

Original Article

The Effect of Pain Management Training on the Nurses' Knowledge and Practices for Pain

Nese Uysal, RN, PhD

Assistant Professor, Amasya University Faculty of Health Science Department of Nursing, Ipekkoy, Amasya, Turkey

Tuba Yilmazer, RN, PhD

Yildirim Beyazit University Faculty of Health Science Department of Nursing, Ipekkoy, Amasya, Turkey

Correspondence: Nese Uysal, RN, PhD, Assistant Professor, Amasya University Faculty of Health Science Department of Nursing Ipekkoy, Amasya, Turkey E-mail: uysaln2007@hotmail.com

Abstract

Background: The control of pain which is a multidimensional problem can be achieved via constant training and team collaboration.

Objective: The purpose of this study is to determine the knowledge and practices of nurses working in internal medicine clinics, and to evaluate the effect of the pain management training on the knowledge and practices.

Methodology: In this study, quasi-experimental pre-test post-test research design was used. The inpatients with pain in internal medicine clinics and the nurses working in internal medicine clinics were taken as study samples. The data in this study were collected using introductory information form, brief pain inventory, and Pain Knowledge and Practice Questionnaire. Educational meetings were conducted with nurses by giving them a guidelines for pain management. Pain knowledge and practice questionnaire were completed to nurses before the study and after 3 months of the training.

Results: The rate of correct responses in the pain knowledge questionnaire increased after the pain management training. The differences in average scores before and after the training were found statistically significant. Besides, there was no significant difference in nurses' practices about pain management before and after training.

Conclusion: Trainings given to nurses for pain control is effective in improving the knowledge and practices for pain management. A well-structured and safe pain management program is suggested to increase the care quality related with pain management.

Key Words: nursing, pain management, training

Introduction

Pain is one of the health problems that people frequently experience in daily life (Breivik et al, 2009). Chronic pain is a long-acting pain, and negatively effects well-being and quality of life a person while acute pain contains protective mechanisms. Pain is among the important problems that need to be controlled because it causes sleep disorder, anxiety, fear, decline in functionality as well as it is a physical problem (Egan & Cornally, 2013; Uysal, 2018; Reis, 2012).

The basic element in pain control is the assessment of the pain with an interdisciplinary

teamwork and planning the pain management steps suitable for each person. Each individual is different and additionally, the process of pain control can develop differently every time. Because of the subjectivity of pain and the variances of reactions to pain by individuals, the assessment of pain and its control are not easy practices (Watson et al. 2000; Uysal, 2018; Babadag, 2013). The nurses who play an important role in pain control should use their assessment skills, communication skills, other non-pharmacological treatment practices for the maximum benefit of patients (Egan & Cornally, 2013; Young, 2006; Uysal, 2018). Additionally, nurses' practices related to pain can be affected

by many factors including nurses as well as the individuals with pain (Watson et al, 2000; Uysal, 2018). The most important of these factors is the knowledge levels and beliefs about pain (Prem et al, 2011; Egan and Cornally, 2013; Roche, 2016).

It is stated that effective pain control and relief could be achieved with enough pain assessment and interdisciplinary teamwork. Besides that, it was reported that pain was not managed in all patients in contrary to the improvements in pain management (Uysal, 2018; Prem et al., 2011). Factors arising from patients and healthcare professionals are important barriers to effective pain management such as lack of knowledge of healthcare professionals regarding pain management, lack of effective pain assessment, lack of awareness, inadequate communication with patients, and fear of tolerance and opioid dependence in patients and healthcare workers (Uysal, 2018; Mercadante, 2007; Egan, 2013). The lack of knowledge and experience in pain assessment was placed in the first lines among the factors preventing pain control. In the studies, it was stated that nurses generally did not have enough knowledge in subjects such as main principles of pain management, side effects or addiction, tolerance and dose adjustment (Ozer et al., 2007; Yu et al., 2007; Uysal, 2018). It was stated that nurses mostly considered verbal statements and did not use pain scaling factors. It was found that the nurses who used the scale to measure pain evaluated the pain of patients as lower than the patients. Although there were many studies demonstrating that nonpharmacological methods were effective in dealing with pain, nurses rarely used nonpharmacological methods or they never used (Egan & Cornally, 2013; Ozer et.al., 2006; Uysal, 2018).

The nurses are active team members in every stage of pain management such as assessment of the pain, planning the care, determining the institutional and clinic standards. It has been stated that nurses' knowledge and attitudes in pain are very important in pain management. Constant training, team collaboration and communication would make this possible (Kilic & Oztunc, 2012; Abdalrahim et al., 2011; Yucel, 2000; NCNN, 2012). The aim of this study is to determine the knowledge and practices of nurses working in internal diseases clinics about pain, and to evaluate the effect of the pain management training on the knowledge and

practices. The research questions are; (a) How is the knowledge and practices of nurses for pain management? (b) What is the effect of pain training targeting nurses on their knowledge and practices?

Methods

Design and Sample: This study was designed as a quasi-experimental study with a pretest and posttest without a control group. The research population constituted the nurses working in internal medicine clinics and the inpatients in internal diseases clinics of a training and research hospital. The criteria for including patients into this study were determined as; being above 18 years old, patients who have been hospitalized in internal medicine clinics for at least a week and having a pain level of 1 or above, being conscious, and having consent for participation within this study. The criteria for including nurses into this study was determined as; working in internal medicine clinics of the hospital where the study conducted and having consent for participation within this study.

Data Collection: Introductory information form, and knowledge and Pain Knowledge and Practice Questionnaire were implemented on nurses. Introductory information form and brief pain inventory form were implemented on patients.

Introductory Information Form: The introductory information form for nurses contained the information about nurses' age, gender, education level, professional experience, nurses' education about pain. The introductory information form for patients contained the information about patients' age, gender, marital status, chronic diseases, and the reason for their hospitalization.

Pain Knowledge and Practice Questionnaire: Knowledge and practices questionnaire had 2 parts. In the first part, 15 questions were prepared based on previous studies to investigate nurses' knowledge on pain management (NCNN, 2012; Uysal, 2018). The questions included knowledge that has yes/no answers. In the second part of the form, there were questions that evaluate nurses' pain assessment and clinic practices for pain management.

Brief Pain Inventory: Brief pain inventory is a tool for the assessment of pain in a multidimensional way. It assesses the presence, pain location, intensity, character and treatment responses of pain, especially in the last one

week. The patients were asked to define the intensity of pain from 0 to 10 within last 24 hours. Additionally, there were questions evaluating the percentage of relief after pain treatment and the effect of pain on their daily life activities. The study of Turkish validity and reliability of Brief Pain Inventory form was conducted by Celik et. al. in 2017 (Celik et. al., 2017).

Pain Education Training: In the first stage of the research, the patients' pain experiences and the nurses' pain managements knowledge and practices were evaluated. In this stage, all the accessible patients meeting the research criteria were assessed with brief pain inventory. Knowledge and practices form for pain were implemented to the nurses. In the second stage of the research, "Pain Assessment and Management" training booklet was created by researchers in the light of the finding and literature search (NCNN, 2012; Uysal, 2018; Pasero & McCaffery, 2011). The training booklet was prepared in 3 main sections; knowledge about pain and pain assessment, pharmacological methods (effects, symptoms, side effects, therapeutic doses of analgesics) and non-pharmacological methods in pain management. The training content was supported with images and figures. Three specialists in algology department gave their opinions about the content of booklet.

In the third stage of the research, "Pain Assessment and Management" training booklets were given to the nurses. Afterwards, the educational meetings with the nurses were conducted about the assessment of patients' pain and treatment based on the guiding training booklet. Three months after the training and meetings, knowledge and practices questionnaire for pain were completed to the nurses again.

Data Analysis: Data were evaluated using Statistical Package for Social Sciences (SPSS) 21 statistical software. Percentage measures and average values were used in the evaluation of the data. The data was analyzed by Wilcoxon signed-rank test, since the distribution of variables was not normal. Mc Nemar test was used in paired nominal data. Significance level was accepted as $p < 0.05$.

Ethical Consideration: The study was approved by an Education and Training Hospital Clinical Research Ethical Committee (2017/49). A written consent was taken from the hospital where the study was conducted. The data collection forms were filled face-to-face interviews after verbal consent was taken from the patients and the nurses.

Results

Patients' Pain Characteristic: The 50 inpatients in the hospital where the study was conducted were evaluated. 33 of 50 patients were excluded because they did not have any complains related to pain in the last one week. 17 patients who had pain with an intensity of 1 or above were included within this study.

The age average of the patients was 55.23 ± 16.54 ; 70.6 % of them were married; 70.6% of them had a chronic disease. Their reason for hospitalization was determined to be diabetes and diabetic feet, chest pain, osteomyelitis, pneumothorax, cerebrovascular disease.

The reason for 58.8% of patients coming to the hospital was pain. Pain location was stated as; leg (35.4%), foot (23.5%); chest (17.5), head (5.9%), waist (5.9%), neck (5.9%), groin (5.9%). Pain severity experienced by patients are indicated in Table 1. Additional symptoms accompanying pain were present in 23.5% of patients. These symptoms are; nausea (52.8%), fatigue (23.6), insomnia (11.8%) and numbness (11.8%). 88.2% of the patients received medication for pain symptoms. The effect of pain treatment on patients' pain reduction was determined as $63.5 \pm 18.0\%$. 29.4% of the patients stated that they used non-pharmacological methods to reduce pain. These methods were determined as relaxation (70.6%) and heat application (29.4%). The effect of pain on their daily life activities are shown in Table 2.

After the assessment of patients' pain were done, their pain control was not totally satisfied and their activity levels were affected although they got analgesic treatment. In the education meetings with the nurses, the results from patients were shared with nurses and they were considered during the preparation of educational materials.

Table 1. The pain severity of patients within 24 hours

| Pain severity | Mean ±Standard Deviation |
|----------------------------|---------------------------------|
| Worst pain severity | 6.52±2.57 |
| The lightest pain severity | 2.11±2.32 |
| Average pain severity | 4.17±2.21 |
| Current pain severity | 2.35±1.80 |

Table 2. The effect of pain on their daily life activities

| Daily Life Activities | Mean ±Standard Deviation |
|--------------------------------|---------------------------------|
| General activity | 4.17±3.47 |
| Walking Ability | 3.41 ±2.55 |
| Normal business life | 3.52±2.52 |
| Emotional | 3.47±2.62 |
| Enjoying life | 3.05±2.53 |
| Relationship with other people | 2.94±2.43 |
| Sleep | 3.05±2.53 |

Table 3. The correct answer percentage of nurses before and after pain education

| Knowledge questions about pain | Pre-Training | Post-Training |
|---------------------------------------------------------------------------------------------------------------|------------------------------|------------------------------|
| | Correct Response Rate | Correct Response Rate |
| Only those who experience pain can understand | 95 | 100 |
| A real pathology is needed for pain | 40 | 100 |
| Conditions such as sleep, anxiety reduce pain tolerance | 75 | 65 |
| Pain threshold is the same for all people | 70 | 100 |
| Patients who say they have severe pain may not always have physiological / behavioral symptoms | 90 | 90 |
| Analgesics should be given at regular intervals in painful patients and pain should not be expected to begin. | 80 | 100 |
| Respiratory depression is rarely seen in patients using narcotic analgesics | 70 | 95 |
| The patient, whose attention can be drawn in another direction, | 60 | 95 |

| | | |
|-------------------------------------------------------------------------------------|----|-----|
| has no pain. | | |
| Placebo applications have no place in the treatment of pain. | 45 | 70 |
| If a patient's pain goes away with placebo, his pain is not real. | 65 | 60 |
| Nonpharmacological methods are not effective in severe pain. | 70 | 90 |
| Sedatives are effective in reducing pain. | 90 | 100 |
| Nonpharmacological methods can be applied alone in the treatment of pain. | 70 | 100 |
| Nonsteroidal drugs should be used with caution in elderly individuals. | 90 | 90 |
| A painful patient should feel discomfort before giving the next analgesia medicine. | 70 | 90 |

Table 4. Nurses' practices for pain control before and after the training

| Nurse practice | Pre-Training | Post-Training | p |
|-----------------------------------------------------------|--------------|---------------|-------|
| Using scales in pain assessment | | | |
| Yes | 100 | 100 | 1,00 |
| No | 0 | 0 | |
| Comprehensive pain assessment | | | |
| Yes | 50 | 60 | 0,687 |
| No | 50 | 40 | |
| Asking about factors that reduce and increase pain | | | |
| Yes | 35 | 60 | 0,125 |
| No | 65 | 40 | |
| Decide on appropriate analgesic treatment | | | |
| Yes | 90 | 100 | 0,50 |
| No | 10 | 0 | |
| Assessing pain after analgesia | | | |
| Yes | 85 | 85 | 1,00 |

| | | | |
|-----------------------------------------|----|----|--------------|
| No | 15 | 15 | |
| Informing the patient about pain | | | |
| Yes | 40 | 80 | 0,021 |
| No | 60 | 20 | |
| Using nonpharmacological methods | | | |
| Yes | 35 | 65 | 0,70 |
| No | 65 | 35 | |

Nurses' Knowledge and Practices for Pain Management

The age average of nurses was 38.70 ± 3.97 ; all of them were women, 65 % of them had license degree. The nurses' average year professional experience was 15.17 ± 5.55 dir. All of the nurses previously had training about pain management.

When the nurses' answers to the questions within knowledge test were evaluated, it was determined that the percentage of answering almost all questions correctly was increased after the training. Only, there was a decline in the correct answers given to the questions of "reducing the pain with placebo" and "the factors decreasing the tolerance to pain".

The average knowledge score of nurses before and after the training was stated as 0.67 ± 0.15 and 0.81 ± 0.13 , respectively. The difference between the average knowledge score before and after the training was found statistically significant ($Z = -2.79$; $p = 0.005$).

The nurses' practices for pain control before and after the training is demonstrated in Table 4. Only, the practice of "informing the patient about pain" was significantly increased after the training ($p \leq 0.005$). The nurses' other practices for pain before and after the training were not significantly different. In our study, only half of the nurses stated that they did comprehensive pain assessment and the percentage of this practice before and after the training was not found statistically significant. The nurses' practice of "using nonpharmacological methods" in pain management was increased as a

percentage, however, any significant difference was not determined ($p \geq 0.001$). (Table 4).

Discussion

One of the fundamental elements in controlling pain is interdisciplinary teamwork and assessment of pain extensively. When the studies about assessment of pain, Er et.al. (2013) stated that 60 % of hemodialysis patients had pain symptom. It was determined that up to 70% of cancer patients, especially in terminal stage, experienced pain. In the study of Sawyer et. al., 25.8 % of inpatients had intensive pain (Sawyer et al., 2010). In the cross-sectional evaluation within our study, it was stated that 34% of the inpatients in internal medicine clinic had pain.

It was reported that knowledge level of nurses was significant in pain control and the training was effective for improvement of nurses' knowledge and practices for pain management (Chow, 2015; Latina, 2015; Zhang, 2008). In a study by Abdalrahim et al (2011) after the postoperative pain training given to the nurses working in surgical clinics, it was determined that the correct answer percentages of nurses given to knowledge questions increased (Abdalrahim et al., 2011). In the study evaluating the effectiveness of pain management program by Elshamy and Ramzy (2012) correct response rates increased after the training (Elsamy & Ramzy, 2012). In the study evaluating the effectiveness of pain training program by Zhang et. al., pain training program had a positive effect on nurses' knowledge and attitudes (Zhang et al., 2008). In their study, Hong & Lee (2014) determined that patients who had web-based pain manual and training sessions were better

compared to the control group. In our study, the average scores of nurses' knowledge tests were increased after the training.

In a study conducted by Zhang (2008) on nurses practices for pain management, it was stated that the use of pain assessment scale after training improved significantly. It was also determined that this development continued three months after the training. In our study, it was seen that the pain assessment scale was used by all nurses before and after the training. In addition, in our study, it was observed that the practice of deciding appropriate analgesic treatment was implemented by all of the nurses in the post-training period.

One of the roles of nurses in pain control is to give the patient information and training about pain. In our study, the practice of "informing the patient about pain", which is one of the practices of nurses for pain management, increased significantly after the training. Although there was no difference in "using of non-pharmacological methods" in pain management, the increase in the post-training period. In the literature, it was determined that 69.9% of the nurses did not use non-pharmacological methods in pain management (Ozveren et al., 2016). Similarly, in our study, it was seen that 65% of the nurses did not use these methods in the pre-training period, but this percentage was decreased down to 35% in the post-training period. Comprehensive pain assessment is important in pain management and addresses the physical, psychological, spiritual and sociocultural effects of pain. In our study, only half of the nurses stated that they performed a comprehensive pain assessment. After pain training, this rate did not increase significantly. Similarly, nurses should determine to what extent pain relieves after pain treatment. However, there was no significant increase in practice of "pain assessment after analgesic treatment" after training.

The reason for the lack of significant differences in nursing practices may be that nurses could not allocate sufficient time for pain assessment due to other nursing practices. Apart from training, different applications should be made for attitude change.

Conclusion: In our study, although the nurses' knowledge levels increased after the training, any significant difference was not determined in nursing practice. In addition to the importance of

having adequate information on pain management, healthcare providers should also change to facilitate the application of available information. In the process of planning for pain management, patients and their families should be included in this process and an open communication environment should be encouraged for the evaluation of pain state constantly.

Acknowledgement: The authors thanks to all participants.

References

- Abdalrahim M.S. Majali S.A. Stomberg M.W. & Bergbom I. (2011) The effect of postoperative pain management program on improving nurses' knowledge and attitudes toward pain. *Nurse Educ Pract*, 11(4):250-5.
- Babadag B. Balci Alparslan G. & Gulec S. (2015) The Relationship Between Pain Beliefs and Coping with Pain of Algology Patients. *Pain management nursing. Pain Management Nursing*, 16(6).
- Breivik H. Cherny N. Collett B. de Conno F. Filbet M. Foubert A.J. Cohen R. & Dow L. (2009) Cancer related pain: a pan-European survey of prevalence, treatment, and patient attitudes. *Ann Oncol.*, 20(8): 1420-1433.
- Celik E.C. Yalcinkaya E.Y. Atamaz F. Karatas M. Ones K. Sezer T. Eren I. Paker N. Gning I. Mendoza T. & Cleeland C.S. (2017) Validity and reliability of a Turkish Brief Pain Inventory Short Form when used to evaluate musculoskeletal pain. *Journal of back and musculoskeletal rehabilitation*. 30(2):29-233.
- Chow K.M. & Chan J.C. (2015) Pain knowledge and attitudes of nursing students: a literature review. *Nurse Educ Today.*, 35:366-72.
- Egan M. & Cornally N. (2013) Identifying barriers to pain management in long-term care. *Nursing Older People*, 25(7): 25-31
- Elshamy K. & Ramzy E. (2011) The effect of postoperative pain assessment and management monitoring program on surgical nurses' documentation, knowledge, attitudes, and patients' satisfaction at mansoura university hospitals. *Journal of American Science*, 7(12)
- Er M.S. Eroglu M. Cihan Altunel E. Altunel L. (2013) Hemodialysis and Pain. *Turk Neph Dial Transpl*, 22 (2): 167-170.
- Hong S.J. & Lee E. (2014) Effect of evidence-based postoperative pain guidelines via Web for patients undergoing abdominal surgery in South Korea. *Asian Nursing Research*, 8(2):135-142.
- Kilic M. & Oztunc G. (2012) Methods used in pain control and the role of the nurse. *Firat Journal of Health Services*,7:21. (in Turkish)

- Latina R. Mauro L. Mitello L. D'angelo D. Caputo L. De & Marinis MG et al. (2015) Attitude and knowledge of pain management among Italian nurses in hospital settings. *Pain Management Nursing*, 16:959-67.
- Mercadante S. (2007) Why are our patients still suffering pain. *Nat Clin Pract Oncol*, 4: 138-139.
- National Comprehensive Cancer Network. (2012). NCCN Clinical Practice Guidelines: Adult cancer pain. Retrieved from http://www.nccn.org/professionals/physician_gls/PDF/pain.pdf
- Ozveren H. Faydalı S. & Ozdemir S. (2016) Information and practices of nurses on pain control with non-pharmacological methods. *Turkish Journal of Clinics and Laboratory*, 7; 4: 99 – 105.(in Turkish)
- Ozer S. Aakyurek B. & Basbakkal Z. (2006) Examination of nurses' pain related knowledge, behavior and clinical decision making skills. *Pain*, 18(4):36-43 (in Turkish)
- Pasero C. & McCaffery M. (2011) *Pain assessment and pharmacological management*. New York, NY, Mosby Elsevier.
- Prem V. Karvannan H. Chakravarthy R.D. Binukumar B. Jaykumar S. Senthil P. & Kumar S.P. (2011) Attitudes and beliefs about chronic pain among nurses– biomedical or behavioral? A cross-sectional survey. *Indian Journal of Palliative Care*, 17 (3).
- Reisli R. (2012) Opioid use in non-cancer chronic pain. *Pain*,1
- Roche J, & Harmon D.(2017) Exploring the facets of empathy and pain in clinical practice: A Review. *Pain Pract.*, 17(8):1089-1096.
- Sawyer J. Haslam L. Daines P. & Stilos K. (2010). Pain prevalence study in a large Canadian teaching hospital. Round 2: Lessons learned? *Pain Management Nursing*, 11(1), 45–55.
- Uysal N. (2018) Clearing barriers in cancer pain management: roles of nurses. *International Journal of Caring Sciences*, 11(2): 1323.
- Young J.L. Horton F.M. & Davidhizar R. (2006) Nursing attitudes and beliefs in pain assessment and management. *Journal of Advanced Nursing*, 53(4): 412–421
- Yucel A. (2000) Nurseing role in pain control. S Erdine (Ed), *Pain*, İstanbul, Alemdar Ofset, I. Edition. (in Turkish)
- Yu H.D. & Petrini M.A. (2007) A survey Chienese nurses current knowledge of pain in older people. *Journal of Clinical Nursing*, 16(5):963-70.
- Zhang C.H. Hsu L. Zou B.R. Li J.F. Wang H.Y. & Huang J. (2008). Effects of a pain education program on nurses' pain knowledge, attitudes and pain assessment practices in China. *J Pain Symptom Manage*, 36(6):616-27.