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Knowledge and Practice of Pressure Ulcer Prevention and Factors Influencing Practice Among Nurses in Neurosurgery Units in Benin City, Nigeria: A Cross-Sectional Study

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Abstract

Background: Patients in neurosurgery units are at high risk of pressure ulcers because of paralysis, impaired consciousness and prolonged immobility. Prevention depends largely on nurses, but evidence on neurosurgical nurses' knowledge and practice of prevention in Nigeria is limited.

Aim/Objectives: To assess the knowledge and practice of pressure ulcer prevention, and the factors influencing practice, among nurses in neurosurgery units in Benin City, Nigeria.

Methods: A cross-sectional survey included all 218 nurses in the neurosurgery units of four hospitals: the University of Benin Teaching Hospital, Edo Specialist Hospital, National Orthopaedic Hospital and Mount Gilead Hospital. Data were collected with a self-administered questionnaire and analysed with descriptive statistics and chi-square tests ($p < .05$).

Results: Of 205 respondents (94.0%), 65.9% had good knowledge, 26.8% moderate and 7.3% poor. Knowledge was weakest on methods of reducing pressure on vulnerable areas (70.2% correct). Overall, 57.1% had high practice, 29.8% moderate and 13.2% low. Only 27.3% always used pressure-relieving support surfaces, 10.7% always reported poor nutritional intake, and 31.2% never avoided massaging reddened skin. Nurses widely endorsed heavy workload, inadequate staffing and the needs of patients with impaired consciousness as influences on practice. Good knowledge was associated with high practice ($p < .001$), but practice did not differ significantly by age, qualification, rank or experience.

Conclusion: Most neurosurgical nurses had good knowledge, but practice gaps remained in pressure redistribution, nutrition and avoidance of skin massage. Regular training, support surfaces and adequate staffing are recommended.

Keywords: pressure ulcer; pressure injury; prevention; neurosurgical nursing; knowledge; Nigeria

Introduction

Pressure ulcers (pressure injuries) are localized damage to the skin and underlying tissue caused by prolonged pressure, often combined with shear. They cause pain, infection and longer hospital stays, and most are preventable. A meta-analysis of hospitalized adults worldwide estimated a pooled prevalence of 12.8% (Li et al., 2020). International guidelines recommend a bundle of preventive measures: risk assessment on admission and when the patient's condition changes, regular skin inspection, repositioning, pressure-redistributing support surfaces, moisture and incontinence care, nutritional support, attention to medical devices and avoidance of massaging reddened skin.

Patients in neurosurgery units are among those at highest risk. Paralysis, reduced sensation, impaired consciousness, postoperative immobility and long hospital stays leave many unable to change position or report discomfort, so prevention depends almost entirely on nurses. Nurses' knowledge, however, is often limited. A meta-analysis of studies using the Pressure Ulcer Knowledge Assessment Tool found an average score of only 51.5% among nurses, with the weakest area being measures to reduce pressure and shear (Wu et al., 2022). Knowledge does not always translate into practice: in a teaching hospital in southern Ethiopia, only 37.9% of nurses had good prevention practice (Awoke et al., 2022). Workload, staffing, equipment and guideline availability also influence what nurses are able to do.

In Nigeria, few studies have focused on nurses who care for neurosurgical patients. This study therefore aimed to assess pressure ulcer prevention among nurses in neurosurgery units in Benin City, Edo State, Nigeria.

The specific objectives were to:

1. assess nurses' level of knowledge of pressure ulcer prevention;
2. determine nurses' level of practice of pressure ulcer prevention; and
3. identify the factors influencing nurses' practice of pressure ulcer prevention.

Methodology

A descriptive cross-sectional survey was conducted as the quantitative component of a larger convergent mixed-methods study, with reporting guided by the STROBE statement (von Elm et al., 2007). The study was carried out in the neurosurgery units of four hospitals in Benin City, Edo State, Nigeria: University of Benin Teaching Hospital, National Orthopaedic

Hospital, Edo Specialist Hospital, and Mount Gilead Hospital.

The study population comprised 218 nurses directly involved in neurosurgical patient care, comprising 110 from UBTH, 67 from the National Orthopaedic Hospital, 33 from ESH, and eight from Mount Gilead Hospital. Total population (census) sampling was adopted, and all eligible nurses were invited to participate. Nurses who were available during data collection and provided written informed consent were included.

Data were collected using a structured, self-administered questionnaire developed from the study objectives and relevant literature. The instrument covered participants' socio-demographic and professional characteristics, knowledge of pressure ulcer prevention, and preventive practices. Knowledge was assessed using 15 multiple-choice questions, with correct answers scored one point. Scores were classified as good (70% and above), moderate (50–69%), or poor (below 50%).

Preventive practices were assessed using 20 items covering risk assessment, skin inspection, repositioning, pressure-relieving surfaces, skin care, nutrition, mobility, medical devices, documentation, and communication. Responses were rated on a four-point scale ranging from never (1) to always (4). Percentage scores were classified as high (70% and above), moderate (50–69%), or low (below 50%).

Factors influencing practice: 20 items covering individual, organizational and patient-related factors, rated on a 4-point scale (strongly agree = 4 to strongly disagree = 1). A mean of 2.5 or above indicated that a factor was perceived as influencing practice.

Validity and reliability

Face and content validity were established by the supervisor and experts in nursing research. The questionnaire was pilot tested among nurses in a hospital with similar characteristics that was not part of the study. Internal consistency was assessed with Cronbach's alpha, with 0.70 or above taken as acceptable.

Data collection

The researcher and trained research assistants distributed the questionnaires in each hospital at times that did not disrupt care, over about four weeks in 2026. Completed questionnaires were collected promptly to maximize the response rate.

Data analysis

Data were analysed with IBM SPSS Statistics, version 27. Frequencies, percentages, means and standard deviations described participants' characteristics, knowledge, practice and influencing factors. Chi-square tests examined the association between knowledge level and practice level, and between participants' characteristics and knowledge and practice levels. Statistical significance was set at $p < .05$.

Ethical considerations

Ethical approval was obtained from the Health Research Ethics Committee of the University of Benin Teaching Hospital and from the ethics or research committees of Edo State Ministry of Health Research Ethics Committee. Permission was also obtained from

the management of each hospital and the unit managers. Participation was voluntary, written informed consent was obtained from every participant, and participants could withdraw at any time without consequence. Questionnaires carried no names, and data were stored securely and used only for research.

Results

Participants' characteristics

Out of 218 questionnaires distributed, 205 were complete and analysed, a response rate of 94.0%. Most participants were female (70.2%) and married (64.4%), and over half held a bachelor's degree (54.6%). Over a third (37.1%) had 1–5 years' experience in neurosurgical nursing, and 16.6% had less than 1 year (Table 1).

Table 1. Characteristics of participants (n = 205)

Characteristic	n (%)
Age group, years	
20–29	58 (28.3)
30–39	81 (39.5)
40–49	47 (22.9)
50 and above	19 (9.3)
Sex	
Female	144 (70.2)
Male	61 (29.8)
Marital status	
Married	132 (64.4)
Single	62 (30.2)
Divorced	6 (2.9)
Widowed	5 (2.4)
Highest qualification	
RN/RM	31 (15.1)
Post-basic certificate	37 (18.0)
Bachelor's degree (BNSc)	112 (54.6)
Master's degree (MSc)	21 (10.2)
Other	4 (2.0)
Professional rank	
Nursing Officer II	42 (20.5)

Nursing Officer I	47 (22.9)
Senior Nursing Officer	51 (24.9)
Principal Nursing Officer	38 (18.5)
Assistant Chief Nursing Officer	18 (8.8)
Chief Nursing Officer	6 (2.9)
Other	3 (1.5)
Years of working experience	
Less than 5	43 (21.0)
5–10	68 (33.2)
11–15	45 (22.0)
16–20	28 (13.7)
More than 20	21 (10.2)
Years of neurosurgical nursing experience	
Less than 1	34 (16.6)
1–5	76 (37.1)
6–10	51 (24.9)
11–15	28 (13.7)
More than 15	16 (7.8)

Knowledge of pressure ulcer prevention

Overall, 135 nurses (65.9%) had good knowledge, 55 (26.8%) moderate and 15 (7.3%) poor. Almost all recognized that patients with limited mobility and impaired consciousness need particular attention (95.1% correct). Knowledge was weakest on how to reduce pressure on vulnerable areas (70.2%), where 9.8% chose vigorous massage of reddened areas, and on the most effective overall approach to prevention (70.2%) (Table 2)

Table 2. Nurses' knowledge of pressure ulcer prevention (n = 205)

Knowledge item (correct answer)	Correct, n (%)
Patient needing particular attention (limited mobility and impaired consciousness)	195 (95.1)
Definition (localized injury to skin and/or underlying tissue)	185 (90.2)
Important risk factor (prolonged pressure over a bony prominence)	185 (90.2)
Appropriate preventive measure (regular repositioning and pressure redistribution)	185 (90.2)
Moisture and incontinence care (keep skin clean, dry and protected)	185 (90.2)
Neurosurgical patient at increased risk (impaired consciousness and limited mobility)	185 (90.2)
Appropriate care for an at-risk patient (repositioning, skin care, nutrition, pressure redistribution)	185 (90.2)
Patient most at risk (limited mobility)	170 (82.9)
Purpose of risk assessment (identify at-risk patients and guide prevention)	164 (80.0)
Skin inspection (check for redness, discoloration, warmth and breakdown)	164 (80.0)
Role of nutrition (supports skin integrity and healing)	164 (80.0)
Purpose of repositioning (relieve pressure and improve circulation)	164 (80.0)
Medical devices (cause injury through prolonged pressure on skin)	164 (80.0)
Reducing pressure on vulnerable areas (repositioning and support surfaces)	144 (70.2)
Most effective approach (risk assessment, repositioning, skin care, nutrition, redistribution)	144 (70.2)
Overall knowledge level	
Good (70% and above)	135 (65.9)
Moderate (50–69%)	55 (26.8)
Poor (below 50%)	15 (7.3)

Practice of pressure ulcer prevention

Overall, 117 nurses (57.1%) had high practice, 61 (29.8%) moderate and 27 (13.2%) low. The overall practice mean was 2.9 ± 0.99 on the 4-point scale, and all items were at or above the 2.5 cut-off. Practices most often performed “always” were risk assessment on admission, appropriate positioning and following prevention guidelines (each 43.4%). Fewer nurses always used pressure-relieving support surfaces (27.3%), provided incontinence care (18.5%) or reported poor nutritional intake (10.7%). Over a fifth never reassessed risk when a patient’s condition changed (22.4%) or documented risk assessment and preventive care (22.4%), and 31.2% never avoided massaging reddened or damaged skin (Table 3).

Table 3. Nurses’ practice of pressure ulcer prevention (n = 205)

Practice	Always, (%)	n	Never, (%)	n	Mean $\pm$ SD
Inspects skin regularly for signs of pressure damage	71 (34.6)		2 (1.0)		3.2 ± 0.64
Keeps skin clean and dry	71 (34.6)		2 (1.0)		3.2 ± 0.64
Assesses pressure ulcer risk on admission	89 (43.4)		22 (10.7)		3.1 ± 0.97
Uses appropriate positioning techniques	89 (43.4)		22 (10.7)		3.1 ± 0.97
Assesses areas exposed to pressure from medical devices	89 (43.4)		22 (10.7)		3.1 ± 0.97
Follows evidence-based prevention guidelines	89 (43.4)		22 (10.7)		3.1 ± 0.97
Repositions immobile patients regularly	81 (39.5)		9 (4.4)		3.0 ± 0.93
Keeps bed linen clean, dry and free of wrinkles	81 (39.5)		9 (4.4)		3.0 ± 0.93
Positions and monitors medical devices	81 (39.5)		9 (4.4)		3.0 ± 0.93
Reassesses risk when the patient’s condition changes	77 (37.6)		46 (22.4)		2.9 ± 1.14
Encourages or assists mobility	77 (37.6)		46 (22.4)		2.9 ± 1.14
Documents risk assessment and preventive interventions	77 (37.6)		46 (22.4)		2.9 ± 1.14
Monitors whether interventions are effective	77 (37.6)		46 (22.4)		2.9 ± 1.14
Uses pressure-relieving mattresses or support surfaces	56 (27.3)		22 (10.7)		2.8 ± 0.96
Monitors nutritional and fluid intake	56 (27.3)		22 (10.7)		2.8 ± 0.96
Uses pressure redistribution for patients who cannot reposition	56 (27.3)		22 (10.7)		2.8 ± 0.96
Provides care for urinary or faecal incontinence	38 (18.5)		37 (18.0)		2.7 ± 0.98
Communicates risk to other members of the team	38 (18.5)		37 (18.0)		2.7 ± 0.98
Reports poor nutritional intake for support	22 (10.7)		45 (22.0)		2.6 ± 0.94
Avoids massaging reddened or damaged skin	20 (9.8)		64 (31.2)		2.5 ± 1.04
Overall practice level					
High	117 (57.1)				
Moderate	61 (29.8)				
Low	27 (13.2)				

Scale: always = 4, sometimes = 3, rarely = 2, never = 1; cut-off mean = 2.5.

Factors influencing practice

All 20 factors had means above the 2.5 cut-off (grand mean 3.8 ± 0.56), and 96.1% of nurses rated the factors overall as influencing their practice. Agreement was near-universal for most items: all nurses agreed that heavy workload limited prevention and that patients with impaired consciousness and prolonged hospital stays needed more support, and 98.5% agreed that inadequate staffing made repositioning difficult. Clear unit guidelines or protocols (82.4%) and the effect of patients' poor nutrition (78.0%) received the least agreement (Table 4).

Table 4. Factors influencing nurses' practice of pressure ulcer prevention (n = 205)

Factor	Agree or strongly agree, n (%)	Mean $\pm$ SD
Individual factors (domain mean 3.7 ± 0.52)		
Knowledge influences preventive practice	205 (100.0)	3.9 ± 0.35
Attitude influences willingness to provide preventive care	205 (100.0)	3.6 ± 0.50
Lack of confidence in risk assessment limits practice	205 (100.0)	3.8 ± 0.43
Feels confident performing prevention measures	202 (98.5)	3.7 ± 0.52
Continuing professional development improves practice	200 (97.6)	3.8 ± 0.51
Qualification provided adequate knowledge of prevention	185 (90.2)	3.5 ± 0.81
Organizational factors (domain mean 3.8 ± 0.48)		
Heavy workload limits prevention	205 (100.0)	3.7 ± 0.48
Adequate time is available for prevention	205 (100.0)	3.8 ± 0.43
Pressure-relieving equipment is readily available	205 (100.0)	4.0 ± 0.00
Lack of documentation and monitoring systems affects prevention	205 (100.0)	4.0 ± 0.00
Poor teamwork limits prevention	202 (98.5)	3.9 ± 0.46
Inadequate staffing makes repositioning difficult	202 (98.5)	3.7 ± 0.56
Adequate staffing supports prevention	201 (98.0)	3.8 ± 0.52
In-service training is regularly organized	196 (95.6)	3.6 ± 0.66
Unit head encourages prevention	188 (91.7)	3.7 ± 0.77
Unit has clear prevention guidelines or protocols	169 (82.4)	3.5 ± 0.93
Patient-related factors (domain mean 3.7 ± 0.63)		
Patients with impaired consciousness need more nursing support	205 (100.0)	3.9 ± 0.35
Prolonged hospitalization makes prevention harder	205 (100.0)	3.7 ± 0.48
Paralysis and reduced mobility make prevention harder	195 (95.1)	3.7 ± 0.71
Patients' poor nutrition affects prevention	160 (78.0)	3.5 ± 0.99

Scale: strongly agree = 4, agree = 3, disagree = 2, strongly disagree = 1; cut-off mean = 2.5.

Knowledge, characteristics and practice

Knowledge was significantly associated with practice ($\chi^2 = 30.89$, $df = 4$, $p < .001$). High practice was reported by 68.1% of nurses with good knowledge, compared with 38.2% of those with moderate and 26.7% of those with poor knowledge (Table 5).

Neither knowledge nor practice level differed significantly by age, sex, marital status, qualification,

rank, years of working experience or years of neurosurgical experience (all $p > .05$) (Table 6). Good knowledge was more common among nurses with a bachelor's degree (73.2%) than among RN/RM holders (51.6%), and among those with 6–10 years' neurosurgical experience (74.5%) than those with less than 1 year (47.1%), but these differences were not statistically significant.

Table 5. Relationship between knowledge level and practice level (n = 205)

Knowledge level	High practice, n (%)	Moderate practice, n (%)	Low practice, n (%)	χ^2	Df	p-value
Good (n = 135)	92 (68.1)	33 (24.4)	10 (7.4)	30.89	4	< .001
Moderate (n = 55)	21 (38.2)	24 (43.6)	10 (18.2)			
Poor (n = 15)	4 (26.7)	4 (26.7)	7 (46.7)			

Table 6. Association between participants' characteristics and knowledge and practice levels (n = 205)

Characteristic	Knowledge χ^2	Df	p-value	Practice χ^2	Df	p-value
Age group	6.97	6	.323	6.87	6	.333
Sex	0.49	2	.782	0.76	2	.685
Marital status	3.55	6	.737	6.12	6	.410
Highest qualification	8.81	8	.359	8.76	8	.363
Professional rank	10.27	12	.592	10.07	12	.610
Years of working experience	9.19	8	.326	9.58	8	.296
Years of neurosurgical experience	11.12	8	.195	11.54	8	.173

Discussion

Two-thirds of nurses in Benin City neurosurgery units had good knowledge of pressure ulcer prevention, and over half reported high practice. However, important preventive measures, such as using support surfaces, nutritional referral, incontinence care and avoiding massage of reddened skin, were performed inconsistently. Knowledge was associated with better practice, while nurses' characteristics were not.

Knowledge

The proportion with good knowledge (65.9%) is higher than the average score of 51.5% reported in a meta-analysis of studies using the Pressure Ulcer Knowledge Assessment Tool.³ This difference may partly reflect the questionnaire used here, whose questions tested recognition of basic principles rather than detailed clinical knowledge. As in the meta-analysis, the weakest area was how to reduce

pressure on vulnerable areas, and nearly one in ten nurses chose vigorous massage of reddened skin as a way of reducing pressure. Massage of reddened skin is not recommended, because it can damage already compromised tissue.²

Practice

Over half of nurses reported high practice, a higher proportion than the 37.9% with good practice reported in southern Ethiopia.⁴ Self-reported practice may, however, overstate what is done at the bedside; observational and chart-audit studies have found gaps between recommended and actual prevention practice (Li et al., 2022). Within the self-reports, the weakest practices were those that need equipment, coordination or follow-up: fewer than three in ten nurses always used pressure-relieving support surfaces, and only one in ten always reported poor nutritional intake. Over a fifth never reassessed risk when a patient's condition changed or documented preventive care, which matters in neurosurgery, where a patient's level of consciousness and mobility can change quickly. Nearly a third never avoided massaging reddened skin, consistent with the knowledge gap above, and suggests that this outdated practice persists.

Factors influencing practice

Nurses endorsed almost every factor, with many items showing 100% agreement. Heavy workload, inadequate staffing for repositioning and the high dependency of patients with impaired consciousness were among the most endorsed, consistent with studies linking nurse staffing to pressure ulcer incidence (Kim et al., 2022) and identifying workload and resources as barriers to guideline adherence (Song et al., 2024). However, the very high agreement across items, including some that point in opposite directions (for example, both that adequate time was available and that heavy workload limited prevention), means that this section of the questionnaire did not discriminate well between factors. Future studies should use validated barrier scales.

Knowledge, characteristics and practice

Good knowledge was associated with high practice: 68.1% of nurses with good knowledge reported high practice, compared with 26.7% of those with poor knowledge. This supports training as a means of improving practice. Nurses' age, qualification, rank and experience were not significantly associated with knowledge or practice, suggesting that training should be offered across all groups rather than targeted at one.

Strengths and limitations

The study included all eligible nurses in the neurosurgery units of four hospitals, covering federal, state and private settings, with a 94.0% response rate. It has limitations. Practice was self-reported and was not checked by observation or record audit. The knowledge questions were relatively basic and were not a validated instrument such as the Pressure Ulcer Knowledge Assessment Tool. Responses to the factor items showed very little variation. The cross-sectional design cannot establish causation, and some groups were very small.

Conclusion and recommendations

Most nurses in neurosurgery units in Benin City had good knowledge of pressure ulcer prevention, and knowledge was associated with better practice. However, use of support surfaces, nutritional referral, risk reassessment, documentation and avoidance of skin massage were inconsistent.

The following actions are recommended:

Hospital management and nursing services:

provide regular in-service training on pressure ulcer prevention based on current international guidelines, with emphasis on pressure redistribution and the harm of massaging reddened skin.

Unit managers: introduce a standard risk-assessment and repositioning chart, with reassessment whenever a patient's condition changes, and audit documentation.

Hospital management: ensure pressure-relieving mattresses and support surfaces are available for at-risk neurosurgical patients, and review staffing so that repositioning can be done as required.

Nurses and dietitians: set up a simple pathway for reporting and acting on poor nutritional intake.

Researchers: Uses validated knowledge and barrier tools and observe practice directly.

Reporting and data-verification note for the authors (remove before submission)

Before submission, verify the original SPSS output and questionnaire coding for all reported percentages, means, standard deviations and chi-square tests. In particular, confirm the item-level counts and summary classifications in Tables 2–4; clarify the apparently contradictory endorsement of both “heavy workload limits prevention” and “adequate time is available”; and report Cronbach's alpha and the pilot-test sample size rather than merely stating the acceptance threshold. The manuscript reports self-reported practice, so conclusions should not imply that actual bedside practice was directly observed.

Confirm the exact names of the ethics committees and approval reference numbers, and ensure that the institutional descriptions and recruitment dates are accurate.

Declarations

Ethics approval and consent to participate: The study was approved by the Health Research Ethics Committee of the University of Benin Teaching Hospital and the relevant committees of Edo Specialist Hospital, the National Orthopaedic Hospital, Benin City and Mount Gilead Hospital. All participants gave written informed consent.

Conflicts of interest: The authors declare no conflicts of interest.

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Author contributions: URU conceived the study, collected and analysed the data and drafted the manuscript. FDO supervised the study, contributed to the design and interpretation, and critically revised the manuscript. Both authors approved the final version.

Data availability: The data are available from the corresponding author on reasonable request.

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References

- Awoke, N., Tekalign, T., Arba, A., & Lenjebo, T. L. (2022). Pressure injury prevention practice and associated factors among nurses at Wolaita Sodo University Teaching and Referral Hospital, South Ethiopia: A cross-sectional study. *BMJ Open*, 12(3), e047687. <https://doi.org/10.1136/bmjopen-2020-047687>
- European Pressure Ulcer Advisory Panel, National Pressure Injury Advisory Panel, & Pan Pacific Pressure Injury Alliance. (2019). *Prevention and treatment of pressure ulcers/injuries: Clinical practice guideline. The international guideline* (E. Haesler, Ed.). EPUAP/NPIAP/PPPIA.
- Kim, J., Lee, J. Y., & Lee, E. (2022). Risk factors for newly acquired pressure ulcer and the impact of nurse staffing on pressure ulcer incidence. *Journal of Nursing Management*, 30(5), O1–O9. <https://doi.org/10.1111/jonm.12928>
- Li, Z., Lin, F., Thalib, L., & Chaboyer, W. (2020). Global prevalence and incidence of pressure

injuries in hospitalised adult patients: A systematic review and meta-analysis. *International Journal of Nursing Studies*, 105, 103546.

<https://doi.org/10.1016/j.ijnurstu.2020.103546>

- Li, Z., Marshall, A. P., Lin, F., Ding, Y., & Chaboyer, W. (2022). Pressure injury prevention practices among medical-surgical nurses in a tertiary hospital: An observational and chart audit study. *International Wound Journal*, 19(5), 1165–1179. <https://doi.org/10.1111/iwj.13712>

- Song, B., Wu, Z., Liu, M., et al. (2024). Barriers and facilitators of adherence to evidence-based pressure injury prevention clinical practice guideline among intensive care nurses: A cross-sectional survey. *Intensive and Critical Care Nursing*, 83, 103665.

- Von Elm, E., Altman, D. G., Egger, M., Pocock, S. J., Gøtzsche, P. C., & Vandenbroucke, J. P. (2007). The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: Guidelines for reporting observational studies. *The Lancet*, 370(9596), 1453–1457. [https://doi.org/10.1016/S0140-6736\(07\)61602-X](https://doi.org/10.1016/S0140-6736(07)61602-X)

- Wu, J., Wang, B., Zhu, L., & Jia, X. (2022). Nurses' knowledge on pressure ulcer prevention: An updated systematic review and meta-analysis based on the Pressure Ulcer Knowledge Assessment Tool. *Frontiers in Public Health*, 10, 964680.

<https://doi.org/10.3389/fpubh.2022.964680>