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Pain Management Knowledge, Attitudes, and Practices among Nurses at Referral Hospital in Selangor

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ABSTRACT

Medical ward nurses at a referral hospital in Selangor completed a cross-sectional questionnaire on pain management. The reanalysis used the 151 responses that reproduced the submitted sample and scores. The seven-point questionnaire contained four knowledge, seven attitude and 36 practice items. Reverse-scoring the item about reserving larger analgesic doses lowered the knowledge mean from 5.42 to 4.85 per item. Attitudes averaged 5.98 and self-reported practice 6.16 per item. On the dosing statement, 80 nurses (53.0%) chose one of the two strongest agreement responses. The exploratory age comparison yielded H = 8.744, permutation p = .029 and Holm-adjusted p = .173. A dosing scenario can test the reasoning behind the questionnaire response. Ward observation or chart review would help assess how staff actually administer and reassess prescribed analgesia.

1. Introduction

Nurses assess pain, administer prescribed analgesia, reassess patients after treatment and escalate unresolved symptoms. Studies in critical care and other hospital settings have identified difficulties in pain assessment and medication decision-making, including reliance on physiological signs and uncertainty about opioid use [1-4].

Pain care depends on how nurses weigh the patient's report and their concerns about analgesic safety. Surveys from Saudi Arabia, Ethiopia and Qatar describe gaps in knowledge and attitudes [5-7]. Ward procedures also shape the opportunities nurses have to assess pain and document the response to treatment [8-10].

Malaysian studies have examined operating theatre nurses and postoperative pain management in a private hospital [11,12]. General medical wards care for patients with a wider range of pain presentations. This study described pain management knowledge, attitudes and self-reported practices among general medical ward nurses in a Selangor referral hospital and explored whether reported practice scores varied across demographic and training groups.

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Surveys in postoperative, emergency and cancer care have also examined nurses' knowledge and attitudes. Their different clinical settings support studying general medical ward nurses as a distinct group [13-16].

2. Methodology

2.1 Design and Participants

The survey took place in the general medical wards of a referral hospital in Selangor. Nurses in these wards care for adults with acute, chronic and disease-related pain. The researchers used a cross-sectional correlational design to examine differences in their questionnaire scores at one point in time.

The medical department had 184 registered nurses. Raosoft gave a minimum sample of 125 at 95% confidence and a 5% margin of error. The recruitment target was raised to 150 to allow for nonresponse, and the submitted sample contained 151 respondents. The study used stratified random sampling to represent nurses with different professional characteristics. Nurses had to provide direct care, have worked in their current ward for at least six months and give consent. Nonclinical staff, nurses on extended leave and nurses enrolled in a formal pain management certification programme were excluded.

2.2 Questionnaire and Scoring

Adapted knowledge, attitude, and practice questionnaires were used in this study, which were adapted from Alzghoul *et al*., [17] and consisted of four knowledge questionnaires, seven attitude questionnaires, and 36 practice questionnaires. The knowledge and attitude questionnaires were rated on a 7-point scale, with 1 being strongly disagree and 7 being strongly agree. The practice items were rated on how often the activity was performed, with 1 being never and 7 being constantly.

For knowledge, attitude and practice domains the scores were sum of scores on all items in that domain. Mean item score was then calculated by dividing total score of a domain by number of items in that domain. The mean item score was on the original 1–7 scale. Score of 4 was the numerical midpoint of the original 1–7 scale. For knowledge and attitude domains higher scores reflected greater agreement with items. For practice domain higher scores reflected greater self-reported behavior for the items.

The first submission had the item on holding off on higher doses of analgesics until pain got worse reverse-scored. To test the effect of reverse scoring on knowledge, the researchers computed the mean knowledge score using the recorded responses, and then recomputed the mean knowledge score by subtracting each response to that item from 8. For the other three knowledge items they retained the original coding and computed Cronbach's alpha separately for each domain.

2.3 Data Collection and Analysis

The survey export contained 153 complete entries. The first 151 reproduced the demographic counts, domain means and standard deviations, and age-test statistic reported in the first submission. The researchers used those entries to reconstruct the submitted sample. Of the 151 entries, 20 were dated April and 131 were dated June. The two remaining entries were dated August. These dates differ from the July collection period reported in the first submission. Recruitment, pilot and ethics approval records are needed to confirm whether the April entries belonged in the main analysis.

The same account value appeared in several distinct entries. The researchers excluded the account field from the analysis and used timestamps to check the sample and collection dates. The export alone could not confirm that each entry came from a different nurse. To examine whether the choice of sample affected the age comparison, the researchers repeated the test using the June entries alone and then using all 153 entries.

The researchers used tie-corrected Kruskal–Wallis statistics to compare practice scores across six participant characteristics. For each comparison, they randomly reassigned group labels 19,999 times and included the observed arrangement when calculating the permutation p-value. This approach avoids relying on a large-sample reference distribution for the smallest groups. It assumes that responses are independent and that group labels are exchangeable under the null hypothesis. The researchers adjusted the six p-values using Holm's method. For age, they also calculated the rank-based effect estimate ((H - k + 1)/(n - k)), where (H) is the test statistic, (k) is the number of age groups and (n) is the sample size. The age comparison was exploratory, and the researchers drew no conclusions about differences between individual pairs of age groups.

3. Results

3.1 Participant Characteristics

Of the 151 nurses, 60.3% were aged 30–39 years, 88.1% were women and 63.6% were Malay. Just over half held a diploma (51.7%). Fifty-seven nurses (37.7%) reported attending pain management training in the previous three months. Table 1 shows the sample characteristics.

Table 1
Participant characteristics

Characteristic	Category	n	%
Age	20-29 years	19	12.6
	30-39 years	91	60.3
	40-49 years	37	24.5
	>50 years	4	2.6
Gender	Male	18	11.9
	Female	133	88.1
Ethnicity	Malay	96	63.6
	Indian	16	10.6
	Chinese	16	10.6
	Others	23	15.2
Education	Diploma	78	51.7
	Advanced Diploma	55	36.4
	Bachelor's degree	18	11.9
Clinical experience	<2 years	20	13.2
	2-4 years	16	10.6
	5-10 years	46	30.5
	>10 years	69	45.7
Pain course in past 3 months	Yes	57	37.7
	No	94	62.3

3.2 Domain Scores and Analgesic Item Responses

The researchers also reversed the analgesic item in Table 2. The raw mean for this item was 5.42 per item (matching the submitted results). After recoding the four items, the mean was 4.85 with a SD of the summed score of 2.83. The negative alpha (−.17) indicates that the four recoded items did not function as a single scale. Therefore, the individual items within the scale are of more value than the scale as a whole. The attitude and practice sets of items had higher internal consistency than the competency items, which measures the accuracy of the items rather than the competency of the respondents.

Table 2
Pain management domain scores in the reconstructed sample (n = 151)

Domain	Items	Possible sum	Sum, mean (SD)	Mean per item	α
Knowledge, raw	4	4–28	21.68 (4.30)	5.42	.68
Knowledge, analgesic item reversed	4	4–28	19.40 (2.83)	4.85	−.17
Attitudes	7	7–49	41.84 (5.93)	5.98	.86
Self-reported practice	36	36–252	221.93 (34.13)	6.16	.99

The survey did not observe when the respondent's administered analgesia. Therefore, the results of the survey are reported as the beliefs of the respondents on the administration of larger doses of analgesics. 80 out of 151 respondents (53.0%) selected either 6 (31.1%) or 7 (21.9%) for the statement about saving larger analgesic doses until pain worsens.

In addition to the highest rated actions of contacting a physician when pain persists and continuing to assess the patient's pain and medication effectiveness, nurses' practice questions assessed use of pain scales, reassessing of symptoms, positioning patients and explaining medication effects. These ratings reflect what nurses said they did.

3.3 Demographic Comparisons of Self-Reported Practice

Age was calculated using the submitted analysis (H = 8.744, df = 3). The asymptotic p-value was .033. The permutation p-value for the age-effect comparison was .029 (adjusted to .173 for the six comparisons). The effect size for the age-effect comparison was .039 (rank-based). For the four older respondents the omnibus test is not very helpful in determining which groups differ. The nominal permutation p-value for the age-effect comparison was .00075 (using the 131 June entries) or .033 (using all 153 entries). Thus, the sample definition and the recruitment period are crucial for interpreting these exploratory results.

Table 3
Exploratory comparisons of self-reported practice scores

Factor	Rank statistic H	Permutation p
Age	8.744	.0288
Gender	1.031	.3113
Ethnicity	2.584	.4643
Education	0.217	.8979
Clinical experience	4.229	.2359
Pain course in past 3 months	0.050	.8231

4. Discussion

The four-item average was used to conceal a specific dosing belief. Over half of the respondents said they would reserve larger analgesic doses for when pain gets worse, a decision educators can use to evaluate students in a case study. Hospital studies have found gaps in knowledge about pain and analgesia and misconceptions about analgesia [1,3,4]. These questions also addressed issues that arise in situations where dosing is straightforward.

For example, can a patient be in pain without showing it? How do you discuss addiction with a patient? What kind of supportive or nonpharmacological measures can you offer? These types of questions can be used to select cases for study as well as literature regarding patient reporting and complementary approaches [5,18].

The results of the survey were expressed as practice ratings. Reviewers could look for a documented pain assessment and reassessment after treatment, then observe how staff responded when pain persisted. Previous studies have looked at the documentation of pain as well as links between nurses' knowledge and pain management outcomes [10,19]. No observed performance or patient outcomes were collected as part of this survey.

4.1 Implications for Nursing Practice

A training exercise could use a case in which a patient still reports pain after treatment. Ask the nurse what they would check in the prescription, how they would reassess the patient, what actions the order and ward policy permit, and when they would escalate. The educator could assess the nurse's reasons for selecting a dose or delaying it, including whether the delay is intended to reserve a larger dose for later. The exercise could also assess how the nurse documents reassessment and monitors for adverse effects.

A randomised study compared electronic and lecture-based pain education [20]. The wards could use the same case to assess how well nurses explain their dosing and reassessment decisions after either form of training.

4.2 Limitations and Future Research

One of the limitations was that the survey was conducted in only one medical department. Furthermore, this survey requires the nurse to recall and their social desirability may influence how they carry out the tasks. Additionally, the four knowledge items cover limited area for knowledge. The researchers estimated reliability and the standard deviation using the coding applied in the reanalysis. The full scoring key still needs to be verified. The original eligibility, pilot and ethics approval records are also needed to confirm which responses belonged in the study sample. Because

the same account value appeared in multiple entries, the researchers could not verify that those responses came from different participants. This uncertainty limits the interpretation of the exploratory tests.

Future studies should recruit more nurses from underrepresented age groups to estimate differences between groups more precisely. Researchers should specify the age comparisons in advance, report confidence intervals, and adjust for multiple comparisons when testing pairs of age groups. Direct observation, chart reviews, and patient outcomes could help determine how nurses' questionnaire responses relate to bedside practice and patient care.

5. Conclusion

The clearest priority for training was when to administer analgesia. In the reconstructed sample, 53.0% of respondents agreed or strongly agreed with reserving larger doses until pain worsened. The recoded knowledge items showed poor internal consistency, and the practice ratings were self-reported. These limitations make it difficult to draw conclusions about clinical competency. The age finding also varied depending on which responses were included, so it should be interpreted as exploratory.

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Conflict of Interest Statement
The authors declare no conflict of interest.

Ethics Statement
This study was conducted in accordance with accepted ethical research standards. Ethical approval was obtained from Open University Malaysia under approval number OUM-RPMU/2.7/379.2/EA2018/Mei2026(050). Approval was also obtained from the Medical Research and Ethics Committee through the National Medical Research Register under NMRR ID 26-01395-JGP (IIR). The submitted study documentation states that participants received study information and provided informed consent. Approval dates and the status of the April responses require author verification. Participation was voluntary, the account field was excluded from the analysis, and confidentiality and anonymity were maintained. Electronic data were stored securely and used solely for academic research purposes.

Author Contribution Statement
Bong Siaw Hui contributed to the investigation, data collection, data analysis, interpretation of findings, and preparation of the original manuscript. Joemmaicca Augustta Joggery contributed to the conceptualization, methodology, supervision, interpretation of findings, and critical revision of the manuscript. Sarina Jamalluddin contributed to the methodology, interpretation of findings, and critical review of the manuscript. Manjit Kaur Khaira and Kala Raani Chandra Guidan contributed to the scholarly review, interpretation of findings, and critical revision of the manuscript.

Declaration on the Use of Artificial Intelligence

ChatGPT (OpenAI) assisted with language editing, manuscript restructuring and statistical reanalysis of survey responses. The authors should verify the calculations and review the final text before submission.

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