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A Descriptive, Cross-sectional Study to Assess Pressure Ulcer Knowledge and Pressure Ulcer Prevention Attitudes of Nurses in a Tertiary Health Institution in Nigeria

Deborah Tolulope Esan, RN, RM, BNSc, MPH; Ayodeji Akinwande Fasoro, BSc, FBIT, MSc; Elizabeth Funmilayo Ojo, BSc, MSc, PhD; and Brenda Obialor, RN, RM, BNSc

Abstract

Globally, higher-than-expected pressure ulcer rates generally are considered a quality-of-care indicator. Nigeria currently has no national guidelines for pressure ulcer risk assessment, prevention, and treatment. A descriptive cross-sectional study was conducted to assess the pressure ulcer knowledge and the attitude of nurses regarding pressure ulcer prevention in a tertiary health institution in Nigeria. During a period of 2 months, nurses were recruited to complete a 25-item paper/pencil survey that included participant demographic information (6 items), pressure ulcer knowledge questions (11 items), and statements on participants' attitude toward pressure ulcer prevention (8 items). Data were entered manually into statistical analysis software, analyzed, and presented using descriptive statistics (frequencies and percentages). The majority of the 90 nurse participants were female (60, 66.7%), 45 (50%) were married, and 75 (83.3%) had 1 to 10 years' experience in nursing practice; 69 (76.7%) had received special training on pressure ulcer prevention. Overall, 58 (64.4%) nurses had correct pressure ulcer knowledge and 67 (74.4%) had a positive attitude toward preventing pressure ulcers. However, 56 nurses (62.2%) disagreed with regular rescreening of patients whom they deemed not at risk of developing pressure ulcer, and 70 (77.8%) believed pressure ulcer prevention should be the joint responsibility of both nurses and relatives of the patients. Thus, the majority of the 90 nurses knew the factors responsible for pressure ulcers and how to prevent them, but nurses need to be orientated to the fact that pressure ulcer risk screening of all patients with limited mobility is an integral part of their job and that it is important that nurses enlighten patients and their relatives on how to prevent pressure ulcers.

Keywords: cross-sectional survey, pressure ulcer, prevention, nursing education, Nigeria

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Potential Conflicts of Interest: none disclosed

Background

A pressure ulcer (also known as a decubitus ulcer, pressure sore, bed sore, or pressure injury) is commonly defined as a “localized injury to the skin and/or underlying tissue usually over a bony prominence as a result of pressure or pressure in combination with shear.”¹ Pressure ulcers usually are classified according to their severity/amount of tissue damage observed by the clinician. According to a 2007 cross-sectional study,² approximately 1.7 million patients per year were reported to develop pressure ulcers in the United States. The incidence of pressure ulcers varies between developed and developing countries. Estimated incidence rates of 8.3% to 25.1% were

reported in developed countries and 2.1% to 31.3% in developing countries.³ Pressure ulcers are recognized globally as one of the 5 most common causes of harm to patients⁴ and are increasingly being described as an indicator of the quality of care provided by health care organizations.^{5,6}

Results of cross-sectional studies on knowledge and attitude of nurses toward pressure ulcer prevention have been inconsistent. The use of different knowledge scales and grading such as high, low, good, poor, appropriate, inappropriate, and adequate and inadequate knowledge and attitude has made it almost impossible to compare most studies. Cross-sectional studies^{7,8} from developed countries such as

Ms. Esan is a lecturer, Department of Nursing; Mr. Fasoro is a lecturer, Department of Public Health; Dr. Ojo is a lecturer, Department of Nursing; and Ms. Obialor is an undergraduate student, Department of Nursing, College of Medicine and Health Sciences, Afe Babalola University, Ado-Ekiti, Nigeria. Please address correspondence to: Ayodeji A. Fasoro, Department of Public Health, College of Medicine and Health Sciences, Afe Babalola University, P.M.B. 5454, Ado-Ekiti, Nigeria; email: akinfasoro@abuad.edu.ng.

those conducted in 1997 and 2007 in the US, 2007 in Spain,⁹ and 2009 in Sweden¹⁰ reported nurses have good, adequate, or appropriate knowledge on the prevention of pressure ulcers. In contrast, a 2011 cross-sectional study¹¹ in a Belgian hospital showed nurses had a poor knowledge of pressure ulcer prevention. Similarly contradictory findings also have been reported in other cross-sectional studies among nurses in developing countries, showing low/poor knowledge levels among 91 nurses in Bangladesh¹² and 111 nurses in Nigeria,¹³ moderate knowledge among 248 nurses in Ethiopia,¹⁴ and high knowledge among 105 health care workers in Saudi Arabia.¹⁵ Similar findings apply to the attitude of nurses toward pressure ulcer prevention. Cross-sectional studies reported unsatisfactory attitude,¹⁵ moderate levels of attitude,^{11,12} and favorable attitudes.¹⁶

Currently, no national guidelines exist in Nigeria for pressure ulcer risk assessment, prevention, and treatment. Recommendations for care are based on international guidelines and caregiver experience.¹³ A 2004 study¹⁷ on pressure ulcer prevalence among spinal cord injured patients in Gombe state, Nigeria reported 16 out of 28 patients (57%) developed pressure ulcers after being admitted to hospitals. This study also showed pressure ulcer prevention depends on clinician knowledge of and attitude toward pressure ulcers and their prevention. The Ethiopian study revealed nurse compliance with clinical guidelines regarding pressure ulcer prevention practice is poor and they put a low priority on pressure ulcer prevention.¹⁶ Observational studies^{18,19} have shown inadequate knowledge is a barrier to using the guidelines in clinical practice, while adequate knowledge about pressure ulcer prevention among nurses not only improves pressure ulcer care, but it also reduces the length of hospital stay. Questions and concerns about situations regarding whether pressure ulcers are unavoidable still remain.²⁰

The purpose of this descriptive study was to assess the knowledge and attitude of nurses with regard to pressure ulcer prevention.

Methods and Procedures

This descriptive, cross-sectional study was conducted at Federal Teaching Hospital Ido-Ekiti (FETHI) in Ido-Ekiti, a suburban area located in Ido-Osi Local Government Area, Ekiti State, Nigeria. FETHI is a 280-bed tertiary institution formerly known as Federal Medical Centre, Ido-Ekiti. The target population of this study consists of all nurses working in the medical, gynecology, pediatrics, accidents and emergency, surgical, and orthopedic wards of FETHI. A purposive sampling method was adopted in selecting nurses from the research population. Nurses on duty at the time of visit for the survey were approached and recruited for the study. The study questionnaire was developed by the researchers and pretested among 10 nurses in the department of Nursing at Afe Babalola University (Ado Ekiti, Nigeria) to ascertain the clarity and validity of the questionnaire and to measure the dependent

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Key Points

- Pressure ulcer incidence rates and nurses' knowledge varies among countries in developed and developing nations.
- A descriptive study was conducted in a hospital in Nigeria to assess pressure ulcer prevention knowledge among nurses (N = 90) and to ascertain their attitude toward pressure ulcer prevention.
- The majority (64.4%) of knowledge questions were answered correctly and 74% of study participants had a positive attitude toward pressure ulcer prevention.
- However, important knowledge deficits were identified, including lack of knowledge about recommended prevention practices, including screening.
- Education about pressure ulcer prevention and implementation of available practice guidelines are needed in this population.

variables (pressure ulcer knowledge and pressure ulcer prevention attitude). The questionnaire was checked for face and content validity before and after the pretest, respectively, by 2 clinicians in the field of nursing, and 2 epidemiologists/ biostatisticians. The constructs were reviewed by checking the internal consistency to establish the content validity of the questionnaire after the pretest. The sample size was calculated using a proportion of 0.32621 and desired precision of 0.1 at 95% confidence interval. After necessary adjustments, it was determined a total of 93 respondents was needed for the study.

Questionnaire instrument. The structured questionnaire consisted of 3 sections (A, B, and C). Section A (6 items) assessed sociodemographic variables such as gender, age, marital status, educational level, years of experience, and acknowledgment of special training on pressure ulcer prevention after obtaining their nursing qualification/license to practice. Section B comprised 11 items that assessed nurse knowledge of pressure ulcers. The questions tested nurses' knowledge on pressure ulcer etiology, prevention, care, legal implication, staff influence, and recent practice of pressure ulcer prevention; 8 items were single-choice questions and 3 items were multiple-choice questions. Each correct response was worth 1 point (maximum score was 11). Scores equal to or higher than the median were categorized as high/adequate knowledge and scores equal to or below the median were categorized as low/inadequate knowledge. Total minimum and maximum scores for section B were 5 and 11, respectively.

Section C comprised 8 items on attitude and included statements answered using a Likert scale with 5 options ranging from strongly agree to strongly disagree; responses reflected participant reaction to the statements. Positive responses were worth 1 point and negative responses received no points. Scores equal to or higher than the median were categorized as

Table 1. Sociodemographic characteristics of respondents

Sociodemographic characteristics	Frequency	Percentage
Gender		
Male	30	33.3
Female	60	66.7
Age distribution		
20–24	25	27.8
25–29	24	26.7
30–34	35	38.9
35–39	1	1.0
≥40	5	5.6
Marital status		
Single	42	46.7
Married	45	50.0
Divorced	3	3.3
Educational qualification		
Diploma	75	83.3
Bachelor's degree	11	12.2
Master's degree	4	4.5
Years of experience		
1–10	75	83.3
11–20	15	16.7
Special training on pressure ulcer prevention and care		
Yes	69	76.7
No	21	23.3

positive attitude and scores equal to or below the median were categorized as negative attitude. Total minimum and maximum scores for section C were 3 and 8, respectively.

Questionnaire completion. The questionnaires were printed on paper and administered to nurses in the medical, gynecology, pediatrics, accidents and emergency, surgical, and orthopedic wards. The nurses were informed about the purpose of the research and that participation was voluntary. After obtaining participant verbal consent, the questionnaires were administered in January and February 2017. The questionnaires were administered individually to the nurses while at work. Participants were able to fill in the questionnaires within 5 to 10 minutes, and the questionnaires were retrieved immediately. The questionnaires ensured the anonymity of the respondents; each questionnaire was assigned a serial number. The researchers ensured that the nurses completed the questionnaires in their presence to avoid respondent bias. Clearance to conduct the study was obtained from the university and the hospital before the respondents were approached. This is akin to an Institutional Review Board (IRB) approval.

Data collection. All the variables were coded before they were entered into the statistical software. For example, male gender was coded 1 and female gender was 2. Summary statistics were calculated for the sociodemographic characteristics. Pressure ulcer knowledge questions and attitude toward pressure ulcer prevention statements were summed to generate scores. The scores then were recoded into groups.

Data analysis. Data were entered manually and were analyzed using the Statistical Package for Social Sciences (SPSS) version 20.0 (IBM Corporation, Armonk, NY). Data were presented using descriptive statistics (frequencies and percentages).

Results

Sociodemographic characteristics of respondents. Of the 93 possible participants, 90 completed the questionnaire. The majority of the respondents were female (60, 66.7%), 45 (50%) were married, 35 (38.9%) were 30 to 34 years old, 75 (83.3%) had diploma in nursing, and 75 (83.3%) had between 1 and 10 years of experience in nursing practice (see Table 1).

Knowledge of respondents on pressure ulcer. The majority of nurses (69, 76.7%) had received special training on pressure ulcer prevention since they started their nursing practice. The mean knowledge score was 8.0 ± 1.36 (out of 11); the median score was 8.0. Overall, 58 nurses (64.4%) had adequate knowledge about pressure ulcer etiology, prevention, care, legal implication, staff influence, and recent practice involving pressure ulcer prevention. Approximately 49% correctly identified all the factors responsible for pressure ulcers, and 31 (34.4%) knew about recent pressure ulcer prevention practices, which included turning patients every 2 hours, changing the patient's linen when soiled, the importance of patients eating a balanced diet, and teaching the patient range-of-motion exercise (see Table 2).

Attitude of respondents toward pressure ulcer prevention. The mean attitude score was 5.91 ± 1.25 (out of 8); the median score was 6.0. Overall, 67 nurses (74.4%) had a positive attitude (score equal to or higher than the median) toward pressure ulcer prevention (see Table 3). Nearly all nurses (85, 94.4%) agreed that pressure ulcer documentation and identification are part of their job description.

Discussion

Nurses' knowledge of pressure ulcers and prevention. Pressure ulcer prevention is vital in every health care facility. In this study, despite the fact 69 (76.7%) reported they had special training in pressure ulcer prevention, 58 (64.4%) had adequate knowledge on pressure ulcer etiology, prevention, care, legal implication, staff influence, and recent pressure ulcer prevention practices. This finding is similar to a cross-sectional study conducted among 217 nurses of a government hospital in Addis Ababa, Ethiopia, where 61.2% had adequate knowledge of pressure ulcer prevention.¹⁶ The current study showed 35.6% had inadequate knowledge, which is lower than the 57.8% and 73% inadequate knowledge among Bangladeshi and Jordanian

Table 2. Pressure ulcer and pressure ulcer prevention knowledge

Knowledge question	Correct answer	Correct		Incorrect	
		n	%	n	%
Overall		58	64.4	32	35.6
Contributing factor for pressure ulcer formation	High load pressure	44	48.9	46	51.1
The most important factor in the development of pressure ulcer	Unrelieved pressure	53	58.9	37	41.1
The most common areas where pressure ulcers occur	Sacrum and coccyx				
	Back of the head and ears	75	83.3	15	16.7
Method to prevent heel ulcer	Use cotton pad				
	Use pillow under patient's leg	52	57.8	38	42.2
Educational information necessary for reducing pressure ulcer formation	Schedule of turning position	76	84.4	14	15.6
Recent practice of prevention of pressure ulcer		31	34.4	59	65.6
	Turn patient every 2 hours				
	Change soiled linen				
	Provide adequate/balanced diet				
	Teach patient range of motion exercises				
	(Selection of 2 or more is considered correct)				
Medico-legal implication of pressure ulcer	Yes	49	54.4	41	45.6
Low staff levels affect the level of care given to patient	Yes	90	100.0	0	0.0
Patient condition is as a major predisposing factor to pressure ulcer development	Yes	90	100.0	0	0.0
Time constraints are major barriers to prevention of pressure sore	Yes	80	88.9	10	11.1
Anatomical location of the pressure ulcer of patient determines level of prevention.	Yes	80	88.9	10	11.1

nurses, respectively.^{12,19} Inadequate knowledge levels could be the result of a lack of education and training; however, knowledge score results of the current study were lower than those of health care providers at a rehabilitation hospital in Saudi Arabia, where 73.3% of participants in a cross-sectional study were found to have adequate knowledge using the Pressure Ulcer Knowledge Test.¹⁵ This higher proportion could have been related to the fact that participants included nurses, physical therapists, occupational therapists, and rehabilitation therapists who may have had more knowledge about pressure ulcers. However, nurses were found to have better knowledge scores than some other health professionals included in the study. Although the cutoff point in the study used to identify participants having sufficient knowledge was $\geq 70\%$, 73.3% met the criterion,¹⁵ compared to study findings of 71.3% reported among 75 intensive care unit nurses in 2 American hospitals,⁷ and 78% among nurses from Montana.⁸

In the current study, 52 nurses (57.8%) correctly identified how to prevent heel pressure ulcers from the options provided. Options on the best way to prevent heel ulcers included raising the foot end of a bed, using a cotton pad, using a pillow under the patient's leg, applying soap and water, and gently massaging the area. Approximately 34% had knowledge about recent

practices for pressure ulcer prevention. A cross-sectional study²¹ among 95 Nigerian nurses reported 32.6% of the nurses practiced massage of patient's bony prominences for 10 to 30 minutes, and the nurses were not consistent in turning schedule frequencies. This is a clear indication of a gap in the knowledge of modern ways to prevent pressure ulcers. It is assumed that limited nurse knowledge of recent evidence-based recommendations for pressure ulcer prevention affect practice.

Nurses' attitude toward pressure ulcer prevention. Ajzen and Fishbein²² suggested that an individual's likelihood of exhibiting positive behavior and practices usually is likely influenced by a positive attitude. Nearly three quarters of the nurses in this study had a positive attitude toward pressure ulcer prevention. Other studies have reported that 68.4% of nurses had a favorable attitude toward pressure ulcers prevention¹⁶ and that 56.5% had a positive attitude.⁷ Both are lower than those in the current study. Nearly all (94.4%) of current participants believed documentation and identification of pressure ulcers are part of their job description; they also believed the incidence of pressure ulcers is an indication of poor care. This is similar to another report that showed 98.1% of health professionals were concerned about pressure ulcer prevention in their practice.¹⁵ In the current study, 37.8% believed regular screening of patients

Table 3. Attitude of respondents towards pressure ulcer prevention

Attitude statement	Positive		Negative	
	n	%	n	%
Overall	67	74.4	23	25.6
Pressure ulcer prevention is a joint responsibility of both nurses and the relatives while the patient is admitted	70	77.8	20	22.2
If the patient develops pressure ulcer while admitted, it means the nurse is not doing her job well	65	72.2	25	27.8
Do you think the number of nurses on duty influence your attitude towards pressure ulcer?	55	61.1	35	38.9
Families should be an integral part of the plan of the care	66	73.3	24	26.7
Pressure ulcer documentation and identification are part of my job	85	94.4	5	5.6
Pressure ulcer should be documented when there is less work in the ward	72	80.0	18	20.0
Pressure ulcers are often viewed as a sign of poor care being provided by the health care provider	85	94.4	5	5.6
If patient is not deemed at risk, rescreen at regular intervals	34	37.8	56	62.2

for pressure ulcers is necessary if the patient is not perceived to be at risk, a much lower proportion than reported by others.¹⁵

Study Limitations

The nonrandomization of the sample and the sample size may limit results and does not allow the generalization of findings to the entire population of nurses in the state and Nigeria and beyond. Other studies involving larger samples with multispecialty providers and more health institutions are necessary to increase understanding regarding this topic. Additional research also should assess actual nursing practices and adherence of health care professionals and patients to pressure ulcer prevention guidelines.

Conclusion

This study assessed pressure ulcer prevention knowledge and pressure ulcer prevention attitudes among 90 nurses in a tertiary health care facility. The majority (58, 64.4%) had knowledge scores higher than or equal to the median score, which was inferred to be adequate knowledge, and 67 (74.4%) nurses had attitude scores higher than or equal to the median score, which was inferred as having a positive attitude toward pressure ulcer prevention. Because 65.6% were found not to have knowledge on recommended recent prevention practices, education and training are needed. Approximately 62.2% of the nurses surveyed do not consider it important to screen patients they feel are not at risk of developing pressure ulcers. Nurses need to be orientated to the fact that screening all patients with limited mobility and implementing pressure ulcer prevention strategies is an integral part of their job. ■

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