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Effect of pain assessment scale integration and nurse training on knowledge, attitudes, and practices in postoperative pain management at a low-resource facility quantitative quasi-cross-sectional study.

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Abstract

Background

Post-operative pain remains one of the greatest concerns for patients following surgery. Failure to promptly assess and manage pain may result in postoperative complications like hypertension, depression, and overall poor health outcomes.

Objective

To describe the effect of integrating the pain assessment scale on the nurse's knowledge, attitude, and practice toward post-operative pain management in the surgical ward in a low-resource facility.

Method

This was a quasi-experimental study using pre- and post-intervention evaluation carried out from June to November 2022. The nurses included were educated on post-operative pain management using a numeric pain assessment scale during a CME. They completed a pre- and post-test to assess their knowledge and attitude towards post-operative pain management. Data was analyzed using SPSS version 20. A student paired t-test was performed to assess for change in knowledge, attitude, and practice.

Results

The researcher surveyed 60 participants, and the majority (70%) were aged between 24 and 33 years. In the pretest and posttest, the mean total knowledge scores about post-operative pain treatment were (M= 62.83, SD= 9.583, t = -59, P=0.01), pretest attitude (M = 60.72, SD=7.095) and the posttest (M=71.65.SD= 7.688, t =-7.479, dt= 59, p=.000). Majority of respondents had their post-operative practices (POP) management practices improved (87%) and were able to use the PQRST to evaluate POP, more than seventy-three percent (73.3%) used the PAS to manage POP and 75% of the respondents gave POP patients direct nursing care.

Conclusion

The results revealed a great improvement, which was statistically significant in the nurses' knowledge, attitude, and practice towards post-operative pain management.

Recommendations

Create educational initiatives that emphasize pain evaluation and management, put in place standardized instruments for pain assessment, and create quality improvement initiatives in addition to procedures for efficient pain management and documentation.

Key words: *Postoperative Pain Management, Knowledge, KAP, Pain Assessment, Clinical Intervention, Quasi-experimental Study.*
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Introduction

Pain is a negative sensory and emotional experience that is linked to tissue damage, either present or potential, or is portrayed as such harm. (Raja et al., 2020). Inadequate pain management after surgery can lead to postoperative problems like depression, deep vein thrombosis, deep vein hypertension, and chronic pain, lengthening hospital stays and readmission rates, and negatively affecting patients' overall health outcomes. (Meissner et al., 2015). Pain intensity levels are assessed using both pharmacological and non-pharmacological methods, such as visual analog and numerical rating scales, and serve as a guide for effective pain treatment. (Myles et al., 2017).

Several measures have been applied to manage postoperative pain, although patients continue to experience acute pain after the surgical procedure. (Fatma & Serife, 2017). One of such measures is the use of a pain assessment scale. This scale measures and evaluates a patient's pain and provides a standardized way to understand pain intensity, location, and impact. This information is crucial for healthcare professionals like nurses to diagnose the cause of pain, track its progression, and determine the most effective treatment plan. The nurses' knowledge, attitude, and practice to apply this scale is a key step for successful pain management, and as such, training on the application of this scale is of importance.

According to a literature review done by Chow et al among nurse students, it was found that nursing students globally had inadequate pain knowledge and misconceptions on pain management. They recommended a pain education program or training to be effective in improving nurses' pain knowledge and attitudes (Chow & Chan, 2015). More still, a study done by Omotosho et al in The Gambia at a teaching hospital found that the majority (60.9 %) of the nurses had inadequate knowledge and an unfavorable attitude (69.6 %) towards pain management. They also reiterated the fact that there is a need for urgent and effective educational efforts in this area because pain management continues to be a challenge in healthcare facilities in The Gambia, just like in other low-income settings. They recommended regular in-service training, extra workshops, and seminars, both for students and staff nurses (Omotosho et al., 2023).

In Uganda, a few studies have been done to assess knowledge, attitudes, and practices among health workers managing cancer patients, acute pain management, and pain management among critically ill adults, but there is little evidence for the same among post-operative patients. (Kiwanuka & Masaba, 2018; Kizza et al., 2016). This study focused on evaluating the effect of integrating the Pain Assessment Scale on the nurses' knowledge, attitude, and practice toward post-operative pain management in the surgical ward in a low-resource setting.

Objectives

To describe the effect of integrating the pain assessment scale on the nurse's knowledge, attitude, and practice toward post-operative pain management in the surgical ward in Mengo Hospital, Kampala.

METHODOLOGY SECTION

Participants

The sample consisted of all nurses working on the surgical wards except those working beyond 4:00 pm. The nurses who were proven to be emotionally distressed were not included in the study. The convenience sampling technique was employed to recruit participants for the study, where the individuals in charge of the different words played a key role in the process of consent. This was possible in relation to the readily available sample, quick data collection, fewer rules, and the low cost. The study was conducted in a hospital setting, Mengo Hospital, located in Kampala city.

Interventions

During the CNE meeting, the researcher introduced the study to nurses and midwives, discussing the goals, questionnaire, and consent form. Consent forms were distributed to unit supervisors, and participants submitted them for approval, which was granted quickly. The researcher highlighted the integration of a pain assessment scale in nursing practice, emphasizing its significance and application. Participants were trained to use a numerical rating scale (0–10) to quantify postoperative pain in patients. The participants evaluated their pain six times a day and as necessary in the first 48 hours following surgery, with pain regarded as the fifth vital sign. They rated their post-operative pain before and after taking painkillers. For four weeks before the post-test, participants received continuous training, mentorship, supervision, and timely feedback.

Sample size

The study involved a population of 61 nurses, which was the maximum sample size achieved in accordance with the population size and legal considerations relevant to the characteristics studied. The sample size determination utilized Krejcie and Morgan's (1970) formula.

Outcomes

Integrating a standardized assessment scale is anticipated to enhance nurses' knowledge and understanding of pain

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physiology, improve familiarity with validated pain quantifying tools, and increase their ability to interpret pain scores for better clinical decisions. Furthermore, a positive change in nurses' attitudes towards using a pain assessment scale may reduce misconceptions about pain expression, boost confidence in managing pain, and emphasize the importance of prioritizing effective pain control.

Enhancement of nurses' practice was achieved through consistent and accurate pain assessment, increased documentation of pain scores, and improved monitoring of patient responses to analgesics. This led to better patient outcomes, including enhanced pain relief, faster recovery, and reduced complication risks.

Additionally, there was improved interprofessional communication during handovers and discussions, collaboration with surgeons and anesthetists, standardization of practices across surgical wards, and strengthening of nursing professional competence.

Data collection

Data were collected using a structured self-administered questionnaire supplemented with standardized measurement tools (NRS). The questionnaire consisted of Likert-scale, multiple-choice, and numerical items designed to quantify the key study variables. Also, the researcher observed the practice using an observational checklist. For accuracy, data extraction from institutional records was also performed where applicable.

The self-administered data collection tool consisted of three sections: part 1: social demographic variables (age, gender, level of education, working experience as a nurse, working experience on the surgical ward, and training on pain management). Part 2: 20 questions to assess nurses' knowledge towards pain assessment. Part 3: 15 questions to assess nurses' attitude on post-operative pain management measured on a Likert scale with assigned scores: strongly agree (score 4), agree (score 3), disagree (score 2), and strongly disagree (score 1).

The participant's total percentage score was obtained on correctly answered knowledge questions and compared against the developed scale (70-100% indicates good knowledge, less than 70% indicates poor knowledge). To measure attitudes, two categories were made: negative attitude (disagreement), consisting of participant scores between 1 and 2, while positive attitude (agreement) was measured by responses 3-4.

A checklist was used both before and after the intervention to evaluate the practice and determine whether the assessment scale was comprehensive in relation to the patient's care. In line, sixty patient casebooks from various surgical wards were reviewed.

Data Management

Data from the paper-based questionnaire were entered into SPSS by the researcher. To minimize entry errors, the data was double-checked, and each entry was reviewed against the original questionnaire to ensure accuracy. SPSS variable and value labels were used to reduce the likelihood of coding errors. In addition, data validation procedures were applied within SPSS to identify inconsistencies, out-of-range values, and missing data points.

Analysis

Data analysis was conducted using SPSS, and the findings on the level of knowledge and attitude were presented in a frequency table, histogram, and pie charts. The results from the pre- and post-test findings were presented in charts (histograms). The independent t-test was conducted to determine the statistical difference in nurses' knowledge and attitude towards the educational intervention pre- and post-intervention.

Validity and reliability

Validity was ensured through the supervisor's review, content validation, and piloting of the data collection instrument. The questionnaire incorporated previously validated scales, with items reviewed for clarity, relevance, and cultural appropriateness. Reliability was maintained by calculating the alpha coefficient to determine if the pretest had accurately measured the variable of interest. Applicants were trained to ensure uniform administration, and all variables were operationally defined to promote accurate and consistent measurement."

Assignment Method;

As the study employed a quantitative quasi–experimental design, participants were not randomly assigned to study conditions. Instead, nurses were included based on their ward placement, which functioned as the grouping structure. Participants were drawn from seven surgical wards: Ward A (10), Ward B (10), Ward C (10), Ward D (10), Ward E (10), Ward F (5), and Ward G (5). This non-random assignment reflects the real clinical environment and allows comparison of nurses across different ward contexts.

To reduce imbalance across groups, the sampling distribution across wards was monitored to avoid overrepresentation from any single ward. Inclusion and exclusion criteria were applied uniformly across all wards.

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Several strategies were implemented to minimize bias: uniform inclusion criteria were applied, and all nurses present during daytime shifts were eligible, reducing systematic differences between included and excluded staff. Sampling across multiple wards helped improve representativeness within the surgical department. Following, data collection was conducted during the same time period (daytime shifts), using a standardized and validated questionnaire to ensure consistency. All participants received identical instructions, and data collectors adhered to a uniform protocol. Besides, participation was voluntary, secrecy was assured, and nurses were encouraged to respond honestly without fear of reprisal. Lastly, collecting data from multiple wards and comparing demographic variables across groups allowed identification and statistical adjustment for potential confounders where necessary.

Blinding (masking)

Since the design was quasi-experimental, full double-blinding was not feasible. However, procedural blinding at two levels (participants, investigator) helped reduce observer, intervention, and evaluation bias.

Unit of Analysis

The unit of analysis was based on the individual nurse. Each nurse served as the smallest unit from whom data were collected and analyzed to assess the effects of integrating the pain assessment scale on postoperative pain management, Knowledge, Attitudes, and Practices (KAP). Although nurses were sampled from different surgical departments (e.g., general surgery, orthopedics, obstetrics–gynecology), the intervention effects were evaluated at the individual level, not at the departmental level.

Because each nurse completed the KAP assessment independently and received exposure to the pain assessment scale based on their department's implementation stage, the analysis treated nurses as individual data points, departments only as sampling clusters or stratification levels, and intervention exposure as an individual-level variable.

Accordingly, all statistical analyses (descriptive & comparative) were performed using individual nurse responses as the primary unit, allowing the study to measure how the intervention influenced personal knowledge and practice rather than departmental averages.

Ethical consideration;

Ethical approval for this study was obtained from the research review board of Uganda Christian University, Mukono Ethical Review Board, which is the institutional body responsible for reviewing and approving health-related research. The study received ethical clearance under Reference Number: UCUREC-2022-329 on 25th August, 2023. Permission to conduct the study was also sought from the hospital administration and the heads of the surgical departments.

Results:

Participants;

Flow of Nurses Through the Study

Assessed for eligibility (n = 61)
|
Excluded (n = 1)
- Declined to participate (n = 1)
|
Eligible nurses (n = 60)
|
Allocated by department
|
Intervention group (n = 60)
A (n = 10), B (n = 10), C (n = 10),
D (n = 10), E (n = 10), F (n = 5), G (n = 5)
|
Received intervention
(pain assessment scale) (n = 60)
|
Completed follow-up (n = 60)
|
Included in final analysis (n = 60)

All eligible nurses were allocated to the intervention group and completed follow-up; no losses were recorded.

The study enrolled 60 participants, of whom the researcher studied the demographic characteristics of each one, thus including age, gender, qualification, working experience, and orientation to pain assessment scale as indicated in Table 1.

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Table 1: Demographic characteristics of participants

Variables	Frequency	Percentage
Age category		
24-33	41	70%
34-43	12	23.33%
44 - 54	4	1.67%
> 53	3	5%
Sex of respondents		
Male	12	19.7 %
Female	48	80.3 %
Qualification of respondents		
Certificate	39	63.9 %
haDiploma	20	34.4 %
Degree	01	1.6 %
Working experience		
<8 years	45	75%
>8 years	15	25%
Orientation to pain assessment		
CPD	12	19.7%
CNE	30	49.2%
Others	18	18%

Table 1 reveals that 41 (70%) were between the ages of 24 and 33, and 48 (80%) were female. Furthermore, the majority of responders (75%) held certificates, had fewer than 8 years of work experience, and many received training in pain assessment through ongoing nursing education.

Pre and post-test of Knowledge regarding Postoperative Pain Management on the Surgical Ward

The study indicated that in the Pretest majority of the participants had low knowledge of what the different scores meant on the NRS scale. Findings revealed that a majority, 36 (60%) of the participants referred to score 7 as unmanageable pain, while 32 (53%) referred to score 2 as no pain at all. Posttest results showed that there was an improvement in knowledge after the intervention. The study found that the majority, 38 (63%), referred to score 7 as manageable pain, and the majority, 35 (58%), referred to score 2 as the existence of some pain.

The difference in the individual scores shows a positive change in knowledge levels pertaining to the different questions of the NRS. This is shown in Table 2.

Table 1 Pre and post scoring post-operative pain in the surgical ward.

Questions	*Pretest %*		*Posttest %*	
	Yes	No	Yes	No
Seven is an unmanageable pain on the NRS.	36 (60)	24(40)	22(37)	38(63)
On the NRS, six denotes severe pain	35(58)	25(42)	23(38)	37(62)
Does 2 on the NRS denote no pain at all?	32(53)	28(47)	25(42)	35(58)
On the scale of 0-10, post-operative patients with 5/10 do not need any analgesics.	37(62)	23(38)	16(27)	44(73)
NRS 3 represents mild pain	56(93)	4(7)	48(80)	12(20)

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Today is Phillips's 1st postoperative day, and as you enter his room, he smiles at you and continues talking and joking with his visitor. Is his pain intensity 10 on the NRS?	41(68)	19(32)	21(35)	39(65)
A patient reports, "I think about my pain all the time and give up many activities because of it." Is it right to score her 8 on the NRS?	46(77)	14(23)	40(67)	20(33)
Miss N.B.M. said that "my pain bothers me, but I can ignore it most of the time. Could it be fine to score the pain as "5/10 "on the NRS?	36(60)	24(40)	44(73)	16(27)
Today marks Mr.P.M.'s 1st postoperative day. He is discovered peacefully in bed, curled up in the fetal posture, grimacing as he turns. Is it accurate to rate him at 8?	51(85)	9(15)	40(67)	20(33)
If a patient sleeps with no movement postoperatively, this indicates that the patient is not in pain.	36(60)	24(40)	36(60)	24(40)

Practices towards management of postoperative pain among nurses at Mengo Hospital

From the study, it was found that at the pre-test, some respondents had low knowledge of postoperative pain management. For example, 25 (42%) of the respondents didn't know that Non-drug interventions, for example, music, heat, and touch, are very effective for mild to moderate pain control. Additionally, 23 (38%) of the respondents didn't know that the patients needed to be assessed individually to determine cultural influences in pain expression.

At post-test, the percentage of respondents who didn't know that Nondrug interventions, for example., music, heat, and touch are very effective for mild to moderate pain control decreased to 14 (23%) while those who didn't know that the patients needed to be assessed individually to determine cultural influences in pain expression decreased to 9(15%). This is shown in Table 3.

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Table 3: Pre and Post-test assessment of postoperative pain management among nurses at Mengo Hospital

Variable	*Pretest %*		*Post-test %*	
	Yes	*No*	*Yes*	*No*
Typically, patients who can be distracted from their pain do not experience severe pain.	*48(80)*	*12(20)*	*40(87)*	*20(33)*
Following administration of a first dose of an opioid analgesic, the following doses should be modified based on each patient's response.	*49(82)*	*11(18)*	*58(87)*	*2(13)*
For treatment of mild to moderate pain, non-drug therapies like touch, heat, and music are particularly beneficial.	*35(58)*	*25(42)*	*46(77)*	*14(23)*
Pain should be assessed before and after administering drugs.	*52(87)*	*8(13)*	*59(98)*	*1(2)*
Vital signs are always reliable indicators of the intensity of a patient's pain	*45(75)*	*15(25)*	*56(93)*	*4(7)*
Physical assessment is part of pain management	*46(77)*	*14(23)*	*52(87)*	*8(13)*
The most accurate judgement of the intensity of the patient's pain is the primary nurse.	*39(66)*	*21(34)*	*21(34)*	*39(66)*
Is the character, onset, location, and duration of pain important in pain management?	*56(93)*	*4(7)*	*59(98)*	*1(2)*
Observation is part of the method used in surgical pain assessment	*45(75)*	*15(25)*	*48(80)*	*12(20)*
Patients should be individually assessed to determine cultural influences in pain expression	*37(62)*	*23(38)*	*51(85)*	*9(15)*

Overall Effect of Educational Intervention on Nurses' Knowledge towards Post-operative Pain Management

The total knowledge scores for both the pretest and posttest are presented in the tables located in the appendix. The total knowledge of the respondents was determined and categorized under two levels, where below 79% denoted unacceptable knowledge and above 80% denoted acceptable knowledge, respectively. The pretest and posttest findings of knowledge levels are presented in Table 4.

Table 4: Comparison of pre- and post-knowledge

	Knowledge totals	
	Pretest	Posttest
Below 79%	96.7%	53.3%
Above 80%	3.3%	46.7%

Table 4 shows that the majority of the respondents (96.7%) had a low level of knowledge about postoperative pain management before the intervention. However, there was a notable improvement in the level of knowledge following the intervention, where the number improved from 3.3%(pretest) to 46.7% (posttest). A paired t-test was conducted to compare the means of the pre- and post-test knowledge to determine the significance. The findings are presented in Table 7.

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Table 5: Paired sample test

	Paired differences					t	df	Sig.(2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% confidence interval of the Difference				
				lower	upper			
Pair 1 Pretest & post-test knowledge	-11.333	14.982	1.934	-15.204	-7.463	-5.860	59	.000

Table 5 shows that the education intervention had a positive effect on the nurses' knowledge towards post-operative pain management (M= -11.333, SD= 14.982). t =-5.860, dt= 59, p= 0.01. The results suggested that the teaching intervention was statistically significant for the nurses' knowledge of postoperative pain management.

Nurses' Attitude towards Integrating the Pain Assessment Scale for Post-Operative Pain Management

The results show that at pre-intervention, the nurse's attitude towards integrating the Pain Assessment Scale was poor. This was shown by the low (ranging from 1.2 to 1.57) mean score for 7 out of the 15 questions related to attitude. Post intervention, there was a higher mean score shown by the fact as 5 out of the 15 questions related to attitude had mean scores ranging from 3.15 to 3.38.

The results from the t-test showed that there was a statistically significant change in attitude during post-intervention among the participants. This is shown in Tables 6 and 7, respectively.

Table 6: Pretest and post-test attitude toward post-operative pain management

Questions	*Pretest*		*Post test*	
	M	SD	M	SD
I anticipate pain in all surgical procedures before I assess and treat pain in a patient.	2.75	1.009	3.38	.715
If a patient's thoughts are distracted from pain, they usually do not suffer from severe pain.	2.55	1.080	2.88	1.027
Using pain measurement instruments is integral to post-operative pain management	2.98	1.033	3.17	1.011
Elderly patients are not able to cope with opioid analgesics for pain relief.	1.57	.500	1.77	.427
Before using an opioid analgesic, I will encourage the patients to wait a while longer till the next dose.	1.55	.050	1.63	.486
I always agree with the patient's self-report of pain	2.82	.965	3.25	.773
Lack of expression in the post-operative patient means lack of pain	1.63	.486	1.62	.490
Patients suffering from POP always complain to the primary nurse	1.45	.502	1.63	.486
Your visual assessment of the patients reporting pain influences your response and treatment of POP	2.73	1.039	1.63	.586
Patients complaining of pain is not my priority when I am busy	1.20	.403	3.15	.709
The type of surgery done affects your response to pain management.	2.47	1.200	3.15	.709
Women exaggerate post-operative pain during assessment.	1.75	.437	3.17	1.011

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Morphine is a very strong drug. Post-operative patients are not expected to feel pain when receiving it.	1.70	.462	1.77	.427
Nurses should rely exclusively on patients' assessments to determine pain intensity	2.57	1.125	2.68	1.049
The spiritual beliefs of patients may determine how they respond to pain	3.17	1.011	1.73	.446

Table 7: T-test statistic for pre-post attitude toward post-operative pain management

	Paired differences							
	Mean	Std. Deviation	Std. Error Mean	95% confidence interval of the Difference		t	df	Sig.(2-tailed)
				lower	upper			
Pair 1 Pretest & post-test knowledge	-10.933	11.324	1.462	-13.859	-8.008	-7.479	59	.000

The statistical output above shows that the difference between pre- and post-intervention attitude was statistically significant (t =-7.479, df 59, P-value=.000). The results suggest that the teaching intervention improved the nurses' attitude towards post-operative pain management.

Nurses' Practice towards Post-operative Pain Management at Mengo Hospital.

We found that Pretest, all the respondents didn't assess pain intensity for patients who can communicate. More still, none of the respondents used the PQRST to assess pain. Posttests, this changed. We noted that after the education intervention, 53% assessed pain intensity for patients who can communicate and 87% used PQRST to assess pain. This is shown in the table below.

Table 8: Pretest and post-intervention practice regarding post-operative pain management

Activities during pain assessment and management	Pretest %		Posttest %	
	Done	Not done	Done	Not done
Provides direct nursing care to POP patients	41.6	58.4	75	25
Assesses pain intensity for patients who can communicate	0	100	53.3	46.7
Assesses pain using the PQRST	0	100	87.0	13.0
Assesses pain using a pain assessment tool	0	100	73.3	26.3
Clearly documents pain assessment findings using a numeric rating scale	0	100	46.7	53.4
Explains clearly to ensure the patient understands the pain levels on the scale	0	100	51.7	48.3
Communicates findings with the relevant authority	0	100	56.7	43.3
Agrees with patients' statements about their pain	30	70	48.3	51.7
Probes to validate patients' statements about their pain	0	100	28.3	71.7
Educates patients about pain management strategies (list for each checklist)	0	100	41.7	58.3
Reassess the pain level after intervention	11.7	88.3	43.3	56.7
Involves the patient and family in the pain assessment plan	48.4	51.6	48.4	51.6
Documents treatment modality for pain	0	100	60	40
The impact of pain on functionality is documented	0	100	58.3	41.7

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Discussion

The objective of this study was to determine how the pain assessment scale integration affected the. Nurses' knowledge, attitudes, and practices about post-operative pain care in the surgical ward at a low-resource center. The results raise concerns about the respondents' low level of knowledge according to Bloom's taxonomy regarding how to manage patients' postoperative pain.

Nurses' knowledge of the management of post-operative pain

The study results show that there was a low knowledge level pre-intervention in the management of post-operative pain among nurses at Mengo Hospital, which improved post-intervention. This finding may be explained by the fact that the majority, 38(63.3%) of the nurses, could not correctly rate post-operative pain on the Pain Assessment Scale. This low level of knowledge among nurses improved 24(40%) after the intervention of training the nurses on an integrated Pain Assessment Scale. This finding also compounds the fact that education or training is one of the key interventions to improve the ability of nurses to assess and manage pain. This is further shown in a study done by Sigakis et al. Al (2015), who in their study of Ten Myths and Misconceptions Regarding Pain Management in the ICU, found that ongoing education is critical to overcoming barriers to adequate pain assessment and management (Sigakis & Bittner, 2015)

Additionally, the majority, 56(93%)of the nurses thought that vital signs were valid measures of patient pain intensity, and that the physiological changes in vital signs were reliable indicators of the presence of pain, and that patients who can be distracted from pain typically do not have severe pain, and believed that people with severe pain cannot sleep. This finding is similar to that by Samarkandi et al 2018 in a study conducted in Saudi Arabia. (Samarkandi, 2018). Also, the current study revealed that the majority, 39(66%) of the respondents believed that accurate pain assessment is hampered by nurses' belief or judgment that shifts in vital signs are a reliable indicator of a patient's level of suffering. On the contrary, patients can obtain successful pain management if pain evaluation and management techniques based on scientific knowledge and research are applied consistently to patient care. This can prevent stress and dissatisfaction with patient care. (Xu et al., 2025).

Nurses' attitude towards post-operative pain management

In this study, nurses had a low attitude towards post-operative pain management pre-intervention and a higher attitude post-intervention, respectively (M=60.72, SD=7.095, M=71.65, SD=7.688, SD=7.688 = -7.479, dt=59, p=000). The low attitude pre-intervention may be attributed to the fact that majority of the participants fell in the category of responses which indicated a poor attitude for example; majority of the participants admitted; to waiting a while longer till the next dose of analgesia is being administered to a post-operative patient in pain, lack of expression in the post-operative patient mean lack of pain, Patients suffering from POP always complain to the primary nurse, Patients complaining of pain is not my priority when I am busy. This finding is similar to Samarkandi et al. (2018 who found that nurses had a negative attitude towards pain and its management in a study done in Saudi Arabia.

Besides, the majority (M =1.73, SD = .446) of participants were against the opinion of women having exaggerated post-operative pain during assessment. This finding disagrees with the opinion that pain is subjective and discourages generalization of patients' care for properly managing post-surgical pain. Much as recent studies suggest that women seem to be at higher risk of developing postoperative pain compared to men, research findings have been reported to be inconsistent and vary according to the surgical procedure, citing confounders and differences in methods for post-operative pain assessment. (Pereira & Pogatzki-Zahn, 2015) More still, most (M=1.77, SD=.427) survey participants accurately noted that patients' spiritual beliefs may affect how they perceive pain. In agreement, studies have shown that everyone has a unique cultural perspective and that nurses attending to patients who are in pain need to be mindful of any opposing influences, such as spiritual and religious views. This result is similar to that by Phillip et al in Ghana, who reported that the participants accurately accepted that some religious beliefs might influence patients' perceptions and expression of pain. (Abu et al., 2024).

Nurses' Practice in the Management of Post–Operative Pain

The study results reveal that a majority of 36(60%) of participants effectively documented the treatment modalities used for managing postoperative pain post-intervention. This aligns with the findings of Dessie et al. (2019), which emphasized that proper documentation is pivotal for effective communication among staff and plays a crucial role in planning therapeutic interventions. By ensuring that pain management strategies are well documented, healthcare providers can optimize post-operative care and better respond to patients' needs.

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Additionally, the current study's post-intervention analysis demonstrated a notable increase in the number of 44(73.3%) participants capable of utilizing the pain assessment tool, which is fundamental to effective pain management. When pain assessment is executed proficiently, it allows healthcare professionals to evaluate the effectiveness of the interventions applied, addressing the specific pain-alleviation requirements of patients. This change is significant, especially considering previous research by Choi et al. (2024), which identified inadequacies in pain assessment methods as a barrier to effective pain management. The results of our study strongly indicate that healthcare facilities must ensure that all nurses actively employ the pain assessment scale to enhance the quality of postoperative care.

However, it is essential to address the finding that the majority of 34(56.7%) of participants did not reassess patients' pain levels after intervention, whereas nurses are encouraged to conduct both pre- and post-intervention assessments; their ability to do so is often hindered by factors such as high patient loads and institutional culture that relegates documentation responsibilities primarily to physicians. These limitations significantly obstruct the implementation of effective pain management practices, emphasizing the need for systemic changes within healthcare institutions. This is in line with a study conducted to explore how patients' related obstacles affect the pain management practices of nurses in public Jordanian hospitals (Ibraheem K, M., Bashar I. A., & Seedahmed H.M., 2025).

Generalizability

The findings of this study demonstrate moderate external validity and can be reasonably generalized to similar clinical settings within Uganda and comparable lower- and middle-income countries (LMICs). Because the study was conducted among nurses working in multiple surgical departments within a Ugandan hospital, the results reflect real-world conditions typical of healthcare facilities in the region—such as limited staffing, variable workload, and evolving pain management policies. These similarities support the applicability of the results to other district, regional, and national referral hospitals with comparable organizational structures and postoperative care procedures. The integration of a standardized pain assessment scale represents a low-cost, scalable intervention. Given that many Ugandan health facilities use related pain documentation tools and follow Ministry of Health (MoH) guidelines that emphasize standardized postoperative pain assessment, it is likely that the improvements observed in nurses' knowledge, attitudes, and practices (KAP) could be replicated in other Ugandan surgical settings.

However, generalizability remains limited by the quasi-experimental cross-sectional design and the fact that sampling was restricted to a single institution. Therefore, caution is warranted when extending the results to:

- Private hospitals with different patient flows and resource availability.
- Rural health facilities with fewer trained surgical nurses,
- Countries with differing cultural perceptions of pain, differing clinical hierarchies, or inconsistent pain management policies.

Overall, the study offers valuable insights for strengthening postoperative pain management practices in Ugandan surgical wards and provides a practical model for other LMICs with similar healthcare delivery systems.

Conclusion

From the study results, there is a low knowledge and attitude level for post-operative pain management among nurses at this facility. The main areas that revealed the greatest knowledge gaps and shortcomings were the selection of opioids, the evaluation of pain, and the incorrect assessment of pain in the absence of behavioral expressions. There is a need to improve knowledge, attitude, and practice for pain management postoperatively. This may be achieved through nursing education and ongoing professional advancement/development.

Study limitations

Much as this study had limitations, including being a single-center study, which may limit generalizability and using non-probability sampling methods, it provides insights into the knowledge levels, attitudes, and practice gaps towards pain management among nurses for post-operative patients in low-resource settings.

Recommendations

The researcher recommends that an educational intervention of incorporating a pain assessment scale into the nurses' knowledge has a significant impact on the nurses' knowledge, attitude, and practice regarding postoperative pain management. Nursing schools should give nurses adequate, accurate knowledge about the assessment and management of pain. Additionally, a bigger study with a bigger sample size should be done to enhance generalizability.

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Overall Evidence

Results align with the point-of-care learning approach and clinical coaching.

The observed improvement in nurses' knowledge, attitudes, and practice (KAP) following the implementation of a standardized pain assessment scale is in line with the clinical-coach theory that practice change is accelerated by on-the-job, point-of-care supports and basic workplace tools. The standardized scale and checklist served as a low-burden, point-of-care learning assistance in the ward, according to Faithfull-Byrne, who characterizes clinical coaches as facilitators of real-time workplace learning who bridge the gap between evidence and daily practice.

Measurable behavior change is produced by system-level technologies with organized cues. Consequently, comprehensive assessment becomes routine rather than optional, thanks to the cognitive scaffold provided by the PQRST approach and a standardized checklist. This is consistent with more extensive research showing that straightforward system-level interventions (checklists, prompts, and standardized tools) consistently increase assessment completeness and adherence to evidence-based procedures in clinical nursing. The intervention made it easier to do the "right thing" at the patient's bedside.

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List of abbreviations

PAS – Pain Assessment
POP - Postoperative pain management
NRS - Numerical Rating Scale
WHO - World Health Organization

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Conflict of Interest

There was no conflict of interest, as it was noted in my consent form that it was the participant's right to either participate in the study or not.

Author contributions

1. **Nabiwande Betty Musisi**: Conceptualization, data collection, methodology, investigation, Formal analysis, Writing original manuscript draft.
2. **Dr. Faith Sebuliba**: Supervision, review & editing of manuscripts.

Author Biography

Nabiwande Betty Musisi is a dedicated Health Tutor at Mengo Hospital Training Institute, serving in the Department of Nursing. She holds qualifications in PGDME, MNS, BScN, and is a Registered Nurse. Her professional and research interests lie in Medical-Surgical Nursing and Obstetrics, with a strong focus on enhancing clinical practice through education and evidence-based interventions. Betty has led initiatives in continuous medical education, particularly in postoperative pain management, and has contributed to the development and implementation of pain assessment tools aimed at improving patient outcomes in low-resource settings.

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