HSI Health Sciences Investigations Journal

share

Send us an email: hsijournal@ug.edu.gh
Visit us: https://www.hsijournal.ug.edu.gh

ISSN Online 2704-4890 | ISSN Print 2720-7609

Online first publication

Original Research Article

HSI Journal (2024) Volume 5 (Issue 1) https://doi.org/10.46829/hsijournal.2024.6.5.1.660-669

Open Access

Knowledge and practice of chronic wound management and associated factors among nurses at the Korle-Bu Teaching Hospital, Ghana

Dorothy OWUSU-BOAKYE [1,2], Tom A NDANU [3*], Albert PAINTSIL [1,4], Edem ANGYIGBA [1], Honghong WANG [2]

[1] Korle Bu Teaching Hospital, Accra, Ghana; [2] Xiangya School of Nursing, Central South University, Hunan, China; [3]University of Ghana Dental School, College of Health Sciences, University of Ghana, Legon, Ghana; [4] University of Ghana Medical School, College of Health Sciences, University of Ghana, Legon, Ghana

Received February 2024; Revised April 2024; Accepted May 2024

Abstract

Background: Chronic wound management plays an important role in accelerating the recovery of patients. Reports show that nurses' poor performance in chronic wound management is often the result of poor knowledge of and skills in chronic wound care. It is significant for nurses to understand wound assessment and develop standard skills and practices to enable them to render quality wound management for patients' satisfaction.

Objective: This study investigated the knowledge and practice of chronic wound management and the factors associated with it among Ghanaian nurses. It also explored the association between the knowledge and practice of chronic wound management.

Methods: This is a cross-sectional study of 200 nurses from four Departments at the Korle-Bu Teaching Hospital Accra, Ghana. It was conducted from October 1st to December 31st, 2020. Knowledge and practice on chronic wound management among nurses were examined using a researcher-developed scale. Descriptive analysis, Chi-square tests, and multivariable logistic regressions were used for the analysis using SPSS 25.0.

Results: A total of 200 nurses from the Surgery, Medicine, Obstetrics and Gynaecology, and Paediatrics departments were recruited. About two-thirds (63.5%, n = 127) had adequate knowledge of chronic wound management, and 36.5% (n = 73) had poor knowledge. Factors significantly associated with good knowledge included years of working in the department and frequent attendance of workshops on wound care. Also, 52.0% (n = 104) of the participants had good practice in chronic wound management, and 48.0% (n = 96) had poor practice in chronic wound management. Nurses who had frequently attended workshops on wound management after school were 3.326 times more likely to report good practice in chronic wound management ($p < 0.001$, 95% CI: 1.788 - 6.189). Participants with good knowledge were 3.136 times more likely to have good practice ($p < 0.001$, 95% CI: 1.579 - 6.226).

Conclusion: Knowledge and practice of chronic wound management are required for effective wound management. Nurses' training in chronic wound management is associated with good knowledge and practice. Hence, there is a need to provide continuous professional training in wound management for nurses to improve quality care and outcomes.

Keywords: Nurses, chronic wound, management, knowledge, practice, associated factors, Ghana,

Cite the publication as Owusu-Boakye D, Ndanu TA, Paintsil A, Angyigba E, Wang H (2024) Knowledge and practice of chronic wound management and associated factors among nurses at the Korle-Bu Teaching Hospital, Ghana. HSI Journal 5(1): 660-669. https://doi.org/10.46829/hsijournal.2024.6.5.1. 660-669

INTRODUCTION

Chronic wound is a wound that fails to heal within the expected phases of healing due to the presence of intrinsic and extrinsic factors [1]. In general, chronic wounds are often caused by bacterial infection and underlying disease conditions [2]. Chronic wound management is very important to prevent infections. It facilitates wound healing and reduces complications [3,4,5]. Patient recovery from chronic wounds has accelerated as nurses have improved their chronic wound

* *Corresponding author*
Email: tandanu@ug.edu.gh

share
Send us an email: hsijournal@ug.edu.gh
Visit us: https://www.hsijournal.ug.edu.gh

management skills. However, its management is often hindered by poor wound care knowledge and practices [6] due to a lack of access to evidence-based practices [7]. Chronic wound care is a challenge to nurses, and it consumes healthcare resources around the globe [14,15]. In addition, it imposes physical, psychological and financial stress on the nurses, the patients and the health facility [7]. A UK survey reported that 35% - 65% of community wound care nurses have caseloads, which gradually increase work overload [16]. Effective wound management will decrease the work overload of the nurses, reduce financial burden, stress, prolonged hospitalisation, morbidity, and mortality rate, as well as improve patient care satisfaction and quality of life [2,3,4,5,11]. This implies that continuous professional healthcare training in chronic wound management is necessary [4]. Study about the knowledge and practices of chronic wound healing will empower nurses to understand the factors that delay or facilitate wound healing [8]. Nurses across different healthcare settings frequently have inadequate knowledge or insight, which is significant in wound care [9,10]. Similarly, chronic wound management among Ghanaian nurses has not been adequately investigated. Studies have shown that there was poor access to evidence-based guidelines or poor knowledge and practice of chronic wound management and its associated factors among healthcare workers [11,12,13]. It has been reported that among nurses, chronic wound management and associated factors have not been adequately understood, and the effect on patient outcomes has not been studied [10].

A study reported that nurses with adequate knowledge of wound care are more likely to deliver evidence-based practice that satisfies their patients [17,18]. Another study in Brazil indicated that nurses' lack of knowledge of patients with wounds can affect their practice and influence other colleagues' nursing practices [19]. A survey done in Nigeria also revealed that only 6% had good knowledge of chronic wound management [20]. Additionally, a study done in Finland indicated that most of the respondents claimed that their wound care knowledge was either satisfactory (44%), fair (23%), or poor (3%) [21]. Nurses' knowledge of chronic wound management in a Finland study reported that wound management competencies were poor, as revealed by inexperienced graduated registered nurses [4]. Furthermore, a study done in New Jersey revealed that quality care for chronic wounds reinstated the function of daily life activities of the patients and avoided further wound complications [22]. A Sri Lankan study reported a positive impact of good knowledge, positive attitudes, and safe practices on chronic wound care among patients [23]. There are limited studies done in Ghana to address the gap in knowledge, practice and associated factors. Chronic wound management is a challenge in Ghana due to a shortage of specialty staff/experts, limited clinical settings, and inadequate standard logistics [17]. The benefit of good knowledge and practices of skilled wound care cannot be overemphasised. This study, therefore, assessed Ghanaian nurses' knowledge and practices of chronic wound management and their apprehension of the possible factors associated with poor chronic wound management.

MATERIALS AND METHODS

Study design and sites

This was a cross-sectional study carried out in four departments of the Korle Bu Teaching Hospital (KBTH), which were Surgery, Medicine, Obstetrics and Gynecology, and Paediatrics. These departments have units that provide wound management. In the surgery department, not less than 30 patients have their wounds dressed at the OPD daily. KBTH is the largest referral hospital with about 2000 bed capacity and located in Accra, the capital city of Ghana.

Sample size and sampling technique

The study was carried out during the COVID-19 pandemic, and all nurses who consented to the study during the data collection were recruited. This was a consecutive recruitment of all participants present at the time of the study. They were then stratified into their ranks to ensure proportional representation of all levels of the nurses. A total of 50 eligible nurses in each department were consecutively selected from October 1st to December 31st, 2020. Respondents were 18 years and above working in the selected departments. In total, 200 nurses were recruited. The sample size was calculated by using event per variable (EPV) for logistic regression analysis. In general, the sample size should be 5-10 times the number of variables. There were 23 variables in the Likert scale by eight events (23 * 8), which gave us a sample size of 184, which was rounded up to 200 to allow for possible missing data. Equal numbers were chosen to ensure balance across the departments since nurses are rotated across the departments.

Research Instrument

A 43-item questionnaire was developed and pretested for data collection. Information collected included demographic characteristics, educational background, knowledge and practices of chronic wound management and its associated factors. The structured questionnaire had input from experts/consultants in chronic wound care from Reconstruction Plastic Surgery/Burns Center Ghana, senior nurses with experience in wound care from Surgery, Medicine, Paediatrics, and Obstetrics and Gynecology in Ghana, and seven international research professors with specialists in chronic wound management. All of them had over ten years of working experience in clinical nursing and research. The general information included departments, job titles, years of working experience, years of working in the current department, the highest level of education, work status (full-time, part-time, or casual) and religion. The following five questions assessed the training background on chronic wound management: Have you ever had any theoretical or practical instruction on wound management during your studies? Have you had any hands-on

share
Send us an email: hsijournal@ug.edu.gh
Visit us: https://www.hsijournal.ug.edu.gh

opportunities in wound management during internships? Were you given extra training opportunities on wound management before working in the current department? Have you frequently attended workshops on wound care after schooling?

There were eight questions to assess the knowledge of chronic wounds among nurses at KBTH. The correct response for each question was scored 1 point. The highest score for the eight questions was eight. The mean score was used as the cut-off for the scale [24]. Participants who had a total score equal to or higher than the mean were rated as having "good knowledge"; otherwise, they were regarded as having "poor knowledge". The internal reliability (Kuder-Richardson-20) of this questionnaire was 0.634. Participants were asked to rate how often they practised chronic wound management on a 23-item with a four-point Likert scale ranging from "Never, Sometimes, Most times, and Always.". The scale-level content validity index (S-CVI) scores were 0.87. Cronbach's α was found to be 0.80. Each item was scored from 1 (never) to 4 (always). The mean score was used as the cut-off for the scale [24]. Participants who scored equal to or higher than the mean score were considered to have good practice in chronic wound management. Those having less than the mean score were rated as having poor practice.

Data collection

Data collection started after consent was obtained from the respondents. The survey was conducted separately in undisturbed rooms for each department to protect participants' privacy. It took approximately 20 minutes to complete the self-administered questionnaire. Approval for the study was given by the KBTH Institutional Review Board (IRB) with the approval ID KBTH-IRB/000139/2020. Permission was granted by all the heads of the four participating departments

Data analysis

Each questionnaire was immediately checked for errors after collection, and any missing items were immediately verified with participants. The data were entered and analysed using IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp. A descriptive summary was conducted for all variables. Continuous variables were summarised as means and standard deviation, while categorical variables were presented as frequencies and percentages. The chi-square test was used to identify the factors associated with knowledge and practice on chronic wound management. Independent variables found to have statistical significance by the chi-square tests were entered into the final multivariate regression models. Statistical tests were two-sided, and a p-value less than 0.05 was considered significant.

RESULTS

A total of 200 participant nurses were recruited from four departments in KBTH: Surgical, Medical, Paediatric, and Obstetrics and Gynecology. More than half (56%, n = 113) of the participants were of senior rank. Less than half (45%, n = 90) had only 1 - 3 years of working experience. The participants have worked in multiple departments, but nearly half of them (49.5%, n = 99) had worked in their current department for one to three years. Ninety-six (48%) nurses had Bachelor's degrees, 12% (n = 24) had Masters degrees, and the remaining were below Bachelor's degrees. Part-time workers formed 2.5% (n = 5), while the majority of the participants (96.5%, n = 193) were full-time nurses. The number of years of working experience (p = 0.030), the number of years of working in the current department (p = 0.002), and the highest level of education (p = 0.019) of the respondents were seen to be significantly associated with the level of knowledge of chronic wound management (Table 1). Those working in the current department for 4 - 6 years had a higher likelihood of good knowledge with an odds ratio of 4.282 (95% CI = 1.369 - 13.393, p = 0.029). A total of 98.0% of participants (n = 196) had received theoretical instruction, while 97.5% (n = 195) received practical instruction in wound management. During their internships, 97% (n = 194) of participants had hands-on opportunities to practice. However, 60.5% (n = 121) have had extra training before working in the current department, and 57.0% (n = 114) have had frequent workshops after school (Table 2). Binary logistic regression was used to investigate the mode of training and its association with knowledge of chronic wound management. The dependent variable was knowledge of chronic wound management, categorised by the mean score as poor knowledge (mean score < 5.75, coded 0) and good knowledge (mean score ≥ 5.75, coded 1). Attendance of frequent workshops on wound care after school was significantly associated with good knowledge (p < 0.001). The other covariates, such as the number of years of work experience, the number of years of work in their current department and the highest level of education, were not significantly associated with the level of knowledge (Table 2). Those with frequent workshop attendance on wound care after school were 2.867 more likely to have good knowledge of wound management (95%, CI = 1.383 - 5.942, p = 0.005).

The knowledge in chronic wound management scores ranged from zero to eight. The mean score of the eight items was 5.75 ± 0.14 (95% CI: (5.47 - 6.02) median = 6.0, IQR = (4.50 - 7.31). Then, the knowledge scores were categorised into two groups: those below the mean score and those equal to or above the mean score. A total of 63.5% (n = 127) participants scored 5.57 and above and were considered to have good knowledge, and 36.5% (n = 73) nurses were considered to have poor knowledge of chronic wound management. The practice score ranged from 59 to 92 points for this 23-item, four-point Likert Scale. The mean score for this scale was 79.56 ± 0.454 (95% CI: 78.66 - 80.45, median = 60, IQR = 74.84 - 84.30). The practice of the nurses was categorised using the mean score of the scale as the criteria. In total, 52.0% (n = 104) of participants scored 79.56 and above. These were

share
Send us an email: hsijournal@ug.edu.gh
Visit us: https://www.hsijournal.ug.edu.gh

considered to have good practice, and 96 participants (48.0%) were considered to have poor practice in chronic wound management (Figure 1). There was a significant association between knowledge and practice of chronic wound management, p = 0.025. Almost all the participants, 99.5% (n = 199), believed that it is beneficial to assess the wound before dressing, and 95.5% (n = 195) thought that they understood the concept of chronic wound management, while 53.1% (n = 106) of the respondents actually stated the precise concept of chronic wound management. Likewise, 60.5% (n = 121) of the participants were aware that there are seven key steps for wound assessment in chronic wound management. In addition, 82% of the respondents understood the knowledge of specific concepts of wound techniques, and 69.5% of the nurses were familiar with the idea of chronic wound management. Oxygenation and stress were the least

Table 1. Demographic characteristics of the participants and association with their level of knowledge of chronic wound management

Characteristics	N (%)	Level of knowledge		
Department		Poor	Good	p-value
Surgery	50 (25.0)	30 (60.0)	20 (40.0)	0.181
Medicine	50(25.0)	11 (22.0)	39 (78.0)	
Paediatric	50 (25.0)	12 (24.0)	38 (76.0)	
Obstetrics/Gynaecology	50(25.5)	16 (32.0)	34 (68.0)	
Category of job title				
Staff Nurse	61 (30.5)	24(39.3)	37(60.7)	0.176
Senior Staff Nurse	26 (13.0)	9(34.6)	17(65.4)	
Nursing Officer	66 (33.0)	17(25.8)	49(74.2)	
Senior Nursing Officer	27 (13.5)	6(22.2)	21(77.8)	
Principal Nursing Officer	20 (10.0)	3(15.0)	17(85.0)	
Years of working experience				
1 – 3	90(45.0)	36(40.0)	54(60.0)	0.030*
4 – 6	31(15.5)	7(22.6)	24(77.4)	
7 – 9	39(19.5)	7(17.9)	31(82.1)	
≥10	40(20.0)	9(22.5)	31(77.5)	
Years of working in the current department				
1 – 3	99(49.5)	41(41.4)	58(58.6)	0.002*
4 – 6	31(15.5)	6(19.4)	25(80.6)	
7 – 9	36(18.0)	4(11.1)	32(88.9)	
≥10	34(17.0)	8(23.5)	26(76.5)	
The highest level of education				
Masters	24(12.0)	2(8.3)	22(91.7)	0.019*
Bachelor's degree	96(48.0)	25(26.0)	71(74.0)	
Diploma	72(36.0)	29(40.3)	43(59.7)	
Certificate	8(4.0)	3(37.5)	5(62,5)	
Work status				
Full-time	193(96.5)	58(30.1)	135(69.9)	0.686
Part-time	5(2.5)	0(0)	5(100.0)	
Casual	147(73.5)	1(50.0)	1(50.0)	
Religion				
Christian	32(16.0)	47(32.0)	100(68.0)	0.083
Muslim	16(8.0)	10(31.3)	22(68.8)	
Traditionalist	5(2.5)	1(6.3)	16(93.8)	
Others	5(2,5)	1(20.0)	4(80.0)	

Significance at 0.05

Table 2. Training received on chronic wound management and adequacy of knowledge on wound management. (n=200).

Training received in wound management	N (%)	Poor knowledge	Good knowledge	p-value
Theoretical instruction on wound management during studies	196 (98.0)	57 (29.1)	139 (70.9)	0.723
Practical instruction on wound management during studies	195 (97.5)	7 (29.2)	138 (70.8)	0.98
Hands-on opportunities on wound management during internships	194 (97.0)	55 (28.5)	138 (71.5)	0.266
Extra training opportunities on wound management before working in the current department	121 (60.5)	18 (22.8)	61 (77.2)	0.092
Attendance for frequent workshops on wound care after school	114 (57.0)	4 (16.3)	72 (83.7)	<0.001*

share
Send us an email: hsijournal@ug.edu.gh
Visit us: https://www.hsijournal.ug.edu.gh

Table 3. Knowledge on concepts and assessment of wound management

Concepts of wound management	Yes N (%)	No N (%)
Being familiar with the concept of chronic wound management	139 (69.5)	61 (30.5)
Understanding the concept of chronic wound management	195 (95.5)	5 (2.5)
The specific concept of chronic wound management	106 (53.1)	94 (46.9)
Awareness of seven key steps for wound assessment in chronic wound management	121 (60.5)	79 (39.5)
Recognizing the benefit of assessing the wound before dressing	199 (99.5)	1 (0.5)
Understanding the concept of wound techniques	164 (82.0)	36 (18.0)
Main factors that delay wound healing		
Infection	132 (66.0)	68 (34.0)
Chronic disease	47(23.5)	153 (76.5)
Oxygenation	1 (0.5)	199 (99.5)
Lifestyle	20 (10.0)	180 (90.0)
Stress	0 (0)	200 (100)
	Good knowledge	Poor Knowledge
Knowledge of specific concept of wound techniques	146 (73.0)	54 (27.0)
	Adequate (score ≥ 5.75)	Inadequate (score < 5.75)
Adequacy of knowledge on wound management	127 (63.5)	73 (36.5)

Table 4: Association between demographics and level of practice of chronic wound management

Characteristics	Practice on chronic wound management		P-value
	Poor practice n (%) 96 (48.0)	Good practice n (%) 104 (52.0)	
Department			0.181
Surgery	32 (64.0)	18 (36.0)	
Medicine	23 (46.0)	27 (54.0)	
Paediatric	18 (36.0)	32 (64.0)	
OB/GYN	23 (46.0)	27 (54.0)	
Category of job title			0.111
Staff Nurse	32 (52.5)	29 (47.5)	
Senior Staff Nurse	16 (61.5)	10 (38.5)	
Nursing Officer	33 (50.0)	33 (50.0)	
Senior Nursing Officer	8 (29.6)	10 (70.4)	
Principal Nursing Officer	7 (35.0)	13 (65.0)	
Years of working experience			0.061
1 – 3	49 (54.4)	41 (45.6)	
4 – 6	18 (58.1)	13 (41.9)	
7 – 9	16 (41.0)	23 (59.0)	
≥10	13 (32.5)	27 (67.5)	
Years working in the current department			0.073
1 – 3	55 (55.6)	44 (44.4)	
4 – 6	16 (51.6)	15 (48.4)	
7 – 9	14 (38.9)	22 (18.7)	
≥10	11 (32.4)	23 (67.6)	
The highest level of education			0.037*
Masters	5 (20.8)	19 (79.2)	
Bachelor's degree	49 (51.0)	47 (49.0)	
Diploma	37 (51.4)	35 (48.6)	
Certificate	5 (62.5)	3 (37.5)	
Work status			0.037*
Full-time	94 (48.7)	99 (51.3)	
Part-time	1 (20.0)	4 (80.0)	
Casual	1 (50.0)	1 (50.0)	
Religion			0.276
Christian	65 (44.2)	82 (55.8)	
Muslim	20 (62.5)	12(37.5)	
Traditionalist	8 (50.0)	8 (50.0)	
Others	3 (60.0)	2 (40.0)	

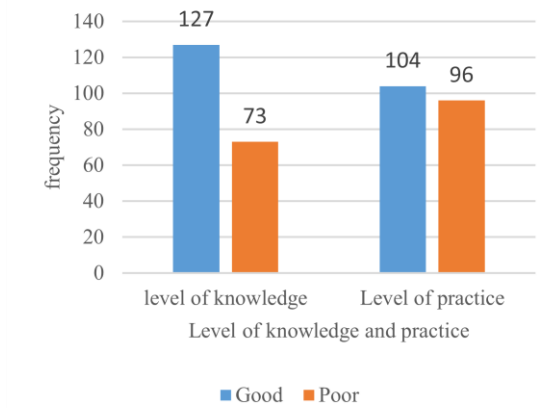

Figure 1. Association between levels of knowledge and practice of chronic wound management, p = 0.025

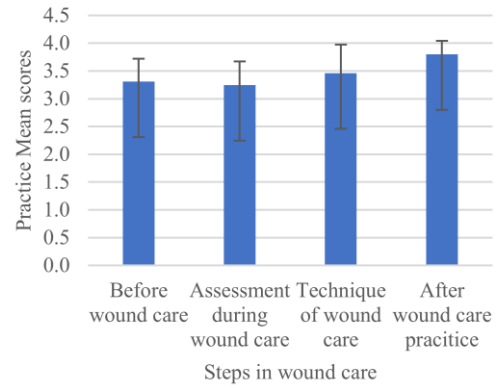

Figure 2. Wound care assessment and practice among the participants

Table 5. Association between type of training and level of practice on chronic wound management

Characteristics	Practice on chronic wound management Poor (n = 96) n (%)	 Good (n = 104) n (%)	p-value
Theoretical instruction on wound management during studies			0.558
No	3 (75.0)	1 (25.0)	
Yes	93 (47.4)	103 (52.6)	
Practical instruction on wound management during studies			0.928
No	3 (60.0)	2 (40.0)	
Yes	93 (47.7)	102 (52.3)	
Hands-on opportunities on wound management during internships			0.099
No	6 (85.7)	1 (14.3)	
Yes	90 (46.6)	103 (53.4)	
Extra training opportunities on wound management before working in the current department			0.022*
No	66 (54.5)	55 (45.5)	
Yes	30 (38.0)	49 (62.0)	
Attendance for frequent workshops on wound care after school			<0.001*
No	71 (62.3)	43 (37.7)	
Yes	25 (29.1)	61 (70.9)	
Knowledge on chronic wound management			<0.001*
Poor knowledge	42 (71.2)	17 (28.8)	
Good knowledge	54 (38.3)	87 (61.7)	

** p < 0.05*

Table 6. Significant factors that predict practice of chronic wound management. (n = 200)

Variable	Category	OR (95% CI)	p - value
Attendance for frequent workshops on wound care after school	No	Ref.	
	Yes	3.326(1.788-6.189)	<0.001
Knowledge on chronic wound management	Poor knowledge	Ref.	
	Good knowledge	3.136 (1.579-6.226)	0.001

Ref., reference; OR, odds ratio; CI, confidence interval.

share
Send us an email: hsijournal@ug.edu.gh
Visit us: https://www.hsijournal.ug.edu.gh

identified factors that delay wound healing (Table 3). The mean scores of wound care assessment and practice among the participants are as follows: before wound care (3.3 ± 0.4), during wound care (3.2 ± 0.4), the technique of wound care (3.5 ± 0.5) and after wound care practice (3.8 ± 0.2). On a scale of 1 - 4, all the mean scores were higher than 3.0. This indicated adequate wound care assessment and practice, Figure 2. The association between demographics and level of practice on chronic wound management showed that the highest educational level ($p = 0.037$) and work status ($p = 0.037$) were significantly associated with the level of practice on chronic wound management (Table 4). Factors that were significantly associated with the level of practice of chronic management included extra training opportunities on wound management before working in the current department ($p = 0.022$), attendance of frequent workshops on wound care after school ($p < 0.001$), and knowledge of chronic wound management ($p < 0.001$) (Table 5).

Multivariable logistic regression was used to investigate the significant predictors of the level of practice on chronic wound management. The dependent variable of practice on chronic wound management was categorised by the mean score as poor practice (mean score < 79.56 = 0) and good practice (mean score ≥ 79.56 = 1). Independent variables were the highest level of education, extra training opportunities on wound management before working in the current department, attendance of frequent workshops on wound care after school and knowledge of chronic wound management. Only two variables were significant independent predictors of good practice in chronic wound management. Nurses who had attended frequent workshops on wound care after school were 3.326 times more likely to report good practice on chronic wound management ($p < 0.001$, 95% CI: 1.788 - 6.189). Participants with good knowledge were 3.136 times more likely to perform good practice ($p = 0.001$, 95% CI: 1.579 - 6.226) (Table 6).

DISCUSSION

The goal of this study was to investigate the level of knowledge and practice and other associated factors on chronic wound management among nurses at KBTH, Ghana. A total of 200 nurses from the departments of surgery, medicine, obstetrics, gynaecology, and paediatrics were recruited for the study. The findings suggested that, in general, the nurses' competencies in knowledge and practice of wound management were inadequate. The study also showed that factors such as socio-demographic characteristics and educational background in wound management affected the knowledge and practice of chronic wound management.

The majority of the nurses in the departments, apart from those in surgery, indicated good knowledge and practice in the management of chronic wounds. Overall, 63.5% (n = 127) were considered to have good knowledge, and 52% (n = 104) had good practice. Significantly, those with good knowledge also had good practice. In this study, nurses in the surgery department had the lowest knowledge of wound care, contrary to a study by Lynn, who reported that nurses in the surgical department rather had a better knowledge of chronic wound care [25]. Another study also showed that nurses across different healthcare settings often have insufficient time and a lack of knowledge or insight, which are important in wound management [9]. It is crucial for nurses to improve their competence to achieve patient satisfaction and also assist in implementing educational programs to help patients develop self-care behaviours to improve wound care.

Some factors, such as the number of years of work experience, number of years of working in their current department, the highest level of education, and frequent attendance at workshops on wound care after school, were significantly associated with good knowledge of chronic wound management. This implies that nurses who have good knowledge of chronic wound management are most likely to provide evidence-based practice to satisfy their patients as compared to those with inadequate knowledge but with an optimistic approach [14,26]. Other studies also show that nurses who had post-basic training or specific wound management courses had adequate knowledge of wound care [27,28]. This is an indication of the need for nurses to learn and be engaged in educational activities that build on their knowledge and practice in the field of wound management. A previous study done in Ghana confirmed that there was poor knowledge about field practices of chronic wound management in connection with the application of the basic principles in wound care [25]. Almost all nurses, 98% (n = 196), received theoretical instruction on wound management during training. This skill needs to be upgraded and applied in a clinical setting. The majority of participants' (95.5%, n = 191) responses to awareness of concepts of wound management indicated having some understanding of the concept of chronic wound management, and about half (53.1%, n = 107) correctly indicated the right answer for specific concepts. Kielo et al. reported that most of the respondents claimed that their wound care knowledge of concepts on wound management was either satisfactory (44%, n = 88), fair (23%, n = 46) or poor (3%, n = 6). By contrast, another study on registered nurses stated that 35% (n = 70) of those working on acute cases reported that their wound care knowledge was either good or excellent [4]. Our study showed that about two-thirds (69.5%, n = 139) of the nurses were familiar with the concept of chronic wound management.

The participant's responses on the knowledge of the associated factors of chronic wound management included infection as an associated factor that delayed wound healing, which was indicated by 66% (n = 132) of the nurses. However, other factors like chronic diseases, oxygenation, lifestyle, and stress seem not to be much understood by the nurses as factors influencing chronic wound management. Other studies showed that chronic

share
Send us an email: hsijournal@ug.edu.gh
Visit us: https://www.hsijournal.ug.edu.gh

wound management and associated factors have not been adequately taught to nurses [20,29]. In addition, they lack knowledge of the effect of stress and lifestyle as systemic factors that have a negative influence on wound healing [29,30]. Oxygenation as a local factor also influences wound healing negatively when it is lacking in the tissues, as in hypoxia, but most of the nurses did not have this insight. [31,32]. The majority of nurses (82%, n = 164) had a good understanding of the concepts of chronic wound management techniques, while those who had good knowledge of specific concepts of chronic wound techniques (73%, n = 146). However, those with poor knowledge of the concepts of chronic wound management techniques were only 18% (n = 36).

A study done to explore the effect of wound cleansing solutions and techniques on pressure ulcer healing [33] showed that proper assessment was very vital before dressing. Almost all of the participants in our study were of the view that adequate wound assessment before dressing is beneficial. The results of this study also showed that participants with good knowledge were 3.14 times more likely to perform good practice. Similarly, nurses who had attended frequent workshops on wound care after school were 3.33 times more likely to report good practice on chronic wound management. Granick et al. also reported that quality management and wound dressing with the practices of the 7-Key-Steps for wound assessment was common knowledge among nurses [34]. Thus, 60.5% (n = 121) of the nurses were aware of the 7-Key-Steps for wound assessment. However, another study was done to investigate the District Nurses' level of knowledge regarding wound care, and it was found that there were weaknesses in both theoretical and clinical knowledge concerning wound assessment [35]. Our study showed that the majority of the nurses in the paediatric department (64%, n = 128) followed good practice of wound management, whereas the same proportion (64%, n = 128) of nurses in the surgical department rather showed poor practice of wound management. Reports from other studies showed a contrary result, with the surgical nurses having better knowledge and practice [23]. Studies done in Denmark and the United Kingdom supported that knowledge varies as the role of nurses varies [16]. The study revealed that higher educational levels were associated with better wound management practices than those with lower educational levels. Thus, 79.2% (n = 159) of the nurses with master's degrees had good practice. The results indicated that an adequate educational level in chronic wound care confirmed a link with good practice.

A study done in Canada revealed that the healing of wounds was enhanced when delivered by nurse practitioners with progressive wound management training in the health care institution [25]. According to the study, nursing officers account for 33% (n = 66) of all the respondents who have had contact with chronic wounds, while principal nursing officers account for just 10% (n = 20). Critical attention should be given to nurses with certificates, as 62.5% (n = 125) of them have poor practice [17]. A report by Kielo et al. indicated that extra practice on wound management and training could boost nurses' confidence, which will facilitate their competence [4]. Nurses who received extra training and hands-on practice before and during internship and those who attended frequent workshops mostly had good practice in chronic wound management. Another report about fundamental quality management of wounds from the UK stated that not all settings have provided adequate advanced education for nurses. [25]. A similar argument is also made for the "Years in the department" and the "Highest level of education". It was also observed that the level of good practice declined with increasing years of working in a particular department, which needs to be addressed [36,37]. Another report from Finland also indicated poor access to evidence-based guidelines and inadequate understanding of techniques for quality wound management and its associated factors [18,38].

According to the results of this study, there was an increase in knowledge level on wound assessment and its associated factors that delay wound healing. It is crucial for nurses to understand those factors in order to improve their competencies by assisting in implementing educational programs to help patients improve their behaviour towards the healing of wounds. It is also important to have the right understanding of the concept of chronic wound management. Moreover, the management of chronic wounds facilitates healing in order to prevent complications and reduce work overload, long hospitalisation, and financial restrain. Therefore, frequent workshops and regular seminars on wound management must be consistent and mandatory. The findings also show that about half of those nurses received and added to the knowledge they obtained during their training. In addition, not all steps regarding the protocol for wound assessment results after the opening of the wound are always followed by the majority of the nurses, and this is an indication that much awareness needs to be created. This suggests the need for nurses to learn and be engaged in educational activities that build on their ability to practice in the field. Also, there must be a protocol for proper assessment of wound characteristics and the decision of the available dressing product suitable for that particular wound. In addition, appropriate standard wound techniques for a particular wound must be provided since every wound is unique and needs to be treated as such. Moreover, the practice of chronic wound management from our study indicates the need for nurses to implement proper wound management.

It is important for nurses to understand and improve their knowledge, techniques, and practice to enhance the quality of wound care. Furthermore, critical attention must be given to nurses who hold certificates since they had a high percentage of not practising wound techniques properly, which then calls for additional training seminars on good practice of management of chronic wounds. The analysis revealed that the majority of the nurses in the surgical department recorded the greatest number of nurses who did

share
Send us an email: hsijournal@ug.edu.gh
Visit us: https://www.hsijournal.ug.edu.gh

not practice all the steps in wound management. This is crucial since the department admits a greater number of patients with chronic wounds. This needs further investigation to examine the reasons and to explain if workload may be responsible.

Conclusion

The majority of the nurses in the surgical department recorded the highest number of nurses who do not practice 7-Key Steps in wound assessment before dressing is done. More than half (53.1%, n = 107) of the nurses do not have the right understanding of chronic wound management, and 39.5% (n = 79) of them were not aware of the 7-Key Steps in wound assessment. Nurses who classified wounds before assessing and dressing the wounds possessed good knowledge. Similarly, nurses who apply the right wound techniques have good practice. Nurses' competency can facilitate chronic wound healing, which will reduce long hospitalisation, work overload, stress, and financial burden on both the patient and institution, as well as mortality if complications set in.

DECLARATIONS

Ethical consideration

This study was approved by the ethics committee of Xiangya School of Nursing at Central South University with approval ID 12020001 and the Korle Bu Teaching Hospital Institutional Review Board with clearance approval ID KBTH-IRB/000139/2020.

Consent to publish

All authors agreed on the content of the final paper.

Funding

Sponsorship of the student's work was provided by both the Chinese and the Ghanaian governments.

Competing Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

Author contribution

DOB acknowledges instructors at the Central South University School of Nursing, all the participants from Korle Bu Teaching Hospital, and those who supported the collection of the data. DOB is grateful to the Chinese government and the Ghana government through the Ministry of Health for their sponsorship.

Acknowledgement

We wish to acknowledge instructors at the Central South University School of Nursing, all the participants from Korle Bu Teaching Hospital and those who supported the collection of our data. we wish to show our gratitude to the Chinese government and the Ghana government through the Ministry of Health for their sponsorship.

Availability of data

Data for this work is available upon request from the corresponding author.

REFERENCES

1. Wilkinson HN, Hardman MJ (2020) Wound healing: cellular mechanisms and pathological outcomes. Open Biol 10:200-223
2. Yorke J, Akpaloo J, Agbenorku P (2013) Management of diabetic foot ulcers using negative pressure with locally available materials. Modern Plastic Surgery 03:84–88.
3. Fletcher J (2010) Development of a new wound assessment form," Wounds UK, 6:92–99
4. Kielo E, Salminen L, Stolt M (2018) Graduating student nurses' and student podiatrists' wound care competence – An integrative literature review. Nurse Educ Pract 29:1–7.
5. Agbenorku P (2013) Quality assurance in wound management in a developing country: how satisfied are our patients? Surg Sci 4:9–44
6. Flanagan M (2005) Barriers to the implementation of best practice in wound care. Wounds Uk, 1:74
7. Martinengo L, Yeo NJY, Markandran KD, Olsson M, Kyaw BM, Car LT (2020) Digital health professions education on chronic wound management: A systematic review. Int J Nurs Stud 104:103512.
8. Ousey K, Cook L (2011) Understanding the importance of holistic wound assessment. Practice Nursing 22:308–314.
9. Woo KY (2013) Trends in wound management. Adv Skin Wound Care 26:538–541.
10. Weller CD, Richards C, Turnour L, Team V (2020) Understanding factors influencing venous leg ulcer guideline implementation in Australian primary care. Int Wound J 17:804–818
11. Nuru N, Zewdu F, Amsalu S, Mehretie Y (2015) Knowledge and practice of nurses towards prevention of pressure ulcer and associated factors in Gondar University Hospital, Northwest Ethiopia. BMC Nurs 14:34.
12. Mahmoudi M, Gould L (2020) "Opportunities and challenges of the management of chronic wounds: A multidisciplinary viewpoint. Chronic Wound Care Management and Research. 7:27-36
13. Chen Y-T, Chang C-C, Shen J-H, Lin W-N, Chen M-Y (2015) demonstrating a conceptual framework to provide efficient wound management service for a wound care centre in a tertiary hospital. Medicine 94:e1962.
14. Frykberg RG, Banks J (2015) Challenges in the treatment of chronic wounds. Adv Wound Care (New Rochelle) 4:560–582.
15. Sood A, Granick MS, Tomaselli NL (2014) Wound dressings and comparative effectiveness data. Adv Wound Care (New Rochelle) 3:511–529.
16. Welsh L (2018) Wound care evidence, knowledge, and education amongst nurses: a semi-systematic literature review. Int Wound J 15:53–61.
17. Mahmoudi M, Gould L (2020) Opportunities and challenges of the management of chronic wounds: A multidisciplinary viewpoint. Chronic Wound Care Management and Research. 7:27-36
18. Coyer G, Finlayson C (2005) "National institute for clinical studies (NICS) report for phase I evidence uptake network

share
Send us an email: hsijournal@ug.edu.gh
Visit us: https://www.hsijournal.ug.edu.gh

best practice community care for clients with chronic venous leg ulcers Submitted : June 30th 2005

19. Ferreira A, Rigotti M, Barcelos L, Simão C, Ferreira D, Gonçalves R (2014) Knowledge and practice of nurses about care for patients with wounds. Revista de Pesquisa: Cuidado é Fundamental Online 6:1178–1190.
20. Desta M, Tenaw M, Ayalew E (2020) Level of knowledge and wound care practice at a tertiary referral hospital in Ethiopia: A Survey in 180 Nurses
21. Kuan Y-T, Wang T-F, Guo C-Y, Tang F-I, Hou I-C (2020) Wound care knowledge, attitudes, and practices and mobile health technology use in the home environment: cross-sectional survey of social network users. JMIR Mhealth Uhealth 8:e15678.
22. Olmsted MG, Murphy J (2014) Methodology : U . S . News & World Report Best Hospitals 2014-2015
23. Higgins CA, Roger MF, Hill RP, Ali-Khan AS, Garlick JA, Christiano AM, Jahoda CAB (2017) Multifaceted role of hair follicle dermal cells in bioengineered skins. British Journal of Dermatology 176:1259–1269
24. Priyadarshani RAC, Samarawickrama MB (2017) Knowledge, attitudes and practices of patients regarding chronic wound care and point prevalence of chronic wounds at surgical and medical units in Teaching Hospital Karapitiya, Sri Lanka. IOSR J Pharm Biol Sci 12:38–46.
25. McCluskey P, McCarthy G (2012) Nurses' knowledge and competence in wound management. Wounds 8:37–47
26. Benbow M (2016) Best practice in wound assessment. Nursing Standard 30:40–47.
27. Richards DA, Hilli A, Pentecost C, Goodwin VA, Frost J (2018) Fundamental nursing care: A systematic review of the evidence on the effect of nursing care interventions for nutrition, elimination, mobility and hygiene. J Clin Nurs 27:2179–2188.
28. Nicks BA, Ayello EA, Woo K, Nitzki-George D, Sibbald RG (2010) Acute wound management: revisiting the approach to assessment, irrigation, and closure considerations. Int J Emerg Med 3:399–407.
29. O'Brien DP, Friedman ND, McDonald A, Callan P, Hughes A, Walton A, Athan E (2018) Wound healing: Natural history and risk factors for delay in Australian patients treated with antibiotics for Mycobacterium ulcerans disease. PLoS Negl Trop Dis 12:e0006357.
30. Siddiqi S (2016) Saphenous vein harvest wound complications: risk factors, identification, prevention, and management. Chronic Wound Care Management and Research Volume 3:147–156.
31. Bishop A, (2008). Role of oxygen in wound healing. J Wound Care.17:9
32. Anderson K, Hamm RL (2012) Factors that impair wound healing. Journal of the American College of Clinical Wound Specialists 4:84–91.
33. Moore Z, Cowman S (2008) A systematic review of wound cleansing for pressure ulcers. J Clin Nurs 17:1963–1972.
34. Adejumo PO, Ilesanmi RE (2016) Issues in contemporary wound management: evaluation of knowledge and practices among nurses in two municipalities in Osun State, Nigeria. Ann Nurs Pract 3:1065
35. Friman A, Wahlberg AC, Mattiasson A-C, Ebbeskog B (2014) District nurses' knowledge development in wound management: ongoing learning without organisational support. Prim Health Care Res Dev 15:386–395.
36. Lindholm C, Searle R (2016) Wound management for the 21st century: combining effectiveness and efficiency. Int Wound J 13:5–15.
37. Welsh L (2018) Wound care evidence, knowledge and education amongst nurses: a semi-systematic literature review. Int Wound J 15:53–61.
38. Gupta S, Andersen C, Black J, de Leon J, Fife C, Lantis Ii JC, Niezgoda J, Snyder R, Sumpio B, Tettelbach W, Treadwell T, Weir D, Silverman RP (2017) Management of chronic wounds: diagnosis, preparation, treatment, and follow-up. Wounds 29:S19–S36