training attended on medication error								
Yes	16	3	19					
No	22	21	43	0.05	6.06	3.84	1	**S**
Total	38	24	62					

**IA=Inadequate, MA=Moderately adequate, NS= Non significant, S=Significant, df=Degree of freedom,
Cal value=Calculated value. NB: For calculation, data were clubbed together

5. Discussion as Per the Objectives of the Study

Objective 1: To assess knowledge of the staff nurses regarding medication error

In the pre-test knowledge, majority i.e. 48 (77.41%) had inadequate knowledge, 14 (22.59%) had moderately adequate knowledge and zero (0%) had adequate knowledge with a mean score of 10.61(SD 3.85). In post-test knowledge, majority i.e. 36 (58.06%) had moderately adequate knowledge, 22 (35.49%) had adequate knowledge and 4 (6.45%) had inadequate knowledge with a mean score of 18.48 (SD 2.41).

Objective 2: To assess attitude of the staff regarding medication error

In pre-test attitude; 33 (53.22%) were highly favorable, 9 (14.52%) were moderately favorable and 20(32.26%) were unfavorable attitude towards medication error with a mean score of 34.37 (SD 21.32). In post-test attitude, 40 (64.51%) were highly favorable and 22(35.49%) were moderately favorable and zero (0%) were unfavorable attitude towards medication error with a mean score of 47.77 (SD 3.52).

Objective 3: To find out the effect of STP on knowledge and attitude regarding Medication error

The study showed that mean post-test knowledge score was increasing to 18.48 over mean pretest knowledge score of 10.61.The calculated value of 'Z'(11.57) was more than the tabulated value of 'Z'(1.64) at 0.05 level of significance. Therefore, it showed that STP was effective.

The mean attitude pre test score was 34.37 and increased to 47.77 in post test. The calculated value of 'Z'(4.78) was more than the tabulated 'Z'(1.64) at 0.05 level of significance. Therefore, it showed that STP was effective.

Objective 4: To find out the association between pretest knowledge and attitude of staff nurses regarding medication error with the selected demographic variables.

The analysis depicted that there was significant association between pre-test knowledge and professional qualification and special training attended on medication whereas there was no significant association with other selected demographic variables such as age, total working experience, total working experience in CTVS ICCU/ICCU and working area.

There was significant association between pre-test attitude and special training attended on medication error whereas there was no significant association with other selected demographic variables such as age, professional qualification, total working experience, total working experience in CTVS ICU/ICCU and working area.

6. Conclusion

Based on the analysis of the findings of the study, there was evident increase in the knowledge and attitude in all areas

included in the study after administration of structured teaching programme on medication error.

7. Future Scope

The present study recommends the following:

- A similar study can be replicated on a larger sample or different settings for generalization of the findings.
- A follow up study can be made to evaluate the effect of STP in retention of knowledge of the staff nurses regarding medication error.
- A comparative study can be done to evaluate the effect of teaching with other methods such as information booklet, SIM, Computer assisted instructions.
- A comparative study can be conducted on knowledge and attitude regarding medication error among nursing students and other health care professionals
- A comparative observational study can be conducted between private and Government Hospital staff nurses working in intensive care units.

Delimitation:
The study was delimited to staff nurses working in ICCU and CTVS ICU only.

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