Assessment of Nursing Care Provided to Hospitalized Children Burn Patients at Burn and Plastic Surgery Center at Kirkuk City

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Abstract

Background: Burns are the foremost important causes of a child's injury that lead to a considerable health problem; social, functional, and psychological weakness. They are the leading reason of hospitalization and are associated with significant morbidity and mortality.

Objectives: This study aimedto assess the quality of nursing management and to find outassociation between nurses' sociodemofigureic data and quality of nursing management provided to admitted children Azadi Teaching Hospital in Kirkuk city-Iraq.

Method: A descriptive design (quantitative approach) was carried out from January 1st to 20th of October 2020. A non-probability (purposive sample) sampling technique utilized to collect data from (48) nurses working in burn and plastic surgery center in Azadi teaching hospital in Kirkuk city. A questionnaire was designed and constructed for the purpose of the study. Statistical analysis was performed using (SPSS) software (V.26). Comparison was carried out using Chi-square (X^2) and T test for determination of the P. value.

Results: The study sample revealed that the majority of the sample were in age group (21-30) years old represent (47.9 %), and (60.4 %) of the participants were female. The most striking results emerged from the data is that the majority of the participants have a good level of the practices in relation to nursing management of major burns at admission (54.17%). The results also show a significant association between the nurses' practices at admission and their age, gender, number of courses training.

Conclusion: Training courses have significant effects on nurses' practices at admission. Further studies are required to find the effectiveness of intervention that involve nurses' practices for children with burn injuries.

Keywords: *Children, Burn, Nursing Management, Plastic Surgery, Quality.*

Introduction

Burns are some of the foremost devastative injuries a child can have. These traumas occur when there's skin contact with hot liquid: hot surfaces/objects, chemicals, radiation or electricity and skin damage can furthermore results from cold and friction injures[1]. Burn injuries are ranked fourth among acute injuries within the world[2].

Burns are the foremost important causes of a child's injury that lead to a considerable health problem; social, functional, and psychological weakness. They are the leading reason of hospitalization and are associated with significant morbidity and mortality[3]. The majority of burns are being minor (<10%) total body surface area (TBSA). However a big number of kids sustain burns >15% (TBSA), leading to the initiation of the systemic inflammatory response syndrome. These patients require resuscitation. Delays in resuscitation may result in increased complications and mortality[4].

World Health Organization definition of quality of management is "the extent to which health care services provided to individuals and patient populations improve desire health outcomes. In order to perform this, health

care must be safe, effective, timely, efficient, equitable and people-centered" [5].

Pediatric nurses have provocation and responsibility to give assistance to burn children efficaciously. Care of burnt children classified into prehospital care (first aid and transportation to burn unit) and hospital care (wound care, prevention of complication and nutrition support likewise the rehabilitation and psychosocial counseling)[6]. Primary assessment of patients with acute burns starts with airway patency and cervical spine protection, assess breathing, circulation, and cardiac status; stabilize any disability, deficit, or gross deformity; and assess the extent of burns and concurrent injuries. The secondary assessment must not begin until the primary assessment is complete. This assessment includes a whole history, instance information about the burn injury, head-to-toe physical examination, accurate calculation of the percentage (TBSA) affected, fluid resuscitation requirements, and wound care [7]. To found the percentage of (TBSA) involved in a burn injury, as this value is use for fluid resuscitation, transfer decisions, further management, prognosis, and research. The useful method of estimation of burned (TBSA) are palm method, rule of nines method, and the Lund and Browder (LB) chart[8].

Material and Method

A descriptive design (Quantitative approach) was carried out from January 1st to 20th of October 2020 in burn and plastic surgery center. This study aimed to assess the quality of nursing management providedto admitted children Azadi Teaching Hospital in Kirkuk city-Iraq. Burn and plastic surgery center is the only main center for burns that received patients inside and outside of Kirkuk city.

A non-probability (purposive sample) sampling technique utilized to collect data from(48) nurses working in burn and plastic surgery center. (10) Nurses sample for pilot study were included. They were selected according to certain criteria, which include at least one year of experience and worked at burn centers in the hospitals that have such facilities to provide burn nursing.

A questionnaire was designed and constructed for the purpose of study. It is composed of two parts. Overall variables (42) items.

Part I: Socio-demofigureic Data of Nurses: This part of questionnaire is includes eight variables for the socio-demofigureic characteristics of nurses who working in burn and plastic surgery center.

Part II: Nursing Management of Child with Major Burn at Admission to Burn and Plastic Surgery Center: This part of questionnaire form is observation checklist which contains information about nursing management for children with burn when admission to burn and plastic surgery center. It is composed of (34) items and this part rated on (2) levelsdichotomous scalewhich are indicated by score (2) for yes and score (1) for no. The total score ranged between (34-68). Therefore, the levels are poor practices when score ($\leq$ 45.33), the levels are fair practices when score between (45.34 - 56.66), and the levels are good practices score ($\geq$ 56.67)[9].

Statistical Analysis: was performed using statistical package of social sciences (SPSS) software (V.26). Comparison was carried out using Chi-square (X^2) and T test for determination of the P. value ($P< 0.05$ significant) and ($P< 0.01$ highly significant).

Result

The study sample revealed that the majority of the sample were in age group (21-30) years old represent (47.9%), (60.4%) of the participants were female, and(50%) of nurses were graduated professional diploma nursing degree. Plurality of the sample were the monthly income is between (601,000-900,000 ID per month) and (62.5%) of the participants had less than (5) years of experience at burn and plastic surgery center. (70.8%) of the sample were did not participated in any courses of special training and (92.9%) of them participated in courses the number of courses is between (1-3) and the located inside of Iraq. Table 1.

Table 1: Socio-demofigureic Characteristics of the Sample

Number of the total sample = 48				
No	**Variables**		**F**	**%**
1	Age	(21-30) years	23	47.9
		(31-40) years	17	35.4
		(41-50) years	6	12.5
		(51-60) years and more	2	4.2
		Mean = 33.02 SD ± 8.99		
2	Gender	Male	19	39.6
		Female	29	60.4
3	Education level	Nursing preparatory school	17	35.4
		Professional diploma of nursing	24	50
		Bachelor of nursing science	7	14.6
		Higher degree of nursing science	0	0
4	Monthly income	≤ 600,000 ID/month	17	35.4
		601,000-900,000 ID/month	28	58.3
		901,000-1,200,000 ID/month	2	4.2
		1,201,000-1,500,000 ID/month	1	2.1
		≥1,501,000 ID/month	0	0
5	Years' of experience in burn center	(1-5) years	30	62.5
		(6-10) years	15	31.3
		(11-15) years	1	2.1
		(16-20) years and more	2	4.2
6	Participate in a training courses	Yes	14	29.2
		No	34	70.8
6.1	Number of training courses	(1-3) courses	13	92.9
		(4-6) courses	1	7.1
6.2	Location of training courses	Inside of Iraq	13	92.9
		Outside of Iraq	1	7.1

The study exhibit that (54.17%) were the nurses' practices about items of nursing management for a child with the major burns at admission to burn and plastic surgery center were a high mean score. Table 2.

Table 2: Distribution of Nurses' Practices according to the Level and Mean Scores Nursing Management Provided at Admission to Burn and Plastic Surgery Center to Major Burned Children

No	**Items**	**Yes**		**No**		**M.S**	**Eva.**
1	Airway maintenance with cervical spine control	**F**	**%**	**F**	**%**		
1.1	Inspect the airway for foreign material and any abnormal signs	39	81.3	9	18.8	1.81	High
1.2	Open the airway with a jaw thrust and chin lift	39	81.3	9	18.8	1.81	High
1.3	Stabilizing the neck for suspected cervical spine injury	23	47.9	25	52.1	1.48	Fair
2	Breathing and ventilation						

2.1	Administer oxygen	48	100	0	0	2	High
2.2	Expose the chest to check expansion is adequate and bilaterally equal	46	95.8	2	4.2	1.96	High
2.3	Elevation of the head and chest by 20-30° to reduces neck and chest wall edema	37	77.1	11	22.9	1.77	High
2.4	Auscultate for breath sounds bilaterally	13	27.1	35	72.9	1.27	Low
2.5	Monitor respiratory rate	30	62.5	18	37.5	1.63	Fair
2.6	Apply pulse oximeter monitor	2	4.2	46	95.8	1.04	Low
2.7	Monitor color of non-burnt skin in a non-breathing patient to check carbon monoxide poisoning	42	87.5	6	12.5	1.88	High
3	Circulation with hemorrhage control						
3.1	Inspect for any obvious bleeding	38	79.2	10	20.8	1.79	High
3.2	Apply direct pressure to stop bleeding	26	54.2	22	45.8	1.54	Fair
3.3	Monitor the peripheral pulse for rate, strength and rhythm	35	72.9	13	27.1	1.73	High
3.4	Apply capillary blanching test	5	10.4	43	89.6	1.10	Low
3.5	Elevate the limb to reduce edema and aid blood flow	47	97.9	1	2.1	1.98	High
4	Disability: neurological status						
4.1	Monitor level of consciousness use the pediatric Glascow Coma Scale	38	79.2	10	20.8	1.97	High
4.2	Examine pupil response to light for reaction and size	8	16.7	40	83.3	1.17	Low
5	Exposure, environmental control and estimate burn size						
5.1	Remove all clothing and jewelry	48	100	0	0	2	High
5.2	Keep patient warm to prevent hypothermia	45	93.8	3	6.3	1.94	High
5.3	Log roll patient to remove wet sheets	36	75	12	25	1.75	High
5.4	Examine posterior surfaces for burn and any injury	30	62.5	18	37.5	1.63	Fair
5.5	Estimate total body surface area burn size using Pediatric Rule of Nines or Lund and Browder chart	35	72.9	13	27.1	1.73	High
6	**Fluid resuscitation**	**Yes**		**No**		**M.S**	**Eva.**
		F	**%**	**F**	**%**		
6.1	Insert two large bore peripheral IV lines, prefer through unburnt tissue	20	41.7	28	58.3	1.42	Fair
6.2	Send collect bloods simultaneously for essential baseline bloods and special for child patient check glucose levels	48	100	0	0	2	High
6.3	Check patients body weight in kg	29	60.4	19	39.6	1.60	Fair
6.4	Commence resuscitation fluids, IV Hartmann's solution at an initial rate of the Modified Parkland Formula	48	100	0	0	2	High
6.5	Monitor urine output each hour, IV fluids adjusted according to the previous hour's urine output	44	91.7	4	8.3	1.92	High
6.6	Give maintenance fluids in addition to resuscitation fluids for children less than 16 years old	27	56.3	21	43.8	1.56	Fair
6.7	Give more IV fluids for haemochromogenuria, inhalation injury, electrical injury and after delayed resuscitation	17	35.4	31	64.6	1.35	Fair
6.8	Follow up the IV fluids continuously and calculate the flow of fluid by drop/minute	43	89.6	5	10.4	1.90	High
6.9	Monitor vital sings	41	85.4	7	14.6	1.85	High
7	Nutrition						

7.1	Monitor nutrition intake through nasogastric tube for larger burns (>10% TBSA in children)	41	85.4	7	14.6	1.85	High
8	Pain relief						
8.1	Give morphine (or other appropriate analgesia) slow intravenously according physician prescription	26	54.2	22	45.8	1.54	Fair
8.2	Give analgesia in small increments according to pain score and sedation scale	2	4.2	46	95.8	1.04	Low

Mean score (M.S), Low: M.S = (1.00-1.33), Fair: M.S = (1.34-1.66) High: M.S = (1.67-2.00), Eva: Evaluation

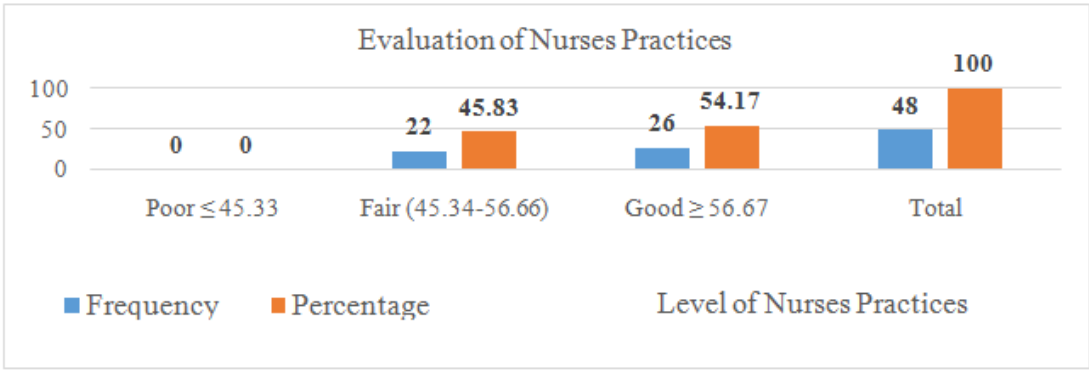

Figure 1: The bar chart illustrates(54.17%)of nurses' practices related nursing management of child with major burn at admission to burn and plastic surgery center were on good level.

Figure 1: Evaluation of Nurses Practices Regarding Nursing Management of Child with Major Burn at Admission to Burn and Plastic Surgery Center

The study showed that there is highly statistical significant association between the nurses' practices at admission and their participated in courses training. Table 3.

Table 3: Associated between Nurses' Socio-demofigureic Characteristics and their Level of Nurses Practice Regarding Nursing Management of Child with Major Burn at Admission to Burn and Plastic Surgery Center

Nurses demofigureic characteristics	**Nurses Practice Level Admission**						**P Value**	**Sig.**
	Good		**Fair**		**Poor**			
Variables	**F**	**%**	**F**	**%**	**F**	**%**		
1- Age								
(20-30) years	7	30.4	16	69.6	0	0	0.013	Sig.
(31-40) years	12	70.6	5	29.4	0	0		
(41-50) years	5	83.3	1	16.7	0	0		
(51-60) years	2	100	0	0	0	0		
2- **Gender**								
Male	14	73.7	5	26.3	0	0	0.028	Sig.
Female	12	41.4	17	58.6	0	0		
3- **Education level**								
Nursing preparatory school	8	47.1	9	52.9	0	0	0.190	Non-Sig.
Professional diploma of nursing	12	50	12	50	0	0		
Bachelor of nursing science	6	85.7	1	14.3	0	0		

4- **Monthly Income**								
≤ 600,000 ID/month	7	41.2	10	58.8	0	0	0.285	Non-Sig.
601,000-900,000 ID/month	16	57.1	12	42.9	0	0		
901,000-1,200,000 ID/month	2	100	0	0	0	0		
1201,000-1500,000 ID/month	1	100	0	0	0	0		
5- **Years' of experience**								
(1-5) years	12	40	18	60	0	0	0.066	Non-sig.
(6-10) years	11	73.3	4	26.7	0	0		
(11-15) years	1	100	0	0	0	0		
(16-21) years & more	2	100	0	0	0	0		
6- **Participate in courses training**								
Yes	12	85.7	2	14.3	0	0	0.005	Highly-Sig.
No	14	41.2	20	58.8	0	0		
6.1 **Number of courses training**								
(1-3) courses	11	84.6	2	15.4	0	0	0.018	Sig.
(4-6) courses	1	100	0	0	0	0		
6.2 **Location of courses training**								
Inside of Iraq	11	84.6	2	15.4	0	0	0.018	Sig.
Outside of Iraq	1	100	0	0	0	0		

P-value <0.05 significance (Sig.), P-value >0.05 Non-significance (Non-Sig.)

Discussion

In our study, the table 1 shows that the majority of the sample were in age group (21-30) years old represent (47.9%), and (60.4%) of the participants were female. Furthermore (62.5%) of the participants had less than (5) years of experience at burn and plastic surgery center. The present result disagree with Hassan (2015)[10],who mention (72%) of his sample are in age more than (30) years old and most of the nurses (80%) are male. Additionally, result of study agree with Hassan(2015)[10], accounted of (56%), in nurses' burnout reports that the majority of the study sample have (2-6) years of experience.

The present study disclose the nurses' practices regarding items of nursing management for a child with the major burns at admission in burn and plastic surgery center. (54.17%) Items in the table 2 is a high mean score that agrees with results of the study done by Youssef, & et al., (2019)[11], which found that (74%) of them had a competent level of practice regarding nurses' care of pediatric burn. The study done by Lam, & et al., (2018)[12], found regarding fluid resuscitation method53.5% of nurses provided the correct answer which agree with current study.

The nurses practice regarding pain management is incommensurate in present study table 2 which agree with a study was done by[13], their found the minority of the staff regarded pain management as sufficient during dressing changes and after nursing care [14]mentions in their study children are often exposed to painful procedures during hospitalization. The study illustrate result of association between nurses' practices and participate in courses training of burn there was statistics high significant association which account the p value is 0.005. The outcome of the study disagree with previous study done by[15], there was no correlation found between total knowledge/practice score and number of seminars (r = .033, .144) respectively.

Conclusion

Majority of the sample were in age group (21-30) years old represent (47.9 %), and (60.4 %) of the participants were female. Also (70.8%) of the sample were did not participated in any courses of special training and (92.9%) of them participated in courses the number of courses is between (1-3) courses and the located inside of Iraq. Majority of nurses practices regarding nursing management for a child with the

major burns at admission in burn and plastic surgery center were on good level that accounted (54.17%).

There is statistical significant association between the nurses' practices at admission and their age, gender, number of courses training and location of courses. Training courses have significant effects on nurses' practices at admission. Further studies are required to find the effectiveness of intervention that involve nurses' practices for children with burn injuries.

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Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the University of Sulaimani College of Nursing Pediatric Nursing Department, Kurdistan Regional Government, Iraq and all experiments were carried out in accordance with approved guidelines.

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