

Nurses Knowledge and Practices Regarding Aseptic Technique Applied with Burn Patients at Teaching Hospitals in Mosul City

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ABSTRACT

Background: Burns is one of the most serious injuries to mankind, considering the difficulty of treating a burn injury.

Objective: this study aimed to assess nurses' knowledge and practices regarding aseptic technique applied to burn patients at Teaching Hospitals in Mosul City.

Methodology: Descriptive design selected for the assessment of nurses' knowledge and practices regarding aseptic technique applied to burn patients.

الخلاصة:

خلفية البحث: تعتبر الحروق من أخطر الإصابات التي يتعرض لها الإنسان بالنظر إلى صعوبة علاج الحروق.

الهدف: تهدف الدراسة الى تقييم معارف وممارسات الممرضين المتعلقة بتقنية التعقيم المطبقة على مرضى الحروق في المستشفيات التعليمية في مدينة الموصل.

المنهجية: تحديد تصميم وصفي لتقييم معارف وممارسات الممرضين المتعلقة بتقنية التعقيم المطبقة على مرضى الحروق. كانت فترة الدراسة من 1 / حزيران / 2020 الى 15 / كانون الثاني / 2021. تم اختيار عينة غرضية لهذه الدراسة من (60) ممرض وافقوا على المشاركة في الدراسة. تم إنشاء اداة الدراسة والتي تتألف من ثلاثة أجزاء تمثل المتغيرات الديموغرافية، تقييم معارف الممرضين، وممارسات الممرضين لتقنية التعقيم المطبقة في إدارة المرضى المصابين بالحروق. رمز للإجابة على الأسئلة في الجزء الثاني بالرمز (0) للإجابة غير الصحيحة و (1) للإجابة الصحيحة. بينما كانت عناصر الممارسات: (3) دائماً، (2) لبعض الوقت، و (1) أبداً. كان اجراء الإحصاء الوصفي، وطرق الإحصاء الاستدلالي بواسطة SPSS (الإصدار 25) باستخدام البيانات ذات دلالة عند $P \leq 0.05$.

النتائج: النتائج تمثل أعلى نسبة للفئة العمرية (26-30) سنة وبلغت 41.7٪ وكانت غالبية الجنس 51.7٪ من الذكور في الدراسة. معظم الشهادات كانت ترميز ثانوي. سنوات الخبرة بين (1-5 سنوات). الممرضين ليس لديهم معارف كافية وممارسات في تقنية التعقيم لإدارة مرضى الحروق.

الاستنتاجات: غالبية الممرضين ليس لديهم معرفة كافية ويستخدمون تقنيات التعقيم بمستوى غير كافي في الممارسة. اكتشفت الدراسة علاقة مؤثرة بين معرفة الممرضات وممارساتهن مع أعمارهن.

التوصيات: للحد من الوفيات والمراضة، يجب إدارة مرضى الحروق باستخدام تقنيات التعقيم، الأمر الذي يتطلب التدريب والتسهيلات المناسبة.

الكلمات المفتاحية: المعارف، الممارسات، تقنية التعقيم، الحروق.

The period of this study was from the 1\ June \ 2020 to 15 \ January \ 2021. A purposive sample for this study choice (60) nurses who agree to participate in the study. The tool was constructed, and it is composed of the three-part represents the demographic variables, assess the knowledge of nurses, and practices to an applied aseptic technique in managing patients with burns. The answer to the questions in part two is symbolized as (0) for the incorrect answer and (1) for the correct answer. While practices items were: (3) always, (2) for some time,

and (1) for never. Performed descriptive statistics and inferential statistical methods were by SPSS (Version 25) by using the data significant at P. value ≤ 0.05 .

Results: The results represented a higher percentage of age group (26-30) years was 41.7%, the majority of gender was 51.7% males in the study. Most certificates were secondary school nursing. The years of experience between (1-5 years), the nurses have inadequate knowledge and practiced aseptic technique for managing burn patients.

INTRODUCTION

Burns have remained a major health problem in most developing countries, increasing mortality and morbidity rates ⁽¹⁾. Burns are wounds caused by the transfer of energy from a heat source to the body, which heats the tissue sufficiently to cause damage ⁽²⁾. It has been estimated that about 75% of the mortality burn injuries ⁽³⁾ related to infections of burn or other infectious complications in patients with severe burns over more than 40% of Total Body Surface Area (TBSA) ⁽⁴⁾. Burn injury patients are at high risk of infections for a variety of reasons. For instance, the readily available exposed body surface, immunocompromising effects of burns, invasive diagnostic and therapeutic procedures and prolonged hospital stay.

Superficial bacterial contamination of the wound can easily advance to invasive infection in these patients. The degree of bacterial wound contamination has a direct correlation with the risk of sepsis ⁽⁵⁾. Also have significant short- and long-term consequences for patients ⁽⁶⁾. Therefore, aseptic technique used under carefully controlled conditions to reduce pathogen contamination, Failure to follow basic procedures, on the other hand, puts the patient at risk of infection, which can seriously impede recovery or result in death. Nurses reduce risk by paying close attention to hand washing and adhering

Conclusion: The majorities of nurses have insufficient knowledge and used aseptic technique at an inadequate level in practice. The study discovered a significant relationship between nurses' knowledge and practices with their age.

Recommendation: To reduce mortality and morbidity, burn patients must be managed using aseptic technique, which necessitates training and adequate facilities.

Keyword: Knowledge, Practices, Aseptic Technique, Burns.

to guidelines to reduce technical risks associated with patients ⁽⁷⁾. In some instances, sophisticated products are available but lack of clinical experience makes them difficult to use ⁽⁸⁾. The burn nurse possesses broad-based knowledge and practices of aseptic techniques, diagnostic studies, and rehabilitative and psychosocial skills. The nurse is responsible for wound care and for noting subtle changes that require immediate attention, prevention of infection ^(9, 10).

AIMS OF THE STUDY

The aim of this study was to assess nurses' knowledge and practices regarding aseptic technique applied to burn patients at Teaching Hospitals in Mosul City.

METHODOLOGY

The aim of this study was to assess nurses' knowledge and practices regarding aseptic technique applied to burn patients at Teaching Hospitals in Mosul City. To carry out the study, a choice was made descriptive design, and then the current study began after official permission was obtained from the Ministry of Health, Department of Health Nineveh. The data for the original study were collected from nursing staff

in Al-Jamhory teaching hospital and Al-Salam teaching hospital. The study started from the 1st of June until 15th January 2021. The period of the data collection extends from 1st July to 15th November of 2020, a purposive sample for this study selected (60) nurses working in Al-Jamhory and Al-Salam teaching hospital.

The tool was constructed using a review of literature from published research studies (11, 12) it is composed of the first part represents the demographic variables of nurses participating in the current study, which include: age, gender, educational level, and years of experience in a burn's wards. The second part was required to assess the knowledge of nurses about aseptic technique in the management of patients with burns. It consisted of (26) Multiple-choice questions about aseptic technique domain and burns domain contains (13) questions for each domains. Part three is related to nurses' practices to an applied aseptic technique in managing patients of burns and measuring through an observation checklist. It consists of prepare the trolley (work surface) and equipment (7) items, prepares the patient, and aseptic technique during the procedure of burns dressing (5) items for each one, dressing burn wound (7) items,

assessing and diagnosing (6) items, precision in dressing execution and procedure (9) items, and nursing outcomes (6) items. The answer of the questions in part two is symbolized as (0) for the incorrect answer and (1) for the correct answer. While, scoring of observation checklist items: (3 degrees) For correct and complete step, (2degree) for incomplete step, and (1 degree) for incorrect step.

The mean score of nurses' knowledge's was 1-1.33 poor knowledge, 1.34-1.66 average knowledge, and 1.67-2 good knowledge. As for, the mean score of nurses' practices were 1-1.66 = low level, 1.67-2.33= moderate level, and 2.34-3= high level. The validity of the questionnaire was established through a panel of (8) experts chosen to examine the questionnaire. In order to give their opinions about the suitability of the items included in the tool. Some corrections were done to the arrangements of the items. The internal consistency of the questionnaire was ($r = 0.83$). Statistical Package for the Social Science (SPSS, Version 24) was by using descriptive statistics, and inferential statistical methods. The data significant at P. value ≤ 0.05 .

RESULTS

Table (1): distribution of frequency and percentage for nurses' demographical variables (N=60)

Demographical variables	Items	Frequency	Percent
Age (years) Mean (Standard deviation) =29.43 (4.75)	21-25 years	14	23.3
	26-30 years	25	41.7
	31 years and more	21	35
Gender	male	31	51.7
	female	29	48.3
Educational levels	Secondary School graduated	36	60
	Institutes graduated	20	33.3
	University graduated	4	6.7
Service years in nursing Mean (Standard deviation) = 7.58 (5.80)	1-5 years	30	50
	6-10 years	15	25

	11 years and more	15	25
Service years in burn wards Mean (Standard deviation) = 4.43 (3.13)	1-5 years	45	75
	6-10 years	11	18.3
	11 years and more	4	6.7
Participate in aseptic technique course	No	43	71.7
	Yes	17	28.3
Participate in control infection program course	No	39	65
	Yes	21	35

Table 1 showed the findings of this study are agreement about a majority (80.4%) no had a university certificate. Most of the nurses (75%) had working experience of five years and below, and nearly 64.3% of them had no taken course training on aseptic technique.

Figure (1): distribution of frequency and percentage overall knowledge domains of nurses' regarding aseptic technique applied with burn patients

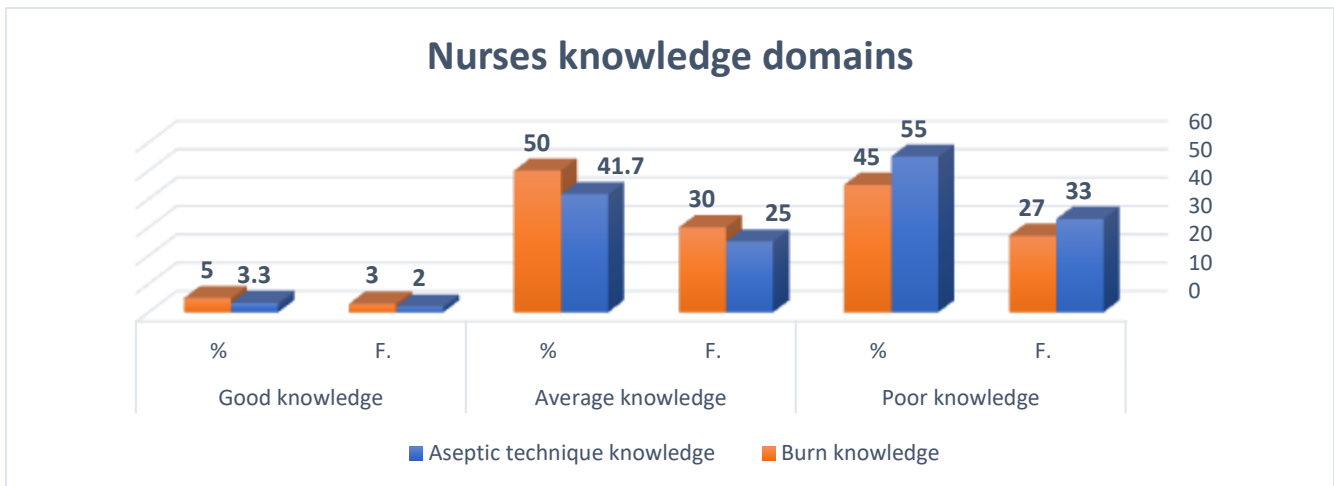


Figure 1 showed distribution of frequency and percentage overall knowledge domains of nurses'

Table (2): distribution of nurses' knowledge domains level

Nurses knowledge domains	Poor		Average		Good		M.S	S.D	level
	F.	%	F.	%	F.	%			
Aseptic technique knowledge	33	55	25	41.7	2	3.3	1.34	0.14	Poor
Burn knowledge	27	45	30	50	3	5	1.36	0.16	Average

F.: frequency, %: percentage. M.s: Mean of score, S.D: standard deviation.

Table 2 showed nurses' knowledge level more half of nurses have poor knowledge of aseptic technique domains, and fair knowledge of burn domains.

Table (3): distribution of nurses' practices domains level

Nurses Practices domains	L.L		M.L		H.L		M.S	S.D	level
	F.	%	F.	%	F.	%			
Equipment preparation	26	43.3	30	50	4	6.7	1.72	0.28	M.L
Patient preparation	35	58.3	24	40	1	1.7	1.68	0.29	M.L
Using aseptic technique	39	65	19	31.7	2	3.3	1.60	0.33	L.L

Dressing burns performed	31	51.7	28	46.7	1	1.7	1.65	0.23	L.L
Assessment and Diagnosis	16	26.7	42	70	2	3.3	1.75	0.25	M.L
Execution and precise performance of the dressing	26	43.3	32	53.4	2	3.3	1.69	0.23	M.L
Nursing outcome	27	45	33	55	0	0	1.63	0.27	L.L

F.: frequency, %: percentage. M.s: Mean of score, S.D: standard deviation, L.L: low level, M.L: moderate level, H.L: high level

Table 3 explains the nurses' practices domains level which was equipment preparation domains and patient preparation domains represented a moderate level of practice.

Table (4): Chi-Square Test for the relationship between nurses' knowledge and their demographic variables

Demographical variables	Nurses knowledge			Chi-Square Test			
	Poor	Average	Good	χ^2	d.f	P.	Sig.
1. Age							
21-25 years	5	9	0	10.334	4	0.035	S.
26-30 years	15	9	1				
31 years and more	4	17	0				
Gender							
Male	13	18	0	1.13	2	0.568	N.S
Female	11	17	1				
2. Level of education							
Secondary School	12	23	1	3.407	4	0.492	N.S
Institutes	9	11	0				
University	3	1	0				
3. The experience years in nursing							
1-5 years	13	17	0	6.193	4	0.185	N.S
6-10 years	8	7	0				
11 years and more	3	11	1				
4. The experience years in burns wards							
1-5 years	17	27	1	0.667	4	0.955	N.S
6-10 years	5	6	0				
11-15 years	2	2	0				
5. Aseptic technique courses							
No	18	24	1	0.692	2	0.708	N.S
Yes	6	11	0				
6. Infection control program courses							
No	14	24	1	1.204	2	0.548	N.S
Yes	10	11	0				

χ^2 : Chi-Square Tests, d.f: degree of freedom, P-value \leq 0.05: S: significant, N.S: no significant

Table 4 showed that there is a statistically significant relationship at p-value equal to or less than 0.05 between the knowledge of nurses and age.

Table (5): Chi-Square Test for the relationship between nurses' practices and their demographic variables

Demographical variables	Nurses practices			Chi-Square Test			
	Low	Moderate	High	χ^2	d.f	P.	Sig.
1. Age							
21-25 years	5	9	0	8.316	4	0.016	S.
26-30 years	18	7	0				
31 years and more	7	14	0				
2. Gender							
Male	13	18	0	1.669	2	0.196	N.S
Female	17	12	0				
3. Level of education							
Secondary School	17	19	0	4.311	4	0.116	N.S
Institutes	9	11	0				
University	4	0	0				
4. The experience years in nursing							
1-5 years	19	11	0	4.400	4	0.111	N.S
6-10 years	6	9	0				
11 years and more	5	10	0				
5. The experience years in burns wards							
1-5 years	25	20	0	4.646	4	0.098	N.S
6-10 years	5	6	0				
11-15 years	0	4	0				
6. Aseptic technique courses							
No	21	22	0	0.082	2	0.774	N.S
Yes	9	8	0				
7. Infection control program courses							
No	18	21	0	0.659	2	0.417	N.S
Yes	12	9	0				

χ^2 : Chi-Square Tests, d.f: degree of freedom, P-value \leq 0.05: S: significant, N.S: no significant

Table 5 demonstrates that there are significant differences between nurses' practices and age. With regard to other demographic variables, there are no statistical differences between nurses' practices and demographic variables (gender, educational level, years of experiences in nursing and burn wards, participation in training courses for aseptic technique, as well as training courses in infection control) at p-value \leq 0.05.

DISCUSSION

Table (1) indicates a display the higher percentage of age group (26-30) years was 41.7% and lower for age 31 years and more, the majority of gender were 51.7% males in the study, and secondary school nursing certificate, While the lower percentage of Bachelor's graduates in Nursing, as it reached 6.7%. The years of experience in the nursing and the experiences years in burns wards were the

highest percentage between (1-5 years). With regard to nurses training courses about aseptic technique the Majority of nurses no have participated in courses training, the percentage was 66.7%. Also, the percentage of nurses who did not participate in the previous course of infection control programs was 60.0%. The findings of this study are contrary to ⁽¹¹⁾ show the highest percentage (67.9%) of the nurses

was in the age group of below 25 years. Whilst other findings of this study are agreement about a majority (80.4%) no had a university certificate. Most of the nurses (75%) had working experience of five years and below, and nearly 64.3% of them had no taken course training on aseptic technique.

Figure (1) distribution of frequency and percentage overall knowledge domains of nurses', and table (2) shows nurses' knowledge level more half of nurse have poor knowledge of aseptic technique domains, and fair knowledge of burn domains. Whereas lower percentage represented a good knowledge for each knowledge level domains of burn patients ⁽¹³⁾, study disagree with knowledge of aseptic technique among nurses', more than half of nurses (62 %) had a high level of knowledge on aseptic technique, few (37.5%) had an average level of knowledge and none of the respondents had low knowledge of aseptic technique. About sixty three percent nurses had high knowledge on aseptic technique, 37.5% had average knowledge and none of the respondents had low knowledge on aseptic technique. Table (3) explains the nurses' practices domains level which was equipment preparation domains and patient preparation domains represented a moderate level of practice. Whilst the using aseptic technique domains and dressing burns performed domains show a low level of practice. In addition, the practices of assessment and diagnosis domains, and execution and precise performance of the dressing domains were at a moderate level. Ultimately, low level of practice was regarding nursing outcome domains. The findings of this study are ⁽¹²⁾ found a poor level of practices regarding aseptic technique and infection control measures. In contrast, a study ⁽¹⁴⁾ found that the practices were very much adequate because almost all items scored on average above 90% adequate availability ⁽¹⁵⁾, mentions that in the treatment of burned patients, the primary concern is infection prevention and management.

As strict aseptic technique, proper use of personal protective equipment, and proper hand washing, another study ⁽¹⁶⁾ indicates very good aseptic practices among burn patients. Table (4) shows that there is a statistically significant relationship at p-value equal to or less than 0.05 between the knowledge of nurses and age. As for the other demographic variables, there were no statistical differences between the domains and demographic variables (gender, educational level, years of experiences in nursing and burn wards, participation in training courses for aseptic technique, as well as training courses in infection control programs). Table (5) demonstrates that there are significant differences between nurses' practices and age. With regard to other demographic variables, there are no statistical differences between nurses' practices and demographic variables (gender, educational level, years of experiences in nursing and burn wards, participation in training courses for aseptic technique, as well as training courses in infection control) at p-value ≤ 0.05 . ⁽¹⁷⁾ A study found an association between nurses' knowledge and years of experience, while no significant relationship between nurses' knowledge and other demographic variables. In addition, there are no statistically significant differences between nurses' practices and their demographic variables.

CONCLUSION

In the care of burn patients, nurses play an important role in infection control and sepsis prevention. According to the findings of the study, the majority of nurses lacked adequate knowledge and practiced aseptic technique at a low to moderate level. The study found an association between nurses' knowledge and practices with age.

RECOMMENDATIONS

Nurses can attend conferences and workshops to update and refresh their knowledge of aseptic

technique used with burn patients. Training and adequate facilities are required for the management

of burn patients using aseptic technique in order to reduce mortality and morbidity rates.

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