Impact of Health Educational Program Upon Nurses' Knowledge Towards Postoperative Wounds Care In Mosul Teaching Hospitals

أثر برنامج تثقيفي صحي على معارف الملاك التمريضي تجاه العناية بالجروح بعد العمليات في مستشفيات الموصل التعليمية

Tahsein M. Hussein M.Sc. *
Batool A. Jaddoue Al- Ani, PhD. **

*** Assistant Lecturer, Nursing science Department, College of Nursing, University of Mosul E-mail: tahsein@yahoo.com**
**** Professor, Adult Nursing Department, College of Nursing, University of Baghdad**

المستخلص

الهدف: تهدف الدراسة الى تقييم احتياجات معارف الممرضين حول العناية بالجروح بعد العمليات الجراحية وبناء برنامج تثقيفي صحي للممرضين العاملين في الردهات الجراحية، تحديد العلاقة بين معارف الممرضين وخصائصهم الديموغرافية المتضمنة (العمر، الجنس، المستوى التعليمي، عدد سنوات الخدمة في الردهات الجراحية ، عدد سنوات الخدمة في التمريض ، وعدد المشاركة في الدورات التثقيفية)، ولمعرفة تأثير البرنامج التثقيفي الصحي على معارف الممرضين من خلال إجراء الاختبار البعدي لكل شهرين من تطبيق البرنامج ولمدة ستة أشهر متتالية.

المنهجية : أجريت دراسة شبة تجريبية في مستشفى الجمهوري التعليمي ومستشفى السلام التعليمي في محافظة نينوى خلال الفترة الواقعة بين 10أيلول 2013 ولغاية 10 اذار 2014. لتحقيق أهداف الدراسة تم اختيار عينة غرضيه غير احتمالية مكونة من (60) ممرض وممرضة، قسمت العينة الى مجموعتين متساويتين (مجموعة تجريبية والأخرى ضابطة)، وتعرضت المجموعة التجريبية الى البرنامج التثقيفي . تم قياس أثر البرنامج التثقيفي من خلال استمارة اختبار المعارف المتكونة من (63) سؤال متعدد الخيارات المتعلقة بالعناية بالجروح بعد العمليات الجراحية . وجمعت البيانات من خلال استخدام استمارة الاختبار المتعلقة بمعارف الممرضين . وقد تم بناء وتصميم الاستمارة من قبل الباحث لأغراض الدراسة الحالية وبعدها تم التحقيق من ثبات الأداة القياس من خلال الاختبار وإعادة الاختبار. أما مصداقية الأداة فقد تحققت من خلال عرضها على مجموعة من الخبراء لغرض مراجعتها وتقويم درجة مصداقيتها.

النتائج: أشارت نتائج الدراسة بان معارف ممرضي المجموعة التجريبية قد استفادت من تنفيذ البرنامج التثقيفي الصحي وانه كان فعالا في تحسين وتطوير كبير في معارفهم المتعلقة بجميع أجزاء استمارة المعارف تجاه العناية بالجروح بعد العمليات الجراحية.

التوصيات : استنادا إلى نتائج الدراسة أوصى الباحث بما يلي : من الضروري تفعيل برامج تثقيفية ,تدريبية دورية ومستمرة يجب أن تستعمل لكل الممرضين العاملين في الردهات الجراحية وخاصة للملتحقين حديثا بالخدمة التمريضية لتطوير قدراتهم في التعامل مع الجر وح ما بعد العملية من اجل تحسين نوعية العناية . وكذلك الاستفادة من البرنامج الحالي من خلال استنساخه في شكل كتيب ليتم توزيعه على المؤسسات الصحية لاستعماله.

Abstract

Objectives: The study aimed to assess the needs of nurses' knowledge toward post operative wound care and to constructed health educational program upon nurses who are working in surgical wards, to determine the relation between nurses' knowledge and their demographical characteristic which includes (age, gender, level of education, number of years experience in the surgical wards, years of experience in nursing service, and number of attending an educational sessions), and to identify the impact of the health educational program on their knowledge through perform post-test every two months after implementation of the program for six months consequences.

Methods: A quasi- experimental study was conducted in Al-Jamhuree Teaching Hospital and Al- Salam Teaching Hospital in Nineveh governorate during the period from 10th September 2013 up to 10th March 2014.

To fill full the objective of the study a purposive sample (non probability) consists of (60) nurses, the sample divided into tow equal groups (study and control groups), the study group are exposed to the educational program. The knowledge questionnaire test was conducted to measure the impact of the program, which consists of (63) multiple choice questions regarded to post operative wound care. Data were collected through the use knowledge questionnaire test which is related to nurses' knowledge test, which were developed to achieve the purpose of the study. Reliability of the instrument was determined through the use of test- retest approach. While the Instrument validity was determined through content validity, by a panel of experts.

Results: The results that the nursing in the study group are benefited from the implementation of the health education program and it was a great effect on developing and improved their knowledge regarded all parts of knowledge tests related to post operative wound care.
Recommendations: Based on the results of the current study the researcher recommended the followings: Based on analysis of the results, It is necessary to develop a continuous, periodic in-service educational and training programs should be utilize for all surgical nursing especially for newly jointed nurses to enhance their ability in dealing with surgical wound in order to improve the quality of care, and Benefit from the present program by coping it in a form of a manual to be distributions for using it.

Key words: Heath education program; nurses' knowledge; postoperative wound care

Introduction:

As the common of surgical procedures product in wounds, there is often a requirement that they are enclosed with a dressing that acts as a barrier among the wound and the external surroundings. Wound dressings are significant to absorb leakage as safety from microorganisms and should ideally promote or keep an optimal environment to support the healing process[(1)]. Inappropriate wound care produce inducing bacteremia or sepsis following surgery and amplified mortality. for that reason, wound management of surgical patients is a very essential part of nursing care and health professionals need to put strict focus on wound care [(2)].

Nosocomial infections are the most challenging problem in all health care systems. In developing countries many people are dying daily due to inadequate health care services of which postoperative infections constitute a large proportion of this burden [(3)].

Nosocomial infection (NI) is one of the most important causes of morbidity and mortality and elevates the charge of hospital care [(4)]. This dilemma i predictable to raise in hospitals throughout the developing countries as a result of increasingly crowded facilities, aging populations, and altering patterns of illnesses and treatments [(5)].

In health care system, the risk of acquiring infection by both patients and health care worker (HCW) from each other is fairly high. In spite of development, hospital acquired infections (HAIs) are a dilemma in both developed and undeveloping countries and are a serious cause of death[(6)]. According to [(7)], who mentions that these infections may be caused by accidental violations of infection control protocols, exposure to non sterile environmental objects or transmission of opportunistic pathogens within the normal course of events. The most common NIs among the hospitalized patients include urinary tract infections, surgical site infections (SSIs), and respiratory tract infections. Surgical wound infection accounting 20% to 25% of all nosocomial infections worldwide and that 2–5% of all patients who are undergo to surgical interference will develop an surgical site infection and patients who suffer surgical site infection are twice as chance to die as other postoperative patients [(8)].

Contamination can also take place from the normal colonization of the patient's skin or it may come into the incision site from dispersed bacteria in the environment of the operating room, thus the foundation for using particular air-conditioners to decrease possible infection. Bacteria that are in charge for infections, especially wound infections, can inter into the wound through the surgical incision and may be noticed after weeks of the surgical procedure [(9)]. Using an aseptic technique during surgery and dressing of the surgical wound, the use of personal protective equipment (PPE) such as gloves, mask, gowns, eye shields, disinfection and sterilization of reusable devices and instruments, proper handling and disposal of sharps or other contaminated objects and clinical waste, proper hand washing practice before and after contact with the

patient. If they were not taken it could lead to infection [10].

Methodology:

Quantitative research, a "follow-up" quasi- experimental study was carried out to assess nurses' knowledge. This study included nurses who work in surgical wards in both Al- Jamhuree and al- Salam Teaching Hospitals in Mosul City from 10th of September, 2013 to 10th of March, 2014. It was carried through out the application of pre – test and post–test approach for the study group and control group, and a follow – up approach each two months post program implementation for six months.

A non – probability purposive sample of (60) nurses (male and female), who were working in surgical wards, who met the sample criteria were included in the study, The sample in this study was divided into two groups; the first group consists of (30) nurses for study groups were exposed to the health educational program, while the second group (30) nurses for control group were not exposed to the intervention of the health educational program. Each group had proximately the same demographic characteristics as possible.

A multiple choice questions structured questionnaire was prepared to evaluate the effectiveness of health educational program before and after the administration of educational program.

The structured knowledge questionnaire was used for data collection which consists of three parts:-

Part One: Demographic Characteristics Sheet:

This part related to the nurses demographical characteristic sheet which include (age, gender, level of education, years of experience in surgical wards, years of experience in nursing service , and number of attending specialized educational training course about post operative wound care).

Part Two: Questionnaire to Evaluate Nurses' Knowledge Regarding General Concept of Wound Dressing.

This part of the questionnaire concerned with data to evaluate the nurses' knowledge test which include three sections (A, B, and C). this knowledge test was consists of list of (43) items multiple choice questions. Each question comprised of (4) alternative. These sections were as following:

Section A: It consists of (16) items, which present the nurses' knowledge relative to the principles of wound dressing and preparation of patient.

Section B: It consists of (21) items, which present the nurses' knowledge relative to the aseptic technique during wound dressing procedure.

Section C: It consists of (6) items, which present the nurses' knowledge relative to the aseptic technique to be followed after the wound dressing procedure.

Part Three: Prevention of Postoperative Wound Infections.

This part includes (20) items (multiple choice questions) concerning to nurses' knowledge for the prevention of post operative wound infections.

All items were measured with by nominal scale of normal which was given a score of two for the best answer (correct) and one for the wrong answer

A statistical analysis was applied by using a statistical analysis which included the frequency, percentage, mean of score (MS), relative sufficiency.

Results:

Table 1. Presents the Demographic Characteristics of the Nurses for the Study and Control Groups.

No.	Variables	Study group		Control group	
		F	(%)	F	(%)
1.	**Age (years)**				
	20 – 29	13	43.4	14	46.7
	30 – 39	10	33.3	8	26.6
	40 – 49	4	13.3	5	16.7
	More than 50	3	10.0	3	10.0
	Total	**30**	**100.0**	**30**	**100.0**
2.	**Gender**				
	Male	17	56.7	17	56.7
	Female	13	43.3	13	43.3
	Total	**30**	**100.0**	**30**	**100.0**
3.	**Level of Education**				
	Nursing school graduate	4	13.3	4	13.3
	Secondary nursing graduate	16	53.4	16	53.4
	Institute of nursing graduate	7	23.3	7	23.3
	College of nursing graduate	3	10.0	3	10.0
	Total	**30**	**100.0**	**30**	**100.0**
4.	**Years of Experience in Surgical Wards**				
	Less than 5	15	50.0	14	46.7
	6 – 10	8	26.6	8	26.6
	11 – 15	3	10.0	4	13.3
	16 – 20	2	6.7	2	6.7
	More than 20	2	6.7	2	6.7
	Total	**30**	**100.0**	**30**	**100.0**
5.	**Years of Experience in Nursing**				
	Less than 5	12	40.0	11	36.7
	6 – 10	8	26.6	9	30.0
	11 – 15	2	6.7	3	10.0
	16 – 20	3	10.0	3	10.0
	More than 20	5	16.7	4	13.3
	Total	**30**	**100.0**	**30**	**100.0**
6.	**Number of Attending Educational Sessions about Postoperative Wound Care**				
	None	18	60.0	17	56.7
	One time	9	30.0	8	26.6
	Two time	2	6.7	3	10.0
	Three and more	1	3.3	2	6.7
	Total	**30**	**100.0**	**30**	**100.0**

According to the table (1), highest percentage (43.4%) of nurses in study group and (46.7%) of nurses in control group their age ranged from the (20 - 29) years old. In relation to gender, most of the nurses (56.7%) were male, and the remaining (43.3%) were female in study groups. Percentage distribution of samples with reference to level of education reveals that (53.4%) of the nurses had up to secondary nursing graduate in both study and control

groups. As regard the year of experience in surgical wards, half of the studied nurses had a working less than five years in study group, while (46.7%) of nurses had a working less than five years in control group. Also (40%); (36.7%) of the study and control groups respectively had less than five years of experience in nursing. Furthermore, percentage distribution of samples with reference to number of training session reveals that (60.0%); (56.7%) of nurses in study and control group respectively had no training course in post operative wound care.

Table 2. Comparison Between Nurses' Knowledge (Pre – Post) tests for Study Group.

Grand mean of scores for nurses' knowledge related to items	Study Group					
	Pre - test			Post - test		
	Grand MS	RS%	Grads	Grand MS	RS%	Grads
Part Two: 3 Sections A. (16 items)	1.38	69.05	L.S	1.81	90.31	H.S
B. (21 items)	1.36	68.08	L.S	1.84	92.06	H.S
C. (6 items)	1.38	69.05	L.S	1.78	89.08	H.S
Part Three: (20 items)	1.35	67.67	L.S	1.80	90.17	H.S

Grand MS= mean of score, RS%= relative sufficiency, L= Low less than 75, M= Moderate (75-87.4), H= High (87.5-100).

This table shows that the grand mean of score for nurses' knowledge in pre and post tests, which indicate that there is high level of knowledge for nurses after implementing the educational program to the study group with respect to the grand mean of score and to the relative sufficiency.

Table (3): Comparison Between Nurses' Knowledge In(Pre – Post) Tests for Control Group.

Grand mean of scores for nurses' knowledge related to items	Control Group					
	Pre – test			Post - test		
	Grand MS	RS%	Grads	Grand MS	RS%	Grads
Part Two: 3 sections A. (16 items)	1.38	69.05	L.S	1.34	66.88	L.S
B. (21 items)	1.33	66.43	L.S	1.39	69.42	L.S
C. (6 items)	1.28	64.17	L.S	1.32	66.08	L.S
Part Three: (20 items)	1.36	68.08	L.S	1.34	66.88	L.S

Grand MS= mean of score, RS%= relative sufficiency, L= Low less than 75, M= Moderate (75-87.4), H= High (87.5-100).

This table shows that the grand mean of score for nurses' knowledge is low, which indicated that there is no changing to the nurses knowledge in the control group was nearly equal in pre to post test with respect to the grand mean of score and to the relative sufficiency.

Table 4. Comparison Between Nurses' Knowledge In (Follow-up 1 - Follow-up 2 - Follow-up 3) Tests for Study Group.

Grand mean of scores for nurses' knowledge related to items	Study Group n = 30								
	Follow-up 1			Follow-up 2			Follow-up 3		
	Grand MS	RS %	Grads	Grand MS	RS %	Grads	Grand MS	RS%	Grads
Part Two: 3 sections A. (16 items)	1.81	90.31	H.S	1.82	91.19	H.S	1.61	80.63	M
B. (21 items)	1.82	91.19	H.S	1.79	89.68	H.S	1.57	78.25	M
C. (6 items)	1.80	90.17	H.S	1.81	90.31	H.S	1.53	76.67	M
Part Three: (20 items)	1.78	89.08	H.S	1.80	90.17	H.S	1.59	79.42	M
Total	**1.80**	**90.19**	**H.S**	**1.80**	**90.34**	**H.S**	**1.58**	**78.74**	**M**

Grand MS = mean of score, RS= Relative sufficiency, L= Low less than 75, M= Moderate (75 – 87.4), H= High (87.5 - 100), L.S= Low significant, M.S= Moderate significant, H.S= High significant.

Table (13) shows the total mean of knowledge score for nurses is high, which indicated that there is high level (High significant) for nurses' knowledge in **(Follow-up1 ,Follow-up 2)** while, there is some decline in the level of nurses' knowledge at the **(Follow-up 3)** test compared to follow-up (1 and 2) tests.

Table 5. Comparison Between Nurses' Knowledge In (Follow-up 1 - Follow-up 2 - Follow-up 3) Tests for Control Group.

Grand mean of scores for nurses' knowledge related to items	Control Group n = 30								
	Follow-up 1			Follow-up 2			Follow-up 3		
	Grand MS	RS %	Grads	Grand MS	RS %	Grads	Grand MS	RS %	Grads
Part Two: 3 sections A. (16 items)	1.34	66.88	L.S	1.35	67.67	L.S	1.33	66.43	L.S
B. (21 items)	1.38	69.05	L.S	1.36	68.08	L.S	1.37	68.57	L.S
C. (6 items)	1.32	66.08	L.S	1.31	65.50	L.S	1.34	66.88	L.S
Part Three: (20 items)	1.32	66.08	L.S	1.52	75.83	M.S	1.39	69.42	L.S
Total	**1.34**	**67.02**	**L.S**	**1.39**	**69.27**	**L.S**	**1.36**	**67.83**	**L.S**

Grand MS = mean of score, RS= Relative sufficiency, L= Low less than 75, M= Moderate (75 – 87.4), H= High (87.5 - 100), L.S= Low significant, M.S= Moderate significant, H.S= High significant.

Table (5) shows the total mean of knowledge score for nurses is low, which indicated that there is low level (low significant) for nurses' knowledge in **(Follow-up1 ,Follow-up 2, and Follow-up 3).**

Discussion

1. Discussion of the Demographic Characteristics of the Study Samples.

Through the data analysis distribution of demographic variables according to the table (1), the percentage distribution of samples with reference to age reveals that highest percentage (43.4%) of the nurses in the study group belonged to the age group of (20-29) years, (46.7%) of the nurses in the control group belonged to the age group of (20-29) years old. In the study group the mean age is (33.63 years) while in the control group the mean age was (31.53 years).This finding is in concordance with that of [11] , who studied knowledge about standard precautions among university hospital nurses in the United Arab Emirates. This results could reflect the young age of the studied sample and so the ability to acquire knowledge and change their behaviors based on submission of up to date knowledge. In relation to gender, most of the nurses (56.7%) were male, and the remaining (43.3%) were female in both study and control groups. The high percentage of male nurses in the study is due to the dominance of males in the nursing profession in Iraq. On the other hand, this result may reflect a social background, keeping women away from this job and due to the fact that most of female nurses are appointed to care for maternal and child health care. Also, this may be due to the fact that males cover night duties while females does not. Percentage distribution of samples with reference to level of education, it 's demonstrated that (53.4%) of the nurses had up to secondary nursing graduate in both groups. This finding is on line with the same study by [12], who found that the majority of the studies nurses were graduate from secondary nursing school. This result may be explained by the fact that the public service system has just started recruitment of nurses at bachelors' level. As regard the year of experience in surgical wards, half of the studied nurses had a working less than five years in study group, while (46.7%) of nurses had a working less than five years in control group. This result is on line with the study done by [13], who indicated that the average years of experience in surgical wards was approximately (4) years. The few years of nursing experience in surgical wards could be explained by the fact that the have a frequent rotating from one unit to another within the hospital. Concerning the years of experience in nursing service the finding of the results indicated that the (40%); (36.7%) of the study and control groups respectively had less than five years of experience in nursing. With regard to number of training session, the present study reveals that (60.0%); (56.7%) of nurses in study and control group respectively had no training course about post operative wound care. This goes in the same line with [14] , who found more than half of nurses attended infection control courses. Attending continuing nursing education courses and training programs have the benefits of keeping nurses up-to-date and refining their practices especially in carrying out procedures that require strict aseptic techniques.

2. Discussion of the Impact of the Educational Program on Nurses' Knowledge Between Study and Control Groups.

In order to assess the effect of educational program for nurses' knowledge through scoring analysis for mean of score and relative sufficiency. The result indicated that the scoring in post test were higher for study than control groups with regard to knowledge related to all areas regarding post operative wound care. After program implementation, the nurses' knowledge score in study group have shown significant improvement in post test when they are compared with control group (table 2, and 3). This finding is supported by a previous study shows that

nurses' knowledge was influenced by professional education and training [15].

3. Discussion of the Comparative Differences Between Nurses' Knowledge Related to Score of Pre- Test with Follow – up (1), Follow-up (2), and Follow-up (3) In Study Group.

According to the table (4), The highest levels of knowledge mean scores were reported after implementation of the program and during the follow-up (1 and 2) respectively. This improvement due to the intervention of the program. While, there is some decline in the level of nurses' knowledge at the follow-up (3) test compared to follow-up (1 and 2) tests in the items related to nurses' knowledge regarding general concept of wound dressing and prevention of post operative wound infections, however, it remain higher than the pre program implementing. This results is agree to study done by [16] , who found that the improvement in knowledge was partially lost after two months of implementation of teaching protocol.

4. Discussion of the Comparative Differences Between Nurses' Knowledge Related to Score of Pre-Test with Follow – up (1), Follow-up (2), and Follow-up (3) in Control Group.

The finding of table (5) reveals that their was no significant differences between the follow-up (1), follow-up (2), and follow-up (3) of the control group. However, this group of subjects still lacked knowledge in all areas of knowledge related to postoperative wound care. These data indicated that the nurses could not access to evidence-based nursing of knowledge, the lack of nurses' knowledge in this group indicated the urgent need to the educational program. In support of the foregoing explanations regarding deficient nurses' knowledge in the control group. The findings might be explained by the fact that the health authorities and hospital managers who did not accept sufficient responsibilities for construct an educational program for the staff regarding post operative wound care and lack of opportunity for continuous education available in the hospital to improve the nurses knowledge and may be due to equipments shortage and lack of supervision and constant feedback regarding postoperative wound care.

Recommendations

Based on analysis of the results, It is necessary to develop a continuous, periodic in-service educational and training programs should be utilize for all surgical nursing especially for newly jointed nurses to enhance their ability in dealing with surgical wound in order to improve the quality of care, providing scientific booklet, publication and journal about postoperative surgical wound care, and benefit from the present program by coping it in a form of a manual to be distributions for using it.

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