The Effectiveness of Educational Program on Preventing Complications of Immobility Among Nurses in El Mek Nimer University Hospital -2019

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Abstract

Background: Immobility can cause major physiological, psychological, and social effects. Immobility affects all systems of the body. utilizing a mobility assessment can provide reliable information to improve patient safety and prevent complications. **Objective:** This study aims to evaluate the effectiveness of the educational program in preventing complications of immobility in nurses' knowledge and practice. **Methods:** This quasi-experimental study, was conducted among nurses (N=100), whom they were working at Elmek Nimer university, the selection was done via total coverage sampling, the knowledge of nurses was assessed by a structural standard questionnaire, and the practice was evaluated by observational checklists and mobility scale. The collected data were analyzed by the statistical package for social sciences (SPSS) version 20. **Results:** This study showed the study group that had poor knowledge about immobility improved in the post-test phase, and upgraded in the follow-up phase. the studied group had an acceptable level of knowledge about immobility complications upgraded in the post-test and follow-up test ($P < 0.00$). Concerning the practical issues also the study showed that the practice is poor in pre-tested aspects but generally there is improvement in their practice and performance after the educational program. **Conclusion:** The current study indicates that the educational programs were effective in increasing knowledge, and improving the practice and performance of nurses.

Keywords: Complication, Immobility, Nurses, Practice

Introduction

Immobility is a common pathway by which a host of disease and problems in the elderly, Produce further disability, Person who are clinically ill, aged or particularly susceptible to the adverse effects of immobility are rarely confined to only one

body system. It may cause a wide range of complication. The function of the musculoskeletal system is fundamental to optimal health in the normal active human being. Injury or disease involving this system can have a profound effect on an individual ability to perform the activities of daily living and can result in either temporary or permanent disability, one of the main problems usually being the degree of decreased mobility. Nurses are in a unique position to identify the amount of knowledge about the complication of immobility and to help the patient to develop positive practices[1] . Some studies developed to determine the nursing care missed have demonstrated that walking three times per day, patient education, oral hygiene, changing the patient's position every two hours, bed bathing, skin care, appropriate surveillance and development or updating of nursing care plans are regularly omitted Care omission in practice entails different negative outcomes for the patient, such as increased mortality rates, infections, prolonged hospital stays, pressure ulcers, patient falls , adverse events, post surgery complications and patient dissatisfaction[2] .

Immobility can cause major physiological, psychological and social effects. Immobility affects all systems of the body leading to complications such as pressure sore, deep vein thrombosis (DVT), hypostatic pneumonia, constipation, contracture, urinary tract infection, calculi and also psycho physiological problems. Approximately 50% of hospitalized individuals have impaired mobility. These individuals are most often found in intensive care units, trauma wards, orthopedic ward, neuro ward and geriatric wards of a hospital[3] . According to the study of Varghese, 2007, approximately 50% of hospitalized individuals have impaired mobility. These individuals are most often found in intensive care units, trauma wards, orthopedic ward, neurological ward and geriatric wards of a hospital . Orthopedic patients will have impairment in mobility results from prescribed restriction of movement in the form of bed rest, physical restriction of movement or impairment of motor skeletal function [4] .

Material and Methods:

Study design: A Quasi-experimental prospective hospital-based study. The study was conducted in 2016 and 2019.

Study area: This study was conducted in conducted at Elmak Nimer university hospital which located at River Nile state in Shendi town

Objectives:

The main objective of the study was to evaluate the effectiveness of teaching programmers on nurses' knowledge and practice regarding the prevention of complications of immobility.

Study sample:

Total coverage sample of all nurses who work in Elmek Nimer hospital, who met the inclusion criteria. 120 nurses were included.100 nurses who agreed to participate were included in the study, and however, twenty participants were on vacation.

Data collection tools:

The data was collected by using a structured questionnaire to assess socio-demographic characteristics, general information about immobility, and Knowledge about mobilization and exercise, An observational checklist was used for assessing nurse's practice about preventive measures each one It involved 18 steps marked to evaluate the performance of nurses at the different steps then the researcher used the following grades on assessing the performance of the nurse (Good, satisfy and poor). The mobility scale tool uses to measure the mobility status of immobilized patients, and the elderly mobility scale (EMS) the EMS is a 20-point validated assessment tool for mobility, The data collection tools were validated through the conducting of a pilot study and consultation of two experts.

Educational program:

The educational program was designed and focusing designed based on the actual needs of nurses to improve their knowledge and practice regarding the management and prevention of complications of immobility it was in simple english language, and lectures, group discussions, and demonstrations were used to implement the interventional program. The researcher used pictures, videos, and equipment for implemented the range of motion, moving of the patient on the bed, and turning of the patient.

Data collection technique:

Firstly, the baseline data were collected from each study group by using a questionnaire, observation, and check list mobility scale. After that each group of nurses received the required information from the researcher with stressed on the importance of preventive measures and the follow-up appointment. The educational program sessions were conducted monthly up to eight months.

Data analysis:

Data were entered and analyzed using Statistical Package for Social Sciences

(SPSS). Results were presented in figures and table. Demographic findings and general information was analyzed descriptively. Mean, and T-independent test were used as statistical tests. A p-value was used to evaluate the effect of the teaching program by comparing the findings of the pretest and posttest. P-value of 0.05 or less was considered as indicative of statistical significance between pre and post program differences were more than this value was called no significance.

Ethical clearance

Ethical clearance was obtained from the research and publication ethical committee of the shendi university the permission agreement to conduct the study was obtained from Elmek nimir university hospital , confidentiality was guaranteed by storing data and only the researcher was having the data, participation in this study was voluntary and details about the aim and objectives of the study was explained to the participants, verbal consent was obtained, the participants were free to withdraw at any stage without incurring any consequences.

Results: -

Table (1): knowledge of study group about definition, causes , level and factor affecting immobility pre, post and follow up test n=100

knowledge	Level of knowledge	Pre test		Post test		Follow up	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Definition of immobility	Good knowledge	1	1%	54	54%	56	56%
	Satisfied knowledge	8	8%	40	40%	40	40%
	Poor knowledge	91	91%	6	6%	4	4%
Causes of immobility	Good knowledge	4	4%	77	77%	78	78%
	Satisfied knowledge	21	21%	19	19%	18	18%
	Poor knowledge	75	75%	4	4%	4	4%
Level of immobility	Good knowledge	6	6%	85	85%	86	86%
	Satisfied knowledge	13	13%	12	12%	11	11%
	Poor knowledge	81	81%	3	3%	3	3%
Factor affecting mobility	Good knowledge	4	4%	50	50%	50	50%
	Satisfied knowledge	10	10%	40	40%	40	40%
	Poor knowledge	86	86%	10	10%	10	10%
Purpose of mobility	Good knowledge	2	2%	56	56%	57	57%
	Satisfied knowledge	10	10%	41	41%	40	40%
	Poor knowledge	88	88%	3	3%	3	3%

Table (2): knowledge of study group about complication immobility on body system pre , post and follow up test n=100

	Level of knowledge	Pre test		Post test		Follow up	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Muscle skeletal system	Good knowledge	2	2%	69	69%	70	70%
	Satisfied knowledge	8	8%	27	27%	26	26%
	Poor knowledge	90	90%	4	4%	4	4%
			P1=0.000		**P2=0.000**		**P3=0.000**
Cardiovascular system	Good knowledge	3	3%	70	70%	70	70%
	Satisfied knowledge	6	6%	26	26%	26	26%
	Poor knowledge	91	91%	4	4%	4	4%
			P1=0.000		**P2=0.042**		**P3=0.359**
Respiratory system	Good knowledge	2	2%	73	73%	73	73%
	Satisfied knowledge	8	8%	25	25%	25	25%
	Poor knowledge	90	90%	2	2%	2	2%
			P1=0.000		**P2=0.011**		**P3=0.041**
GIT system	Good knowledge	1	1%	75	75%	75	75%
	Satisfied knowledge	5	5%	19	19%	19	19%
	Poor knowledge	94	94%	6	6%	6	6%
			P1=0.000		**P2=0.011**		**P3=0.041**
Urinary system	Good knowledge	1	1%	85	85%	85	85%
	Satisfied knowledge	4	4%	11	11%	11	11%
	Poor knowledge	95	95%	4	4%	4	4%
			P1=0.000		**P2=0.000**		**P3=0.000**
Metabolic system	Good knowledge	1	1%	70	70%	70	70%
	Satisfied knowledge	4	4%	26	26%	27	27%
	Poor knowledge	95	95%	4	4%	3	3%
			P1=0.000		**P2=0.000**		**P3=0.000**

Table (3): Knowledge of study group about nursing measures to prevent complication of immobility pre , post and follow up test n=100

Knowledge	Level of knowledge	Pre test		Post test		Follow up	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Venous thrombosis	Good knowledge	-	-	55	55%	55	55%
	Satisfied knowledge	11	11%	30	30%	29	29%
	Poor knowledge	89	89%	15	15%	16	16%
			P1=0.000		**P2=0.000**		**P3=0.000**
Contracture	Good knowledge	-	-	44	44%	43	43%
	Satisfied knowledge	6	6%	48	48%	49	49%
	Poor knowledge	94	94%	8	8%	8	8%
				P1=0.000		**P2=0.000**	**P3=0.000**
Pressure ulcer	Good knowledge	2	2%	62	62%	63	63%
	Satisfied knowledge	10	10%	33	33%	32	32%
	Poor knowledge	88	88%	5	5%	5	5%
				P1=0.000	**P2=0.000**		**P3=0.000**
Strok	Good knowledge	1	1%	60	60%	61	61%
	Satisfied knowledge	8	8%	35	35%	34	34%
	Poor knowledge	91	91%	5	5%	5	5%
				P1=0.000	**P2=0.000**		**P3=0.000**
Skin maceration	Good knowledge	1	1%	61	61%	61	61%
	Satisfied knowledge	7	7%	32	32%	32	32%
	Poor knowledge	91	91%	7	7%	7	7%
				P1=0.000	**P2=0.000**		**P3=0.000**
Friction	Good knowledge	2	2%	60	60%	60	60%
	Satisfied knowledge	8	8%	31	31%	31	31%
	Poor knowledge	90	90%	9	9%	9	9%
			P1=0.000				**P2=0.000 P3=0.000**

Table (4): Performance of study group during range of motion exercise, turning of patient and Appling stoking pre, post and follow up test n=100

Procedure	Level of performance	Pre test		Post test		Follow up	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
range of motion exercise	Good performance	-	-	66	66%	69	69%
	Satisfied performance	5	5%	29	29%	29	29%
	Poor performance	95	95%	5	5%	2	2%
				P1= .035		**P2=.078**	**P3=0.036**
Turning of patient on bed	Good performance	-	-	75	75%	73	73%
	Satisfied performance	2	2%	21	21%	23	23%
	Poor performance	98	98%	4	4%	4	4%
			P1=0.054		**P2=0.057**		**P3=0.017**
Applying elastic stoking	Good performance	-	-	69	69%	69	69%
	Satisfied performance	2	2%	29	29%	29	29%
	Poor performance	98	98%	2	2%	2	2%
				P1=0.084	**P2=0.074**		**P3=0.054**
Using mobility scale	Done	1	1%	98	98%	97	97%
	Not done	99	99%	2	2%	2	2%
			P1=0.075		**P2=0.079**		**P3=0.001**

Discussion

Nurses play a key role in managing immobility complications ,awareness about the significance of the issue, a positive attitude towards prevention and an adequate level of knowledge are cornerstones of effective prevention of immobility complications. Nurses are the main group of healthcare personnel across all healthcare settings. Accurate assessment, prompt intervention, and adequate evaluation by nurses are necessary to better manage immobility complications and improve clinical outcomes for bedridden patients. Concerning the demographic characteristics, the present study showed that less than half (41%) of them age between 20-25 year this result may be due to the migration of more experienced healthcare providers. more than two third (75%) of them had a bacheloria and most (100%) of them were not attending training courses and not sharing in training established by the hospital this result may be no opportunity of work shop and training program .The result of the study showed that more than half(56%,56%) of study group had good knowledge about definition of immobility and purpose of mobility respectively and had been improved in the follow up test with highly significant result (pv= 0.000) also majority(77% , 85%) of them had good knowledge about causes and level of immobility respectively in post and follow up test , half (50%) of them had good knowledge about factor affecting mobility this result match with result of study done in Egypt which state(Regarding caregiver's knowledge in the study group about the basic concepts of immobility pre educational guidelines the study reveals that less than half of the caregiver (46.7%) their knowledge were satisfactory regarding the definition of immobility, also (44.4%) of them their knowledge were satisfactory regarding the causes of immobility. Regarding the Purpose of mobility and factors affecting immobility (24.4% and 22.2%) of them, their knowledge was satisfactory respectively . While there was highly statistical significant difference between the two groups regarding their knowledge about basic concepts of immobility post educational guidelines)(5).

Moreover, the study represented that ,the nurse knowledge about systemic complication of immobility had been improved in post test and follow up test with the highly significant

result(pv=0.00). this finding corresponding to study done in Egypt which state (There was statistically significant improvement of caregivers' knowledge and practice regarding the prevention of immobilization complications and improvement of patients' functional condition in the study group after the implementation of educational guidelines)(5). also agree with another study done at Ahmadabad City which concluded (samples knowledge as well as skill improved after the implementation of a planned teaching program on the prevention of complications of immobilized orthopedic patients. It showed that the planned teaching program was effective in terms of improving knowledge and practice among staff nurses related to on prevention of complications of immobilized orthopedic patients (6).

The study reflected that nurses' knowledge about the assessment of body systems had been improved in post test and follow up test with the highly significant result(pv=0.00).

The present study showed that there was the improvement in nurses' knowledge about observing the risk factor of immobility, management of complication, type and benefits of exercise and importance of positioning in post test and follow up test with highly significant result (pv=0.00).The teaching program for nurses is highly recommended to reduce the complications of immobility.

Furthermore, the study group's knowledge about nursing measures was been improved in post test and follow up test .this finding similar to result of study in India which state(The study shows that group had 100% inadequate knowledge on prevention of complication of immobility during the pretest. After the intervention 55% of the study participants had adequate knowledge in the group)(7). also agree with another study carried out in the US which state that (When a patient is prescribed bed rest, it is the responsibility of the care providers to be vigilant and aggressive with interventions to prevent the complications that will inevitably result from the altered homeostasis) (8). And agree with another study done by Beckman which state(results indicated that a higher level of pressure ulcer knowledge was significantly correlated with a lower incidence of pressure ulcers. A reason for this might be that insufficient knowledge leads to misconceptions about

prevention of pressure ulcers and, subsequently, to suboptimal care) (9).

Despite of demonstration and redemonstration for study group about range of motion exercise ,turning of patient on bed , apply elastic stoking, and using a mobility scale to evaluate mobility status of patient and the study showed that more than two third(69%) of them had good performance about range of motion exercise and apply elastic stoking to patient this result agree with study in Australia Which state (Nurses can play a major role in VTE(Venous thromboembolism) prevention if well-educated and empowered to change hospital culture. Their increased level of knowledge undoubtedly leads to an improvement in the delivery of patient care. Appropriately trained nurses are skilled in assessing the risk of VTE in their clients and ensuring prophylactic measures are in place for those clients who are particularly vulnerable to developing VTE. Even in the absence of a medical practitioner, the nurses can initiate appropriate mechanical measures.)(10)while two third(66%) of them had good performance about turning of patient on bed post implementation of the program with highly significant statistical (pv = 0, 000) different between the practice of nurses when perform range of motion ,apply elastic stoking to patient and about turning of patient in pre and post of program intervention .Otherwise, almost(98%) all study group had demonstrated good practice toward using mobility scale to evaluate mobility status of the patient because it is most important procedure that can reduce the prevalence of immobility complication ,If nurses follow preventive measure properly they will prevent immobility complication and Therefore, they reduce the association between risk factor and complication .

Conclusion and recommendation:

Most of study group knowledge about immobility complication improved in post test while in follow up test upgrade, most of study group knowledge and practice about preventive measures improved in posttest and follow up test. And the most common barrier to practice mobilization were unstable patient, lack of training, resources, equipment, guidelines, lack of knowledge and unable to assess . The study recommended that nurses should train to deal immobile patient ,increase nurse awareness about immobility complication and preventive measures to

reduce risk of complication and improve quality of care through in-services educational programs, workshops, and continuous training , annuals conferences for nurse's staff about preventive measure for immobility complication to discuss their problems, exchange knowledge, and find ways to improve services provide to patients and further studies should be needed about this topic .

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