

# Retrospective Evaluation of Opioid Analgesics Use in Emergency Department: A One-Year Analysis

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## Abstract:

**Objective:** In this study, our aim was to provide data to the literature in terms of both optimal pain control and minimising the side effects of opioids. For this purpose, we retrospectively analysed the opioid model used in the emergency department (ED) of a university hospital.

**Methods:** This is a single-centre, retrospective, and cross-sectional study conducted in the ED of Kütahya Health Sciences University Evliya Çelebi Training and Research Hospital. We retrospectively analysed the electronic medical records of all patients over 18 years of age who were received opioid analgesics in the ED for one year. Data included demographics data (gender, age), diagnosis, type of opioid drug used, hospitalisation and mortality. The study focused on the frequency of opioid use and type of opioid in ED.

**Results:** The study sample included 1392 patients with a mean age of 46.6 years. Of the patients who received opioid analgesics, 45.47% (n=633) were female and 54.53% (n=759) were male. The most common complaint was abdominal pain and 515 patients (37%) received opioids for this reason. The second most common diagnosis was myalgia with 123 patients (8.8%) and the third most common diagnosis was soft tissue injury with 107 patients (7.7%). The most commonly used opioid was fentanyl (n=746, 53.6%). This was followed by tramadol (n=611, 43.9%) and morphine (n=35, 2.5%).

**Conclusion:** Our study found that fentanyl was the most commonly used opioid in the ED, tramadol was preferred for non-traumatic patients such as myalgia, and morphine was rarely used. These results are in line with other data from our country and it has been observed that there is no excessive use of opioids.

**Keywords:** Emergency Department, Opioid Analgesics, Fentanyl, Tramadol, Morphine

Pain is known to be the cause of more than half of patients presenting to EDs [1]. Adequate analgesia for pain is a basic human right, and non-opioid analgesics (non-steroidal anti-inflammatory drugs [NSAIDs] and paracetamol) and opioid analgesics are commonly used in the pharmacological management of pain. Pain management in the ED is sometimes a difficult

problem to solve, and opioid analgesics are very useful in solving this problem. On the one hand, opioid analgesics provide rapid analgesia and immediate relief for the patient, but they can pose a life-threatening risk due to their high addiction profile and side effects [2].

One of the most common problems in pain management in the ED is inadequate analgesia, or

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oligoanalgesia [3]. Although there are many causes of oligoanalgesia, the opiophobia of the physicians is a very important cause. Opioids are analgesics that physicians mostly avoid prescribing because of their addictive potential and side-effect profile, and they are also seen as a common problem in our country [3, 4].

On the other hand, overprescribing of opioid analgesics in the United States of America (USA) and Europe is believed to lead to misuse and abuse of these drugs. It is estimated that opioid overdoses will cause the deaths of 68.630 people in the USA in 2020 [5] and that these figures will continue to rise until 2025 [6]. It has been reported that the contribution of EDs to the amount of opioids used each year is small (approximately 4%), but approximately half of the patients with opioid use disorder are exposed to opioids for the first time with a legal prescription and approximately 20% of these prescriptions are written in the ED [7,8]. In addition, the ongoing opioid crisis in the USA has been defined as one of the most serious and deadly public health crises facing the country [9]. The opioid crisis does not currently exist in our country, but poorly managed opioid using will lead to an increase in opioid use disorder and addiction in the future.

Within this information, the aim of this study was to retrospectively analyse the pattern of opioid used in the ED of a university hospital. The data that we will obtain from this study on the patterns of use of opioid analgesics in our region will contribute to the database, both in terms of providing optimal pain control and minimising the side effects of opioids.

## METHODS

### Study Design, Site and Period

This study is a single-centre, retrospective,

descriptive and cross-sectional data analysis conducted in the Emergency Department of Kütahya Health Sciences University Evliya Çelebi Training and Research Hospital. The study period was set from 1 January 2022 to 1 January 2023. This ED is in a tertiary university hospital that sees about 250.000 patients annually.

### Eligibility Criteria

We retrospectively analysed the electronic medical records of all patients over 18 years of age who were received opioid analgesics in the ED for one year. The exclusion criterion was age under 18 years. Since all patients received opioids over the age of 18 were included in the study, no power analysis was required for sampling.

### Data Collection

The data of the patients who were received opioids in the ED were obtained from the hospital automation system. A data collection form was developed for these patients. Data included demographics data (gender, age), diagnosis, type of opioid drug used, hospitalisation and mortality. The two primary outcome measures were: (i) frequency of opioid use in the ED and (ii) type of opioid used.

### Ethical Considerations

This study was approved by Kütahya Health Sciences University Non-Interventional Clinical Research Ethics Committee (Decision No: 2023/13-26).

### Statistical Analysis

Raw data about the overall patient were analysed using Microsoft Excel. The mean and standard deviation of the continuous variables were given, and

**TABLE 1. Gender of Patients Receiving Opioids**

	Female	Male	P value*
<b>n (%)</b>	633 (45.5%)	759 (54.5%)	
<b>(95% CI)</b>	(43-48)	(52-57)	
<b>Age (years)</b>	52.5±17.6	45.1±16.9	<b>&lt;0.001</b>
<b>(95% CI)</b>	(51.1-53.9)	(45.6-48.1)	<b>(3.8-7.5)</b>

Data are shown as mean±standard deviation or n (%). CI, confidence interval. \*Student t test.

Statistically significant P-value is shown in bold

**TABLE 2. Percentage of Patients Receiving Opioids in Emergency Medicine According to Patient Complaints**

Diagnosis	Total			Female			Male		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
Abdominal pain	515	37.0	34.5-39.7	219	42.5	38.3-46.6	296	57.5	53.4-61.7
Myalgia	123	8.8	7.4-10.3	65	52.8	43.9-61.8	58	47.2	38.2-56.1
Soft tissue injury	107	7.7	6.2-9.2	38	35.5	26.2-44.9	69	64.5	55.1-73.8
Headache	86	6.2	4.9-7.4	39	45.3	34.9-55.8	47	54.7	44.2-65.1
Renal colic	70	5.0	4.0-6.2	25	35.7	24.3-47.1	45	64.3	52.9-75.7
Chest pain	46	3.3	2.4-4.3	23	50.0	34.8-65.2	23	50.0	34.8-65.2
Low back pain	45	3.2	2.4-4.2	16	35.6	22.2-51.1	29	64.4	48.9-77.8
Cystitis	43	3.1	2.2-4.0	34	79.1	65.1-90.7	9	20.9	9.3-34.9
Fall injuries	39	2.8	1.9-3.7	23	59.0	43.6-74.4	16	41.0	25.6-56.4
Fracture	37	2.7	1.9-3.5	16	43.2	27.0-59.5	21	56.8	40.5-73.0
Appendicitis	29	2.1	1.4-2.9	12	41.4	24.1-58.6	17	58.6	41.4-75.9
Traffic accident	28	2.0	1.3-2.7	7	25.0	10.7-42.9	21	75.0	57.1-89.3
Gastroenteritis	25	1.8	1.1-2.4	13	52.0	32.0-72.0	12	48.0	28.0-68.0
Gallstone	22	1.6	1.0-2.3	13	59.1	40.9-77.3	9	40.9	22.7-59.1
Pelvic pain	20	1.4	0.9-2.2	20	100.0	100-100	-	-	-
Myocardial infarction	17	1.2	0.6-1.9	6	35.3	11.8-58.8	11	64.7	41.2-88.2
Peptic ulcer	15	1.1	0.6-1.7	7	46.7	20.0-73.3	8	53.3	26.7-80.0
Cholecystitis	12	0.9	0.4-1.4	5	41.7	16.7-66.7	7	58.3	33.3-83.3
Dyspnoea	12	0.9	0.4-1.4	7	58.3	33.3-83.3	5	41.7	16.7-66.7
Ileus	9	0.6	0.3-1.1	4	44.4	11.1-77.8	5	55.6	22.2-88.9
Cerebrovascular diseases	8	0.6	0.2-1.0	4	50.0	12.5-87.5	4	50.0	12.5-87.5
Gastro esophageal reflux	8	0.6	0.2-1.1	7	87.5	62.5-100	1	12.5	0-37.5
Kidney stone	7	0.5	0.2-0.9	2	28.6	0.0-71.4	5	71.4	28.6-100
Pneumothorax	6	0.4	0.1-0.9	3	50.0	16.7-83.3	3	50.0	16.7-83.3
Dorsalgia	6	0.4	0.1-0.8	3	50.0	16.7-83.3	3	50.0	16.7-83.3
Inguinal hernia	6	0.4	0.1-0.9	1	16.7	0-50.0	5	83.3	0-50.0
Shoulder joint dislocation	5	0.4	0.1-0.7	2	40.0	0-80.0	3	60.0	20.0-100
Subarachnoid haemorrhage	5	0.4	0.1-0.7	2	40.0	0-80.0	3	60.0	20.0-100
Cancer	4	0.3	0.1-0.6	2	50.0	0-100	2	50.0	0-100
Pancreatitis	4	0.3	0.1-0.6	2	50.0	0-100	2	50.0	0-100
Haemorrhoids	4	0.3	0.1-0.6	1	25.0	0-75.0	3	75.0	25.0-100
Gunshot injury	3	0.2	0-0.5	1	33.3	0-100	2	66.7	0-100
Gastrointestinal bleeding	3	0.2	0-0.5	3	100.0	100-100	-	-	-
Work accident	3	0.2	0-0.5	1	33.3	0-100	2	66.7	0-100
Heart failure	3	0.2	0-0.5	-	-	-	3	100.0	100-100
Mushroom poisoning	3	0.2	0-0.5	1	33.3	0-100	2	66.7	0-100
Aortic aneurysm	2	0.1	0-0.4	-	-	-	2	100.0	100-100
Atrial fibrillation	2	0.1	0-0.4	1	50.0	0-100	1	50.0	0-100
Dysmenorrhoea	2	0.1	0-0.4	2	100.0	100-100	-	-	-
Embolism and thrombosis	2	0.1	0-0.4	-	-	-	2	100.0	100-100
Cardiac arrest	2	0.1	0-0.4	-	-	-	2	100.0	100-100
Ovarian cysts	2	0.1	0-0.4	2	100.0	100-100	-	-	-
Pulmonary contusion	2	0.1	0-0.4	0	0	0.0-0.0	2	100.0	100-100

CI, confidence interval.

the categorical variables were defined as percentages with 95 % confidence interval. Statistical analysis was performed using SPSS version 20. Kolmogorov-Smirnov normality test was used to assess whether the data were suitable for normal distribution. Student's t-test was used to determine differences in means between groups, and chi-squared test was used to compare categorical variables. A P value less than 0.05 was considered statistically significant.

**RESULTS**

During 12-month period, 248.954 patients were admitted to the ED and 1392 of these patients received opioid analgesics. Of the patients who received opioid analgesics, 45.47 % (n=633) were female and 54.53 % (n=759) were male. The mean age of all patients was 46.59 ± 16.91 years (95% CI: 48.51-50.38), with a minimum age of 19 years and a maximum age of 96 years. The mean age of the females was 52.52±17.58 years (95% CI: 51.14-53.89), while the mean age of the males was 45.13 ± 16.96 years (95% CI: 45.62-48.12) (Table 1).

It was observed that there was a difference between the male and female patients in terms of age (P<0.001) and that the women were older.

The numbers and percentages of patients who used opioids in the ED according to their complaint are shown in Table 2. The most common complaint was abdominal pain and 515 patients (37%, 95% CI: 34.5-39.7) received opioids for this reason. The second most common complaint was myalgia with 123 patients (8.8 %, 95% CI: 7.4-10.3) and the third

most common diagnosis was soft tissue injury with 107 patients (7.7 %, 95% CI: 6.2-9.2).

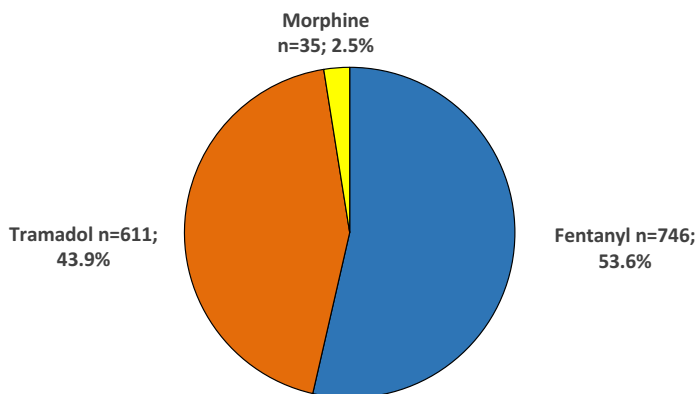
Considering all patients receiving opioids in the ED, the most commonly used opioid was fentanyl (n=746, 53.6%, 95% CI: 50.8-56.1). This was followed by tramadol (n=611, 43.9%, 95% CI: 41.4-46.6) and morphine (n=35, 2.5%, 95% CI: 1.8-3.4) (Figure 1). All drugs were administered intravenously.

Tramadol is most commonly used for myalgia (n=88, 71.5%), soft tissue injury (n=60, 56.1%), headache (n=46, 53.5%), low back pain (n=38, 84.4%), cystitis (n=27, 62.8%), gastroenteritis (n=15, 60.0%), peptic ulcer (n=8, 53.3%), gastro esophageal reflux (n=8, 100%), dorsalgia (n=6, 100%), work accident (n=2, 66.7%) and dysmenorrhea (n=2, 100%). Morphine was most commonly used for myocardial infarction (n=17, 100%) and fracture (n=8, 21.6%). Fentanyl was the first opioid used for other diagnoses (Table 3).

Of the 1392 patients who used opioids, 304 (21.8 %) were inpatients, including 136 (44.7 %) females and 168 (55.3 %) males. The number of outpatients was 1088 (78.2 %), of which 297 (27.3 %) were female and 591 (72.7 %) were male.

Among inpatients, 205 received fentanyl, 78 received tramadol and 21 received morphine. Among outpatients, 541 received fentanyl, 533 received tramadol and 14 received morphine. There was a difference in the use of fentanyl, tramadol and morphine between inpatients and outpatients. (X<sup>2</sup>;73.232, P<0.0001). It was observed that fentanyl was used more frequently than tramadol in inpatients (Figure 2, Table 4).

Among 1392 patients who received opioids, 4

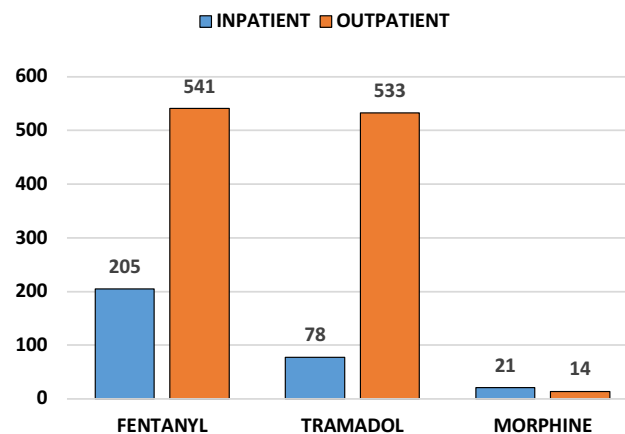


**FIGURE 1.** Percentages of opioid drugs used in the emergency department.

**TABLE 3. Rates of Opioid Drug Use According to Patient Complaints**

Diagnosis	n	Fentanyl			Tramadol			Morphine		
		%	95% CI	n	%	95% CI	n	%	95% CI	
Abdominal pain	289	56.1	51.7-60.2	226	43.9	39.8-48.3	-	-	-	
Myalgia	35	28.5	20.3-36.6	88	71.5	63.4-79.7	-	-	-	
Soft tissue injury	46	43.0	33.6-53.3	60	56.1	45.8-65.4	1	0.9	0-3.7	
Headache	40	46.5	34.9-57.0	46	53.5	43.0-65.1	-	-	-	
Renal colic	53	75.7	65.7-85.7	17	24.3	14.3-34.3	-	-	-	
Chest pain	31	67.4	54.3-80.4	15	32.6	19.6-45.7	-	-	-	
Low back pain	7	15.6	6.7-26.7	38	84.4	73.3-93.3	-	-	-	
Cystitis	16	37.2	23.3-53.5	27	62.8	46.5-76.7	-	-	-	
Fall injuries	20	51.3	35.9-66.7	19	48.7	33.3-64.1	-	-	-	
Fracture	19	51.4	35.1-67.6	10	27.0	13.5-40.5	8	21.6	8.1-35.1	
Appendicitis	27	93.1	82.8-100	2	6.9	0-17.2	-	-	-	
Traffic accident	20	71.4	53.6-85.7	4	14.3	3.6-28.6	4	14.3	3.6-28.6	
Gastroenteritis	10	40.0	20.0-60.0	15	60.0	40.0-80.0	-	-	-	
Gallstone	19	86.4	72.7-100	3	13.6	0-27.3	-	-	-	
Pelvic pain	19	95.0	85.0-100	1	5.0	0-15.0	-	-	-	
Myocardial infarction	-	-	-	-	-	-	17	100	100-100	
Peptic ulcer	7	46.7	20.0-73.3	8	53.3	26.7-80.0	-	-	-	
Cholecystitis	10	83.3	58.3-100	2	16.7	0-41.7	-	-	-	
Dyspnoea	10	83.3	58.3-100	2	16.7	0-41.7	-	-	-	
Ileus	7	77.8	44.4-100	2	22.2	0-55.68	-	-	-	
Cerebrovascular diseases	8	100	100-100	-	-	-	-	-	-	
Gastro esophageal reflux	-	-	-	8	100	100-100	-	-	-	
Kidney stone	7	100	100-100	-	-	-	-	-	-	
Pneumothorax	6	100	100-100	-	-	-	-	-	-	
Dorsalgia	-	-	-	6	100	100-100	-	-	-	
Inguinal hernia	4	66.7	33.3-100	2	33.3	0-66.7	-	-	-	
Shoulder joint dislocation	2	40.0	0-80.0	-	-	-	3	60.0	20.0-100	
Subarachnoid haemorrhage	5	100	100-100	-	-	-	-	-	-	
Cancer	2	50.0	0-100	-	-	-	2	50.0	0.0-100	
Pancreatitis	3	75.0	25.0-100	1	25.5	0-75.0	-	-	-	
Haemorrhoids	1	25.0	0.0-75.0	3	75.0	25.0-100	-	-	-	
Gunshot injury	3	100	100-100	-	-	-	-	-	-	
Gastrointestinal bleeding	3	100	100-100	-	-	-	-	-	-	
Work accident	1	33.3	0-100	2	66.7	0-100	-	-	-	
Heart failure	2	66.7	0-100	1	33.3	0-100	-	-	-	
Mushroom poisoning	2	66.7	0-100	1	33.3	0-100	-	-	-	
Aortic aneurysm	2	100	100-100	-	-	-	-	-	-	
Atrial fibrillation	2	100	100-100	-	-	-	-	-	-	
Dysmenorrhoea	-	-	-	2	100.0	100-100	-	-	-	
Embolism and thrombosis	2	100	100-100	-	-	-	-	-	-	
Cardiac arrest	2	100	100-100	-	-	-	-	-	-	
Ovarian cysts	2	100	100-100	-	-	-	-	-	-	
Pulmonary contusion	2	100	100-100	-	-	-	-	-	-	
<b>Total</b>	<b>746</b>			<b>611</b>			<b>35</b>			

CI, confidence interval.



**FIGURE 2.** Number of inpatient and outpatient and types of opioid medication.

patients were hospitalised and died. Two of the patients had cancer, one had an aortic aneurysm and one was experiencing chest pain. All of the patients were around 70 years old and none of their causes of death were opioid-related. All 4 of these patients used fentanyl.

**DISCUSSION**

This single-centre, retrospective study in a tertiary care hospital found that fentanyl was the most commonly used opioid in the ED, tramadol was preferred in non-traumatic patients, and morphine was rarely used. Abdominal pain, myalgia and soft tissue injury were the most common reasons for opioid use in the ED, respectively.

Pain is the most common reason for ED consultations, affecting 40-70% of patients [10]. Adequate analgesia is one of the most important goals of pain management. Non-opioid analgesics (NSAIDs and paracetamol) and opioid analgesics are the main pharmacological treatments for pain. Codeine, tramadol, morphine, methadone and fentanyl are

commonly used opioid analgesics in ED. Sevcik *et al.* reported that morphine (35.8%) was the most commonly used drug in patients admitted to the ED for trauma, followed by oxycodone (39.6%), codeine (19.3%), hydromorphone (12.7%), fentanyl (12.3%) and tramadol (3%) [11]. In Türkiye, 59.2% of patients were reported to have received fentanyl, 51.3% tramadol, 0.4% meperidine and 1.56% morphine in a study analysing patients presenting to ED with pain and receiving opioid analgesics [12]. In our study, the most commonly used opioid was fentanyl (53.6%), followed by tramadol (43.9%) and morphine (2.5%). The difference between these studies may be explained by age, gender and diagnostic differences between the patient populations.

Fentanyl is a synthetic opioid that is a full mu-receptor agonist and produces analgesia similar to that of morphine, but to a greater extent [13]. Fentanyl is currently one of the most commonly used opioids for pain control, sedation and anaesthesia by intravenous, transdermal and transmucosal routes [14]. The use of fentanyl has become widespread in trauma patients due to its rapid onset of analgesia, minimal effect on

**TABLE 4.** Number of Inpatient and Outpatient and Types of Opioid Medication

	Opioid						X <sup>2</sup> P value*
	Fentanyl		Tramadol		Morphine		
	n (%)	95% CI	n (%)	95% CI	n (%)	95% CI	
<b>Inpatient</b>	205 (27.5)	24.1-30.6	78 (12.8)	10.1-15.4	21 (60)	42.9-77.1	73.232
<b>Outpatient</b>	541 (72.5)	69.4-75.9	533 (87.2)	84.6-89.9	14 (40)	22.9-57.1	<b>&lt;0.0001</b>

CI, confidence interval. \*chi-squared test. Statistically significant P-value is shown in bold.

blood pressure and reduced potential for nausea and vomiting compared with morphine [15]. Tramadol is a centrally acting analgesic and a synthetic opioid, with a structure similar to that of codeine. Although tramadol has less analgesic effect than morphine, it is preferred because it is safer. Compared to other opioid analgesics, tramadol is considered safe as it does not cause respiratory depression or dependence. Tramadol is mainly used in the treatment of muscle pain, joint pain and wound pain [16].

In our study, opioids were mostly administered to patients with abdominal pain (n=515). Of these patients, 289 received fentanyl and 226 received tramadol. Acute abdominal pain is observed in around 8% of patients presenting to the ED [17]. Adequate analgesia can be administered to these patients and opioid analgesics can be used for severe pain [18]. Fentanyl has been reported to be a safe and effective drug for providing analgesia to ED patients with abdominal pain [19]. These data support the results of our study. On the other hand, tramadol is also preferred in acute abdominal pain. Oğuztürk *et al.* evaluated the efficacy of early analgesic administration in patients presenting to the ED with acute abdominal pain, as well as its interaction with diagnosis. They found that tramadol and paracetamol provided effective analgesia without leading to diagnostic error [20]. Another study reported that fentanyl was the most commonly used opioid in acute abdominal pain, followed by tramadol [12]. Similarly, tramadol was the second most commonly used opioid in abdominal pain in our study.

Myalgia may occur as a symptom of various diseases, including overuse and strain of the muscles, infections, trauma, metabolic disorders, inflammatory disorders and nutritional disorders. NSAIDs are often used to treat myalgia in EDs, if these are not sufficient, opioid drugs may be used [21]. In our study, myalgia was the second most common reason for visiting the ED, after abdominal pain. The third most common reason was soft tissue injury. Tramadol was found to be most commonly used for myalgia (71.5%), soft tissue injury (56.1%), headache (53.5%), low back pain (84.4%), cystitis (62.8%), gastroenteritis (60.0%), peptic ulcer (53.3%), gastro esophageal reflux (100%), dorsalgia (100%), work accident (66.7%) and dysmenorrhea (100%) in our study. Fentanyl was the second most commonly used opioid in these

complaints. In general, tramadol is considered safer than other opioids for treating moderate pain in cases where NSAIDs have been ineffective, because it has fewer respiratory depressant and addictive effects.

In our study, morphine was administered to a total of 35 patients, primarily those experiencing myocardial infarction, fractures, traffic accidents and cancer. However, contrary to the results of our study, there are studies reporting that morphine is the first opioid used for pain relief in EDs [22, 23]. Studies have shown that emergency physicians in Türkiye rarely use morphine or meperidine. Instead, they prefer tramadol for patients with severe pain. They also prefer fentanyl for conditions such as abdominal pain and pneumothorax, as it does not cause respiratory depression and has low anti-inflammatory capacity [12]. Similarly, in our study, meperidine was not preferred and morphine was rarely used.

Although there are many causes of oligoanalgesia, the opiophobia of the physicians is a very important cause. Opioids are analgesics that physicians mostly avoid prescribing because of their addictive potential and side-effect profile, and they are also seen as a common problem in our country [3, 4]. Our study found that fentanyl was the most preferred opioid, suggesting that physicians in the ED where the study was conducted are willing to use strong opioids when necessary.

In recent years, fentanyl and its derivatives have caused addiction and death to increase dramatically in many parts of the world, particularly in North America and Europe. Although there is currently no opioid crisis in our country, the illegal use of fentanyl derivatives has been detected. Fentanyl and its derivatives are considered an imminent threat to our country [24].

### Strengths and Limitations

This study has several notable strengths. The relatively large sample size of 1392 patients collected over a one-year period enhances the representativeness of the findings and increases statistical reliability. The study reflects real-world clinical practice in a tertiary emergency department and provides practical and generalisable data on opioid use patterns. A comprehensive overview of opioid prescribing practices, including drug type, clinical indication, and patient demographics, offers a multidimensional perspective on

ED opioid utilisation. Finally, the findings are particularly relevant in the current context of global concerns regarding opioid overuse, as this study demonstrates that prescribing practices in this setting appear to be within appropriate clinical boundaries.

However, this study has several limitations. Firstly, pre- and post-procedure pain scores were not evaluated. Additionally, sufficient data on the analgesic efficacy and potential side effects of opioids could not be obtained. Furthermore, there is a lack of information regarding patients' comorbidities and the concomitant use of non-opioid analgesics, which may influence opioid selection and dosage. Future studies with a broader scope that include pain scores, side-effect profiles and concomitant factors would yield more clinically meaningful and generalisable results.

## CONCLUSION

In conclusion, our study found that fentanyl was the most commonly used opioid for abdominal pain, renal colic and chest pain in the ED, tramadol was preferred for non-traumatic patients such as myalgia, and morphine was rarely used. Although our study found fentanyl to be the most commonly used opioid, overuse and overprescription of fentanyl in ED is not currently observed in our country. However, given that fentanyl use in EDs has increased over time, it is important to raise awareness of this issue.

### *Ethics Approval and Consent to Participate*

This study was approved by the Kütahya Health Sciences University Non-Interventional Clinical Research Ethics Committee (Decision No.: 2023/13-26 and dated 28.11.2023). All procedures were conducted in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki Declaration and its later amendments. Informed consent was waived because of the retrospective nature of the study and the analysis used anonymous clinical data.

### *Data Availability*

All data generated or analyzed during this study are included in this published article. The data that support the findings of this study are available on

request from the corresponding author, upon reasonable request.

### *Authors' Contribution*

Study Conception: YT, MK; Study Design: YT, MK; Supervision: YT, MK; Funding: YT, MK; Materials: N/A; Data Collection and/or Processing: YT, MK; Statistical Analysis and/or Data Interpretation: YT, MK; Literature Review: YT, MK; Manuscript Preparation: YT; and Critical Review: YT, MK.

### *Conflict of Interest*

The author(s) disclosed no conflict of interest during the preparation or publication of this manuscript.

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### *Generative Artificial Intelligence Statement*

The author(s) declare that no artificial intelligence-based tools or applications were used during the preparation process of this manuscript. The all content of the study was produced by the author(s) in accordance with scientific research methods and academic ethical principles.

### *Editor's Note*

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## REFERENCES

1. Cordell WH, Keene KK, Giles BK, Jones JB, Jones JH, Brizendine EJ. The high prevalence of pain in emergency medical care. *Am J Emerg Med.* 2002;20(3):165-169. doi: [10.1053/ajem.2002.32643](https://doi.org/10.1053/ajem.2002.32643).
2. Jerant A, Agnoli A, Franks P. Satisfaction with Health Care Among Prescription Opioid Recipients. *J Am Board Fam Med.* 2020;33(1):34-41. doi: [10.3122/jabfm.2020.01.190090](https://doi.org/10.3122/jabfm.2020.01.190090).
3. Bertrand S, Meynet G, Taffè P, et al. Opiophobia in Emergency

- Department Healthcare Providers: A Survey in Western Switzerland. *J Clin Med.* 2021;10(7):1353. doi: [10.3390/jcm10071353](https://doi.org/10.3390/jcm10071353).
4. Baldemir R, Akçaboy EY, Noyan Ö, Akçaboy ZN, Baydar M, Çelik Ş. Doktorların opioid kullanımı ve opiofobiye yaklaşımlarının değerlendirilmesi: Bir eğitim ve araştırma hastanesinden anket sonuçları [An assessment of physicians attitudes toward opioid usage and opiophobia: Results of a survey from a training and research hospital]. *Agri.* 2019;31(1):23-31. doi: [10.5505/agri.2018.03411](https://doi.org/10.5505/agri.2018.03411). [Article in Turkish]
5. Drug overdose death rates. Bethesda (MD): National Institute on Drug Abuse; 2023. <https://nida.nih.gov/research-topics/trends-statistics/overdose-death-rates> (accessed 2023 Nov. 23).
6. Chen Q, Larochelle MR, Weaver DT, et al. Prevention of prescription opioid misuse and projected overdose deaths in the United States. *JAMA Netw Open* 2019;2:e187621. doi: [10.1001/jamanetworkopen.2018.7621](https://doi.org/10.1001/jamanetworkopen.2018.7621).
7. Daoust R, Paquet J, Émond M, et al; Quantity of Opioids for Acute Pain and Limit Unused Medication (OPUM) group on behalf of the Network of Canadian Emergency Researchers. Opioid prescribing requirements to minimize unused medications after an emergency department visit for acute pain: a prospective cohort study. *CMAJ.* 2024;196(25):E866-E874. doi: [10.1503/cmaj.231640](https://doi.org/10.1503/cmaj.231640).
8. Butler MM, Ancona RM, Beauchamp GA, et al. Emergency Department Prescription Opioids as an Initial Exposure Preceding Addiction. *Ann Emerg Med.* 2016;68(2):202-208. doi: [10.1016/j.annemergmed.2015.11.033](https://doi.org/10.1016/j.annemergmed.2015.11.033).
9. Gleber R, Vilke GM, Castillo EM, Brennan J, Oyama L, Coyne CJ. Trends in emergency physician opioid prescribing practices during the United States opioid crisis. *Am J Emerg Med.* 2020;38(4):735-740. doi: [10.1016/j.ajem.2019.06.011](https://doi.org/10.1016/j.ajem.2019.06.011).
10. Chang HY, Daubresse M, Kruszewski SP, Alexander GC. Prevalence and treatment of pain in EDs in the United States, 2000 to 2010. *Am J Emerg Med.* 2014;32(5):421-431. doi: [10.1016/j.ajem.2014.01.015](https://doi.org/10.1016/j.ajem.2014.01.015).
11. Sevcik B, Lobay K, Luu H, et al. Analgesic Use Among Adults with a Trauma-Related Emergency Department Visit: A Retrospective Cohort Study from Alberta, Canada. *Pain Ther.* 2023;12(4):1039-1053. doi: [10.1007/s40122-023-00521-1](https://doi.org/10.1007/s40122-023-00521-1).
12. Cabioğlu KS. Acil Tıp Kliniğine Ağrı Şikayeti İle Başvurup Opioid Analjezik İlaç Kullanılan Hastaların Geriye Dönük İncelenmesi [Retrospective Analysis of Patients Presenting to the Emergency Medicine Clinic with Pain Complaints and Using Opioid Analgesic Drugs]. Thesis. Bakırköy Dr. Sadi Konuk Eğitim ve Araştırma Hastanesi, Sağlık Bilimleri Üniversitesi, 2017. [Article in Turkish]
13. Comer SD, Cahill CM. Fentanyl: Receptor pharmacology, abuse potential, and implications for treatment. *Neurosci Biobehav Rev.* 2019;106:49-57. doi: [10.1016/j.neubiorev.2018.12.005](https://doi.org/10.1016/j.neubiorev.2018.12.005).
14. Bird HE, Huhn AS, Dunn KE. Fentanyl absorption, distribution, metabolism, and excretion: narrative review and clinical significance related to illicitly manufactured fentanyl. *J Addict Med.* 2023;17(5):503-508. doi: [10.1097/ADM.0000000000001185](https://doi.org/10.1097/ADM.0000000000001185).
15. Wenderoth BR, Kaneda ET, Amini A, Amini R, Patanwala AE. Morphine versus fentanyl for pain due to traumatic injury in the emergency department. *J Trauma Nurs.* 2013;20(1):10-5. doi: [10.1097/JTN.0b013e31828660b5](https://doi.org/10.1097/JTN.0b013e31828660b5).
16. Subedi M, Bajaj S, Kumar MS, Yc M. An overview of tramadol and its usage in pain management and future perspective. *Biomed Pharmacother.* 2019;111:443-451. doi: [10.1016/j.biopha.2018.12.085](https://doi.org/10.1016/j.biopha.2018.12.085).
17. Wu RR, Adjei-Poku MN, Kelz RR, et al. Trends in visits, imaging, and diagnosis for emergency department abdominal pain presentations in the United States, 2007-2019. *Acad Emerg Med.* 2025;32(1):20-31. doi: [10.1111/acem.15017](https://doi.org/10.1111/acem.15017).
18. Falch C, Vicente D, Häberle H, et al. Treatment of acute abdominal pain in the emergency room: a systematic review of the literature. *Eur J Pain.* 2014;18(7):902-13. doi: [10.1002/j.1532-2149.2014.00456.x](https://doi.org/10.1002/j.1532-2149.2014.00456.x).
19. Bartfield JM, Flint RD, McErlean M, Broderick J. Nebulized fentanyl for relief of abdominal pain. *Acad Emerg Med.* 2003;10(3):215-218. doi: [10.1111/j.1553-2712.2003.tb01993.x](https://doi.org/10.1111/j.1553-2712.2003.tb01993.x).
20. Oguzturk H, Ozgur D, Turtay MG, et al. Tramadol or paracetamol do not effect the diagnostic accuracy of acute abdominal pain with significant pain relief - a prospective, randomized, placebo controlled double blind study. *Eur Rev Med Pharmacol Sci.* 2012;16(14):1983-1988.
21. Friedman BW, Irizarry E, Feliciano C, et al. A randomized controlled trial of oxycodone/acetaminophen versus acetaminophen alone for emergency department patients with musculoskeletal pain refractory to ibuprofen. *Acad Emerg Med.* 2021;28(8):859-865. doi: [10.1111/acem.14231](https://doi.org/10.1111/acem.14231).
22. Lvovschi VE, Carrouel F, Hermann K, Lapostolle F, Joly LM, Tavolacci MP. Severe pain management in the emergency department: patient pathway as a new factor associated with IV morphine prescription. *Front Public Health.* 2024;12:1352833. doi: [10.3389/fpubh.2024.1352833](https://doi.org/10.3389/fpubh.2024.1352833).
23. Fabbri A, Voza A, Riccardi A, Serra S, Iaco F; Study and Research Center of the Italian Society of Emergency Medicine (SIMEU). The Pain Management of Trauma Patients in the Emergency Department. *J Clin Med.* 2023;12(9):3289. doi: [10.3390/jcm12093289](https://doi.org/10.3390/jcm12093289).
24. Türkiye Cumhuriyeti İçişleri Bakanlığı Emniyet Genel Müdürlüğü Narkotik Suçlarla Mücadele Başkanlığı: Türkiye Uyuşturucu Raporu Eğilimler ve Gelişmeler [Republic of Türkiye Ministry of Internal Affairs General Directorate of Security Department of Combating Narcotic Crimes: Türkiye Drug Report Trends and Developments]. Ankara, 2024. [Article in Turkish].