Impact of an Educational Program upon Nurses' Knowledge and Practices Concerning Neurogenic Bladder Rehabilitation for Spinal Cord Injured Persons

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المستخلص

الهدف: تحديد تأثير البرنامج التثقيفي على معارف وممارسات الممرضين والممرضات ذات العلاقة بتأهيل المثانة المتضررة عصبياً للأشخاص المصابين بأصابات الحبل الشوكي من خلال نهج المتابعة لكل شهرين بعد تنفيذ البرنامج ولمدة ستة أشهر متتالية.

المنهجية: تم اعتماد تصميم المتابعة الطويلة واستخدام أسلوب التوقيت المتعدد في تحليل البيانات وتطبيق نهج ما قبل الاختبار وبعد الاختبار للمجموعة الاختبارية والمجموعة الضابطة. وقد أجريت الدراسة في مستشفى ابن القف لإصابات الحبل ألشوكي في مدينة بغداد للفترة الواقعة بين ٥ آب ٢٠١٠ ولغاية ١٥ تشرين الأول ٢٠١١.ولتحقيق أهداف الدراسة اختيرت عينة غرضيه غير احتمالية مكونة من (٦٠) ممرضاً وممرضة من العاملين في ردهات اصابات الحبل الشوكي ، قسمت العينة على مجموعتين متساويتين ، المجموعة الاختبارية والمجموعة الضابطة، وجمعت البيانات الخاصة بالدراسة من خلال استخدام استبانة مصممة لغرض جمع المعلومات تكونت من (٣) ثلاثة أجزاء وبواقع (١٨٥) فقرة تضمنت معارفهم ، ممارساتهم، وصفاتهم الديموغرافية.. وقد تم بناؤها وتصميمها من قبل الباحث لأغراض الدراسة الحالية. تم تحقيق ثبات أدوات القياس من خلال استخدام معامل ارتباط بيرسون والذي كانت نتيجته (٠،٩٢) لمعارفهم و٠،٨٨) لممارساتهم. أما مصداقية أدوات القياس فقد تحققت من خلال عرضها على مجموعة من الخبراء لغرض مراجعتها وتقويم درجة مصداقيتها. تم تحليل بيانات الدراسة باستخدام الإحصاء الوصفي (التوزيع التكراري والنسبة المئوية) والإحصاء الاستنتاجي الذي شمل الوسط الحسابي الكفاية النسبية، معامل ارتباط بيرسون، الأختبار التائي، ومربع كاي.

النتائج: أشارت نتائج الدراسَة الى أن المجموعة الاختبارية من الملاك التمريضي استفادت من تنفيذ البرنامج التثقيفي الصحي حيث تحسنت وتطورت معارفهم وممارساتهم بشكل كاف.

التوصيات : أوصت الدراسة بالحاجة الى اعداد وتطبيق فحص أو أختبار سنوي للممرضين والممرضات لتقويم العناية التمريضية التي يقدمونها الى مرضى أصابات الحبل الشوكي، مع التركيز على الجانب العملي، وكذلك عدم ترقية أي منهم ما لم يجتاز الأمتحان بنجاح.

Abstract

Objectives: To determine the impact of an educational program on nurses' knowledge and practices concerning neurogenic bladder rehabilitation for spinal cord injured persons through a follow-up approach each two months post program implementation for six months.

Methodology: "Follow-up" longitudinal design by using time series approach of data analysis and the application of pre-post tests approach for the study and the control groups. The study was carried out at Ibn Al-Kuff hospital for (SCI) in Baghdad governorate from 5th of July 2010 to 15th of October 2011. To achieve the objectives of the study, a non-probability (purposive) sample of (60) nurses (males and females) were working in SCI units were selected. The sample is divided equally into study and control groups. A questionnaire format was used for data collection which consisted of (3) three parts (185) items, including their knowledge, practices, and demographic characteristics. Instrument validity was determined through content validity, by a panel of experts. Reliability of the instrument was determined through the use of Pearson correlation coefficient for the test-retest approach, which is (0.92) for their knowledge and (0.88) for their practices. Analysis of data was performed through the application of descriptive statistics (frequency, percentage) and inferential statistics (mean of scores, relative sufficiency, Pearson correlation coefficient, t-test and one way analysis of variance and chi- square test).

Results: The results of the study indicated that the nurses in study group benefited from the implementation of health education program, their knowledge and practices were adequately improved and developed.

Recommendations: The study recommends that there is a need to conduct annual examinations for nurses to evaluate their nursing care for SCI persons, with a focus on the practical side, and not upgrading any of them if they did not pass the examination successfully.

Keyword: **Impact, Educational program, longitudinal design, Knowledge, Practices, Neurogenic bladder, Spinal cord injury.**

Introduction:

Spinal cord injury (SCI) is among the most devastating healthcare issues. It affects individuals and their families psychologically, physically, economically, and socially. More than 250,000 persons in the United States live with spinal cord injury (SCI), and 10,000 to 12,000 new injuries occur each year [(1)]. Neurogenic bladder is a functional urinary tract obstruction caused by an interruption of the nerve supply to the bladder. It occurs in most individuals who have a spinal cord injury (SCI) [(2)]. This term is used to describe bladder control changes that occur with both upper and lower motor neuron disorders. Upper motorneuron disorders produce a spastic or reflex bladder. Lower motorneuron disorder produces a flaccid bladder [(3)].

Spastic or reflex bladder is the most common type and is caused by any lesion of the spinal cord above the voiding reflex arc (upper motor neuron). The result is a loss of conscious sensation and cerebral motor control. A spastic bladder empties on reflex, with minimal or no controlling influences to regulate its activity. Flaccid bladder is caused by a lower motorneuron lesion, often resulting from trauma. The bladder continues to fill and becomes greatly distended, and overflow incontinence occurs [(4)]. Almost all persons with neurologic impairment related to SCI have voiding dysfunction. Urinary tract infections (UTIs) have long been problematic for those living with SCI. Once the leading cause of death, urinary complications remain the leading cause of morbidity and the most common infection in persons with SCI [(5)]. Assessment of neurogenic bladder involves measurement of fluid intake, urinary output, and residual urine volume, urinalysis, and assessment of sensory awareness of bladder fullness and degree of motor control [(6)].

Urological complications, including urinary tract infections and renal failure, were at one time the number one killer of persons with spinal cord injury. Urolithiasis (stones) may develop from urinary stasis, infection, and demineralization of bone from prolonged immobilization. Renal failure can also occur from vesicoureteral reflux (backward flow of retained urine from the bladder into the ureters) with eventual hydronephrosis (collection of urine in the renal pelvis) and atrophy of the kidney. Indeed, renal failure is the major cause of death of patterns with neurologic impairment of the bladder [(2)].

The nursing goal is the prevention of urinary tract infections and the prevention of damage to the detrusor muscle due to over distention. Urinary retention develops in 80 percent of all spinal cord injury cases and must be treated with either indwelling catheter or intermittent catheterization. Maintaining bladder elimination is a major nursing responsibility, so, the foundation of well trained nursing staff, able to reduce the cost and the period of hospitalization, remains a very important factor in bladder rehabilitation to spinal cord injury patients [(7)].

Methodology:

Quantitative research, a follow-up quasi-experimental study, and the application of pre-post tests approach for the study and the control groups. The study was carried out at Ibn Al-Kuff hospital for (SCI) in Baghdad governorate from 5th of July 2010 to 15th of October 2011. A non - probability purposive sample of (60) nurses (male and female), who were working in spinal cord injuries units were selected. The sample in this study was divided into two groups; (3o) nurses for study group, were exposed to the nursing program. The assessment was carried out during the period from 10th of October, 2010 to 30th of October, 2010. To asses nurses' knowledge needs the researcher construct questionnaier format which consist of (53) items (positive and negative questions). The researcher interviewed all nurses, and each nurse was given a time period between (25 – 30) minutes to answer the questions.

check list observation was done to evaluate their practices during giving nursing care to their patients in acute and rehabilitation phase, with respect to the total mean of score which was =1.48 (poor practices) during catheterization, 1.42 (poor practices) during the daily nurses' practices in acute phase, and 1.56 (poor practices) during rehabilitation phase.

Therefore, this assessment indicated that the majority of nurses had poor knowledge and malpractices while they were dealing with neurogenic bladder in their units. Moreover, this result revealed the critical need to construct an educational program to the nurses in order to improve their knowledge and practices to prevent complication and to achieve better bladder rehabilitation. An education program was designed according to the result of nurses' needs. The education program concentrated on teen major topics and it was implemented through teen sessions such sessions presented important knowledge and practices relative to the management of neurogenic bladder. Each session was designed and scheduled for approximately (2) hours and they were presented at Ibn Al-Kuff hospital for (SCI) from 15th of December, 2010 to 23th of December, 2010. These sessions were comprised of the following topics:

1. Anatomy and physiology of urinary tract system

educational program, and (30) nurses for control group, were not exposed to the intervention of the educational program. Each group had proximately the same demographic characteristics as possible. To assess nurses' knowledge and practices needs concerning neurogenic bladder rehabilitation for SCI persons. Data were collected from (30) nurses' works in spinal cord units in Ibn Al – kuff spinal cord injuries hospital. The objective of this assessment is to identify the nurses' needs for an educational

2. Neuroanatomy of the Lower Urinary Tract
3. Definition and types of neurogenic bladder dysfunction for SCI persons
4. Classification of neurogenic bladder as general
5. Management of neurogenic bladder in acute (spinal shock) phase
6. Management of neurogenic bladder in rehabilitation phase
7. Methods of bladder emptying.
8. Nursing practices for neurogenic bladder
9. Nursing practices for neurogenic bladder (continued).
10. Complications of neurogenic bladder.

The researcher constructed the question- nnaire and was used as mean of data collection. It was comprised of (185) items, with three major parts include: nurses' demographic characteristics and questionnaire to evaluate nurses' knowledge consist from five sections, and two sections to evaluate their practices. Appropriate statistical methods were used in order to analyze the data which included:

1. Descriptive data analysis (frequency, percentages. means, and relative sufficiency)
2. Inferential data analysis

2.1. Pearson's coefficient correlation re-tests for determining the reliability of the pilot study.

2.2. Correlation paired t-test was performed for the determination of the significant differences between the pre and post-test scores of the study and the control group relative to the patients' knowledge [8].

2.3. Chi- square- test: This type of statistic was applied to determine the association between knowledge and practices with demographic variable by the onset of the pre and post test to the control and study groups [9].

Results:

Table 1. Distribution of nurses by their demographical characteristics variables in the study and control groups with comparison significant

Variables	Groups	Study		Control		C.S.
		Frequency	Percent	Frequency	Percent	
Gender	Male	18	60	18	60	F.E.P.T. P=1.000 NS
	Female	12	40	12	40	
Age Groups	20 - 29	4	13.3	5	16.7	t-test P=0.647 NS
	30 - 39	15	50	16	53.3	
	40 - 49	8	26.7	7	23.3	
	50 >	3	10	2	6.7	
	$\bar{x} \mp S.D.$	38.0 ∓ 8.77		37.0 ∓ 8.05		
Marital Status	Single	3	10	4	13.3	F.E.P.T. P=1.000 NS
	Married	27	90	26	86.7	
Educational Level	Secondary nursing school	24	80	24	80	χ^2-test P=1.000 NS
	Institute nursing	3	10	3	10	
	College nursing	3	10	3	10	
Years of Experience	< 5	4	13.3	5	16.7	χ^2-test P=0.985 NS
	5 - 9	4	13.3	4	13.3	
	10 - 14	6	20	5	16.7	
	15 - 19	9	30	10	33.3	
	20 ≥	7	23.3	6	20	
	$\bar{x} \mp S.D.$	14.17 ∓ 6.99		13.83 ∓ 6.94		
Training Courses	None	10	33.3	9	30	χ^2-test P=0.952 NS
	One	8	26.7	8	26.7	
	Two	6	20	7	23.3	
	Three and more	6	20	6	20	
	$\bar{x} \mp S.D.$	1.23 ∓ 1.17		1.33 ∓ 1.12		
Training outside of Iraq	No training	30	100	30	100	

NS=Non-significant. at P>0.05,P=Probability value ,X^2=Chi-Squared test, C.S.=Comparative Significant, X=Mean ,SD=Standard deviation

Table (1) shows that (60%) of nurses in study and control group were male. Half of sample (50%) in study group were between (30 – 39) years old, while (53.3%) in control group were between (30 – 39) years old. Regarding the marital status, the majority of nurses (9o %); (86.7%) respectively in study and control group were married. Concerning educational level, most nurses (80%) in study and control group were secondary school graduate. Furthermore, this table shows that (30%); (33.35) respectively of nurses in study and control group had (15 – 19) years of experience in spinal cord injured hospital. Also (33.3 %); (30%) of study and control group respectively had no opportunity to be involved in training courses in SCI units concerning neurogenic bladder rehabilitation. Furthermore, the entire nurses' (100%) in study and control group did not attend any training courses outside of Iraq.

Table 2. Comparison between nurses' knowledge (Pre – Post) test for the study and control groups

Grand mean of scores for nurses' knowledge related to Items	Study group (n= 30)						Control group(n= 30)					
	Pre test			Post test			Pre test			Post		
	Grand MS	RS %	grads	Grand MS	RS %	grads	Grand MS	RS %	grads	Grand MS	RS %	grads
1.Nurses' knowledge about anatomy and physiology (24) items	1.89	63.05	L,S	2.43	81.01	H.S	1.93	64.35	L.S	1.99	66.38	L.S
2. Nurses' knowledge about their information (18).	1.94	64.69	L.S	2.44	81.41	H.S	1.97	65.74	L.S	1.99	66.48	L.S
3. Nurses knowledge in acute phase (22) items	1.97	65.76	L.S	2.47	82.50	H.S	1.93	64.65	L.S	1.91	36.88	L.S
4. Nurses knowledge in rehabilitation phase.(16).items	1.96	65.37	L.S	2.55	85.18	H.S	2.07	69.32	M.	2.O5	68.45	M
5. Nurses knowledge concerning the complication. (15).	1.89	63.03	L.S	2.38	79.62	H.S	1.92	64.14	L.S	1.87	62.59	L.S
Total	1.93	64.33	L.S	2.45	81.66	H.S	1.96	65.46	L.S	1.96	65.40	L.S

MS= Mean of score , Low = Less than (66.66), moderate (66.66- 77.77) and high (77.78- 100.0).L.S=Low significant , M= Moderate, RS= Relative sufficiency , %=percentage

Table (2) demonstrate the total mean of knowledge score for nurses which indicate that there is high level knowledge (good) for nurses after implementing the educational program to the study group while no changing to the nurses' knowledge to the control group from pre to the post test with respect to the total score and to the relative sufficiency.

Table 3. Comparison between pre- post tests for nurses' practices to the study and control groups

Standard precaution items for nurses' practices	Study group (n=30)						Control group (n=30)					
	Pre test			Post test			Pre test			Post test		
	Grand MS	RS %	Grads	Grand MS	RS %	Grads	Grand MS	RS %	Grads	Grand MS	RS %	Grads
1.Nurses' practices during catheterization (17) items	1.67	55.81	L,S	2.50	83.59	H.S	1.64	54.83	L.S	1.70	56.66	L.S
2.Nurses' practices during daily care in acute phase (20).items	1.77	59.0	L.S	2.41	80.61	H.S	1.73	57.72	L.S	1.71	57.0	L.S
3. Nurses practices during clamping (6) items	1.84	61.48	L.S	2.42	80.92	H.S	1.77	59.48	L.S	1.79	59.66	L.S
4. Nurses practices during residual urine test (9) items.	1.94	64.69	L.S	2.46	82.09	H.S	1.95	65.06	M.	1.98	66.0	M
5. Nurses' practices during tapping (5).items	1.57	52.44	L.S	2.41	80.44	H.S	1.68	56.22	L.S	1.62	54.0	L.S
6. Nurses' practices during teaching Valsalvas'method (4) items.	1.80	60.0	L.S	2.44	81.38	H.S	1.75	58.33	L.S	1.68	56.0	L.S
7. Nurses' practices during teaching Crede method (4).	1.72	57.5	L.S	2.40	80.27	H.S	1.65	55.27	L.S	1.72	57.33	L.S

Table 3. (continued)

8.Nurses' practices to the incontinence bladder (4) items.	1.76	58.88	L.S	2.35	78.33	H.S	1.67	55.83	L.S	1.60	53.33	L.S
9. Nurses' practices during apply urinary sheath (5) items.	1.66	55.55	L.S	2.35	78.44	H.S	1.78	59.55	L.S	1.84	61.33	L.S
10. Nurses' practices during autonomic dysreflexia (5) items.	1.86	62,22	L.S	2.36	78.66	H.S	1.84	61.33	L.S	1.72	57.33	L.S
11. Nurses' practices to prevent cross-contamination.(8)items.	1.52	50.83	L.S	2.35	78.33	H.S	1.63	54.52	L.S	1.66	55.33	L.S
12. Nurses' practices to the nursing documentation (1).	1.73	57.77	L.S	2.40	80.0	H.S	1.70	56.66	L.S	1.82	60.66	L.S
Total	1.74	57.88	L.S	2.40	8..13	H.S	1.73	57.75	L.S	1.73	57.88	L.S

MS= Mean of score, Low = Less than (66.66), moderate (66.66- 77.77) and high (77.78- 100.0).L.S=Low significant, HS= High significant, RS= Relative sufficiency, %=percentage

Table(3) demonstrate nurses' practices for study and control group before and after implementation educational program, which show clearly that nurses action to the study group was high level (good practice) when comparing between pre to post test, while there is no differences to the control group with respect to the total mean of score and relative sufficiency(RS).

Table 4. Comparison between nurses' knowledge (Pre – Post 1- post 2- post 3- post 4) education tests for study group

Grand mean of scores for nurses' knowledge related to Items	Study group n= 30														
	Pre-test			Post-test 1			Post-test 2			Post-test 3			Post-test 4		
	Grand MS	RS %	grads	Grand MS	RS %	grads	Grand MS	RS %	grads	Grand MS	RS %	grads	Grand MS	RS %	grads
1. Nurses' knowledge about anatomy and physiology to NB (24) items.	1.89	63.05	L,S	2.43	81.01	H.S	2.49	83.19	H.S	2.52	84.16	H.S	2.58	86.20	H.S
2. Nurses' knowledge about their information about NB (18).	1.94	64.69	L.S	2.44	81.41	H.S	2.50	83.45	H.S	2.55	85.06	H.S	2.58	86.23	H.S
3. Nurses knowledge in acute phase (22) items.	1.97	65.76	L.S	2.47	82.50	H.S	2.52	84.16	H.S	2.57	85.90	H.S	2.65	88.61	H.S
4. Nurses knowledge in rehabilitation phase.(16).items	1.96	65.37	L.S	2.55	85.18	H.S	2.62	87.34	H.S.	2.65	88.64	H.S	2.71	90.55	H.S
5. Nurses knowledge concerning the complication (15).	1.89	63.03	L.S	2.38	79.62	H.S	2.49	83.03	H.S	2.53	84.44	H.S	2.61	87.25	H.S
Total	1.93	64.33	L.S	2.45	81.66	H.S	2.52	84.13	H.S	2.56	85.46	H.S	2.62	87.53	H.S

MS= Mean of score , Low = Less than (66.66), moderate (66.66- 77.77) and high (77.78- 100.0).H.S=High significant, HS= High significant, RS= Relative sufficiency, %=percentage

Table(4) demonstrates the total mean of knowledge score for nurses which indicate that there is high level (good) for nurses after implementing the educational program to the study group from pre to the post tests with respect to the total score and to the relative sufficiency.

Table 5. Comparison between nurses' knowledge (Pre – Post- post 1- post 2- post 3) education tests for control group:

Grand mean of scores for nurses' knowledge related to Items	control group n= 30													
	Pre test			Post test 1			Post test 2			Post test 3			Post test 4		
	Grand MS	RS %	grads	Grand MS	RS %	grads	Grand MS	RS %	grads	Grand MS	RS %	grads	Grand MS	RS %	grads
1. Nurses' knowledge about anatomy and physiology (24) items.	1.93	64.35	L.S	1.99	66.38	L.S	1.97	65.38	L.S	2.03	67.77	M	2.05	68.65	M
2. Nurses' knowledge about their information (18).	1.97	65.74	L.S	1.99	66.48	L.S	1.97	65.86	L.S	1.97	65.80	L.S	1.98	65.98	L.S
3. Nurses knowledge in acute phase (22) items.	1.93	64.65	L.S	1.91	36.88	L.S	1.92	63.95	L.S	1.96	65.34	L.S	1.95	65.06	L.S
4. Nurses knowledge in rehabilitation phase. (16).items.	2.07	69.32	M.	2.O5	68.45	M	2.08	69.62	M	2.06	68.70	M	2.10	70.24	M
5. Nurses knowledge concerning the complication (15).	1.92	64.14	L.S	1.87	62.59	L.S	1.97	65.70	L.S	1.96	65.40	L.S	1.94	64.88	L.S
Total	1.96	65.46	L.S	1.96	65.40	L.S	1.98	66.06	L.S	1.99	66.35	L.S	2.0	66.80	M

MS= Mean of score, Low = Less than (66.66), moderate (66.66- 77.77) and high (77.78- 100.0), HS= High significant, RS= Relative sufficiency, %=percentage

Table(5) demonstrates the total mean of knowledge score for nurses which indicate that there is low level (non-significant) for nurses' knowledge in (Pre – Post- post 1- post 2- post 3) which mean no changing to the nurses' knowledge to the control group during follow- ups tests with respect to the total score and to the relative sufficiency.

Discussion:

1. Discussion of demographic characteristics of study sample SCI nurses.

Throughout the course of the present study, and as it has been shown in table (1) that the highest percentage (60%) of nurses in study and control group were male, This finding is agree with Mohamed study(10) ,which found in her study, that (63.3%) of SCI nurses were male . These results can be interpreted that, this hospital was army hospital until 2003, and most of old nurses staff which were male stay working in the same hospital after 2003.This fact also can be supported by the National sample survey of registered nurses in the United States, they estimated that male nurses accounted 54% of 2.69 million nurses, they represent a 226% increase in their number in the last years (11). Regarding their ages, half of sample in study and control groups were between (30 – 39) years old. Regarding the marital status, the majority of nurses (9o %); (86.7%) respectively in study and control group were married.

Concerning educational level, the highest number of nurses (80%) in study and control group were secondary school graduate while the lowest numbers were institute and college graduate. The mixes of educational levels among the staff greatly influence the assignment systems used to cover the patient needs (12). These results indicate the fact that there is a shortage of qualified nursing staff in Iraqi hospitals. And this finding supports the fact that nurses in our society has low opportunity to continue their education because of many factors, such us there is limited institutes and colleges in Iraq to contain such a large number of nurses, in addition to the absence of a clear policy of the Ministry of Health to address this issue.

Furthermore, this table shows that (30%); (33.35) respectively of nurses in study and control group had (15 – 19) years of experience in spinal cord injured hospital.

Also (33.3 %) ; (30%) of study and control group respectively had no opportunity to be involved in training courses in SCI units concerning neurogenic bladder rehabilitation , while (100%) in the study and control group did not attend any training courses outside of Iraq. These findings disagree with Al-Barody study (13).who stated in her study related to the same hospital in Baghdad city, that only (20%) of spinal cord nurses didn't have any training sessions. Also these findings disagree with the literature which centered on the enrollment of the nurses in training sessions to improve their knowledge, skills, and keep them to up-dated knowledge concerning neurogenic bladder rehabilitation. The researcher suggests an opportunity for spinal cord nurses to be enrolled in training sessions to improve their knowledge and skills.

2. Discussion of the comparison between SCI nurses' knowledge for study and control group in pre-test and post tests of educational program.

The results indicate that, nurses' knowledge was poor before implementation an educational program in pre-test for study and control groups. And there is no significant difference between both groups .in other words, works in both groups have equal level of poor knowledge (Table 2). This result is with agreement of Badir study [14]. For (100) SCI nurses, his study showed that the nurses had inadequate knowledge concerning neurogenic bladder. Immediately after two weeks of the completion the education program, post-test is administered to both groups .Results of the data analysis for this test have indicated that there is a significant difference between the study and control groups (tables 2, 4, 5).this depicts that nurses' knowledge in the study group about neurogenic bladder was good improved as results of their exposure to the program. To assess the effect of the educational program for nurses knowledge through scoring analysis for mean of score and RS. The result indicates the scoring in post knowledge tests were higher for study than control group.

To approve that there is long-term benefits. Wise health education, post-test 1,2,3,4 is administered for both groups every two months. Analysis of this test has depicted that the study group participated have acquired sufficient bulk of knowledge, so their knowledge remains for a long run (Tables 4, 5), while it was poor knowledge for control group in post- test1, 2, 3.4. This result is supported by two studies [15], [16] indicate that the nurses' knowledge was poor before implementation an educational program for nurses in SCI units.

3. Discussion of the comparison between SCI nurses' practices for study and control groups in pre-test and post-tests of educational program

In general, the finding of table (3) showed that nurses' practices for study and control group before implementation the educational program were poor action regarding the standard precautions during catheterization procedures, the daily nursing care in acute phase, and nurses' practices (clamping, tapping, residual urine tests, emptying methods, autonomic dysreflexia ,and documentation) in rehabilitation phase, which were analyzed by using grand mean of score, and relative sufficiency(RS). These results were supported by Al-Barody study [12]. Who stated in her study [1]. To evaluate nurses' practices for (50) nurses in regard to aseptic technique during catheterization procedure for SCI patients, that there were poor nurses acting in 7 principles of aseptic technique during insertion catheter.

Grand mean of score of educational program for nurses in study group was higher (good nursing action) in practice in post-tests (1, 2, 3, 4) compared with pre educational practice, while the control group showed no improvement in grand means score in standard precaution items during catheterization patients in all tests .This result is with agreement of Modigan and Neff study[17] in which they mentioned that the nurse who take care of patient with catheter should have experience in service training setting, stressing the correct techniques and potential complication, the nurses are in an optimal position to minimize the potential infection by performing proper preventive strategy related to catheter insertion and maintenance technique, and the written guideline for catheter related procedures has the greatest effect among hospital staff knowledge.

To find interpretation for this result of nurses action, it may be due to the lack of continuing nursing program which must improve their skills, they might not be aware of the importance of using sterile techniques to reduce UTI, during insertion the catheter, or because of carelessness and lack of experiences, lack of supervision, orientation and strict instruction to correct their mistake during this procedure.

Recommendations:

1. The results of this study should be apply theoretically and practically throw in service education concerning the neurogenic bladder rehabilitation for spinal cord injured persons.
2. Conduct annual examinations for nurses to evaluate their nursing care for SCI persons, with a focus on the practical side, and non-upgrading any of them if they did not pass the examination successfully, and consider that as steady context work.

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