



INSTITUTION FACTORS AFFECTING ADHERENCE TO NATIONAL PRESSURE ULCER PREVENTION GUIDELINES AMONG NURSES IN EMBU KENYA

Stanley Kiarie Njau*

Nursing Mount Kenya University, Kenya
njaust@yahoo.com

Catherine Mwenda Mutunga

Nursing Mount Kenya University, Kenya
mutungacs@gmail.com

George Kimani Njoroge

Nursing Mount Kenya University, Kenya
gnjoroge@mku.ac.ke

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Abstract: Pressure ulcer prevention guidelines can reduce the incidence and prevalence of pressure ulcers if properly adhered to. A descriptive cross-sectional study was done among 200 nurses working in the main government hospital in Embu. A sample of 145 nurses was selected using stratified random sampling and systematic random sampling methods. Data was collected using a self administered questionnaire developed from the Nursing Council of Kenya (NCK) manual of clinical procedures. Data was analysed using IBM SPSS Version 21 software. Most nurses (64.4%) reported the hospital had no policy on pressure ulcer prevention while 35.6% said it was there, 13.6% attended continuous professional development (CPD) sessions on pressure ulcer prevention while 86.4% did not, 55.9% reported that pressure relief devices were provided while 44.1% said none was provided and on perceived staffing levels, 3.4% felt the hospital was adequately staffed, 46.6% understaffed and 50% grossly understaffed. There was a significant association between hospital policy, attendance of CPD and perceived staffing levels with adherence to the Nursing Council of Kenya (NCK) pressure ulcer prevention guidelines ($p < 0.05$)

Keywords: Pressure ulcers; National prevention guidelines; Adherence; Institution factors; Nursing Council of Kenya;

I. INTRODUCTION

Pressure ulcer is the breakdown of skin because of pressure as well as inadequate supply of blood, mostly on bony prominences [1]. Pressure ulcers are preventable and prevention is the most cost effective option. A pressure sore can't be backdated, e.g. moving from stage three to two, making prevention the best option [2]. Close to 700,000 patients are affected by decubitus ulcers every year. About 186,617 in-patients at acute settings, developed skin ulcers every year [3] In the period of between January 2012, to December 2013, 4 to 6% of patients in acute nursing care settings, and more than 5–10% of patients in non acute set-ups, developed pressure ulcers. Decubitus ulcers contribute 2% of preventable mortalities in the World [3].

Past studies show that, the incidence and prevalence of pressure sores are high globally. Prevalence ranges from 4.7%-18.7% and incidence 23%-27.5% in hospitals [4]. In the US, about three million people live with pressure sores. The estimated prevalence is 0.4-38% in hospitals and 2-24% in nursing homes [5] In Ethiopia, prevalence of pressure sores was 16.8% which was higher in males compared to females [6]. In Nigeria, the period of pressure sore development was 21 days following admission. Patients mostly affected were those with spinal injuries, and the incidence rate was 13.4% [7] In Kenya the prevalence was 5.5% according to a study done in two hospitals [8]

Internationally, research on adherence to pressure sore prevention guidelines has been done. Most studies were done in European countries and revealed that the level of compliance was low because of factors such as hospital management, nurse factors e.g. attitude and knowledge, and environmental factors e.g. availability of resources [9]. The Nursing Council of Kenya in its clinical practice manual developed guidelines on bed sore prevention. The guidelines were revised frequently according to changes in nursing practice in the World and the last edition was third edition developed in 2009[10] Even with over ten years of these guidelines existence, the incidence of pressure sores was about 20% [11]

II. MATERIALS AND METHODS

The study was carried out in Embu County at Embu Level 5 Teaching and Referral Hospital. The design was descriptive cross-sectional and targeted 400 nurses working in the government hospitals within the county. The study population included 200 nurses working at the main hospital and a sample of 145 was used. Participants were selected using stratified random sampling method together with systematic random sampling. The tool used was a self administered structured questionnaire. The tool was pretested on 10% of the sample size in another similar health facility and Cronbach alpha reliability score was 0.751. The data was coded and entered for analysis using SPSS version 21. Chi squared test was used to test significance of association between the study variables at a p value of <0.05.

III. RESULTS

Most respondents i.e. 23.7% (28) came from the medical department, 17.8% (21) from maternity and 15.3% (18) surgical units, which collectively formed more than 50% of the respondents. The other departments contributed to less than 9% each with Comprehensive Care Clinic (CCC) at the lowest with 0.8% (1). The departments were not significantly associated with adherence to the NCK guidelines (P=>0.05)

Table 1: Departments

Department	Frequency (n)	Percentage (%)
Psychiatry	4	3.4
Medical	28	23.7
Paediatric	10	8.5
Surgical	18	15.3
MCH/FP	5	4.2
Maternity	21	17.8
Outpatient	6	5.1
ENT	3	2.5
Orthopaedic	3	2.5
CCC	1	0.8
Gynaecology	5	4.2
Renal	4	3.4
ICU	8	6.8
Theatre	2	1.7
TOTAL	118	100

Table 2: Association between department and adherence to NCK guidelines

Department	Adherence score	Level of significance
High risk departments (Medical, surgical, orthopaedic & ICU)	53.4%	X ² =0.268, df=1,
Low risk departments (Others)	50.3%	P=0.605, RR=1.06

Majority of the respondents had a diploma in nursing with 62.7% (74) and 0.8% (1) had a masters degree. Those with a basic degree were 28% (33) while 8.5% (10) had a certificate in nursing. There was an association between qualification and soaping of own hands before pressure area care (X²=7.808, df=1, P=0.05, RR=1.875) whereby, those with diploma and below were likely to soap their own hands. Further analysis revealed an association between qualification and performance of skin assessment (X²=3.995, df=1, P=0.046, RR=1.76) whereby, those with diploma and below were likely to perform skin assessment.

Table 3: Qualifications

Qualification	Frequency (n)	Percentage (%)
Certificate	10	8.5
Diploma	74	62.7
Basic degree	33	28
Masters degree	1	0.8
Total	118	100

Table 4: Association between qualification and adherence to NCK guidelines

Qualification	Practice	Adherence score	Significance level
Diploma & below	Skin assessment	46%	$X^2=3.995$, $df=1$, $P=0.046$, RR=1.76)
Degree & above		26%	
Diploma & below	Soaping hands	61%	$X^2=7.808$, $df=1$, $P=0.05$, RR=1.875
Degree & above		32%	

Many respondents i.e. 36% (43) had worked for less than one year, 22% (26) had worked for one to two years, while 42% (49) of the respondents had worked for more than two years. A significant association was found between time worked in the departments, and the practice of soaping own hands before performing pressure area care procedure ($X^2=7.366$, $df=1$, $P=0.007$, $RR=1.59$) whereby, those who had worked for more than two years were likely to soap their hands.

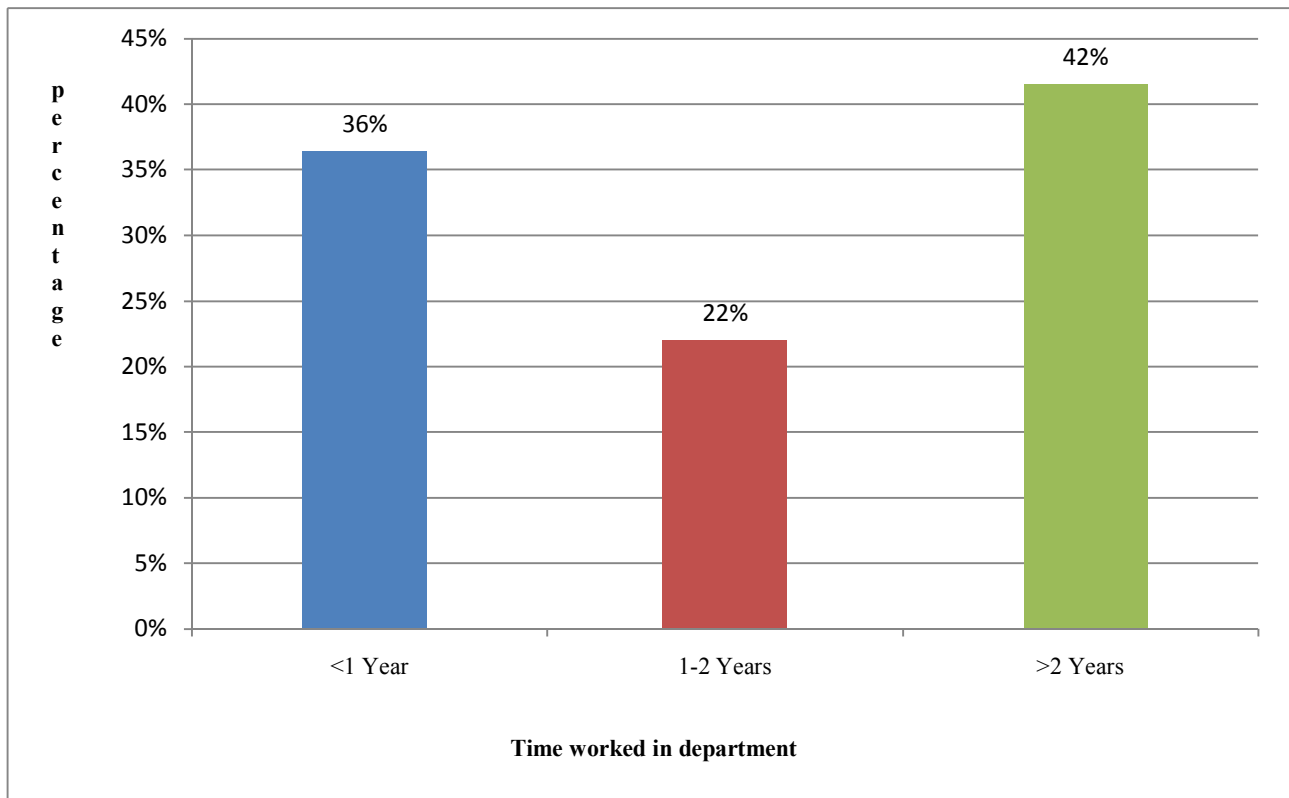


Figure 1: Showing time worked in departments

Table 5: Association between times worked in departments and adherence to NCK guidelines

Time worked	Affected practice	Adherence score	Significance level
≤2 years	Soaping hands	42%	$X^2=7.366$, $df=1$, $P=0.007$, RR=1.59
>2 years		67%	

Majority of the respondents i.e. 64.4% said the hospital had no policy while 35.6% said the hospital had a policy. Hospital policy was significantly associated with adherence to NCK guidelines particularly documentation of findings of skin assessment ($X^2=8.527$, $df=1$, $P=0.03$, $RR=1.65$), documentation of pressure area care procedure ($X^2=4.267$, $df=1$, $P=0.039$, $RR=1.25$) and documentation of patient's risk score ($X^2=4.286$, $df=1$, $P=0.038$, $RR=1.58$) whereby, those who acknowledged presence of policy were likely to adhere to these areas of the guidelines.

Table 6: Influence of Hospital policy on adherence to NCK guidelines

Practice	Adherence score		Significance level
	With policy	Without policy	
Document skin assessment findings	71%	43%	$X^2=8.527$, $df=1$, $P=0.03$, $RR=1.65$
Document pressure area care procedure	85%	68%	$X^2=4.267$, $df=1$, $P=0.039$, $RR=1.25$
Document patient's risk score	52%	33%	$X^2=4.286$, $df=1$, $P=0.038$, $RR=1.58$

Few respondents i.e. 13.6% (16) had attended a continuous professional development session on prevention of bed sores, while 86.4% (102) had not. Attendance of CPD was significantly associated with adherence to patting pressure area dry with a towel ($X^2=4.948$, $df=1$, $P=0.026$, $RR=1.66$) and consultation for the high risk patients ($X^2=4.304$, $df=1$, $P=0.038$, $RR=1.77$) whereby, those who had attended CPD were likely to adhere to these practices.

Table 7: Association between CPD attendance and adherence to NCK guidelines

Practice	Adherence score		Significance level
	With CPD	Without CPD	
Patting pressure area dry with a towel	75%	45%	$X^2=4.948$, $df=1$, $P=0.026$, $RR=1.66$
Consultation for the high risk patients	62%	35%	$X^2=4.304$, $df=1$, $P=0.038$, $RR=1.77$

On provision of pressure relief devices by the hospital, 55.9% (66) of the respondents reported some devices had been provided while 44.1% (52) reported that the hospital had not provided any pressure relief devices. Some argued that, even if some patients had pressure relief devices, they were either improvised by the nurse e.g. water filled gloves or the patients had bought their own devices. The devices mostly mentioned included air rings by 27.2% (25), pillows by 22.8% (21), ripple mattresses by 21.7% (20), and others which were mentioned by less than 10 respondents each which included pressure pads, sponge bags, lotions, smooth linen, diapers, special beds, creams, and gloves with water and soaps. Nurses worked mostly on improvisation for instance putting water in gloves and placing it under patient's heels. The patients also bought their own pressure relieve devices e.g. mattresses and air rings. The availability of devices did not have a significant relationship with adherence to the NCK guidelines ($X^2=3.196$, $df=1$, $p=0.074$, $RR=1.459$).

Few i.e. 3.4% (4) felt that the hospital was adequately staffed, 46.6% (55) felt that the hospital was understaffed, while 50% (59) felt it was grossly understaffed. The researcher noted that in Ear Nose and Throat (ENT) department and gynaecology departments, sometimes only one nurse was reporting on duty per shift. Those who felt the hospital was adequately staffed had better practice compared to those who said otherwise. Perceived staffing levels significantly affected documentation of pressure area care procedure ($X^2=4.470$, $df=2$ $P=0.035$, $RR=2.513$) whereby those who felt the hospital was either adequately staffed or understaffed were likely to adhere to this practice.

Table 8: Perceived staffing levels

Response	Frequency (n)	Percentage (%)
Adequately staffed	4	3.4
Understaffed	55	46.6
Grossly understaffed	59	50
Total	118	100

Table 9: Association between perceived staffing levels and adherence to NCK guidelines

Affected practice	Perceived staffing level	Adherence	Significance
Documentation of pressure area care procedure	Adequately staffed	100%	$X^2=4.470$, $df=2$ $P=0.035$, $RR=2.513$
	Understaffed	81%	
	Grossly understaffed	67%	

IV. DISCUSSION

The study revealed that most of the respondents came from the medical surgical unit and the maternity. This was because, there were relatively more nurses in those departments compared to the clinics and the specialized units e.g. ICU. This agreed with the findings of a study in Ethiopia in which more than 60% of the respondents were picked from among inpatients [12] and particularly from the medical surgical units and critical care units [13]

Most of the nurses had diploma in nursing due to the fact that most of the training institutions in Kenya were offering diploma in nursing, and a good number had degree in nursing due to chances offered for upgrading to degree. There was an association between qualification and soaping of own hands before pressure area care ($X^2=7.808$, $df=1$, $P=0.05$, $RR=1.875$) whereby, those with diploma and below were likely to soap their own hands.

This agreed with the findings by [6] and those of [12] who found a significant association between education level, and adherence to pressure ulcer prevention guidelines.

Most of the respondents had worked for more than two years in their departments, due to the fact that, the hospital had a biannual changeover policy which affected only those staffs without any specialization. A good percentage had worked for less than one year. This was due to the fact that being a teaching hospital, Embu Level 5 hospital was also an internship centre for Nurses most of who participated in the study. A significant association was found between time worked in the departments, and the practice of soaping own hands before performing pressure area care procedure ($X^2=7.366$, $df=1$, $P=0.007$, $RR=1.59$) whereby, those who had worked for more than two years were likely to soap their hands. This agreed with the findings of [9] that experience was significantly associated with adherence to guidelines

Hospital policy was significantly associated with adherence to NCK guidelines. This finding was different from that of [14] which identified policy as one of the determinants of adherence to ducubitus ulcer prevention guidelines. The study revealed policy dissemination and implementation gap as old policies were still in use at the hospitals studied. The policies in place were general and did not address the area of pressure ulcers specifically. The nurses generally felt that the policies even if in existence, did not impact the patient care and were therefore useless.

Most nurses (86.4%) had not attended any CPD on pressure sore prevention. This was congruent with the findings of [15] that majority of the nurses did not receive any training on pressure ulcer prevention after graduation. Attendance of CPD was significantly associated with adherence to patting pressure area dry with a towel ($X^2=4.948$, $df=1$, $P=0.026$, $RR=1.66$) and consultation for the high risk patients ($X^2=4.304$, $df=1$, $P=0.038$, $RR= 1.77$) whereby, those who had attended CPD were likely to adhere to these practices. This agreed with the finding of [16] that lack of pressure ulcer training and literature affected adherence to prevention guidelines.

Pressure relieve devices were inadequate as reported by many respondents (44.1%). This agreed with [16] who observed use of pressure relieve devices in only two out of five relevant hospital departments. Perceived staffing levels significantly affected documentation of pressure area care procedure ($X^2=4.470$, $df=2$ $P=0.035$, $RR=2.513$) whereby those who felt the hospital was either adequately staffed or understaffed were likely to adhere to this practice. This agreed with the finding by [12] who found nurse patient ratio to significantly affect adherence to prevention guidelines.

V. CONCLUSIONS

The significant institution related factors affecting adherence to national pressure ulcer prevention guidelines included hospital policy, attendance of continuous professional development sessions and perceived staffing levels.

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