A Study to Assess the Effectiveness of Self Instructional Module on Knowledge Regarding Negative Pressure Wound Therapy among the Staff Nurses of Selected Hospital'

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ABSTARCT

Background: Wound healing involves integrated physiological process. Physiology of wound healing occurs every day and normally they heal up quickly. Negative pressure wound therapy is a therapeutic technique using vacuum dressing to promote healing in acute or chronic wound and enhance healing of wounds. Negative Pressure Wound Therapy (NPWT) was developed to facilitate wound healing.[8] Nurses who are responsible for patients with wounds need a particular level of expertise and education to ensure optimum wound care. This study is aimed to estimate the Knowledge regarding NPWT among staff nurses in selected Hospitals.

Aim: This study is aimed to assess the effectiveness of a self Instructional module on Negative Pressure Wound Therapy on the knowledge of staff nurses . Also it is aimed at identifying any association between the knowledge and the demographic variables of the samples.

Materials and Methods: To assess the effectiveness of the Self Instructional Module a Quantitative research approach using the One Group Pre test Post test Design was applied. 60 staff nurses were selected as samples by systemic random sampling. A self Instructional module was developed which was administered after conducting the pre-test. A structured knowledge questionnaire was used to assess the knowledge of the samples before and after the administration of the SIM. The collected data was analysed using inferential and descriptive statistics.

Results: With regards to pre-test and post test assessment it indicates that there is increase in the knowledge level of staff nurses after providing self instruction module regarding NPWT. The SIM was effective in improving knowledge among staff nurses regarding NPWT.

Conclusion: The Self Instructional module on Negative Pressure Wound Therapy was effective in increasing the knowledge of the Staff Nurses. Also there is no significant association between the knowledge and the demographic variables of the samples

Keywords: Knowledge, Negative Pressure Wound Therapy, Staff Nurses.

INTRODUCTION

Wound Healing Involves Integrated Physiological Process. Physiology Of Wound Healing Occurs Every Day And Normally They Heal Up Quickly. Wound Healing Can Be Divided Into 5 Phases, Which To Some Extent Proceed Simultaneously: Blood Clotting, Inflammatory Phase, Destructive Phase, Proliferative Phase, and Maturation Phase. [2] Negative-pressure wound therapy (NPWT) is a therapeutic technique using a vacuum dressing to promote healing in acute or chronic wounds and enhance healing of first and second degree burns. [4] The therapy involves the application of negative vacuum pressure to the sealed wound for faster healing[9]. It has been successfully used in the setting of wounds complicated by burn, infection, poor circulation exposed bone or artificial implants or dehiscence. Negative pressure therapy facilitative healing reportedly improves the rate of angiogenesis ,endothelial capillary calibre ,and by decreasing interstitial oedema and bacterial burden within the wounds [1] Doctors mostly use this technique for a variety of advanced wound types like first and second degree burns ,chronic wounds ,diabetic ,venous ,arterial and wound ulcers , wound suffering excessive drainage ,acute or surgical wounds at risk etc. [7]NPWT accelerates wound healing duration, reduces the risk of pathogenic infection, reduces number of dressing changes, and increases blood flow to the wound area while simultaneously drawing out excess fluids. NPWT has largely been useful in the treatment of diabetic ulcer of the feet [3].

MATERIAL & METHODS

The material and method used in this study which was aimed to assess the effectiveness of a self Instructional module on Negative Pressure Wound Therapy on the knowledge of staff nurses was an Experimental Research Design applying the One group pre test post test Design. The samples included 60 staff nurses who were selected by Systemic Random Sampling. The samples were selected on the basis that they fulfilled the inclusion criteria of being Professional and Registered nurses and that they should be completely agreeing to participate as samples in the study. A structured Questionnaire consisting of questions pertaining to assessment of demographic data and knowledge was administered in the pre test and post test session. Every right answer was

allotted 01 mark. A pilot study had been conducted on 06 samples and the researcher did not face any kind of difficulty in the application of the tool. The validity and reliability of the tool was checked by 5 experts and by test re-test method respectively. Prior to the actual study, formal permission was taken from the concerned authority and by obtaining individual written consent from each sample. The data was collected in 3 phases. In Phase 1 the Pre test knowledge of staff nurses regarding NPWT was assessed with structured knowledge questionnaire. In Phase 2 the self instructional module on Negative Pressure Wound Therapy was administered to the staff nurses and in Phase 3 the post test knowledge of staff nurses regarding NPWT was assessed with the same structured questionnaire. Lastly the obtained data was analyzed and interpreted using various forms of descriptive and inferential statistics.

FINDINGS

The data analysis was done by using descriptive and inferential statistics and was presented in the following tables.

A) **Frequency and percentage Distribution of Demographic Variables** shows that a Majority of the staff nurses (85%) was found to be in the age group of 18-28 years. Also the majority of the staff nurses(75%) were females and remaining were male. Pertaining to the professional data 43.33% of the staff nurses were GNM, 56.67% of the staff nurses were having work experience of 1-3 years. It was revealed that about 75% of the staff nurses were not having previous knowledge regarding Negative pressure wound therapy and about 53.33% were having information from web search.

n = 60

Sr No	Demographic Variables	Categories	Frequency	Percentage (%)
1	Age (in years)	18-28	51	85
		28-38	6	10
		38-48	3	5
		48 and above	0	0
2	Gender	Male	15	25
		Female	45	75
3	Professional qualification	M.sc nursing	0	0
		B.sc nursing	20	33.33
		PbB.sc nursing	0	0
		GNM nursing	26	43.33
		ANM nursing	14	23.33
4	Work experience (in years)	1-3	34	56.67
		4-6	17	28.33
		7-10	6	10
		More than 10	3	5
5	Previous information	Yes	15	25
		No	45	75

6	Source of information	Books	1	6.67
		Articles	0	0
		Web search	8	53.33
		Journal	0	0
		Others	6	40

B) Analysis of pre test and post test knowledge Score of the Samples shows that the mean of knowledge score, mean percentage and the standard deviation of the pre test score is found to be 11.88 , 47.52% and 2.15 respectively . Similarly the mean of knowledge score, mean percentage and the standard deviation of the post test score is found to be 18.78 , 75.12% and 1.54 respectively.

n = 60

	Maximum Knowledge Score	**Mean**	**Standard deviation**	**Mean percentage(%)**	**t-value**	**p-value**
Pre-test	25	11.88	2.15	47.52	26.41	p>0.05 Significant
Post-test	25	18.78	1.54	75.12		

C) Association of pre test knowledge Score with selected demographic variables reveals that there is no any significant association between the demographic variables and pre test knowledge scores of the samples

n = 60

Sr No	Demographic Data	Chi-Square value	Df	Table Value	Result
1.	Age	0.56	2	5.99	Not Significant
2	Gender	1.05	1	3.84	Not Significant
3	Professional Qualification	2.56	2	5.99	Not Significant

4	Work Experience	0.56	3	7.82	Not Significant
5	Any previous information regarding NPWT	0.12	1	3.84	Not Significant
6	Sources of Information	0.94	2	5.99	Not Significant

DISCUSSION

This study has experimented to assess the effectiveness of SIM regarding NPWT among staff nurse working in Selected Hospitals using the one group pre test post test experimental research design . The use of NPWT was widely used by Argenta *et al*. Which forms an important part of today's contemporary dressings. 300 wounds of varying chronicity was exposed to their 'vacuum-assisted closure' technique until the wounds were either completely closed or treated by a split thickness skin graft or local flap. The study concluded that 296 of the wounds healed favourably proving that the technique was effective in the wound healing process.[10]

This study concluded that that the SIM was helpful in increasing the knowledge of Staff nurses regarding NPWT. A similar study was done by Dashrath Kumar et al. In 2018 among 120 staff nurses. The result revealed that pre-test mean was 10.08 which increased to 22.08 in the post test. [11] Amy Cray had conducted a study in 2017 to assess knowledge of staff nurses regarding NPWT and had concluded that the nurses are expected to learn difficult and highly specialised skill quickly with a busy ward environment often with no prior training or preparation. [12] Also a similar study was conducted by Ms Alshima ,et al.(2017) on Assessment of Nurses knowledge and practices regarding Wound Vacuum Assisted Closure Therapy . It was a quantitative descriptive study which was done on 74 Staff nurses assess to assess their knowledge and practice related to VAC therapy. The conclusion of the study was that the nurses have inadequate knowledge and practice regarding wound VAC improved to achieve the maximum responses.[13] Andrews,G.R has also conducted a similar research study to assess the effectiveness of Self Instructional Material for management of Cancer Chemotherapy Patients**"** It concluded that the SIM was effective in bringing about changes in the cognitive behaviour of cancer chemotherapy patient, for the management of cancer chemotherapy.[5]

CONCLUSION

The Self Instructional module on Negative Pressure Wound Therapy was effective in increasing the knowledge among the staff nurses regarding it. Also it can be said that the knowledge of the samples is not significant with their demographic variables

ETHICAL CLEARANCE

The prior permission had been taken from the Institutional ethical committee for the formal conduction of this study. The included samples also individually gave their written consent for participating in the study . The samples were not asked for any financial favours during any part of the study

SOURCE OF FUNDING

The research study was self funded by the investigators without using any other source of funding

CONFLICT OF INTEREST

As far as this study is concerned there is no conflict of interest

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