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A study to assess the effectiveness of information booklet on knowledge and practice regarding ppe kit among staff nurses working in selected Hospitals of the city

Swati Amol Madhikar
Department of Medical Surgical Nursing, Tutor, Mahatma Gandhi Mission's, Mother Teresa College of Nursing, Aurangabad, Maharashtra, India

Abstract
Introduction: Health care professionals are at high risk of getting infected by exposing to infected blood, body fluids and contaminated droplets that can cause serious or fatal infections. Nurses are repeatedly exposed to numerous infections during their duties while carrying out nursing
Objectives of the Study
1. To assess the existing pretest knowledge and practice regarding PPE kit among staff nurses.
2. To deliver information booklet on knowledge and practice regarding PPE kit.
3. To assess the post-test knowledge and practice regarding PPE kit among staff nurses.
4. Correlate the knowledge & practice regarding PPE kit among staff nurses.
5. To association between pretest knowledge and practice with selected demographic variables among staff nurses working in selected hospitals at selected city.
Material and Method: Quasi experimental one group pre-test post-test research design was adopted for this study. Convenient sampling method was used to select 80 samples from a selected hospital. Demographic Performa, self-reported questionnaire and practice checklist was used to collect the data from the subject. RESULT: The data collected from 80 samples were analyzed by descriptive statistics. We have taken pre-test and post-test of knowledge regarding PPE kit of staff nurses and it was seen that in pre-test majority of samples 52.5% were having poor knowledge, 47.5% were having average knowledge and none of them have good knowledge. And in Post-test majority of samples 86.25% were having good knowledge, 13.75% were having average knowledge and none of them have poor knowledge. We observed for practice with the help of checklist, pre-test and post-test practice of staff nurses and it was seen that in pre-test majority of samples 65% were having average practice, 28.75% having poor practice and 6.25% were having good practice. And in Post-test majority of samples 92.5%were having good practice, 7.5% were having average practice and none of them have poor practice.
Conclusion: Findings of the study revealed that the information booklet was effective in improving the knowledge and practice regarding PPE kit among staff nurses.

Keywords: PPE kit, effectiveness

Introduction

Health care professionals are at high risk of getting infected by exposing to infected blood, body fluids and contaminated droplets that can cause serious or fatal infections. Nurses are repeatedly exposed to numerous infections during their duties while carrying out nursing activities.

Nurses are repeatedly exposed to numerous infections during their duties while carrying out nursing activities. This can be reduced by applying standard safety precautions as hand hygiene, use of personal protective equipment (Eg. gloves, mask, gown, eye glasses, footwear.), safe injection practices, safe handling of potentially contaminated samples, equipment or surfaces in the patient environment and respiratory precautions are designed to reduce the risk of acquiring occupational infection from both known and Unknown sources in the healthcare setting.

PPE is a physical barrier worn by health care workers to prevent spreading of a pathogen from either suspected or confirmed cases or a pathologic specimen. It acts like a dual role in preventing disease spread from patient to health care workers and vice versa. These physical barrier include goggles, face shields, fluid resistant medical or surgical masks, particulate gloves, disposable gowns, disposable coveralls, waterproof or heavy duty aprons, waterproof boots and hoods or head covers.

As the concept is several centuries old, that the personal protective equipment continues to play an integral role in prevention of transmission of infection in the healthcare setting, we discover by looking back at the history of protection of healthcare workers and prevention of spread of infection.

PPE was thought to have originated during the war years as a means to prevent contamination from chemical warfare. The use of respirators allowed soldiers to protect themselves from toxic chemicals and Leonardo da Vinci was thought to be the original inventor of the respirator during the 16th century. Since Da Vinci's invention, respiratory protection technology has been standardized, is much more reliable and requirements for safe devices clearly spelled out by the National Institute for Occupational Health and Safety and the Occupational Safety and Health Agency. The N95 respirator mask, which is mandated for use in healthcare settings that are equipped to treat patients with pulmonary tuberculosis or other respiratory illnesses transmissible via the airborne route is an example of NIOSH's involvement with PPE.

Research Methodology

Research methodology defines what the activity of research is, how to proceed, how to measure progress, and what

constitute success. The methodological decision paves crucial implication for validity and creditability of the study findings. Methodology of research indicates the general pattern for organizing the procedure for the empirical study together with the method of obtaining valid and reliable data for an investigation.

This chapter deals with the methods and the techniques adopted for the study. The methodology is the general pattern of organizing the procedures of gathering valid and reliable data for the problem under proper investigation. It includes the research approach, research design, independent dependent variable, population, sample, sampling technique, sample size, development of data collection tool, data analysis, pilot study, setting of study, period of study, plan for data analysis.

Sample Size: The sample size comprises of 80 staff nurses from selected hospitals by using thumb rule latter based on pilot study findings by power analysis formula.

$N= (1-n)X\ t^2(pxq)/d^2$

N= Sample size

n = Size of eligible population

T^2 = Square value of standard deviation score that refers to the area under a normal distribution of values.

Q= 1-P

D^2 = Square value of one half of the precision internal around the sample estimate.

Criteria for Sample Selection

Table 1

Inclusion criteria	Exlusion criteria
Staff nurses who are,	Staff nurses who are,
Completed their GNM, B.B.Sc., P.B.B.Sc., and M.Sc. Nursing who will be present during the study.	Those who are absent / on leave during the study.
Those who are willing to participate in the study.	Those who have completed only ANM.
Those who can read and write fluent English.	Those who cannot read and write fluent English.

Preparation of Tool

It comprises of three sections.

Section – I

It consists of socio demographic data consists of demographic variables such as age, gender, marital status, education, working area, experience, previous knowledge and training regarding PPE kit and any family member working in hospital.

Section – II

It consists of modified structure questionnaire to assess the knowledge regarding PPE kit among staff nurses. Tool consists of total 10 questions. Each right answer carry 1 mark and wrong answer carries 0 marks. The score group was into 3 levels i.e. Poor, Average & Good, based on percentage of scores.

Table 2

Level	Score	Percentage
Good	7 – 10	> 66.66%
Average	4 – 6	66.66%
Poor	0 – 3	33.33%

Section – III

It consists of checklist on practice regarding PPE kit among staff nurses. It consists of total 30 steps and each yes answer carry 1 mark and no answer carries 0 marks. The score group was into 3 levels i.e. Poor, Average & Good, based on percentage of scores.

Table 3

Level	Score	Percentage
Good	21 – 30	> 66.66%
Average	11 – 20	66.66%
Poor	0 – 10	33.33%

Method of Data Collection

Formal permission was obtained from the hospital authorities to conduct the study. the study was conducted for the period of seven days from 15th June 2022 to 21th June 2022. The subject who met the inclusion criteria were selected by using convenient sampling technique. The researcher explained about purpose and benefits of the study to the samples. The researcher assured of confidentiality and anonymity.

The demographic variables were collected by using the questionnaire. The questionnaire to assess the pre-test knowledge regarding PPE kit were distributed to fill by the subjects. And observed the subjects for pre-test practice regarding PPE kit by using practice checklist. After collecting back questionnaire, information booklet was distributed among the staff nurses on knowledge and practice regarding PPE kit. After seven days, post-test was conducted to assess the knowledge and practice regarding PPE kit by using the same questionnaire and practice checklist

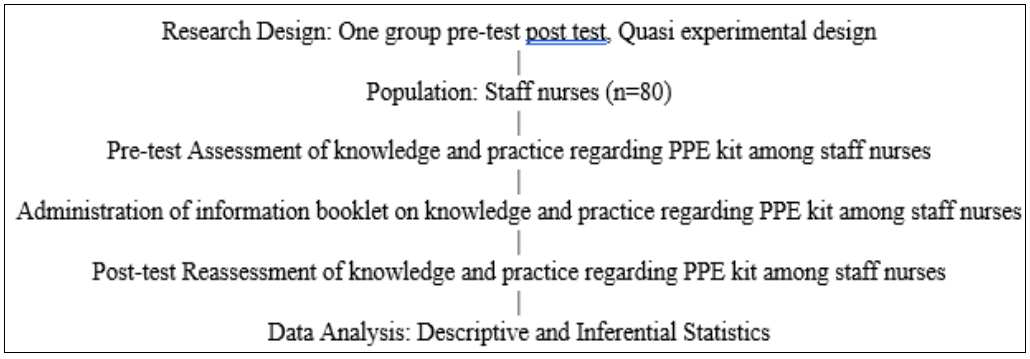

Fig 1: The overall view of Research Methodology

Plan for Data Analysis

The collected data was arranged and tabulated to represent the finding of the study both descriptive and inferential statistics was used.

- The demographic variables were analyzed by using frequency distribution and percentage.
- Comparison of pre-test and post-test scores were computed on the basis of paired 't' test.

Chi square test was used to find out the association between knowledge and practice regarding PPE kit with selected demographic variables.

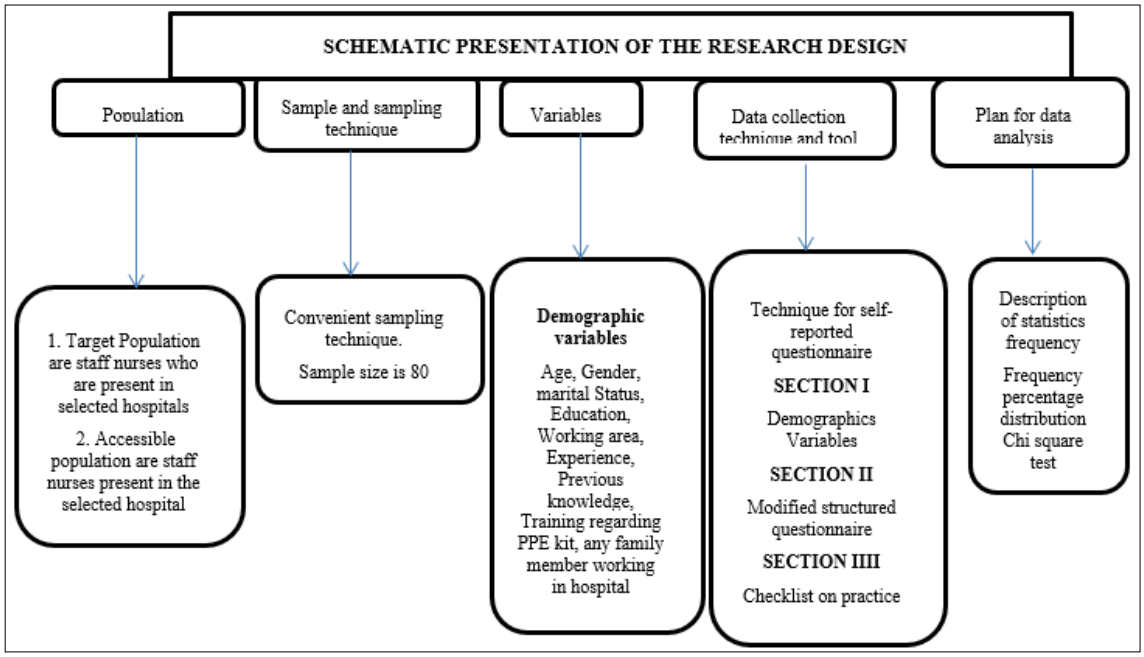

Fig 2

Analysis and Interpretation of Data

The purpose of data analysis is to answer research questions, test hypotheses, or both. The research design and type of data collected deter-mine selection of appropriate statistical procedures.

This chapter deals with the analysis and interpretation of data collected from 80 staff nurse from selected hospitals to determine the knowledge and practice regarding PPE kit among staff nurses. The Tool consists of three sections.

Section I: Frequency and percentage distribution of socio demographic variables among staff nurses

Table 4: Frequency and percentage distribution of staff nurses according to their socio demographic variable

SN	Variables	Category	Frequency	Percentage (%)
1	Age	22-25 Years	32	40
		26-28 Years	26	32.5
		29-31 Years	14	17.5
		Above 32 Years	8	10
2	Gender	Male	32	40
		Female	48	60
		Other	0	0
3	Marital Status	Married	52	65
		Unmarried	28	35
4	Education	G.N.M.	29	36.25
		B.B.Sc.	32	40
		P.B.B.Sc.	18	22.5
		M.Sc	1	1.25
5	Working Area	I.C.U.	23	28.75
		Isolation	18	22.5
		General Ward	20	25
		O.T.	19	23.75
6	Experience	Less than 1 year	14	17.5
		1-3 Year	32	40
		4-6 Year	12	15
		7 & Above	22	27.5
7	Previous Knowledge	Yes	35	43.75
	regarding PPE kit	No	45	56.25
8	Attended training	Yes	12	15
	regarding PPE kit	No	68	85
9	Family member working	Yes	24	30

	in hospital	No	56	70

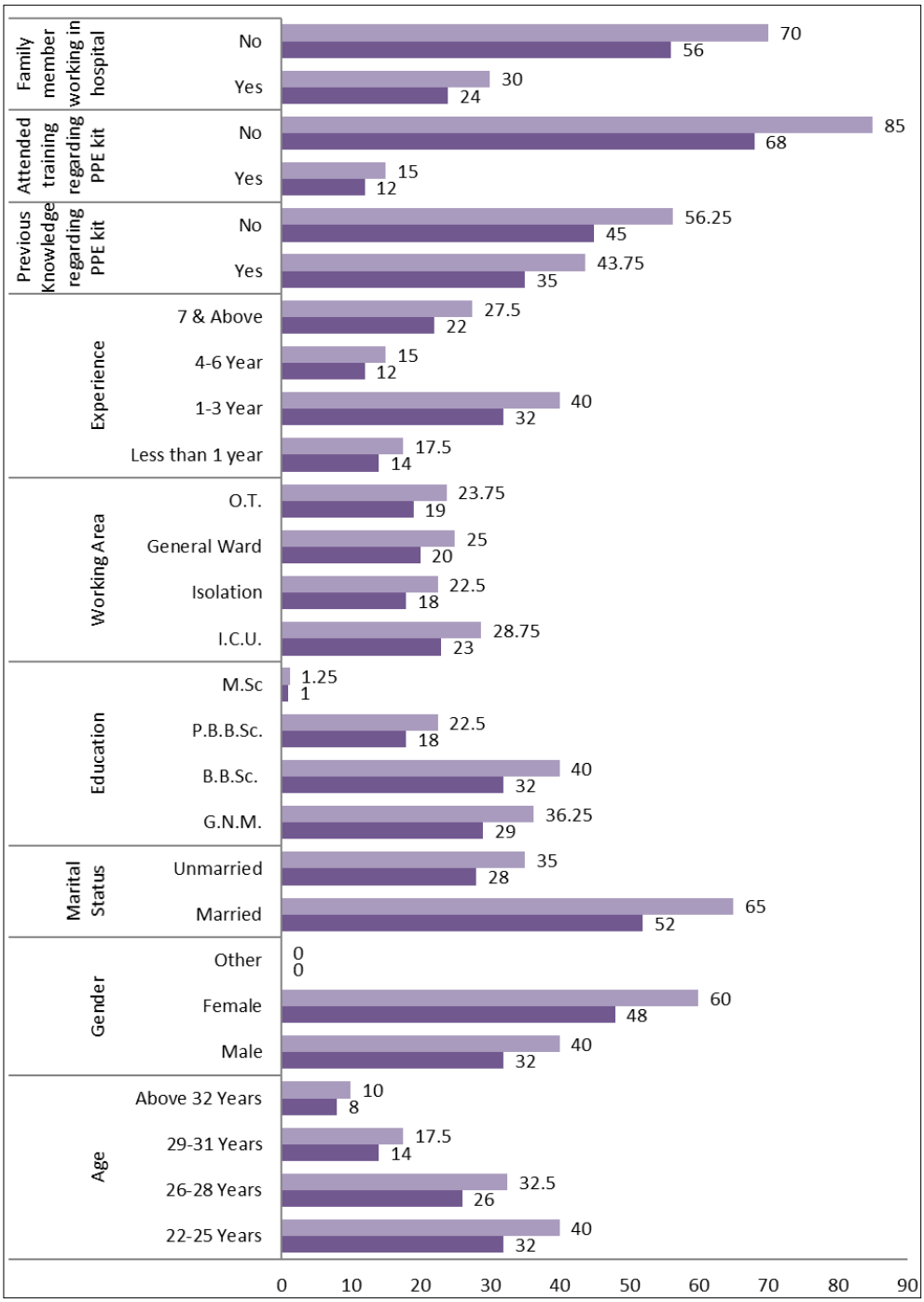

Fig 3

Section II: Frequency and percentage distribution of level of knowledge and practice regarding PPE kit among staff nurses.

Table 5: Distribution of pre-test level of knowledge score of staff nurses on their knowledge categories

			N = 80
Level of knowledge regarding PPE kit	**Score**	**Frequency**	**Percentage (%)**
Good	7 – 10	0	0
Average	4 – 6	38	47.5
Poor	0 – 3	42	52.5

Above table shows that overall pre-test knowledge regarding PPE kit and it was observed that majority of the samples 42 (52.5%) were having poor knowledge, 38 (47.5%) were having average knowledge and none of them are having good knowledge.

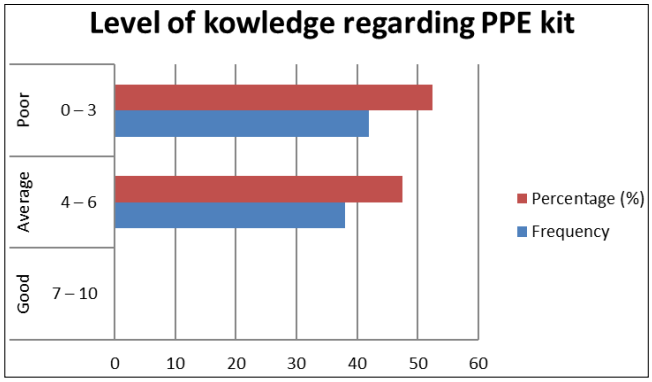

Fig 4

Section III: Correlate the knowledge & practice regarding PPE kit among staff nurses.

Table 6

					N=80		
Pre-test knowledge regarding PPE kit	**Post-test knowledge regarding PPE kit**		**Pre-test practice regarding PPE kit**		**Post-test practice regarding PPE kit**		
Mean	SD	Mean	SD	Mean	SD	Mean	SD
3.5	1.66	7.7	1.2	14.81	3.96	26.5	2.3

Above table No. 10shows there is a positive correlation between the knowledge and practice score.

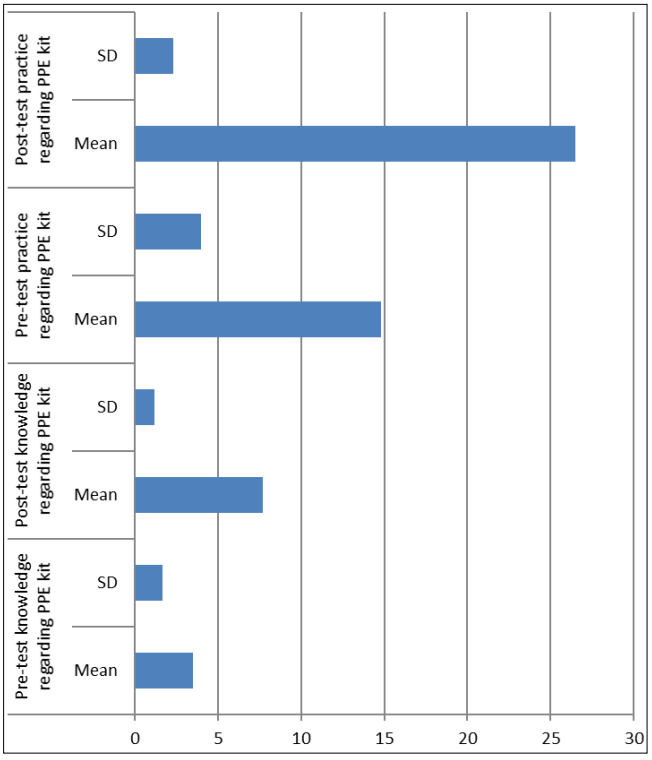

Fig 5

Section IV: To find out the association between pretest knowledge and practice with selected demographic variables among staff nurses working in selected hospitals at selected city.

1. Find out association of pretest knowledge with selected demographic variables.

Table 7: Shows the association of pre-test knowledge score with selected demographic variables by χ^2 test

SN	Demographic Variables	Level of knowledge			Df	Chi square value	P value	Significance
		Poor	Average	Good				
1	Age in Years							
	22-25 years	14	18	0	6	1.975	0.578	Not significant
	26-28 years	16	10	0				
	29-31 years	8	6	0				

	Above 32 years	4	4	0				
2	Gender							
	Male	18	14	0	2	0.301	0.583	Significant
	Female	24	24	0				
3	Marital status							
	Married	29	23	0	2	0.637	0.424	Significant
	Unmarried	13	15	0				
4	Education							
	G.N.M	18	11	0	6	5.002	0.171	Significant
	B.B.Sc.	18	14	0				
	P.B.B.Sc.	6	12	0				
	M.Sc	0	1	0				
5	Working area							
	ICU	11	12	0	6	3.526	0.317	Not significant
	Isolation	9	9	0				
	General ward	14	6	0				
	O.T.	8	11	0				
6	Experience							
	Less than 1 year	10	4	0	6	3.019	0.389	Not significant
	1-3year	15	17	0				
	4-6year	5	7	0				
	7 and above	12	10	0				
7	Previous knowledge regarding PPE kit							
	Yes	14	21	0	2	3.898	0.048	Significant
	No	28	17	0				
8	Attended training regarding PPE kit							
	Yes	7	5	0	2	0.192	0.661	Significant
	No	35	33	0				
9	Family member working in hospital							
	Yes	11	13	0	2	0.611	0.434	Significant
	No	31	25	0				

2. Find out association of pretest practice with selected demographic variables.

Table 8: Shows the association of pre-test practice score with selected demographic variables by χ^2 test

SN	Demographic Variables	Level of practice			Df	Chi square value	P value	Significance
		Poor	Average	Good				
1	Age in Years							
	22-25 years	10	21	1	6	3.163	0.788	Not significant
	26-28 years	9	15	2				
	29-31 years	2	11	1				
	Above 32 years	2	5	1				
2	Gender							
	Male	14	16	2	2	6.020	0.049	Significant
	Female	9	36	3				
3	Marital status							
	Married	18	30	4	2	3.493	0.174	Significant
	Unmarried	5	22	1				
4	Education							
	G.N.M	4	24	1	6	21.161	0.002	Significant
	B.B.Sc.	12	18	2				
	P.B.B.Sc.	7	10	1				
	M.Sc	0	0	1				
5	Working area							
	ICU	4	17	2	6	7.851	0.249	Not significant
	Isolation	6	11	1				
	General ward	10	9	1				
	O.T.	3	15	1				
6	Experience							
	Less than 1 year	10	3	1	6	18.465	0.005	Not significant
	1-3year	9	21	2				
	4-6year	2	9	1				
	7 and above	2	19	1				
7	Previous knowledge regarding PPE kit							
	Yes	10	22	3	2	0.581	0.997	Significant
	No	13	30	2				
8	Attended training regarding PPE kit							

	Yes	5	4	3	2	10.938	0.004	Significant
	No	18	48	2				
9	Family member working in hospital							
	Yes	9	12	3	2	4.243	0.120	Significant
	No	14	40	2				

Conclusion

Information booklet on knowledge and practice regarding PPE kit was given to assess the effectiveness among staff nurses working in selected hospitals. The post-test score of knowledge and practice were highly significant when compared to pre-test score using paired 't' test. Thus the present study shows that the Information booklet was effective in improving the knowledge and practice among staff nurses.

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