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Evaluation of a Pain Identification and Treatment Training for Medical Students Based on the "Good Medical Practice" Framework

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ABSTRACT

Purpose: The aim of this study was to evaluate the effectiveness of a pain identification and treatment training program for medical students based on the "good medical practice" framework.

Methods: A questionnaire was used to collect data from a total of 732 students who received the 3-day pain identification and treatment training held by the algology department between 2014 and 2021. The questionnaire included 8 questions about the definition of pain, types of pain, assessing pain, treatment methods and analgesic drugs. The students completed the questionnaire in person before training and 3 months after the training. A total of 732 pre-training and 230 post-training questionnaires were included in the analysis.

Results: Correct response rates before and after the training, respectively, were 11.3% (n=83) and 77.4% (n=178) for knowing which nerve fibers conduct pain; 22.3% (n=163) and 74.8% (n=172) for knowing what "VAS" stands for; 76% (n=556) 90.4% (n=208) for giving correct examples of chronic pain; 6.3% (n=46) and 63.5% (n=146) for knowing what the World Health Organization's analgesic ladder is; and 24.8% (n=178) and 87.7% (n=202) for giving correct examples of strong opioid analgesics (p<0.001 for all).

Conclusion: It is known that pain is one of the main reasons for presenting to primary health care services. Therefore, we believe it is important for medical students to learn the diagnosis and treatment of pain in programs that use different teaching methods and encourage active participation of the student in order to ensure the permanence of knowledge, increase physician competence and confidence, and prevent the mismanagement of pain.

Keywords: good medical practices, definition of pain, pain management, medical student

Tıp Fakültesi Öğrencilerine 'İyi Hekimlik Uygulamaları' Kapsamı İçerisinde Yapılandırılmış Ağrının Tanımlaması ve Tedavisi Eğitiminin Değerlendirilmesi

ÖZET

Amaç: Bu çalışma ile tıp fakültesi öğrencilerine uygulanan 'iyi hekimlik uygulamaları' kapsamındaki yöntemlerle yapılandırılmış 'ağrının tanımlaması ve tedavisi' eğitim programının etkinliğinin değerlendirilmesi amaçlandı.

Gereç ve Yöntem: Algoloji Bilim Dalı tarafından 2014-2021 yılları arasında, üç günlük staj sırasında farklı eğitim yöntemleri kullanılarak uygulanan, ağrı tanımlanması ve tedavisi eğitimini alan, 732 öğrenciye, eğitim öncesi ve sonrasında uygulanan anket değerlendirildi. Ankette ağrının tanımı, ağrı türleri, ağrının değerlendirilmesi, tedavi yöntemleri ve analjezik ilaçlar ile ilgili 8 soru yer aldı. Öğrenciler anketi eğitimden önce ve eğitimden 3 ay sonra bizzat doldurmuştur. Toplam 732 eğitim öncesi ve 230 eğitim sonrası anket analize dahil edilmiştir.

Bulgular: Ağrı taşıyan sinir liflerini doğru yanıtlayanların oranı eğitim öncesi %11.3 (n=83) sonrası %77.4 (n=178) idi. "VAS" teriminin açılımının doğru olarak bilenlerin oranı eğitim öncesi %22.3 (n=163) iken, eğitim sonrası % 74.8 (n=172) idi. Eğitim öncesi kronik ağrılara doğru örnek verenlerin oranı %76 (n=556) iken sonrası %90.4 (n=208) saptandı. DSÖ'nün basamak tedavisini bilen öğrencilerin oranı eğitim öncesi % 6.3 (n=46), eğitim sonrası %63.5 (n=146) idi. Kuvvetli opioid analjeziklere eğitim öncesi doğru örnek verebilen %24.8 (n=178) iken sonrası %87.7 (n=202) bulundu. Bütün soruların eğitim öncesi ile sonrası doğru cevap oranları karşılaştırıldığında, eğitim sonrası doğru cevap verme oranı anlamlı olarak daha yüksek bulundu(p=0.00).

Sonuç: Ağrılı hasta başvurularının birinci basamak hekimliğine en sık başvuru nedenlerinden birisi olduğu bilinmektedir. Bu nedenle tıp fakültesi öğrencilerine, ağrı tanı ve tedavisiyle ilgili bilgilerin, farklı eğitim yöntemlerinin kullanıldığı ve eğitime aktif katılımlarının sağlandığı programlar ile gerçekleştirilmesinin, bilginin kalıcılığı, hekimin kendini yetkin hissetmesi ve yanlış ağrı yönetiminin önüne geçilmesi açısından önemli olduğu kanısındayız.

Anahtar kelimeler: ağrı, ağrı yönetimi, tıp öğrencileri, eğitim teknikleri

Pain is among the most common reasons for presentation to primary care, and in 2000 the World Health Organization (WHO) declared that pain is the fifth vital sign that must be monitored. Therefore, medical education should ensure that physicians are competent in recognizing and evaluating patients with pain and providing first-line treatment. Studies have shown that the pain education received in medical school is not adequate for physicians to meet the needs of the population after graduation (1, 2). It has also been reported that primary care physicians lack training on pain management and have limited confidence in their abilities to treat pain effectively (3, 4). Unfortunately, there are very few countries in the world in which the medical school curriculum provides comprehensive and compulsory education on the diagnosis and treatment of pain. In 2013, the European Pain Federation (EFIC) developed the "Pain Management Core Curriculum for European Medical Schools" training program for third- to fifth-year medical students, which includes basic pain diagnosis and treatment options and common pain syndromes (5).

The intensity of the theoretical information delivered during medical education can be confusing for learners, and information that is believed to be learned is often forgotten. This exposes the need to improve medical education by enhancing educational programs with motivational teaching methods that aim to make learning permanent and meaningful (6-8). The Good Medicine Practice (GMP) program was designed in line with this need and has been implemented in many medical schools in our country, including ours. The GMP program is designed on the basis of communication skills and is supported and enriched with practices in which students acquire professional and examination skills, discuss ethical and professional values, make clinical visits, investigate the relationship between medicine and the humanities, and evaluate evidence-based medical studies (9).

In 2014, a "pain identification and treatment training" for fifth-year students of Mersin University School of Medicine was designed within the scope of the GMP by the algology department. The aim of this study was to evaluate the effectiveness of the pain identification and treatment training program implemented by the Department of Algology of the Mersin University School of Medicine.

MATERIALS AND METHODS

Ethics committee approval was obtained for this study (decision date 29/12/2021, number 2021/788). Between 2014 and 2021, fifth-year students interning in the anesthesiology and reanimation department were asked to complete a questionnaire after the introductory class on the first day of the internship. The students were informed about the purpose and nature of the questionnaire before it was distributed. Identifying information such as name, surname, and student number were not collected. The questionnaire items and response options were designed according to the principle of impartiality and avoiding leading questions. The survey included a total of 8 items (open-ended or multiple-choice) in a specified order. The questions asked about pain identification, pain types, assessment and treatment methods, and analgesic drugs used in treatment (Table 1). After the students completed the post-internship pain identification and treatment training, the same students were invited to complete the questionnaire again online 3 months after the training. Completed questionnaires were returned by all 732 students before receiving the training and 230 students after receiving the training.

Table 1. Questionnaire Items and Response Variables

Questions	Variables
Define the term "algology."	Correct Incorrect No answer
Which nerve fibers conduct pain sensation?	A delta+C Others
Write an example of acute pain.	Correct Incorrect No answer
Write an example of chronic pain.	Correct Incorrect No answer
What does "VAS" stand for?	Visual Analog Scale Others
Have you heard of the WHO analgesic ladder for pain treatment?	Yes No
Write an example of weak opioid analgesics.	Correct Incorrect No answer
Write an example of strong opioid analgesics.	Correct Incorrect No answer

Algology training program: The students participated in a 3-day instructor-led training program on pain diagnosis and treatment consisting of 4 hours of theoretical and 6 hours of practical course content. Theoretical lessons covered pain conduction routes, definitions of acute and chronic pain, pain scoring methods, opioid analgesics used in chronic pain, and the WHO analgesic ladder. In addition, the students were shown the pain scoring methods (visual analog scale [VAS], numerical rating scale [NRS],

Analog Chromatic Scale, and Wong-Baker Face Scale), provided information on the pharmacology of analgesic drugs and considerations for prescribing weak and strong opioids, and given practice in writing prescriptions.

They watched videos of different types of pain described by patients, performed one-to-one bedside follow-up with chronic pain patients, and participated in case discussion meetings.

Statistical Analysis

For statistical analyses, the data were entered into IBM SPSS Statistics version 24.0 software and the e-PICOS software was used for calculations based on MedicReS Good Biostatistics Practices. Categorical variables were summarized using descriptive statistics; frequency calculations were expressed as percentage. Chi-square test was used for comparisons. P values of <0.05 were accepted as statistically significant.

RESULTS

Of the fully answered questionnaires, 732 were returned by students before receiving the training and 230 were returned after the training.

Before the training, 50.3% (n=368) of the students correctly defined the term algology, while 97% (n=223) of the students answered correctly after the training.

The proportion of students who knew that A delta and C fibers conduct pain was 11.3% (n=83) before the training and 77.4% (n=178) after the training.

Less than a quarter of the students knew what VAS stood for before training (n=163, 22.3%), whereas nearly three-quarters correctly answered this question after training (n=172, 74.8%).

Correct examples of acute and chronic pain respectively were given by 76% (n=556) and 62.6% (n=458) of students before training, and these rates increased to 93% (n=214) and 90.4% (n=208) after training.

Very few students knew what the WHO analgesic ladder was before training (n=46, 6.3%), while 63.5% (n=146) knew after training.

Similarly, correct examples of weak and strong opioid analgesics respectively were given by only 7.5% (n=55) and 24.8% (n=178) of the students before the training, whereas 71.3% (n = 164) and 87.7% (n = 202) of the students were able to give examples after training.

Compared to before the training, a significantly greater proportion of students gave correct responses after the training for the definition of algology, the pain-conducting fibers, the meaning of VAS, examples of acute and chronic pain, the WHO analgesic ladder, and examples of weak and strong opioid analgesics (p<0.001 for all) (Figure 1).

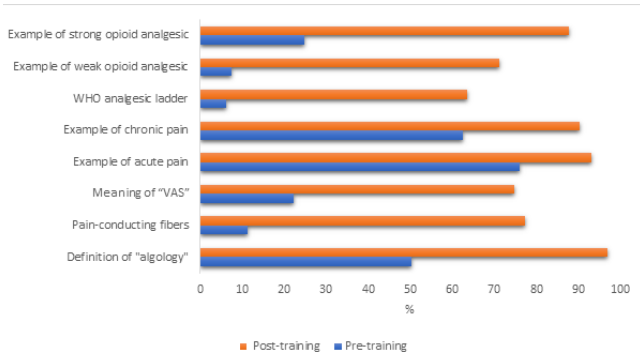

Figure 1. Comparison of correct response rates for the questionnaire items before and after the training (p<0.001)*

DISCUSSION

This is the first study to evaluate knowledge about pain identification and treatment before and after a training program for medical students in Turkey prepared within the GMP framework. The results demonstrated that students effectively retained information about the term algology, pain-conducting fibers, the meaning of VAS, acute and chronic pain, the WHO analgesic ladder, and correct prescribing of opioids three months after the training.

When creating training programs for medical schools, not only advances in medicine but also the needs of the country should be taken into account (10). In particular, training should be structured in accordance with topics relevant to primary care (11). Pain is the most common reason that patients present to primary care (12). Therefore, general practitioners should be trained to recognize and assess patients with acute and chronic pain and manage their first-line treatment after graduation(13). In a survey conducted at Tufts University School of Medicine in the United States, it was determined that graduate medical students felt inadequate in the assessment and management of chronic pain.

The authors suggested that restructuring pain education in medical school by enriching it with seminars, discussions, and clinical observations could contribute to clinicians' competence in the care and evaluation of patients with pain (14, 15). In our study, the low correct response rates for all questions in the questionnaire before the training program revealed that fifth-year medical students had insufficient knowledge regarding the identification and treatment of pain.

There seems to be no standardized instructional content on pain in medical curricula worldwide(16). A review of 14 studies published between 1987 and 2018 showed that the majority of pain education in the 383 medical schools examined was included in courses designed by the anesthesia and pharmacology departments. Countries with the most time devoted to pain education were Poland (39 hours) and Finland (30 hours), while countries with the least time devoted to pain education were Italy and Romania (4 hours). A lack of published literature on pain education from South America, Asia, and Africa was noted (17). In another study evaluating the pain medicine education of schools in 15 European countries during the 2012-13 academic year, it was stated that pain education was compulsory in 55% of schools, was provided in other education modules, and lasted an average of 21 hours (18). In Mersin University School of Medicine, a total of 18 class hours are devoted to pain education in different years of study, starting from the first year. In addition to this, the students receive the 3-day training program organized by our algology department, which includes 4 hours of theoretical and 6 hours of practical training.

Medical education is a challenging and labor-intensive process that requires many years to complete. Students face many difficulties during the education process, such as not knowing how to learn or having different learning speeds. Such problems make learning strategies one of the most important issues in the field of education(19). In the literature, there are studies stating that the curriculum related to pain management should be designed not only to focus on theoretical knowledge, but also support it with interview skills and pain assessment practices so that the knowledge will facilitate clinical practice(4, 8, 20-22). GMP, which is applied in many medical schools in our country, is a program designed on the basis of communication skills and is supported and enriched with practices in which students acquire professional and examination skills, discuss ethical and professional values, make clinical visits, investigate the relationship between medicine and the humanities, and evaluate evidence-based medical studies (9). We structured our program within the algology internship using the content of this program as an example. We believe that the varied training we created, which includes videos in which patients describe different types of chronic pain, bedside visits to inpatients with acute and chronic pain, observations of history-taking and examinations of patients presenting to the algology outpatient clinic, introduction to opioid analgesics by presenting drug preparations followed by prescribing practice, and case discussion meetings with the specialist physician, makes pain education more memorable for our physician candidates.

This study has certain limitations. Firstly, the single-center study design limits the generalization of the results. Second, the post-training sample size was much smaller than the pre-training sample. We attribute the low response rate in the post-training data collection to administering the questionnaire online 3 months after the training.

CONCLUSION

Despite the brevity of our pain identification and management training program, the combined use of various educational methods that increase learning motivation and ensure active learner participation resulted in effective knowledge attainment. We believe that implementing such programs in medical schools will support physicians in feeling more competent and confident in pain management.

DECLARATIONS

Funding
None.

Conflicts of Interest/Competing Interests
None.

Ethics Committee Approval
Our study was approved by the Local Ethics Committee of Mersin University Rectorate Clinical Research Ethics Committee (board decision dated 29/12/2021 and numbered 2021/788).

Availability of Data
Available upon request.

Authors' Contributions
Gülçin GAZİOĞLU TÜRKYILMAZ, Şebnem RUMELİ conducted this study and wrote the article.

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