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Practices by nurses to prevent pressure ulcers among patients at a level five hospital in Kenya

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Abstract

Introduction
Pressure ulcer refers to a breakdown of skin due to prolonged pressure or shear. The incidence of pressure ulcers is about 20% in most clinical settings, despite existence of numerous national and international guidelines. The study was carried out in July 2018. The aim of this study was to assess the level of adherence to the Nursing Council of Kenya (NCK) procedure manual pressure ulcer guidelines among nurses working at Embu Level 5 Hospital and the associated challenges.

Methods
This was an institution based descriptive cross-sectional study. Data was collected using a researcher developed self-administered questionnaire based on NCK procedure manual guidelines. 145 respondents were selected using stratified random sampling combined with systematic random sampling. Data was analyzed using SPSS version 21 and NVIVO version 12.

Findings
On adherence to NCK guidelines, 53.91% always adhered, 36.5% sometimes adhered and 9.6% never adhered. The main reported challenges to adherence of guidelines were shortage of staffs (36.3%) and inadequate equipment (24.7%). Others were lack of the guidelines in the wards, lack of time for documentation and patient turning. Availability of guidelines in the wards (X^2=5.546, df=1, P=0.019), lack of time for documentation (X^2=5.642, df=1, P=0.018, RR=2.63) and patient turning (X^2=5.817, df=1, P=0.016, RR=2.72) were statistically significant at P=<0.05.

Conclusions and Recommendations
Adherence to NCK guidelines was low, and significant challenges were lack of guidelines in the ward, lack of time for documentation and patient turning. The NCK should revise the guidelines to match the current international guidelines and evidence based practice. For instance, the use of soap and massage of pressure areas is outdated. NCK should collaborate with hospitals to facilitate dissemination of the guidelines instead of having them only in the procedure manuals to increase adherence. The hospital should ensure standard operating procedures and check-lists are availed in each ward. The hospital should employ more nurses to enhance adherence.

Key words: Practices, Adherence, NCK, Pressure ulcer prevention guidelines

Introduction

Pressure ulcer is defined as breakdown of the skin due to continuous pressure and insufficient blood supply especially in the bony prominences (Hinkle & Cheever, 2014). According to (Bayoumi & Bassuni, 2016), pressure ulcer is defined as an injury that occurs to a patient when he or she sits or lies for too long in the same position.

Pressure ulcers, despite having the capacity to cause death and disability, are largely preventable. Once an ulcer develops, it cannot be backdated, e.g. moving from stage four to stage one, whichmakes prevention the most viable and cost friendly option (NPUAP et al., 2014).

In the United States of America, approximately three million people are living with pressure ulcers. The estimated prevalence of pressure ulcers ranges from 0.4-38% in hospitals and 2-24% in nursing homes (Chou et al., 2013). In Africa, studies have been done in very few countries about the prevalence and incidence of pressure ulcers. In a study done in Ethiopia, the prevalence of pressure ulcers was found to be 16.8% and it was higher in males than females (Nuru et al., 2015) In Kenya, the burden of pressure ulcers has been reported at facility level. For instance, a study done at KNH and Spinal Injury Hospital placed the prevalence at 5.5% (Nangole, 2010).

In a bid to have a common language about pressure ulcer risk assessment and prevention, numerous guidelines and risk assessment tools have been developed by various organizations, individuals and institutions (Ellis, 2016) The latest guidelines include NICE guidelines 2015 and NPUAP, EPUAP&PPPIA guidelines 2014. Risk assessment has been based on these guidelines together with the use of standardized risk assessment scales e.g. the Braden scale, Norton Scale and Waterlow scale together with the nurses own clinical judgment. Preventive measures have also been based on these guidelines and the use of innovative pressure relieving devices and products (Ellis, 2016)Most adherence studies were done in Belgium, Germany, Canada, Spain, Netherlands, Ireland, Austria and UK. The level of adherence was generally low owing to barriers such as management of hospitals, nurse related factors such as attitude and knowledge, and environmental factors such as resource availability. Very few studies, if any, have been done in Africa (Loikkanen & Tamni, 2016).

The Nursing Council of Kenya through the nurse's procedure manual has developed guidelines on how a patient who is at risk of developing pressure ulcers should be handled so that he does not develop them. These guidelines have been revised from time to time in conformity with changes in nursing practice globally and the latest manual is the third edition developed in the year 2009 (NCK, 2009). Despite the existence of many guidelines and risk assessment scales together with training of nurses at higher levels, the incidence of pressure ulcers remains high i.e. about 20% (MOH IP Register, 2018).

The objectives of the study were to assess the level of adherence to the NCK pressure ulcer prevention guidelines, to determine the challenges faced by nurses while using the NCK pressure ulcer prevention guidelines and to examine the association between the reported challenges with adherence to NCK pressure ulcer prevention guidelines among nurses at Embu Level 5 Hospital.

Methods

This was a descriptive cross-sectional study conducted at Embu Level 5 Hospital. The hospital is located in Embu County one kilometer from Embu town with a bed capacity of 500 patients, and 232 nurses. The accessible population included 200 nurses, out of which a sample size of 145 was calculated using Yamane (1967) formula. Stratified random sampling coupled with systematic random sampling, was employed to pick the respondents. The duty rosters acted as the sampling frame and accessible population was divided by 145 to get the sampling interval (K) which was 2. Therefore, every second nurse on the duty roster who consented to participate was included in the study.

A researcher developed self-administered questionnaire based on NCK guidelines was the tool used for data collection. The data

was both quantitative and qualitative. Independent variable of the study included demographic characteristics (department, qualification and years worked in the department) and challenges faced while using the guidelines, while the dependent variable was level of adherence to the guidelines.

Quantitative data was coded and entered into IBM SPSS version 21 software for analysis. Qualitative data was quantized whereby; it was first typed into a word document which was first converted to PDF then uploaded to NVIVO version 12 software and a word frequency run. The frequently mentioned words were used to form categories and words with similar meanings were collapsed to fit into broader categories. These categories were coded and entered into IBM SPSS version 21 software for quantitative analysis. Descriptive statistics used were percentages and frequencies, while inferential statistics included chi squared test in conjunction with binary logistic regression analysis and the P value was set at <0.05. Quantitative data was presented using tables and a pie chart, while qualitative data was presented using percentages, frequencies and narrations.

Results

Demographic characteristics

Most respondents came from the medical, maternity and surgical units which had 23.7% (28), 17.8% (21) and 15.3% (18) respectively. Other departments contributed to less than 9% each with CCC at the lowest with 0.8% (1). Departments were collapsed into two i.e. high risk departments (medical, surgical, orthopaedic and ICU) and the rest were considered low risk departments. There was no significant association between respondents departments and adherence to the NCK pressure ulcer guidelines (X^2=0.268, df=1, P=0.605, RR=1.06). Most respondents had a diploma in nursing with 62.7% (74) and 0.8% (1) had a masters degree. Degree holders were 28% (33) while 8.5% (10) had a certificate. Further analysis revealed an association between qualification and performance of skin assessment (X^2=3.995, df=1, P=0.046, RR=1.76) whereby, those with diploma and below were likely to perform skin assessment. There was also an association between qualification and soaping of own hands before pressure area care (X^2=7.808, df=1, P=0.005, RR=1.875) whereby, those with diploma and below were likely to soap their own hands. Most of the respondents had worked for more than two years with 42% (49), a few had worked for less than one year with 36% (43), and 22% (26) had worked for less than a year. Time worked in the departments was further categorized into two years and below, and above two years. An 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 >2 years were likely to soap their hands.

Department did not have any statistically significant association with adherence mean score. Qualification and time worked in the departments on the other hand were significantly associated with adherence to NCK guidelines. Those with diploma and below and those who had worked for more than two years were likely to adhere.

Table 1: Demographic characteristics of the respondents

Variable	*Frequency(n)*	*Percentage (%)*
Department		
Psychiatry	4	3.4
Medical	28	23.7
Pediatric	10	8.5
Surgical	18	15.3
MCH/FP	5	4.2
Maternity	21	17.8
Outpatient	6	5.1
ENT	3	2.5
Orthopedic	3	2.5
CCC	1	0.8
Gynecology	5	4.2
Renal	4	3.4
ICU	8	6.8
Theatre	2	1.7
Total	**118**	**100**
Qualification		
Certificate	10	8.5
Diploma	74	62.7
Basic degree	33	28
Masters degree	1	0.8
Total	**118**	**100**
Time worked in department		
<1 year	43	36
1-2years	36	22
>2years	49	42
Total	**118**	**100**

Level of adherence to the NCK pressure ulcer prevention guidelines

Adherence level was assessed using practice questions where nurses responded as "always", "sometimes" or "never" depending on their level of practice. The practices nurses mostly adhered to, were assessment of patients' reaction during pressure area care with 77.1% (91), documentation of pressure area care procedure with 74.6% (88), turning the patient after the procedure with 72% (85) and massage of pressure area with 67.8% (80) while the practice least adhered to was warming of water for pressure area care up to 37 degrees, which was done by 22% (26). Generally, the overall adherence score (always doing as per the guidelines) was 53.91% (64), partial adherence score (sometimes doing as per the guidelines) was 36.5% (43), while non-adherence score (never doing as per the guidelines) was 9.6% (11).

Table 2: Association between demographic characteristics and adherence to NCK guidelines

Variable	Affected Practice	Adherence score	Significance level
Qualification	Skin assessment		
Diploma and below		46%	X^2=3.995, df=1, P=0.046, RR=1.76)
Degree and above		26%	
Time worked			
≤2 years	Soaping hands	42%	X^2=7.366, df=1, P=0.007, RR=1.59
>2 years		67%	

Table 3: Practice of NCK pressure ulcer prevention guidelines

Practice	Always	Sometimes	Never
I perform skin assessment for patients	40.7%(48)	56.8%(67)	2.5%(3)
I document findings on skin condition	54.2%(64)	41.5%(49)	4.2%(5)
I warm water for pressure area care up to 37 degrees centigrade	22%(26)	42.4%(50)	35.6%(42)
I soap my own hands first	52.5%(62)	36.4%(43)	11%(13)
I massage pressure areas with firm circular motions	67.8%(80)	27.1%(32)	5.1%(6)
I rinse off the soap using soft woolen cloth	57.6%(68)	31.4%(37)	11%(13)
I pat the pressure area dry with a towel	49.2%(58)	33.9%(40)	16.9%(20)
I apply a water repellent cream on pressure areas	46.6%(55)	38.1%(45)	15.3%(18)
I assess patient's reaction during pressure area care	77.1%(91)	19.5%(23)	3.4%(4)
I document the procedure of pressure area care	74.6%(88)	24.6%(29)	0.8%(1)
I document the patient's risk score	39.8%(47)	47.5%(56)	12.7%(15)
I turn the patient after the procedure	72%(85)	25.4%(30)	2.5%(3)
I describe the turned position	66.9%(79)	28.8%(34)	4.2%(5)
I indicate the turning intervals	65.3%(77)	31.4%(37)	3.4%(4)
I use pressure relieving devices	37.3%(44)	51.7%(61)	11%(13)
I consult with other members of the multidisciplinary health team for the high risk patients	39%(46)	47.5%(56)	13.6%(16)
Average adherence level	53.9% (64)	36.5% (43)	9.6% (11)

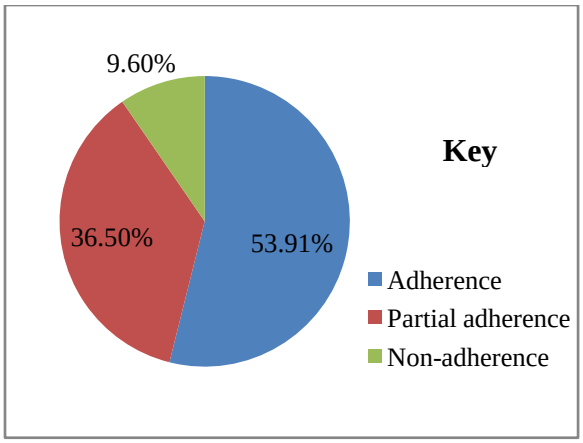

Figure 1: Overall adherences to NCK pressure ulcer prevention guidelines

Challenges while using NCK pressure ulcer prevention guidelines

While using the NCK guidelines, 26.3% (31) of the respondents had not experienced any challenges, while 73.7% (87) of the respondents had experienced several challenges. The most reported challenge was understaffing which was mentioned by 36.3% (66) of the respondents, followed by lack of equipment which was mentioned by 24.7% (45) of the respondents, followed by unspecified resources with 12.1% (22) and workload which had 7.1% (13). Other challenges that were mentioned by less than 10 respondents each included lack of time for documentation, unavailability of the guidelines in the ward, inadequate linen, patient turning and uncooperative patients.

Someone narrated, "I report alone on duty, I find some patients sharing bed and therefore turning them becomes a challenge".

Another one said, "Some patients are too fat and heavy, yet I don't have anyone to assist me in turning them. Sometimes I get assistance but still the turning intervals end up being infrequent" Another respondent

said, "There is no recommended water repellent creams to use and I end up using whatever is at the patient's bedside".

Association between the reported challenges and adherence to NCK guidelines

Chi squared test coupled with binary logistic regression analysis were used to assess the association between the reported challenges and adherence to NCK guidelines.

After regression analysis with demographic characteristics as the covariates, Table 4 above shows that the statistically significant challenges were lack of time for documentation, lack of guidelines in the ward and patient turning. Those without the challenges of lack of guidelines and turning were likely to adhere to the affected practices. However, those with the challenge of lack of time for documentation were likely to document the patients' risk scores.

Discussion

Demographic characteristics of the respondents

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 (Dilie & Mengistu, 2015) and particularly from the medical surgical units and critical care units

Table 4: Regression analysis for significant challenges of adherence to NCK guidelines

Challenge	Practice	Adherence score		Initial significance level	New P value
		With challenge	Without challenge		
Workload	Skin assessment	15%	43%	X^2=3.873, df=1, P=0.049, RR=2.87	P=0.067
Time	Documentation of risk score	100%	38%	X^2=5.642, df=1, P=0.018, RR=2.63	P=0.016
Guidelines	Patting pressure area dry with a towel	0%	50.8%	X^2=5.546, df=1, P=0.019	P=0.05
	Consultation for high risk patients	0%	40.4%	X^2=4.041, df=1, P=0.044	P=0.084
Turning	Indication of turning intervals	25%	68%	X^2=5.817, df=1, P=0.016, RR=2.72	P=0.017

(Al-Ghamdi, 2017). The departments were not significantly associated with adherence to the NCK guidelines (P=>0.5).

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. A good number had a degree in nursing due to chances offered for upgrading to degree. A small percentage had certificate in nursing and only one person had a master 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 (Nuru et al., 2015) and those of Dilie & Mengistu (2015), who found a significant association between education level, and adherence to pressure ulcer prevention guidelines.

The study further revealed that most of the respondents had worked for more than two years in their departments. This was due to the fact that the biannual changeover affected only a section of the staffs and not the entire group. 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. Experience was significantly associated with adherence to the practice of soaping own hands before performing pressure area care procedure (X^2=7.366, df=1, P=0.007, RR=9.7) whereby, those who had worked for more than two years were likely to soap their hand. This agreed with the findings of (Loikkanen & Tamni, 2016) that experience was significantly associated with adherence to guidelines.

The level of adherence to the NCK guidelines among nurses at Embu Level 5 Hospital

The overall adherence was at 53.9%, partial adherence was at 36.5% while non-adherence was at 9.6%. This finding was close to that of Shrestha (2016) which placed adherence at 53.49%. Some nurses i.e. 42.1%, performed skin assessment all the time, while 4.3% never performed it. This finding was different from Getanda et al., (2016) which found 80% of the nurses to be performing skin assessment always while 20% did not. A good number of nurses i.e. 70.2% were consistently massaging the pressure areas, which was an outdated practice.

Challenges faced while using NCK guidelines among nurses at Embu Level 5 Hospital

Most of the nurses encountered challenges in adherence to pressure ulcer prevention guidelines. The main challenges were understaffing and lack of equipment. In some units, only one nurse reported on duty per shift which was quite overwhelming. This finding agreed with the findings of a study done by (Nuru et al., 2015) which cited staff shortage as one of the major hindrances to guidelines adherence. The other challenges included lack of pressure relieve devices, as the only area with ripple mattresses for instance, was the ICU. This was in agreement with Mwebaza et al., (2014) who found lack of pressure relieve devices as one of the main hindrances to prevention of decubitus ulcers. The challenges mainly reported i.e. understaffing and lack of pressure relief devices did not have a statistically significant relationship with adherence to the NCK guidelines. However, minor challenges i.e. lack of guidelines in the wards lack of time for documentation and patient turning

significantly influenced adherence to the guidelines.

Other challenges included uncooperative patients, very sick patients, lack of knowledge and lack of institution based guidelines. This was in agreement with the findings of Getanda et al., (2016) which found that hindrances to provision of pressure sore preventive care included less than adequate levels of staffing, deficient knowledge, lack of guidelines which were institution based, patients who did not want to cooperate, and lack of PU prevention tools.

Conclusion

The level of adherence to the NCK pressure ulcer prevention guidelines was low. Most mentioned challenges affecting adherence were staffing levels and availability of equipment. Lack of guidelines in the ward, lack of time for documentation and patient turning were statistically significant factors that influenced adherence to the NCK pressure ulcer prevention guidelines.

The null hypothesis that there were no statistically significant factors influencing adherenceto NCK pressure ulcer prevention guidelines was rejected.Further research should be done to explore more factors that affect adherence toNCK and other international guidelines on pressure ulcer prevention.

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