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A study to evaluate the effectiveness of structured teaching program on knowledge regarding prevention of complications of bed rest in immobilized patients among staff nurses, Bangalore

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Abstract

Background: The human being are mobile, Confinement to bed continuously in the case of sick or injured condition is called as bed rest. If the duration is long and indefinite period due to illness or injury is called prolonged bed rest. Prolonged bed rest and immobilization ultimately lead to complications in various systems of human body.

Such complications are easy to prevent than to cure. Nurses play a vital role in preventing these complications. If the nurses are knowledgeable about these potential complications of bed rest and competent in implementing preventive interventions, they will try preventing those complications which may hamper the various systems of the human body. This study was carried out in order to check the knowledge of nurses regarding prevention of complications of bed rest in immobilized patients.

Materials and methods: The study was carried out in Ramaiah Memorial Hospital, Bangalore. A pre experimental study with one group pretest posttest design was selected. A total of 40 samples were involved using non probability convenient sampling technique. The conceptual framework was based on Pender's Health Promotion model. Data was collected using structured questionnaire, pretest questionnaire was given and Structured teaching program was administered for 45 minutes and after 7 days of pretest, post test was conducted.

Result: The findings of the study revealed that that majority of subjects **77.5%** had moderate knowledge, **17.5%** had inadequate knowledge and **5%** had adequate knowledge before structured teaching program. The **90%** staff nurses had adequate knowledge and 10% had moderate knowledge with no inadequate knowledge after the structured teaching program. The mean score before STP was **17.63** and standard deviation was **±2.61** and after STP was **24.45** and standard deviation was ±**2.17** with 't' value **(-15.946)** df **(39)** and **(P 0.000).** The study findings revealed that there is no association between

selected socio-demographic variables and knowledge of the nurses with P value 0.005.

Conclusion: Structured teaching programs (STP) creates highly visual based learning environment that promotes an understanding of concepts , activities and expectations so the study revealed that STP was very much effective in terms of improving the level of knowledge among the staff nurses.

Keywords: Structured Teaching program, complications of bed rest, Nurses, immobilization.

Introduction

Health is the state of complete physical, mental and social well-being not merely the absence of disease or infirmity.[1]

The human body usually remains in the upright position, or seated, for approximately 14-16 hours every day, without any suffering. Long duration spent in bed can induce several physiological disorders. There is a concept that lying down in bed may lead to difficulty in getting up again. Going to bed is a universal response to falling ill.[2]

Mobility is an individual's ability to move about freely. Mobility serves many purposes including physical activities, self-defense, attaining basic needs, completing activities of daily living and performing recreational activities, Immobility is a condition in which a patient is unable to move either due to the disease condition or as part of the treatment. Maintaining functional mobility and desired activity levels is important for both psychological and physiological reasons. Lack of mobility will affect the various systems of the body.[2]

The physiological and psychological changes which result from prolonged bed rest can have a drastic effect on the patients health. Immobilization may be responsible for many undesirable complications that affect many organs. It increases heart rate, reduces stroke volume and cardiac output and ultimately reduces maximal oxygen uptake by the body. Besides these adverse effects on pulmonary and cardiovascular complications, patients also experience Gastrointestinal, genitourinary, endocrine and integumentary complications such as constipation, loss of appetite, urinary tract infection, fractures and pressure ulcer. Most of these complications' cans be prevented through meticulous nursing care and continuous observation for signs and symptoms of complications.[2]

Nurses are fundamental partners in the delivery of multifaceted health care services. Involvement of family caregivers is essential for optimal treatment of patients in ensuring treatment compliance, continuity of care and social support. It is necessary to understand that nurses play an important role in providing care to their patients and they should be aware about the complications and their preventive measures [6]

Materials & methods

A. Study design

The study design used was pre experimental research design

B. Variables

- **Independent variables :** Structured Teaching Program.
- **Dependent variables :** Nurses knowledge on prevention of complications of bed rest
- **Extraneous variables :** Age , gender, educational level, experience of clinical practice, previous exposure to information like CNE(continuing nursing education, Trainings

C. Setting of the study

The study was conducted in different wards of Ramaiah Memorial Hospital, Bangalore which is 500 bedded

multi-speciality hospital. The geographical proximity, familiarity of the investigator with the setting, feasibility of conducting the study and availability of the samples lead to the selection of the setting for the study.

Sample size: 40 Nurses

Sampling technique : Non probability convenient sampling technique.

Inclusion and exclusion criteria

Inclusion criteria

- Nurses who are available at the time of data collection.
- Nurses working at Ramaiah Memorial hospital , Bangalore
- Nurses who has at least 5 years of Experience

Exclusion criteria

- Nurses who has less than 5 years of experience

Development of tool

After an extensive review of literature , discussion with experts and with the investigator's personal and professional experience the tool was developed and divided into two parts;

Section-A: socio demographic data

The first part of the tool consists of demographic variables such as age, sex, educational qualification, previous exposure to information like Continue Education (CNE/ Trainings) and clinical experiences.

Section-B:knowledge questionnaire:

Knowledge questionnaire consists of closed index questions related to prevention of complication of bed rest. A structured teaching plan was prepared on knowledge on prevention of complications of bed. The content validity of questionnaire was ascertained with expert's opinion and guides in nursing and various fields like medicine and surgery.

D. Validity

The prepared blue print of the tool along with objectives of the study was submitted to the experts for content validity. Five experts from the Nursing faculty and Four doctors validated the tool content. The suggestions given by them were incorporated and the tool was modified.

E. Reliability

.The reliability of the tool was compound by using test retest Karl Pearson's correlation formula. The calculated reliability value was r= 0.88, thus the r value revealed, the tool was found to be reliable.

F. Ethical clearance

Ethical clearance was obtained from Ramaiah Medical college Ethics committee on February ,2020 (Reg No: ECR/215/Inst/KA/2013/RR-16)

G. Pilot study

The pilot study was conducted on 10-07-2021 to 17-07-2021 in Ramaiah Teaching Hospital, Bangalore. A total of 5 nurses from five different wards were selected for the study. On completion of pilot study, it was found that ,it is feasible to undertake main study.

H. Data collection procedure

The main study was carried out from 25th July to 3rd August, 2021 A formal permission was obtained from the principal R.I.N.E.R and concerned authorities of Ramaiah Memorial Hospital, Bangalore.

Subjects for the study were selected from different wards of hospital (ICU, Orthopedics and General ward) who were available at the time of data collection. Subjects who met the selection criteria were consecutively selected. The purpose of the study was explained to the participants and informed consent was obtained after assuring the confidentiality. A structured questionnaire was adapted by the researcher to collect the data from the subjects. Pre-test to subjects was conducted, the

average time taken was 25-30 minutes. After completing pre-test the structured teaching program was administered with the help of Power point and charts.

Post-test assessment was done after 7 days(3-08-2021) of implementation of the structured teaching program.

I. Statistical method

Data obtained from the subjects were organized, coded, tabulated and excel sheet was prepared. The data were analyzed using IMB SPSS version 20 and according to the objectives of the study using both descriptive and inferential statistics.

a) Descriptive statistics

- Frequency distribution and percentage was used to describe the socio-demographic variables.
- Mean and standard deviation was used to describe the difference in pre-test and post-test score.

b) Inferential statistics

- Paired t-test was used to compare pre-test and post test score before and after structured teaching program.
- Chi square test was used to find the association between nurses knowledge on prevention of complications of bed rest with selected socio demographic variables.

Results

- Among the staff nurses working at Ramaiah hospital, Bangalore, it was found that majority of staff nurses had moderate knowledge regarding prevention of complications of bed rest patients. The study findings revealed that majority of subjects 77.5% had moderate knowledge, 17.5% had inadequate knowledge and 5% had adequate knowledge before structured teaching program.
- Whereas 90% staff nurses had adequate knowledge and 10% had moderate knowledge and no any staff had inadequate knowledge after the structured teaching program.
- The mean score before STP was 17.63 and standard deviation was 2.61
- The mean score after STP was 24.45 and standard deviation was 2.17
- The study findings revealed that there is no association between socio-demographic variables and knowledge of the nurses.

Table 1: Frequency and percentage distribution of subjects with regard to socio-demographic variables (Age and Gender). n=40

Sn.	Socio-demographic variables	Frequency (f)	Percentage (%)
1	Age (years)		
	21-26years	6	15
	27-32years	14	35
	33-38years	18	45
	39-44years	2	5
2	Gender		
	Male	1	2.5
	Female	39	97.5

Table 1 shows that majority of the subjects (45%) belonged to age group 33-38 years. With regard to gender majority of subjects (97.5%) were female.

Table :2 Frequency and percentage distribution of subjects with regard to socio-demographic variables (Qualification and Area of working n=40.

Sn.	Socio-demographic variables	Frequency (f)	Percentage (%)
3	Qualification		
	GNM Nursing	32	80
	Bsc.Nursing	8	20
	Pb.Bsc Nursing	-	-
	Msc.Nursing	-	-
4	Area of working		
	ICU	17	42.5
	orthopedics	6	15.0
	general wards	13	32.5
	Others	4	10.0

Table 2 shows that, majority of subjects (80%) were GNM nursing. With regard to area of working majority of subjects (42.5%) were working in Intensive care unit.

Table: 3 Frequency and percentage distribution of subjects with regard to socio-demographic variables (Years of experience and Exposure to Information) n=40.

Sn.	Socio-demographic variables	Frequency (f)	Percentage (%)
5	Years of Experience		
	5 years	8	20
	6-10 years	17	42.5
	11-15 years	11	27.5
	more than 15years	4	10
6	Exposure to Information		
	Yes	13	32.5
	No	27	67.5

Table 3 shows that, majority of subjects (17%) were having work experience in between 6-10 years. With regard to exposure to information the majority of subjects (67.5%) were not having any training or Continuing nursing Education in relation to prevention of complications of bed rest.

Table 4: frequency and percentage distribution regarding level of knowledge in pre test and post test. n=40.

Pre test level of knowledge			
Sn.	Level of knowledge	Frequency (f)	Percent (%)
1	>75% Adequate	2	5
2	50-75% Moderately adequate	31	77.5
3	<50% Inadequate	7	17.5
Post test level of knowledge			
S. N	Level of knowledge	Frequency (f)	Percentage (%)
1	>75% Adequate	36	90
2	50-75% Moderately adequate	4	10
3	<50% Inadequate	-	-

Table 4 shows that majority of subjects (77.5%) had moderate level of knowledge during the pre-test whereas majority of subjects (90%) had adequate level of knowledge after the post test.

Table 5: mean and standard deviation before and after structured teaching program (stp) by using paired t-test n=40.

Paired t-test Samples Statistics						
S.N.	Variables	Mean	Std. Deviation	Std. Error Mean	t value	P value
1	Score before STP	17.63	2.61	.414	-15.946 df(39)	0.000
	Score after STP	24.45	2.17	.343		

df=degree of freedom

The above table depicits that, the mean score before structured teaching program was 17.63 and after structured teaching program was 24.45. The mean score before and after structured teaching program was significantly high, which further reveals the structured teaching program was effective to the target group. Hence the research hypothesis (H_1) stated as, “There is significant improvement in knowledge after structured teaching program” has been accepted.

Table 6: Association of pre test level of knowledge with selected socio-demographic variables such as Age, Gender and Qualification. n=40

Sn.	Socio-demographic variables	Score		Chi square value(χ^2)	P value
		Above median	Below median		
1	Age (in years)				
	21-26years	3	3	0.508	0.917
	27-32years	6	8		
	33-38years	10	8	df=3	
	39-44years	1	1	NS	

2	Gender				
	Male	0	1	1.026 df=1 NS	0.311
	Female	20	19		
3	Qualification				
	GNM Nursing	14	18	2.500 df=1 NS	0.114
	Bsc. Nursing	6	2		
	Pb. Bsc Nursing	-	-		
	Msc. Nursing	-	-		

NS= Not significant , df= Degree of freedom

Table 6: depicits that there is no significant association between pre test knowledge and selected socio demographic variables like Age, gender and qualification.

Table 7: Association of pre test level of knowledge with selected socio-demographic variables such as Area of working, years of experience and Exposure to information.

Sn.	Socio-demographic variables	knowledge Score		Chi square value (χ^2)	P value
		Above median	Below median		
4	Area of working				
	ICU	8	9	1.418 df=3 NS	0.701
	Orthopedics ward	2	4		
	General wards	8	5		
	Others	2	2		
5	Years of experience				
	5 years	2	6	2.620 df=3 NS	0.454
	6-10 years	10	7		
	10-15 years	6	5		
	More than 15 years	2	2		
6	Exposure to information				
	Yes	8	5	1.026 df=1 NS	0.311
	No	12	15		

NS= Not significant, df= Degree of freedom

Table 7: shows that there is no significant association between pre test knowledge and selected socio demographic variables like area of working, experience and exposure to information previously.

Discussion

The findings of the study showed that among 40 majority of subjects 31(77.5%) of subjects had moderate level of knowledge 7 subjects (17.5%) had inadequate level of knowledge and 2 subjects (5%) had adequate level of knowledge regarding prevention of complications of bed rest. The mean score of pre test was 17.63 and standard deviation was ±2.61 before the structured teaching program.

The study findings is consistent with a pre experimental study conducted on SKIMS hospital, Srinagar, India among 50 samples using purposive sampling technique on "Assess the impact of structured teaching program on knowledge and skills regarding prevention of major complications of immobility in orthopedic patients among staff nurses". The study concluded that most of the subjects 33 (66%) had moderate knowledge level, 10(20%) inadequate knowledge level and 7(14%) had adequate knowledge level. These findings revealed that majority of the subjects had moderate knowledge level regarding prevention of major complications of immobility in orthopedic patients.

The findings of the study revealed that among 40 samples, 36 samples (90%) had adequate level of knowledge and 4 subjects (10%) had moderate level of knowledge after the structured teaching program. The mean score after the STP was 24.45 and standard deviation was ±2.17, the calculated 't' value was (-15.946) at P value 0.000 thus there is significantly improvement in the knowledge after Structured teaching program. Also, hypothesis (H_1) stated as "there will be significant improvement in knowledge after structured teaching program" has been accepted.

The findings are consistent with the quasi experimental study conducted in SUM hospital Bhubaneshwore, India among 60 samples using non probability purposive sampling technique on "effectiveness of the planned teaching program on deep vein thrombosis among the staff nurses of selected hospital Bhubaneswar". The mean pre test score of knowledge of staff nurses was 24.6 and after planned teaching program it was 77.3 which denotes that there was significant increase in knowledge score after planned teaching program.

The association between the study variable with socio-demographic was computed by using Chi- square test. The findings of the present study reveled that computed chi square value was more than table value at (P 0.05) for all the socio demographic variables so there was no association between Age, Gender, Area of working, Qualification, years of experiences and Exposure to previous information with study variable.

These findings are consistent with the quasi experimental study conducted in Amhemdabad with 40 samples by using convenient sampling technique on "a study to assess the Effectiveness of Planned Teaching Program on prevention of complications of immobilized orthopedic patients in terms of knowledge and practice among staff nurses working in orthopedic units of selected hospitals of Ahmedabad". The study reveled that association of pretest knowledge score with demographic variables was tested by chi square test and it was found that there was significant association between pretests knowledge score and selected demographic variables like age, gender, qualifications and years of experience.

Limitation

- Unavailability of sufficient related literature to support the study.

- Authenticity of information regarding socio-demographic variables is only based on response of the samples.
- Since the study was conducted only in one hospital, findings may not be generalizable to other health care settings due to small sample size.

Conclusion

The findings of the study revealed that that majority of subjects 77.5% had moderate knowledge, 17.5% had inadequate knowledge and 5% had adequate knowledge before structured teaching program. The 90% staff nurses had adequate knowledge and 10% had moderate knowledge with no inadequate knowledge after the structured teaching program.

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