

Evaluation of Postoperative Pain Management Practices from Senior Nursing Students' Care Plans

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ABSTRACT

To determine the practices of senior nursing students for pain management. The sample of this descriptive, retrospective study consisted of 108 care plans prepared by senior nursing students in a tertiary care center in 2017-2018 within the scope of Surgical Diseases Nursing clinical practices. Research data were collected from the determined care plans by using the "Patient Information Form" and "Pain Management Application Form for Students". The form consists of questions answered as yes/no, and the total score was calculated by giving a score of '1' for the answer of "yes", and '0' for the answers that were not specified. Each student's score was evaluated out of 100. When the pain management practices and care plan mean scores of the nursing students were evaluated, the nursing students who scored ≥ 70 were considered successful. Including the patient or family in the pain assessment (100%), describing pain symptoms (100%), using a valid/reliable pain scale (98.1%), severity of pain (98.1%), recording of pain assessment (%) 100) were the apps with the highest success rates. Expressing pain duration (3.7%), transmitting pain management data (1.9%), and diagnosing pain by cause (14%) were the least effective practices. Only 27.8% of the students scored ≥ 70 . It has been seen that the application information scores of students for pain management were low. In undergraduate nursing programs, Pain Management should be discussed through case studies within the framework of acute pain guides and awareness of the students in pain management should be increased.

Hemşirelik Son Sınıf Öğrencilerinin Bakım Planlarından Postoperatif Ağrı Yönetimi Uygulamalarının Değerlendirilmesi

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ÖZET

Son sınıf hemşirelik öğrencilerinin ağrı yönetimine yönelik uygulamalarını belirlemektir. Tanımlayıcı, retrospektif tipteki bu çalışmanın örneklemini, Üçüncü basamak bir bakım merkezinde son sınıf hemşirelik öğrencilerinin 2017-2018 yılında, Cerrahi Hastalıklar Hemşireliği klinik uygulamaları kapsamında hazırladıkları 108 bakım planı oluşturmuştur. Araştırma verileri, belirlenen bakım planlarından, "Hasta Bilgilendirme Formu" ve "Öğrencilerin Ağrı Yönetimi Uygulama Formu" kullanılarak toplanmıştır. Form evet/hayır şeklinde yanıtlanan sorulardan oluşmakta olup, "evet" yanıtı için '1', "hayır" ve "belirtilmeyen" yanıtlar için '0' puan verilerek toplam puan hesaplanmıştır. Her öğrencinin puanı 100 üzerinden değerlendirilmiştir. Hemşirelik öğrencilerinin ağrı yönetimi uygulamaları ve bakım planı puan ortalamaları değerlendirildiğinde ≥ 70 puan alan hemşirelik öğrencileri başarılı kabul edildi. Ağrı değerlendirmesine hasta veya aileyi dahil etmek (%100) ağrı semptomlarını tanımlamak (%100), geçerli/güvenilir ağrı ölçeği kullanmak (%98.1), ağrının şiddetini (%98.1), ağrı değerlendirmesinin kaydı (%100) en yüksek başarı oranlarına sahip uygulamalardı. Ağrı süresinin ifade edilmesi (%3.7), ağrı yönetimi verilerinin iletilmesi (%1.9), ağrının nedeni ile teşhis edilmesi (%14) en az etkili uygulamalardı. Öğrencilerin sadece %27.8'i ≥ 70 puan almıştır. Öğrencilerin ağrı yönetimi uygulama bilgi puanlarının düşük olduğu görülmüştür. Lisans hemşirelik programlarında ağrı yönetimi akut ağrı kılavuzları çerçevesinde vaka çalışmaları üzerinden tartışılmalı ve öğrencilerin ağrı yönetimi konusunda farkındalıkları artırılmalıdır.

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INTRODUCTION

Postoperative pain is an acute form of pain caused by surgical trauma. Previous studies have reported that 50 to 80% of patients in the postoperative period experience moderate to severe amount of pain (Adams et al., 2020; Erden et al., 2018a; Ünver et al., 2016). These rates indicate that pain can not be managed and treated effectively, despite recent technological and pharmaceutical advances (Wooldridge & Branney, 2020). Ineffective pain management is associated with many complications, adversely affecting patient outcomes and prolonging the duration of hospital stay (Nomura et al., 2021).

The “incurable” approach to pain is seen as an unethical, fundamental violation of the human rights (Skog et al., 2021). Nurses, who have an advocate role in protecting patients' rights, play a key role in pain management. The evaluation of pain (location, quality, time, increasing and reduction, etc.) is multidimensional and requires a personalized approach. Many studies show that nurses are inadequate during the pain evaluation phase. (Adams et al., 2020; Card et al., 2021; Erden et al., 2018b). A study conducted in a hospital in Sweden showed that the vast majority of nurses were inadequate in pain control, pain assessment and pain recording (Peterson et al., 2019). A Norwegian study found that the quality of postoperative pain recordings did not meet an acceptable standard (Dang & Stafseth, 2023). Studies conducted in the last 20 years have shown that nursing students do not improve their knowledge of pain and their attitudes towards pain management (Cousins et al., 2022). Nurses should closely monitor and evaluate the effect of pain and analgesia on the patient, the suitability of analgesia for the patient, and the patient's satisfaction while controlling pain (Erden et al., 2018b).

The literature supports the idea that one of the reasons for the inadequacy of nurses' pain management practices may be weak pain management theory and practice in undergraduate education. (Campbell, 2020; Chatchumni et al., 2022; Cousins et al., 2022; Karaman et al., 2019). Showed that incomplete/false information about analgesia can lead to wrong approach (Adams et al., 2020; Kodama et al., 2021) These results suggest that student nurses may have inadequate practices in effective pain management after graduation. The main roles of nurses in pain management are to define pain based on individual patient data, to evaluate pain, to perform pharmacological and non-pharmacological applications within the framework of legal responsibility, to monitor application results and to document pain. pain management process (Alsaqri, 2018).

In this context, awareness of nursing students on pain management should be enhanced before graduation and they should be encouraged to gain the skills to control pain (Cousins et al., 2021). Care plans usually use in pain management practices in line with the nursing process to make the practices visible and create a common language among health professionals (Midilli et al., 2019). As a key mechanism, care plans are a record of pain management to document the diagnosis, treatment, and interventions planned and implemented specifically for each individual patient. Translation of pain information into practice is critical in terms of processing the information. Many studies including nursing students have demonstrated that students' knowledge and practices about analgesia are also insufficient (Aslan & Dikmen 2020; Hancer & Yılmaz, 2020; Karaman et al., 2019). So, this study aimed to investigate the postoperative pain management practices of senior nursing students before graduation.

METHOD

Research Design

It was a descriptive and retrospective study that was conducted between February and May 2018.

Research Sample

This study was conducted at Department of Nursing, Faculty of Health Sciences of a tertiary care center. In our center, nursing students take the Surgical Diseases Nursing course in their second year and receive theoretical and practical training on pain treatment both in the classrooms and in the hospital until they graduate. A care plan was collected from each of the 185 senior nursing students who participated in the application. The research population consisted of a total of 185 care plans of senior nursing students who participated in surgical nursing education.

The sampling criteria of the study were the care plans of patients over 18 years of age, hospitalized for at least 24 hours after surgery, and having postoperative pain. Operating room (n:9) and emergency care reports (n: 15), care plans of patients younger than 18 years (n: 10), postoperative patients without behavioral and verbal pain data (n: 15), and care plans of patients in the preoperative period (n: 15). n:28) were excluded from the study. As a result, 108 of these care plans that met the inclusion criteria were included in the study.

Research Instruments and Processes

Data were collected using the Patient Information Form and the Students' Pain Management Application Form. The Patient Information Form consists of five questions containing the patient's demographic, medical and surgical information. These are questions about the patient's age, gender, clinic, diagnosis and surgery information. The Students' Pain Management Application Form was created by the authors based on the researchers' experiences, acute pain guidelines, and previous studies (Aslan & Dikmen 2020; Karaman et al., 2019). Students' Pain Management Application Form consists of two sub-titles. The subheadings consist of 12 questions to evaluate the patient's pain, and 8 questions to question pain treatment and care interventions. The form consists of 20 items related to the pain management practices of nursing students. It consists of "Yes/No" questions and a total score is calculated by giving "1" for each "Yes", "0" for "No" and "NONE" answers. Each student's score is evaluated out of 100, with the lowest score being 0 and the highest score being 100. Those who answered 70% to 80% and more of the questions correctly in the literature were considered successful in studies evaluating the level of knowledge. about the pain of nursing students (Alsaqri, 2018; Hroch et al., 2019). In this context, those who scored ≥ 70 points in the study were considered successful.

The 108 care plans that met the sampling criteria were obtained from the archive room of the Faculty of Health Sciences, Department of Nursing, and were evaluated within the framework of the Student Pain Treatment Application Form. Evaluation of a care plan took approximately 10-15 minutes.

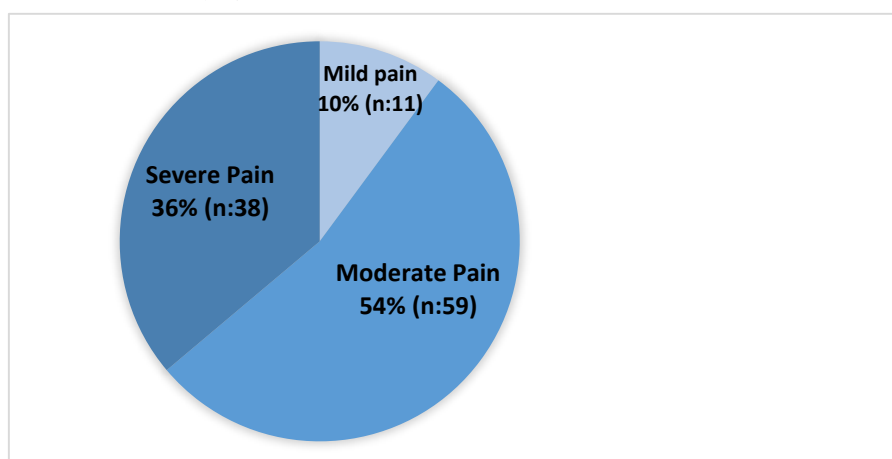
Data Analysis

Statistical analysis was performed using the SPSS version 24.0 software (IBM Corp., Armonk, NY, USA). Descriptive data were expressed in mean, standard deviation (SD), median (min-max), number and frequency, where applicable.

RESULTS

A total of 108 care plans were examined in the study. Among participants, 58.3% were males with a mean age of 50.41 ± 17.19 years. A total of 25% of the patients were hospitalized in the general surgery clinic, 17.6% in the cardiovascular and thoracic surgery clinic, and 13% in the orthopedics and traumatology clinic. The patients were followed with diagnoses of nephrolithiasis, cholelithiasis, wound infection, colon cancer, and breast cancer. Oncological surgery (35.2%), extremity and prosthesis surgery (17.6%), and gastrointestinal tract surgery (16.7%) were the most common operations. Figure 1 showed the pain severity of the patients. The nursing students observed moderate pain in 54% and severe pain in 36% of the patients.

Figure 1
The Pain Severity of Patients



Applications of pain relief performed by the nursing students are shown in Table 1. Accordingly, opioid analgesics were used in 13% of the patients and non-opioid analgesics were used in 86.1% of the patients. The students mostly used non-steroidal anti-inflammatory drugs (66.7%). Patient positioning was the most commonly applied non-pharmacological method in 63.9% of the patients. Music therapy (9%) and massage (7%) were the least common methods.

Table 1
Applications of Pain Relief Performed by The Nursing Students

| | YES | | NO | |
|---|-----------|-------------|-----------|-------------|
| | n | % | n | % |
| Pharmacological applications | 97 | 89.8 | 11 | 10.2 |
| Opioids | 14 | 13.0 | 94 | 87.0 |
| Non-opioid analgesics | 93 | 86.1 | 15 | 13.9 |
| Non-Pharmacological applications * | 97 | 89.8 | 11 | 10.2 |
| Position | 69 | 63.9 | 39 | 36.1 |
| Distraction | 32 | 29.6 | 76 | 70.4 |
| Hot-Cold application | 15 | 13.9 | 93 | 86.1 |
| Music | 10 | 9.3 | 98 | 90.7 |
| Massage | 8 | 7.4 | 100 | 92.6 |

* More than one method is specified.

Interventions for pain management performed by the nursing students are presented in Table 2. Accordingly, defining verbal/behavioral pain symptoms (100%), including the patient or family in pain assessment (100%), using a valid reliable pain scale (98.1%), expressing the severity (98.1%) and features of pain (92.6%), and recording the pain assessment (100%) were the practices with the highest score. On the other hand, expressing duration of pain (3.7%), communicating pain management data (1.9%), and diagnosing pain according to the cause of pain (14%) were the the practices with the lowest score. The mean pain management practice score of the nursing students was 58.05 ± 15.6 . Only 27.8% of the students achieved a score of ≥ 70 .

Table 2*Interventions for pain management performed by the nursing students*

| Pain Management Applications | | Mean \pm SD (Min-Max) | | |
|---|-----|------------------------------|-----|------|
| Total Score | | 58.05 \pm 15.16 (20-95) | | |
| Assessing Pain | No | | Yes | |
| | n | % | n | % |
| Describing Verbal/ Behavioral Symptoms of Pain | 108 | 100 | - | - |
| Making a Diagnosis of Pain | 16 | 14.0 | 92 | 85.2 |
| Patient and Family Participation in the Pain Assessment Process | 108 | 100 | - | - |
| Including patient or Family in Pain Assessment | 106 | 98.1 | 2 | 1.9 |
| Using the Current Reliable Pain Scale | 76 | 70.4 | 32 | 29.6 |
| Assessing Pain at Rest/ Mobilization | 106 | 98.1 | 2 | 1.9 |
| Indicating Pain Severity | 100 | 92.6 | 8 | 7.4 |
| Indicating the Nature of Pain | 41 | 38.0 | 67 | 62.0 |
| Indicating the Area of Pain | 4 | 3.7 | 104 | 96.3 |
| Indicating Pain Duration | 76 | 70.4 | 32 | 29.6 |
| Indicating Factors that Increase / Decrease the Pain | 39 | 36.1 | 69 | 63.9 |
| Repeating the Pain Assessment After a Certain Period of Time | 108 | 100 | - | - |
| Record the Pain Assessment | | | | |
| Pain Relief and Care Interventions | | | | |
| Performing Analgesia on Doctor's Request | 97 | 89.8 | 11 | 10.2 |
| Repeating Pain Assessment After Analgesia | 38 | 35.2 | 70 | 64.8 |
| Non-Pharmacological Application | 97 | 89.8 | 11 | 10.2 |
| Monitoring Complications due to Pain or Analgesia | 38 | 35.2 | 70 | 64.8 |
| Record Pain Relief | 37 | 34.3 | 71 | 65.7 |
| Sharing Pain Management Data to the Team | 2 | 1.9 | 106 | 98.1 |
| Evaluating Pain Management | 33 | 30.6 | 75 | 69.4 |
| Informing the Patient and Family About Pain Management | 23 | 21.3 | 85 | 78.7 |

DISCUSSION

The result of our study is that the pain management practices of the students are not at a level that can provide the patient's pain control. About 50 to 80% of patients experience moderate-to-severe pain in the postoperative period (Adams et al., 2020; Wikström et al., 2020; Yazıcı et al., 2022; Zhang et al., 2023) Being aware of pain is a helpful step in effective pain management, and lack of awareness before graduation is one of the main obstacles for the effective management of pain. Pain management practices are important practices in which the nurse would perform their independent roles best and affect the physical and psychological results of the patient.

In the present study, the majority of the nursing students applied pharmacological combined with non-pharmacological methods. They applied non-opioid analgesics at the discretion of the treating physician, and among the non-pharmacological methods, they mostly used patient positioning. Although previous studies have shown that more than half of the nursing students use pharmacological and non-pharmacological methods together, some others have demonstrated that students do not use non-pharmacological methods, as they do not believe in the effectiveness of these methods in the treatment of severe pain (Hancer & Yılmaz, 2020; Karaman et al., 2019). The combined use of these methods supports effective pain control in pain with multiple pain sources, such as postoperative pain.

In our study, according to the general pain management practices of nursing students, only 27.8% of them received ≥ 70 points. National and international reports support that nursing students' positive attitudes toward both knowledge and pain management are usually insufficient (Chan & Hamamura, 2016; Cousins et al., 2022; Hroch et al., 2019). Contrary to our study, Canada ($> 60\%$) and the USA ($\% > 70$) In the study with nursing students, students were found to be talented at the desired level in pain (Hroch et al., 2019).

In the current study, all of the nursing students described verbal/behavioral pain symptoms during pain assessment. In line with our study, most of the nursing students participating in the previous studies believed that the person who would best express the patient's pain was the patient herself/himself (Çelik et al., 2018; Karaman et al., 2019). In some studies, unlike our study, nursing students did not believe in the statement of the patients regarding pain (Chan & Hamamura, 2016; Karaman et al., 2019). Since pain is a subjective phenomenon, the assessment of pain should be asked to the patient (Çelik et al., 2018; Karaman et al., 2019). Nursing students' disbelief in patients' pain statements suggests that students cannot comprehend the subjectivity of pain.

The primary step of pain management is to evaluate pain using appropriate scales. In our study, in almost all of the care plans, the students performed an accurate pain assessment using valid and reliable scales. Likewise, all of the nursing students participating in the study of Aydin and Bektas (2019) used a valid scale for pain diagnosis. Some studies have shown that nurses did not use the scales supported by evidence-based studies at the desired level (Card et al., 2021; Silay & Akyol, 2018). As expected, the rates and knowledge levels of use of pain scales are different. This finding is important in terms of the necessity of developing a standard and common language in pain assessment.

Although our studies have indicated the limits of great pain, the lack of other dimensions of pain (reducing/increasing factors, duration of pain, region, etc.) shows that pain assessment cannot be made in a holistic way. Approximately one-third of the students in the study re-evaluated the pain after analgesic application. On the contrary, nearly half of the nursing students re-evaluated pain in previous studies, whereas in another study, almost all of the students reported that pain should be re-evaluated after analgesia (Hroch et al., 2019; Ünver et al., 2016). The low rate of pain assessment of the students after analgesia in our study may be due to the fact that they left the clinics after the application for various reasons such as lunch break, attending in the seminar. In addition, this may be due to the students' failure to comprehend the importance of pain and analgesia assessment. Therefore, it should be kept in mind that pain management is not just about applying analgesia, and that the assessment that analgesia controls the patient's pain without side effects is a useful guide for the pain team in subsequent pain control applications.

Only one-third of the students in this study recorded the pain relief method. A study conducted abroad draws attention to the deficiencies of nurses in assessing and recording pain (Card et al. 2021). Özveren et al. (2018), about half of the surgical nurses did not record their pain assessment. As recommended in acute pain guidelines, all stages of pain management should be documented and the importance of records should be emphasized by increasing nurses' awareness of this issue (Erden et al.,

2018a). It should be noted that certification is one of the limited independent applications from students who have not yet achieved the qualification. It should be explained to students that the documentation is a guide for the pain management team to diagnose and manage pain.

Taken together, it should be kept in mind that the pain management is a holistic process from the diagnosis of pain symptoms to the integrative assessment of pain, analgesia approaches, prevention of multiple analgesic use, reduction of pain and analgesia-related complications, informing, and documentation. Effective control of pain depends on the implementation and re-evaluation of all stages of this process. In this context, one of the most important reasons for the inability to control pain is “not recognizing the pain”, and holistic pain management should be emphasized in theoretical and practical training in undergraduate programs.

The main limitation of this study is that the findings were obtained from the written data in the care plans that the students prepared previously. Also, the students could not adequately transfer their pain management interventions to care plans in their clinical practice, which can be regarded as another limitation. Therefore, further well-designed, large-scale studies are needed to confirm these findings.

CONCLUSION

The result of our study is that the pain management practices of the students are not at a level that can provide the patient's pain control. In undergraduate nursing programs, pain management should be discussed on case studies within the framework of acute pain guides, and awareness of students on pain management should be increased. The results of nursing studies with a high level of evidence for acute pain guidelines should be shared with nursing students, and pain management knowledge and practices should be supported by both theoretical courses and the right role model in clinical practice by healthcare personnel.

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Ethical Approval

The study was approved by the institutional Academic Board (09.08.2018/02) and Çukurova University Non-Interventional Clinical Research Ethics Committee (31.08.2018/9). The study was conducted in accordance with the principles of the Declaration of Helsinki.

Conflict of Interest

The authors declare that they have no conflicts of interest.

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Authorship Contributions

Design: G.D. Data Collection or Processing: G.D. Analysis or Interpretation: S.E, G.D. Literature Search: S.E, G.D. Writing: S.E, G.D.

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