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Barriers to Quality Nursing Burn Care in Moi Teaching and Referral Hospital in Kenya

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Abstract

Background

The incidence of burns has significantly increased over the last decades. Although there is an extensive amount of literature on burns related injuries in Kenya, there is no evidence of studies which have examined barriers to quality nursing burn care in public health facilities in the country.

Objective

To examine factors hindering quality nursing burn care at Moi Teaching and Referral Hospital.

Material and Methods

Six variables were assessed namely nurse age, nursing responsibility, availability of consumables, pre and post-operative care, staffing and the equipment which is always working and in good condition.

Results

Availability of consumables negatively predicted barriers to quality nursing care among nurses who were currently working in the burn unit (t = -2.37; p = 0.02). And a positive predictor among those who had worked in the burn unit before (t = 2.00; p = 0.05). Equipment always working and in good condition was a positive predictor among nurses who had never worked in the burn unit (t = 2.38; p = 0.02).

Conclusion

Staffing, proper working equipment and availability of consumables are major barriers to the provision of quality nursing for burn patients.

Keywords: burns, burn care, nurses, burn injuries, quality nursing burn care

1.0 Introduction

The incidence of burns has significantly increased over the last decades (1). Developing countries alone, account for nearly 95% of all documented cases, with the majority of the cases being reported in the poorest and remote areas in these regions (2,3). The stack reality is that, it is becoming a major public health problem (1).

Unfortunately, these regions lack a surmountable amount of resources to reduce the incidence and the severity of injuries attributed to burns (3–5). These include a lack of trained staff and advanced equipment to manage burn injuries (4,5).

The distribution of burn injuries may differ significantly with gender, income and age groups (6,7). However, the majority of these cases occur in domestic settings where cooking takes place (8). With fuels for lighting, heating and cooking listed as the main contributors (9).

In Africa, burns remain a public health concern due to their high incidence and the inability of the region to manage the cases (1). It is estimated that 6.1 per 100,000 burns related deaths occur annually in Africa (10). Apart from death, other poor outcomes include long recuperation time and even paralysis (11,12).

About 32,633 burns were recorded in Kenya in 2010 (13). Although there is an extensive amount of literature on burns related injuries in the country, there is no evidence of studies which have examined barriers to quality nursing burn care in public health facilities.

2.0 Materials and Methods

2.1 Study Design

The study was cross-sectional in design.

2.2 Study Site and Participants

The site was Moi Teaching and Referral Hospital (MTRH) the second-largest and the only national referral health facility outside the Kenyan capital, Nairobi. The 800-bed hospital has a 21bed burn unit. There were 23 patients admitted to the unit at the time of the study. The study targeted all the nurses who had been employed at the time on a full-time basis. A total of 195 nurses were randomly selected to participate in the study.

2.3 Data Collection Procedure

A semi-structured questionnaire was used to collect data. Four research assistants were recruited, trained, and engaged in administering the questionnaire. Data was conducted from May 2016 to December 2016.

2.4 Data analysis

Hierarchical regression was used to predict barriers to quality nursing burn care among nurses who were currently working in the burn unit, those who had previously worked in the unit and those who had never worked in the burn unit. Six variables were assessed namely nurse age, nursing responsibility, availability of consumables, pre and post-operative care, staffing and the conditions of the equipment.

2.5 Ethical Consideration

Moi University and MTRH Institutional Review and Ethics Committee (IREC) reviewed and approved the study. All nurses who participated in the study consented verbally and without coercion.

3.0 Results

3.1 Characteristics of the Nurses

Majority of the nurses were females (n = 124; 63.6%). The proportion of male and female nurses who had never worked in the burn unit differed slightly (47.3% vs. 49.0%). Most of the nurses who previously worked in the burn unit were males (n = 24; 64.9%) and vice versa for those currently stationed in the unit (n = 43; 62.7%).
A large proportion of nurses reported having undergone an in-service training in burn management (n = 171; 87.7%). However, about half of those who had undergone such a training had never worked with burn patients before (n = 93; 47.7%). Interestingly, most of these nurses were approaching the legal retirement age (62.0%). See Table 1.

Table 1: Characteristics of the nurses

Characteristics	Nurses currently working in the burn unit n = 64	Nurses who have ever worked in the burn unit n = 37	Nurses who have never worked in the burn unit n = 93
Age of the nurse			
Mean (SD)	49.92 (10.13)	49.22 (10.22)	43.12 (13.55)
Gender			
Male	21; 32.8%	24; 64.9%	44; 47.3%
Female	43; 62.7%	13; 35.1%	49; 49.0%
Experience in year			
Mean (SD)	10; 25.0%	17; 13.0	31; 62.0%
In-service training in burn care	59; 92.2%	34; 91.9%	78; 83.9%

3.2 Condition of the patients in the burn unit

Close to two-thirds of the patients in the burn unit were adults (n = 17; 73.9%). About 60.9% (n = 14) of the patients were males. Most of the injuries were either work-related (n = 11; 47.8%) or due to domestic violence (n = 8; 34.7%). The majority of the injuries were third-degree burns caused by electric faults, open fire, scalds and corrosive substances (n = 16; 69.6%). Overall, scalds were the main cause of the burns (n = 13; 56. 5%). The mean hospital stay was 34.4 days. Majority of the patients rated their condition as improved (n = 16; 69. 6%).

3.3 Barriers to the provision of quality burn care

The hierarchical regression predicted a significant portion of barriers to quality nursing burn care among the three categories of nurses (r^2= .68 for the nurses currently working in the burn unit, r^2 = .63 for those who have ever worked in the burn unit and r^2 = .45 for those who have never worked in the burn unit).

Nursing responsibility, specifically post-operative care, was a consistent barrier to the provision of quality nursing burn care. Pre-operative care positively predicted barriers to the provision of quality nursing burn care among nurses who had never worked in the unit. After controlling for nursing responsibility, staffing consistently predicted barriers to the provision of quality nursing burn care across the three categories.

The influence of the nurses' level of education across the three categories was less consistent. It was effected by the nurses' ages which was highly correlated with barriers to the provision of quality nursing burn care (r^2= 0.68, $p < .05$for nurses who are currently working in the burn care, $r^2 = 0.56$, $p < .001$for those who have ever worked in the burn unit and $r^2 = 0.60$, $p < .001$ for those who have never worked in the burn unit).

A hierarchical regression with and without the age of the nurse revealed that age was not a suppressor variable. It was therefore removed from the model. Thereafter, staffing positively predicted barriers to the provision of quality nursing burn care. Availability of consumables negatively predicted barriers to quality nursing care among nurses who were currently working in the burn unit (t = -2.37; p = 0.02). And a positive predictor among those who had worked prior in the burn unit (t = 2.00; p = 0.05). Equipment always working and in good condition was a positive predictor among nurses who had never worked in the burn unit (t = 2.38; p = 0.02).

Table 2: Hierarchical regression without nurses' age for predictors of barriers of quality burn care

a) Nurses who currently working in the burn care (n = 65)						
	B	SE β	B	*T*	*P*	sr_1^2
Step 2						
Post-operative care	-3.86	1.33	-0.33	-2.89	0.00*	0.06
Availability of consumables	-8.05	3.39	-0.22	-2.37	0.02*	0.04
	R = .76	R^2 = .58	Adjusted R^2 = .53	S.E = 83.99	F (4,57) =12.90**	
Step 3						
Staffing	3.62	1.18	0.26	3.07	0.00*	0.06
	R = .82	R^2 = .68	Adjusted R^2 = .63	S.E = 74.55	F (2,55) =14.45**	
b) Nurses who have ever worked in the burn unit (n = 37)						
Step 1						
Post-operative care	-6.02	2.10	-0.44	-2.87	0.00*	0.17
	R =.53	R^2 = .28	Adjusted R^2 = .24	S.E = 90.24	F (2,34) =6.56**	
Step 2						
Availability of consumables	8.58	4.29	0.27	2.00	0.05*	0.06
Staffing	3.82	1.54	0.38	2.48	0.02*	0.09
	R = .75	R^2 = .56	Adjusted R^2 = .47	S.E = 75.28	F (6,30) =6.28**	
Step 3						
Staffing	3.67	1.51	0.37	2.43	0.02*	0.08
	R = .78	R^2 = .61	Adjusted R^2 = .49	S.E = 73.42	F (2,28) =5.40**	
c) Nurses who have never worked in the burn unit (n = 93)						
Step 1						
Pre-operative care	2.79	1.37	0.20	2.04	0.04*	0.01
Post-operative care	-4.27	0.96	-0.43	-4.46	0.00**	0.21
	R = .53	R^2 = .28	Adjusted R^2 = .27	S.E = 71.44	F (2,90) =17.63**	

Table 2: Cont'd

Step 2						
Post-operative care	-3.53	1.01	-0.35	-3.51	0.00**	0.08
Equipment always working and in good condition	3.98	1.68	0.25	2.38	0.02*	0.04
Staffing	2.66	0.87	0.29	3.06	0.00**	0.06
	R = .64	R^2 = .41	Adjusted R^2 = .37	S.E = 66.81	F (4,86) =10.00**	

* $p < .05$, ** $p < .001$

4.0 Discussion

As the study was ongoing, a section of the media reported overcrowding in the MTRH wards (14). The study observed the same in the burn unit which had an excess of two patients. And this could be attributed to the large catchment area of the hospital which spans 23 counties and the neighboring countries in East and Central Africa (15).

However, sharing a hospital bed is a health risk as it may be a precursor to nosocomial infections. It is also demeaning as it denies the patients their needed privacy. And for this reason, the hospital should take necessary measures to ensure the unit is decongested.

One way to do this is to increase the burn unit bed capacity and if need be, refer non-critical cases to other facilities. Prevention of scalds at household levels could prove more helpful. As scalds are the leading causes of burn injuries among burn patients seen at the facility and this was also reported by Lelei *et al.* (16) and Odondi *et al*. (17).

However, the number of injuries attributed to scalds was lower in our study compared to the two studies (16,17). This may be attributed to the differences in the studied population. Unlike this study whose primary focus was on the patients admitted to the burn unit, the two studies targeted burn patients in both the outpatient and inpatient departments.

In terms of staffing, the study observed that the same number of nurses assigned to the 21 patients was managing the additional patients. This increased patient nurse ratio leads to job dissatisfaction (18). It is also a recipe for burnout and prolonged the recuperation (18,19). And contribute to increase mortality (18). Ultimately, this may prolong in-hospital stay as was seen in the study. And which was longer than that reported by Lelei *et al.* (16) and Odondi *et al*. (17).

In order to safeguard against burnout, staffing is critical as it may also offer a multi-specialized team to cater for different levels of nursing (19). This may be easy to achieve in MTRH as it has a high number of nurses who have been trained in burn management. However, most of these skills remain underutilized. And most probably, may go to waste considering that most of the trained nurses were approaching the legal retirement age.

Lastly, post-operative care has a significant impact on the recovery of a burn patient after surgery (20). But this is a demanding task that needs specialized treatment equipment and which should be in good working conditions (21). And this calls for their maintenance to enable them to function well throughout their lifespan. However, the cost of doing so should be low and cost-effective (19). Alongside the equipment, the availability of consumables such as dressing materials must be taken into consideration. Otherwise, all these may affect the quality of burn management.

5.0 Conclusion

The study observed that staffing, proper working equipment and availability of consumables are major barriers to provision of quality nursing for burn patients.

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Author Contributions

All the authors participated in the writing of the manuscript. The three authors formulated the study, collected, and analyzed the data.

Competing Interest

The author has no competing interest.

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