⁜ RESEARCH PAPER ⁜

A quantitative study of Iranian nursing students' knowledge and attitudes towards pain: Implication for education

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Rahimi-Madiseh M, Tavakol M, Dennick R. *International Journal of Nursing Practice* 2010; **16**: 478–483
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It is well documented that pain management and pain assessment is an indispensible part of the nursing care of patients. This study sought to quantify the current knowledge and attitudes of nursing students in Iran about pain management. We conducted a cross-sectional study using a well-validated questionnaire entitled the 'Knowledge and Attitudes Regarding Pain Tool', previously used to evaluate undergraduate nursing students. Results from the survey questionnaire showed that there was a severe deficit in knowledge relating to pain and its management. It is argued that there is a real need for improving the content of pain and its management in the undergraduate nursing education curriculum, which might improve the delivery of optimal nursing care of patients. The limitations of the study are discussed and some recommendations are made for reforming pain management education for future practice.

Key words: attitudes, knowledge, pain, undergraduate nursing education.

INTRODUCTION

The most feared sequelae for patients and their families is pain, and nurses might be the only hope for patients to alleviate their pain. It has been well documented that patients' pain management is central to the delivery of high-quality nursing care. Pain can affect patient satisfaction, shorten hospital stays, decrease costs of care and reduce readmission.[1–4] Pain is best managed with a collaborative relationship between nurses and physicians and nurses have an active and pivotal role in the daily, ongoing use of opioid analgesics.[5] Furthermore, lack of knowledge and positive attitudes regarding pain management care by nurses is considered as professional mis-practice.[6] It is a moral, ethical and professional commitment for nurses to assess and relive the patient's pain and suffering

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appropriately. This is consistent with the Joint Commission on Accreditation of Health Care Organizations, asserting that patients have the right for their pain to be assessed and managed in a way that is appropriate, and staff have a responsibility and positive attitudes towards each patient's right to pain alleviation.[7]

There is a large body of evidence indicating the importance of nursing knowledge and attitudes regarding the pain management of patients and how behaviours learned from pain management education transfer into the clinical setting.[8–13] Therefore, it is indispensable that hospital policies, physicians' orders and regulating nursing bodies pay sufficient attention to the nurses' role in assessing and managing patients with pain symptoms. Carrying out these roles requires that nursing students achieve a comprehensive tacit knowledge of pain and its management in an undergraduate course of nursing study.

It appears, however, that the content of pain management education is not sufficient in the Iranian undergraduate nursing education curriculum to produce a confident, competent nurse for performing these essential roles. Little is known about the importance of pain management care in the practice and training of nurses in Iran, where the responsibility of nurses differs greatly from that of the West. The quality of pain management training does not reflect current international standards of nursing practice. For example, in a pharmacology course, only 3 out of 51 hours were devoted to teaching narcotic and non-narcotic medicines. Nevertheless, in the majority of nursing courses, students are familiarized with pain as a symptom of a disease by lecture-based methods. However, they are not allowed to prescribe any medicines, including narcotic and non-narcotic drugs. The amount of time that is devoted to teaching pain management in the nursing curriculum is unknown.

In this paper, we investigate the nursing students' knowledge and attitudes regarding pain to gain a clearer picture of some challenges relating to pain management education and the extent to which it is included into the Iranian undergraduate nursing education curriculum. To accomplish the objective of this study, the following research question will be addressed empirically: What is the current knowledge and attitudes of Iranian nursing students about pain management?

METHODS

We conducted a cross-sectional study using a well-validated questionnaire entitled the 'Knowledge and Attitudes Regarding Pain Tool' (KARPT).[14] The content validity of the KARPT has been established by review of pain experts. The content of the KARPT is derived from current standards of pain management such as the American Pain Society and the World Health Organization. Construct validity of the KARPT has been established by comparing scores of nurses at various levels of expertise such as students, new graduates, oncology nurses, graduate students and senior pain experts. The KARPT had a high reliability ($r > 0.80$). The overall coefficient alpha was 0.85 reflecting a very good internal consistency. The item difficulty was 0.73, reflecting the proportion of subjects answering correctly, which indicates that the test is relatively easy.[14]

The KARPT is a self-administered test with 36 items. Of these, 21 were true and false items and 15 multiple-choice questions. The KARPT includes two case studies that contain issues from real-world experiences of assessing and reassessing a patient. In the first case study, a patient smiles and jokes with visitors just 1 day after surgery. He rates his pain as an '8' on a scale from 0 to 10. Later, he demands extra pain relief for unrelieved pain. In the second case study, a patient indicates his pain intensity like the previous patient, but he lies quietly in bed and grimaces as he turns. He also requests further analgesia for reducing his pain. Students have to decide whether to refuse to give or manage his analgesia based on signs, behaviour and pain rating. The KARPT has been used in several settings and countries to evaluate pain management knowledge and attitudes among nurses.[15–20] These studies identified deficiencies in knowledge and attitudes of nurses about pain and its management. They also concluded that essential pain-related information needs to be embedded in the nursing education curriculum.

Following ethical approval from the research ethics committee, we translated the questionnaire into the Persian language and then back-translated into English by bilingual researchers to ensure the accuracy of the translation. The questionnaires were then administered to all nursing students in semesters 4 and above in two Iranian Nursing Schools at the end of a lecturer by the lead author. He explained the purpose of the study and emphasized that their participation was entirely voluntary and that there would be no negative consequences if they decided not to participate. The respondents also received a covering letter explaining the project and outlining their rights. Anonymity was maintained throughout. Responses

were received from 159 of a possible 205 students; 146 of these responses were useable.

In analysing the questionnaire, we avoided distinguishing between items that measured either knowledge or attitude. Many items such as one measuring the incidence of addiction really measured both knowledge and attitudes regarding addiction.[14] Therefore, we analysed the data in terms of the overall percentage of correct scores as well as analysing individual items. A one-way analysis of variance was computed to compare whether individual item differences were significant in the scores of students.

RESULTS

A total of 146 nursing students returned useable survey questionnaires. The vast majority of participants were female students. Nursing students' ages ranged from 19 to 38 years with a mean of 22.4 years. The typical student was a school leaver enrolled in a BSc degree in nursing (BSN). The vast majority of students reported that they had a work experience in a hospital (Table 1).

Overall, there was a group mean score of 37% correct. Graduate entry nursing students scored higher at 38% than school leavers at 37%, but not very strongly

Table 1 Distribution of background characteristics of sample

Variables	N	%
Age (Mean = 22.4, SD = 2.7)		
Below mean	111	76.0
Above mean	14	9.6
No response	21	14.4
Gender		
Female	126	86.3
Male	16	11.0
No response	4	2.7
Course degree		
SL	117	80.1
GEN	27	18.5
No response	2	1.4
Work experience in hospital		
Yes	111	76.0
No	29	19.9
No response	6	4.1

GEN, graduate entry nursing; SD, standard deviation; SL, school leavers.

($P = 0.42$). No students answered > 60% of the items correctly. Only 4.8% of students answered at least 50% correctly (Fig. 1). The analysis of data showed that > 50% of the students were knowledgeable on only 10 items (Table 2).

The majority of the items of the KARPT are pharmacology-based questions, which are important in the management of pain. Unfortunately, the students' knowledge of pain management was poor. No significant difference was found between the mean scores of school leavers and those of graduate students on pharmacology items. Two items addressed nurses' views of opioids and patients' addiction. Approximately 35.1% of the students were able to answer correctly that 1% of patients become addicted as a result of treating with opioid analgesics. Thirty-five per cent of students knew that a patient would request an increased dose of pain medication because they were experiencing increased pain.

Two patient case studies were used to explore tacit knowledge for making decisions regarding assessment data and interventions. In the first case, only 6.8% ($n = 10$) of the students documented the patient's stated rating correctly as 8 on a scale from 0 to 10. In the second case, only 18 (12.3%) of students marked the patient's stated rating correctly as 8 on the scale. Only 3 (2.1%) and 12 (8.2%) marked that they would 'administer morphine 3 mg IV now' on the basis of assessment data in the first and second case, respectively. In the first and second
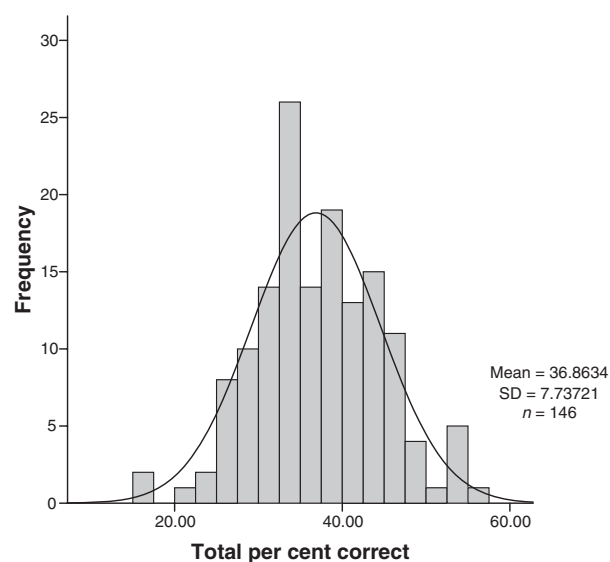

Figure 1. Frequency distribution of students' scores on the 'Knowledge and Attitudes Regarding Pain Tool'.

Table 2 Items answered correctly by 50% students

Items	Per cent correct
Vital signs are not always reliable indicators of severe pain	58.2
Respiratory depression is uncommon in patients who are taking opioids in the long term	52.1
Using combining analgesics to control pain and reduce side-effects	80.8
Phenergan does not increase the effect of analgesia	53.4
A patient's analgesic dosage should be adjusted in accordance with the individual patient's response	80.8
Patient's spiritual beliefs lead them to think pain and suffering are necessary	73.3
Tegratol does not produce optimal pain relief after a single dose	50.7
Benzodiazepines are not effective pain relievers unless for muscle spasm	56.8
Route for analgesic administration for cancer pain is oral	63.0
Morphine for treatment of prolonged moderate to severe pain for cancer patients	51.9

case, 97 (66.4%) and 66 (45.2%) students, respectively, would 'administer no morphine'. Further analysis showed that there was no significant difference between gender and work experience in hospital and the mean scores of students.

DISCUSSION

Research into pain related to nursing care is rare in Iran. This study investigated students' knowledge and attitudes towards pain and its management. According to the results, Iranian nursing students seem to have the least knowledge of pain assessment and pain management in comparison with international standards. The lack of adequate of pain-related knowledge exists in the management and assessment of pain, particularly, in regard to pharmacotherapeutics. Other researchers in other countries have reported similar results, which show a deficit in the knowledge of nursing students about pain.[13,21,22] We do not expect our nursing students to be knowledgeable about pain management, unlike graduate nurses who are expected to score 80% or higher on a test of knowledge.[9]

In this study, only 4.8% of students answered at least 50% of items correctly. This could be due do the fact that poor knowledge might be the result of inadequate pain management education. The pain management content of the Iranian undergraduate nursing curriculum is clearly not adequate to prepare nursing students to systematically assess, critically analyse and make sound nursing care decisions. The specific teaching time dedicated to pain management content is unknown. In Western countries, the mean knowledge of pain management scores in nursing students is higher than Iranian nursing students, even though the Western scores are still unsatisfactory despite improvements in nursing curricula.[13,23] Further research should aim to clarify whether students' pain management knowledge is indeed poor, or whether examiners set higher standard scores for graduate nurses. To determine whether or not nursing students have sufficient knowledge of pain and its management, we recommend the use of standard setting methods in order to set an absolute standard for a pain-based knowledge test.

Given the poor level of knowledge about pain management shown in this study, it is suggested that a comprehensive pain management education is necessary to improve pain knowledge understanding, which is grounded in pain assessment and management strategies. However, even if such an education emerges, the inadequate pain relief of patients will probably continue unless nurses are viewed as a collaborator with physicians in pain assessment and management rather than their assistants. Therefore, there is a serious need to promote physician–nurse collaboration to give students confidence to take responsibility for pain management. This suggests that we explore physician–nurse collaboration to develop best practice for managing patients with pain using qualitative and quantitative methods. This might also reduce tensions in the nurse–physician boundary concerning pain management.[24]

It has been proposed that effective pain assessment and pain management competencies must be based on scientific knowledge and research and systematically used in the nursing care of patients. Otherwise, patients might be treated ineffectively for pain, which in turn might lead to an increase in patients' stress and their dissatisfaction with nursing care.[25]

What is more, as there is a dearth of research into undergraduate and graduate nurses on their practice, knowledge and attitudes towards pain management in Iran, both qualitative and quantitative inquiry approaches

can help nursing educators to evaluate the pain content of the nursing curriculum for its accuracy and currency. This might increase the level of knowledge of effective management of patients' pain, which ultimately might lead to acceptable patient outcomes. Hence, research evaluation into factors related to the amount of time that is used to teach nursing students regarding pain, the evaluation of subject materials about pain management and pedagogic styles are recommended. Furthermore, it is necessary to evaluate standards of pain management in the undergraduate nursing education curriculum and then compare them with the Core Curriculum for Pain Management Nursing, which was developed by the Society of Pain Management Nurses. This might improve students' knowledge and attitudes towards pain management, which is indispensable for future patients' relief.[13]

The two clinical nursing case studies showed that students might assess the pain score of a grimacing patient in comparison with a smiling patient as indicative of increased pain even though both patients reported the same pain score. Results also showed that students gave a lower pain score to the smiling patient compared with the grimacing patient and administered less analgesia to the smiling patient. We agree with the argument that:

> *students may substitute their judgment for the patient's subjective judgment of pain*[13]

and this argument is consistent with the work of Chuk.[26] But the question is why the students would administer a lower dose or would never administer morphine to relieve pain in patents. There are two possible reasons for this. First, they are not adequately trained to understand the concentration of opioid doses and its administration. Prescribing medicine is not an integral part of the clinical care for nurses in Iran. The primary function of the nurse is to fulfil the physician's orders. Second, they are concerned that patients would become addicted by administering opioid analgesics. This study shows that students' knowledge of the actions, routes of administration, adverse effects, tolerance and dependence related to the clinical use of analgesic drugs is poor. We suggest therefore that the incorporation of the measurement of pain and dosing strategies to achieve rapid analgesia in patients with pain might contribute to more effective patient care. More education should be given to the responsibility that nurses should take about pain assessment and the administration of opioid analgesics within the Iranian undergraduate nursing curriculum.

Limitations

A cross-sectional survey investigation, such as this, inevitably has limitations. Although the participation of two schools is a positive advantage of this study, it should be noted that nurses in two selected schools might not represent the population of all nurses in Iran. Besides, the sample size among graduates might jeopardize the generalization of the findings. A replication of the study with a large and more representative sample of Iranian nurses students can add to our confidence about the external validity of the findings. Further studies are also required among Iranian nursing students to confirm the stability of our findings as this is the first study that examines the 'pain management' among Iranian nursing students. Another limitation might be that there were problems in translating the questionnaire into Persian and that this could have caused some cultural misunderstandings.

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