Effectiveness of an Educational Program on Nurses' Knowledge toward Burn Management

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Abstract

Objective: To determine the effectiveness of an educational program on nurses' knowledge toward burn management and To identify the relationship between nurses' knowledge toward burn management and their socio-demographic data. Methodology: ''quasi-experimental'' loaded out to accomplish the golas of the study consisting of (40) nurses at specialized burn center in Al-Najaf City/Al-Najaf Al-Ashraf Health Directorate from October 6th, 2019 to August 23nd, 2020. Results: the study show that there are highly significant differences in the nurses 'knowledge between the study and control groups in the post-test and the program was positive for the nurses 'knowledge about burn care and that there was a good improvement in the nurses' knowledge between pre and post test.

Keywords: *Educational program; nurses; knowledge; burn management.*

Introduction

Burn injury occurs as a result of destruction or loss of body tissue resulting from exposure or direct contact to any type of chemical, thermal, electrical, or radiation [1]. Those injuries are one of the world's most common and debilitating types of trauma[2]. The burn is considered a significant cause of mortality and morbidity worldwide according to the World Health Organization (WHO), accounting for about 180.000 annual deaths [3].

In Iraq, burns are a common type of injury. According to the latest WHO report, about 6.000 fire-related deaths and 18.000 disability-related burns occurred in Iraq in 2015 (WHO, 2016). Also WHO reports that 3.390 fire-related deaths occurred in Iraq in 2004, which is corresponding to a death rate of 12.3 per 100.000 per year higher than the global average[4].

A study conducted in Baghdad showed that the incidence of burns increased in the period after the invasion, from 39 to 117 per 100.000 people, which may be linked to an growing number of cases of burns linked to violence[5]. Moreover, another previous study in Basra showed that the death rate was 22%, which was lower than the rate reported in Sulaimaniyah and the city of Baghdad, but it is 8.9% higher than the rate recorded in neighboring countries like Iran[6].

Total number of burn patients in Iraq reached 92.734 patients annually, and one of the causes of death was related to side effects after burning such as bacterial and viral infections, ulcers and other diseases, which included about 37% of the total number of deaths[7].

Methodology

A quasi-experimental design was used. The accidental sample consists of 40 nurses, divided into two groups, and each group consists of 20 nurses. One of these two groups underwent the educational program and is the study group. The other group, namely the control, was not subject to the educational program at a specialized burn center in Al-Najaf City/Al-Najaf Al-Ashraf Health Directorate from October 6th, 2019 to August 23nd, 2020. To assess the nurses 'knowledge about burn care, a two-part questionnaire was used, part I regarding the nurse's demographic data, and the part II consisting of (40) questions in the form of multiple choice question, including their information about the anatomy and physiology of the skin, classification of burns and its complications, and burn management.

Results

Table (1) Statistical apportionment of study and control groups according to their socio-demographic data

Sections	Divisions	Study group (Total = 20)		Control group (Total = 20)	
		Freq.	%	Freq.	%
Age/Years	21-30	15	75.0	14	70.0
	31- 40	5	25.0	4	20.0
	41-50	0	0.0	2	10.0
Gender	Male	11	55.0	12	60.0
	Female	9	45.0	8	40.0
Levels of Education	Nursing School Graduated	6	30.0	4	20.0
	Nursing Institute Graduated	7	35.0	8	40.0
	Nursing College Graduated	7	35.0	8	40.0
	Postgraduate	0	0.0	0	0.0
Economic Status	Satisfied	4	20.0	3	15.0
	Satisfied to some extent	14	70.0	12	60.0
	Unsatisfied	2	10.0	5	25.0
Marital Status	Single	7	35.0	3	15.0
	Married	13	65.0	15	75.0
	Divorced	0	0.0	2	10.0
	Widowed	0	0.0	0	0.0
	Separated	0	0.0	0	0.0
Residency	Urban	20	100.0	17	85.0
	Rural	0	0.0	3	15.0
Years of Experience in nursing	1-9	19	95.0	15	75.0
	10-18	1	5.0	3	15.0
	19-27	0	0.0	2	10.0
Years of experience in the burn unit	1-4	16	80.0	16	80.0
	5-8	4	20.0	4	20.0
Training about burn care	Yes	13	65.0	13	65.0
	No	7	35.0	7	35.0
No. of Training Courses (Total No. = 13)	1	6	46.2	8	61.5
	2	3	23.1	2	15.4
	3	4	30.8	3	23.1
Place of training (Total No. = 13)	Inside the Iraq	13	100.0	13	100.0
	Outside the Iraq	0	0.0	0	0.0

Table (1) illustrate the statistical distribution and difference of study and control groups by their socio-demographic data. This table explains that the majority of the nurses in both groups are those with ages between (21-30) years old. In addition, the table shows that the high percentages of participant in both groups (55%) and (60%) are males for study and control groups separately. Concerning residency, the table demonstrates that the entire sample (100%) are urban. About the marital status, the high percentage is (65%) for study group and (75%) of the sample in control group are married. In regard to the level of education, (35%) and (40%) for study and

control groups respectively are graduated from nursing institute and nursing college. Besides, the table shows that the economic status for study group is (70%) and (60%) for control group are satisfied to some extent.

In regard to the years of experience in nursing, the table shows that (95%) of the sample in study group and (75%) of the sample in control group have (1-9) years. Concerning years of experience in the burn unit, (80%) for both groups have (1-4) years' experience in burn unit. In relation to training about burn care (46.2%) for study group and (61.5%) for control group have only one training course. However, no one of the participants in both groups has a training course outside Iraq and all courses are inside Iraq.

Table (2): Differences in the assessment of knowledge between pretest and posttest study group

Groups		Poor	Fair	Good	Paired t test (P value)
Study (Pretest)	Freq.	3	17	0	24.54 (0.000) HS
	%	15.0	85.0	0.0	
	Mean±SD	0.41±0.13			
Study (Posttest)	Freq.	0	0	20	
	%	0.0	0.0	100.0	
	Mean±SD	0.95±0.05			

This table demonstrate differences in the assessment of knowledge between pretest and posttest study group; it shows that there a strong significant difference (P <0.01) among pretest and posttest assessment in the study group . This mean, there is amelioration in the nurses' knowledge after program.

Table (3): Differences in the assessment of knowledge between pretest and posttest control group

Groups		Poor	Fair	Good	Paired t test (P value)
Control (Pretest)	Freq.	3	17	0	1.95 (0.06) NS
	%	15.0	85.0	0.0	
	Mean±SD	0.42±0.26			
Control (Posttest)	Freq.	1	19	0	
	%	5.0	95	0.0	
	Mean±SD	0.43±0.26			

NS: Non-significant, SD: standard deviation

Findings of above table shows the differences in the assessment of knowledge between pretest and posttest control group; it shows that there no significant difference (P >0.05) among pretest and posttest assessment in the control group . The assessment of knowledge is based on the statistical scoring system that indicated total score between (0-0.33) as poor knowledge; fair is between (0.34-0.66); while good knowledge is above (0.66).

Table (4): Total Assessment of knowledge prior the program

Groups		Poor	Fair	Good	Independent t test (P value)
Study (Pretest)	Freq.	3	17	0	0.09 (0.92) NS
	%	15.0	85.0	0.0	
	Mean±SD	0.41±0.13			
Control (Pretest)	Freq.	3	17	0	
	%	15.0	85.0	0.0	
	Mean±SD	0.42±0.26			

Table (4) shows that there are no significant difference among both groups in pretest.

Table (5): Total Assessment of knowledge next the program

Groups		Poor	Fair	Good	Independent t test (P value)
Study (Posttest)	Freq.	0	0	20	12.27 (0.000) HS
	%	0.0	0.0	100.0	
	Mean±SD	0.95±0.05			
Control (Posttest)	Freq.	1	19	0	
	%	5.0	95	0.0	
	Mean±SD	0.43±0.26			

HS: High-significant

Table (5) display there is a strong significant difference among the nurses' knowledge for study and control groups through posttest.

Table (6): Correlation between mean of scores of nurses' knowledge (study group), No. of training course and their age and experience

Demographic Data	Pearson's Correlation Coefficient	Significance P value
No. of training course	-0.107	> 0.05 NS
Years of Experience in nursing	-0.248	> 0.05 NS
Years of Experience in burns unit	-0.120	> 0.05 NS
Age	-0.35	> 0.05 NS

Table (6) shows correlation between mean of scores of nurses' knowledge (study group), No. of training course and their age and experience; according to this table there is a no significant negative correlation (P>0.05) between overall knowledge, No. of training course and their age and experience.

Table (7): Association between nurses' demographic data and their knowledge for study group

Demographic Data	Chi Square	Significance P value
Gender	4.31	0.03
Residence	0.16	0.6
Marital Status	1.56	0.21
Educational Status	2.07	0.35
Economic Status	0.67	0.7
Participation in a training about burn care	1.9	0.16
Places of training course	0.25	0.54

Table (7) offers there is no significant association (P>0.05) among overall knowledge of the study group regarding burns and their demographic characteristics; except for gender that showed significant difference with males having better answers than woman according to table (8) .

Table (8): Contingency table and odds ratio for the correlation between nurses' knowledge (study group) and gender

Nurses' Subgroups		No.	Responses		Odds Ratio
			Incorrect	Correct	
1.	Male	11	0	11	0.0
2.	Female	9	3	6	

Discussion

Concerning their age, the majority of study and control groups are at age groups (21-30) years. This result coincides with the result[8] mentioned nearly three quarters of the nurses are in the age group 21-30 years old. This may be related to the willingness of young nurses to take part in more educational courses in order to obtain more expertise and practice, while most older nurses do not think they need more courses because they have achieved a degree of experience to serve as a mentor.

About the gender of the study subjects, the higher percentages of participant in both groups (55%) and (60%) are males for study and control groups respectively, which is in consistency with [9] revealed in their study that more than half of the nurses were males. This is may be linked to the few numbers of female in the burn unit.

Relative to the residency, the present study demonstrates that the entire sample from urban. These results are consistent with[9] those who stated in their study that (94.4%) of the sample are urban residents. This may be related with nurses who prefer to stay close to their workplaces especially when working in critical care units such as burn units.

Regarding the marital status, the current study shows that most of the nurses (65%) and (75%) in the study and control groups are married respectively. The results of this study are congruent with [9,10] who stated in their study that the majority of nurses are married.

Concerning the economic status, the highest percentage of both groups is satisfied to some extent. This result may be related to their need for more expenses to bear the burden of life.

Regarding the level of education, the study shows that the majority of study and control groups were graduated from university and institute. These results are in agreement with[11] who indicated that approximately three quarters of the nurses obtained a university education. Further,[12] reported that more than half of the nurses graduated from medical institutes. This is may be associated that the burn center is considered one of the critical centers that require special care and a scientific nursing staff.

Concerning the years of experience in nursing, the result of current study revealed that the majority of nurses in study and control groups are between (1-9) years of experience in nursing. This result is compatible with[13] where he showed that the percentage of nurses with 10 years of experience and less is (85.7%). It may be related that they want to benefit and increase their knowledge.

Regarding to the years of experience in the burn unit, the present study shows that both groups have between (1-4) years. This finding is harmonious with another study[14] they indicated that more than half of the nurses had work experience less than 5 years. That can happen because the hospital policies from time to time use a special distribution program for staff to fill the vacant positions in the hospital with nurses from different place. Moving the nursing staff to another place of work will also impact their experience, which could be incomplete

About training sessions toward burn injury, the majority of the sample in both study and control groups 65% had one training sessions. These results are correspondent with[15] They revealed that more than two thirds of the sample attended one or two seminars. Furthermore, the findings indicate that none of the nurses in both groups have training sessions outside Iraq, this refers to no chances offered to the participants in nursing field training out of Iraq because of the country's unstable financial situation.

Nurses knowledge has been improved regarding nursing management for patients with burn injury in the study group after exposure to educational program. This is indicated by the significant difference between pre-test and post-test results, which is reinforced by a preceding study which indicated after execution of nursing guidelines programa significant statistical enhanced of nurses knowledge score [15] stated that the program was effective and developed nurses' knowledge.

The existing study exposes that there is no significant association between post-test and demographic data of study group in related to (age, residency, marital status, socio-economic status, years of experience, level of education, and training sessions). Except for gender, the current study found that there is a relationship between gender and knowledge, where it was shown that men have better answers than women, this result contrast with (Sudani & Ali, 2017) found no relationship between gender and knowledge. This may be due to the freedom and flexibility given to men in our society where he has more freedom by attending seminars or opening nursing

clinics and gaining knowledge. With regard to other results, there are many studies that match our results and among them the research conducted by (Kadhim *et al.,* 2019; El-Sayed *et al.,* 2015; Lam and Tuan, 2018).

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Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Department of Adult Nursing and all experiments were carried out in accordance with approved guidelines.

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