

Investigating Accessibility and Availability of Therapeutic Opioids in Surabaya, Indonesia

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ABSTRACT

Introduction: A significant global disparity exists in access to opioid analgesics for pain management, with high-income countries (HICs) responsible for over 90% of global opioid consumption. In stark contrast, low- and middle-income countries (LMICs)—which are home to 90% of the world's population—account for less than 10% of this consumption. Despite a pressing clinical need among groups such as cancer patients, surgical cases and other individuals suffering from pain, access to opioids remains severely restricted. This study aims to investigate whether similar gaps in access and utilization exist in Surabaya by analyzing the availability and consumption data of therapeutic opioids.

Methods: A retrospective observational study was carried out utilizing secondary data collected from Surabaya, Indonesia, during April to May 2025. The data were extracted from Kimia Farma (KF) and SIPNAP provided by the local health office, covering the years 2022 to 2024. All opioid agonists distributed by the KF and reported as utilized in healthcare facilities in Surabaya were included in the analysis. Descriptive analysis of the data was conducted using Microsoft Excel to identify trends in opioid distribution and usage over time, with a particular emphasis on patterns of decline and their potential contributing factors.

Results: During the study period, a total of 21 different types of opioids were identified. Overall, distribution trends experienced a modest increase of 6%, while utilization trends showed a slight decrease of 2%. Notable declines were observed in several opioids, particularly in hydromorphone, oxycodone, oral codeine formulations, and fentanyl patches. Across various healthcare settings, opioid use rose in clinics (7%) and hospitals (4%), but saw a significant drop in pharmacies (19%). This indicates an uneven accessibility to opioids and persistent gaps in availability and usage across different service levels in Surabaya.

Conclusion: While opioid use in hospitals and clinics remains relatively stable, there has been a significant decrease in access to several essential opioids at the distribution level. If this trend continues, it is likely that usage will decline further, thereby limiting access to adequate pain management. Urgent policy interventions are necessary—including regulatory refinement, enhanced training for healthcare workers, and improved product availability—to restore a favorable balance between distribution and usage. Strengthening these areas is critical to ensuring equitable access to opioid analgesics and upholding the right to adequate pain relief.

Keywords: accessibility; availability; healthcare; medicine; opioid

INTRODUCTION

Effective pain management is a crucial element of healthcare and is recognized by the World Health Organization (WHO) as a fundamental human right. Among the various therapies available, opioid analgesics play a vital role in treating moderate to severe pain, particularly for patients who have

cancer (prevalence is 56%), postoperative pain (prevalence is 82%), trauma or terminal illnesses (prevalence is 30%)¹⁻³. Their significance is highlighted by their inclusion in the WHO Model List of Essential Medicines, highlighting their indispensable role in contemporary medical practice¹.

However, despite their clinical importance, access to opioids worldwide is markedly unequal. High-income countries (HICs) account for over 90% of global opioid consumption, while low- and middle-income countries (LMICs)—which house nearly 90% of the world's population—utilize less than 10% of the total⁴. This disparity illustrates a significant gap in access to effective pain management in the developing world.

The limited availability of opioids in low- and middle-income countries (LMICs), including Indonesia, is rooted in several interconnected factors. These factors encompass concerns regarding misuse, dependence, and overdose, as well as apprehensions among healthcare providers about potential legal consequences⁵. While strict regulations are necessary to prevent diversion and abuse, overly rigid control frameworks can inadvertently create obstacles to legitimate medical access. The World Health Organization (WHO) and the International Narcotics Control Board (INCB) stress the importance of narcotic control policies that strike a balance between preventing abuse and ensuring medical availability⁶. Nevertheless, a 2017 report by the Lancet Commission estimated that over 61 million people worldwide suffer from untreated pain due to a lack of access to opioids, highlighting a persistent imbalance between regulation and care⁷.

In Indonesia, the legal framework governing opioids is among the most stringent in the region. According to Law No. 35 of 2009 on Narcotics, opioids such as morphine and codeine are classified as Group II and III narcotics, which are permitted for medical use under strict supervision, while Group I substances are entirely prohibited⁸. Violations of these regulations can lead to severe penalties, including life imprisonment. Although these laws are vital for preventing abuse, they inadvertently limit access for patients in need of legitimate pain management.

Evidence indicates that regulatory apprehension significantly affects healthcare professionals' prescribing practices. Rajagopal (2024) noted that numerous physicians and pharmacists hesitate to prescribe or dispense opioids due to concerns over legal repercussions, even when such prescriptions are clinically warranted^{9,10}. As a result, many patients suffering from severe or chronic pain remain inadequately treated. Estimates suggest that 30–50% of individuals experiencing pain require opioid therapy, and 70–90% of those with advanced illnesses are in critical need of it¹¹. Nonetheless, Indonesia ranks among the lowest six countries globally in opioid consumption, measured in Milligrams Morphine Equivalent (MME) per 1,000 inhabitants per day¹².

Despite an increasing awareness of this issue, empirical research regarding the availability and accessibility of opioids in Indonesia is scarce. Most existing studies emphasize legal frameworks or qualitative assessments, with insufficient data-driven analysis. This study aims to investigate the accessibility and availability of opioids in Indonesia, focusing on Surabaya, through an examination of distribution and consumption data. The findings are anticipated to shed light on existing barriers and guide future policy efforts to enhance equitable access to pain management.

METHOD

This study employed a retrospective observational design to evaluate the accessibility and utilization of therapeutic opioids in Surabaya, Indonesia, over the years 2022–2024. Surabaya was chosen due to its status as Indonesia's second-largest city, its high population density, relatively advanced urban infrastructure, and abundance of healthcare facilities—making it a suitable setting to explore urban challenges in opioid access.

Ethical clearance was obtained from the Human Research Ethics Committee of the Faculty of Pharmacy at Universitas Airlangga, Surabaya (No. 23/LE/2025). The study did not utilize individual

patient-level data. To ensure confidentiality and adhere to ethical standards, all drug identifiers were transformed into International Non-proprietary Names (INN) prior to analysis.

Data were obtained from two main institutions: (1) Kimia Farma E-Report which provides records of opioid distribution to health facilities at the regional level. Kimia Farma is the principal and formerly sole distributor of opioid across the nation, (2) Local Health Office (extracted from Sistem Informasi Pelaporan Narkotika dan Psikotropika or SIPNAP report – the information system for reporting narcotics and psychotropics use) which contains aggregated data on opioid utilization at the provincial level. A formal data request was submitted to both institutions, detailing the study's background, objectives, methodology, anticipated outcomes, and policy relevance. The data collection and coordination took place during April and May 2025. Once received, the datasets were anonymized and aggregated by the research team, utilizing INN standardization.

Inclusion and Exclusion Criteria

Inclusion Criteria: All records about therapeutic opioid agonists that were distributed or reported as used in Surabaya between January 1, 2022, and December 31, 2024.

Exclusion Criteria: Opioids which were used for addiction treatment (e.g., methadone, buprenorphine-naloxone) and any insufficient, missing or unreported data which may mislead the analysis.

Variables

The following variables were extracted and analyzed: (1) Type of opioid agonists, (2) Dosage form (e.g., tablet, injection, patch), (3) Dosage strength, (4) Distribution volume (the number of opioids supplied by Kimia Farma to healthcare facilities), (5) Utilization volume (the number of opioids reported to SIPNAP as dispensed or utilized)

Data Analysis

Descriptive statistics were employed to summarize absolute volumes and temporal trends. Trends indicating increases or decreases in opioid distribution and usage were identified and contextualized through comparison with relevant literature.

RESULT

Table 1 summarizes the distribution of therapeutic opioids in Surabaya from 2022 to 2024. Overall, the average total use of opioids during the three-year period was 3,738,266 mg ($\pm 132,973$), showing a modest +6% increase in the overall consumption trend. However, notable variations were observed among different opioid types, dosage forms, and strengths. In summary, the distribution of opioids in Surabaya from 2022 to 2024 demonstrated a gradual yet uneven growth pattern. An increase in the use of codeine and morphine in tablet forms, steady consumption of pethidine, and a decline in the use of fentanyl patches and codeine syrups marked this.

Table 1. Total Distribution of Opioids in Surabaya*

No.	Types of Drugs	Dosage Form	Dosage Strength	Use (mg)			Mean $\pm$ STD	% Trend
				2022	2023	2024		
1	Codeine	Capsule	30 mg	10,078,500	2,230,200	5,179,200	5,829,300 $\pm$ 3,964,332	-49%
2	Codeine	Syrup	11.11 mg/5ml	419,825	50,128	59,994	176,649 $\pm$ 210,654	-86%
3	Codeine	Tablet	10 mg	18,918,000	22,200,000	20,494,000	20,537,333 $\pm$ 1,641,429	+8%
4	Codeine	Tablet	15 mg	10,905,000	13,867,500	11,533,500	12,102,000 $\pm$ 1,560,928	+6%
5	Codeine	Tablet	20 mg	29,112,000	33,532,000	33,198,000	31,947,333 $\pm$ 2,461,143	+14%
6	Codeine	Tablet	30 mg	1,851,000	2,556,000	3,957,000	2,788,000 $\pm$ 1,071,997	+114%

No.	Types of Drugs	Dosage Form	Dosage Strength	Use (mg)			Mean ± STD	% Trend
				2022	2023	2024		
7	Fentanyl	Injection	50 mcg/ml	14,064	13,160	9,556	12,260 ± 2,385	-32%
8	Fentanyl	Injection	100 mcg/2 ml	182	557	653	464 ± 249	+259%
9	Fentanyl	Patch	12 mcg/h	703	705	123	511 ± 336	-83%
10	Fentanyl	Patch	25 mcg/h	342	574	78	331 ± 249	-77%
11	Hydromorphone	Tablet	32 mg	5,376	N/A	N/A	5,376 ± 0	-100%
12	Morphine	Injection	10 mg/ml	126,800	175,000	127,300	143,033 ± 27,685	+1%
13	Morphine	Tablet	10 mg	1,203,300	2,484,300	1,697,100	1,794,900 ± 646,076	+41%
14	Morphine	Tablet	15 mg	185,400	1,093,500	440,100	573,000 ± 468,410	+137%
15	Morphine	Tablet	30 mg	N/A	1,800	N/A	1,800 ± 0	0%
16	Morphine	Syrup	10 mg/5 ml	N/A	N/A	240	240 ± 0	0%
17	Oxycodone	Injection	10 mg/ml	N/A	N/A	N/A	N/A	0%
18	Oxycodone	Tablet	10 mg	N/A	N/A	N/A	N/A	0%
19	Pethidine	Injection	50 mg/ml	2,485,000	2,279,000	2,997,000	2,587,000 ± 369,708	+21%
20	Remifentanyl	Injection	2 mg/ml	6,360	12,030	8,340	8,910 ± 2,878	+31%
21	Sufentanyl	Injection	50 mcg/ml	92	94	105	97 ± 7	+14%
Total Average				3,586,283	3,833,169	3,795,347	3,738,266 ± 132,973	+6%

*The number of opioids distributed by Kimia Farma to health facilities in Surabaya

Table 2. Total Opioid Use in Surabaya*

No.	Types of Drugs	Dosage Form	Dosage Strength	Dose Use (mg)			Mean ± Std	% Trend
				2022	2023	2024		
1	Codeine	Capsule	30 mg	10,075,500	2,324,100	5,069,100	5,822,900 ± 3,930,294	-50%
2	Codeine	Syrup	11.11 mg/5ml	421,558	45,195	59,994	175,582 ± 213,149	-86%
3	Codeine	Tablet	10 mg	18,956,000	23,178,000	19,124,000	20,419,333 ± 2,390,552	+1%
4	Codeine	Tablet	15 mg	10,894,500	14,316,000	10,503,000	11,904,500 ± 2,097,574	-4%
5	Codeine	Tablet	20 mg	29,124,000	34,742,000	30,288,000	31,384,667 ± 2,965,213	+4%
6	Codeine	Tablet	30 mg	1,866,000	2,697,000	3,357,000	2,640,000 ± 747,133	+80%
7	Fentanyl	Injection	50 mcg/ml	9,428	5,423	5,694	6,848 ± 2,238	-40%
8	Fentanyl	Injection	100 mcg/2 ml	2,368	5,778	3,623	3,923 ± 1,724	+53%
9	Fentanyl	Patch	12 mcg/h	701	707	122	510 ± 336	-83%
10	Fentanyl	Patch	25 mcg/h	344	701	N/A	523 ± 252	-100%
11	Hydromorphone	Tablet	8 mg	1,344	N/A	N/A	1,344 ± 0	-100%
12	Morphine	Injection	10 mg/ml	126,300	194,900	118,300	146,500 ± 42,106	-6%
13	Morphine	Tablet	10 mg	1,173,900	3,417,300	1,564,500	2,051,900 ± 1,198,491	+33%
14	Morphine	Tablet	15 mg	187,200	1,226,700	609,300	674,400 ± 522,799	+225%
15	Morphine	Tablet	30 mg	N/A	N/A	N/A	N/A	0%
16	Morphine	Syrup	10 mg/5 ml	N/A	N/A	N/A	N/A	0%
17	Oxycodone	Injection	10 mg/ml	2,300	N/A	N/A	2,300 ± 0	-100%
18	Oxycodone	Tablet	10 mg	N/A	N/A	N/A	N/A	0%
19	Pethidine	Injection	50 mg/ml	2,669,000	2,593,000	3,004,000	2,755,333 ± 218,679	+13%
20	Remifentanyl	Injection	2 mg/ml	N/A	N/A	N/A	N/A	0%
21	Sufentanyl	Injection	50 mcg/ml	90	109	115	105 ± 13	+28%
Total Average				4,195,030	4,708,162	4,094,819	4,332,670 ± 329,023	-2%

*The number of opioids reported to SIPNAP system

Table 2 provides an overview of opioid use and distribution in Surabaya from 2022 to 2024. The average total opioid consumption over this three-year period reached 4,332,670 mg ($\pm 329,023$), indicating a slight overall decrease of 2% in total utilization. However, individual opioid formulations exhibited significant variations in both trends and usage levels. While overall opioid utilization in Surabaya showed a marginal decline, the patterns observed among specific drugs suggest ongoing shifts in prescribing and procurement practices. Notably, there were increases in the use of morphine and high-dose codeine tablets, contrasted by reductions in fentanyl patches and low-strength preparations.

Tables 3 to 5 provide a summary of opioid utilization across various healthcare service settings—clinics, hospitals, and pharmacies—in Surabaya from 2022 to 2024. The overall findings indicate significant variations in both the volume and trends of opioid usage among these facility types, reflecting disparities in clinical functions, patient volumes, and prescribing practices.

In clinics (Table 3), total opioid consumption exhibited a modest increase of +7% over three years, averaging 377,919 mg ($\pm 54,442$). Codeine was the predominant opioid, particularly in tablet form. The use of 10 mg and 20 mg codeine tablets rose slightly, by +17% and +6%, respectively, whereas the 15 mg tablet experienced a decline of -7%. There was a notable surge in codeine syrup usage (+158%), although its overall volume remained low. Additionally, pethidine use more than doubled (+113%), indicating its continued application for short-term or procedural pain management. In contrast, the utilization of morphine and fentanyl remained minimal, with significant reductions noted in morphine injections (-88%) and an almost complete discontinuation of fentanyl patches. Overall, opioid use in clinics remained limited, but there was a slight upward trend, primarily driven by codeine.

Table 3. Opioid Use in Clinics in Surabaya*

No.	Types of Drugs	Dosage Form	Dosage Strength	Dose Use (mg)			Mean $\pm$ Std	% Trend
				2022	2023	2024		
1	Codeine	Capsule	30 mg	195,900	58,800	234,000	162,900 $\pm$ 92,144	+19%
2	Codeine	Syrup	11.11 mg/5ml	1,600	2,133	4,133	2,622 $\pm$ 1,335	+158%
3	Codeine	Tablet	10 mg	1,022,000	1,173,000	1,196,000	1,130,333 $\pm$ 94,522	+17%
4	Codeine	Tablet	15 mg	970,500	979,500	898,500	949,500 $\pm$ 44,396	-7%
5	Codeine	Tablet	20 mg	3,842,000	5,624,000	4,068,000	4,511,333 $\pm$ 970,201	+6%
6	Codeine	Tablet	30 mg	N/A	18,000	9,000	13,500 $\pm$ 6,364	0%
7	Fentanyl	Injection	50 mcg/ml	N/A	15	N/A	N/A	0%
8	Fentanyl	Injection	100 mcg/2 ml	1	N/A	6	2 $\pm$ 3	+500%
9	Fentanyl	Patch	12 mcg/h	7	5	0	4 $\pm$ 3	-96%
10	Fentanyl	Patch	25 mcg/h	16	11	N/A	13 $\pm$ 4	-100%
11	Hydromorphone	Tablet	8 mg	N/A	N/A	N/A	N/A	0%
12	Morphine	Injection	10 mg/ml	800	100	100	333 $\pm$ 404	-88%
13	Morphine	Tablet	10 mg	N/A	N/A	N/A	N/A	0%
14	Morphine	Tablet	15 mg	900	N/A	3,600	1,500 $\pm$ 1,873	+300%
15	Morphine	Tablet	30 mg	N/A	N/A	N/A	N/A	0%
16	Morphine	Syrup	10 mg/5 ml	N/A	N/A	N/A	N/A	0%
17	Oxycodone	Injection	10 mg/ml	N/A	N/A	N/A	N/A	0%
18	Oxycodone	Tablet	10 mg	N/A	N/A	N/A	N/A	0%
19	Pethidine	Injection	50 mg/ml	16,000	55,000	34,000	35,000 $\pm$ 19,519	+113%
20	Remifentanyl	Injection	2 mg/ml	N/A	N/A	N/A	N/A	0%
21	Sufentanyl	Injection	50 mcg/ml	N/A	N/A	11	11 $\pm$ 0	0%
Total Average				336,096	439,476	358,186	377,919 $\pm$ 54,442	+7%

*The number of opioids reported to SIPNAP system

Table 4. Opioid Use in Hospitals in Surabaya*

No.	Types of Drugs	Dosage Form	Dosage Strength	Dose Use (mg)			Mean $\pm$ Std	% Trend
				2022	2023	2024		
1	Codeine	Capsule	30 mg	7,279,200	1,629,300	3,582,900	4,163,800 $\pm$ 2,869,395	-51%
2	Codeine	Syrup	11.11 mg/5ml	288,904	26,664	35,730	117,099 $\pm$ 148,857	-88%
3	Codeine	Tablet	10 mg	16,076,000	19,360,000	16,577,000	17,337,667 $\pm$ 1,769,216	+3%
4	Codeine	Tablet	15 mg	6,295,500	9,498,000	6,859,500	7,551,000 $\pm$ 1,709,570	+9%
5	Codeine	Tablet	20 mg	12,710,000	17,512,000	14,808,000	15,010,000 $\pm$ 2,407,365	+17%
6	Codeine	Tablet	30 mg	1,749,000	2,424,000	3,198,000	2,457,000 $\pm$ 725,063	+83%
7	Fentanyl	Injection	50 mcg/ml	9,413	5,365	5,692	6,823 $\pm$ 2,249	-40%
8	Fentanyl	Injection	100 mcg/2 ml	2,367	5,774	3,617	3,919 $\pm$ 1,724	+53%
9	Fentanyl	Patch	12 mcg/h	657	665	116	480 $\pm$ 314	-82%
10	Fentanyl	Patch	25 mcg/h	304	581	N/A	443 $\pm$ 195	-100%
11	Hydromorphone	Tablet	8 mg	1,344	N/A	N/A	1,344 $\pm$ 0	-100%
12	Morphine	Injection	10 mg/ml	125,500	194,400	118,100	146,000 $\pm$ 42,079	-6%
13	Morphine	Tablet	10 mg	1,147,500	3,404,100	1,546,800	2,032,800 $\pm$ 1,204,246	+35%
14	Morphine	Tablet	15 mg	180,000	1,217,700	589,500	662,400 $\pm$ 522,677	+228%
15	Morphine	Tablet	30 mg	N/A	N/A	N/A	N/A	0%
16	Morphine	Syrup	10 mg/5 ml	N/A	N/A	N/A	N/A	0%
17	Oxycodone	Injection	10 mg/ml	2,200	N/A	N/A	2,200 $\pm$ 0	-100%
18	Oxycodone	Tablet	10 mg	N/A	N/A	N/A	N/A	0%
19	Pethidine	Injection	50 mg/ml	2,651,000	2,537,000	2,970,000	2,719,333 $\pm$ 224,442	+12%
20	Remifentanyl	Injection	2 mg/ml	N/A	N/A	N/A	N/A	0%
21	Sufentanil	Injection	50 mcg/ml	90	96	104	97 $\pm$ 7	+16%
Total Average				2,695,499	3,211,980	2,794,170	2,900,550 $\pm$ 274,182	+4%

*The number of opioids reported to SIPNAP system

In hospitals (Table 4), opioid consumption was significantly higher, averaging 2,900,550 mg ($\pm$ 274,182), reflecting an overall increase of 4%. Hospitals emerged as the primary centers for the use of morphine, fentanyl, and pethidine. Among opioids, codeine tablets remained the most commonly prescribed, with the 10–20 mg formulations showing a modest increase (+3% to +17%), while the 30 mg tablet experienced a substantial rise of +83%. Morphine tablets also saw significant growth, with increases of +35% for the 10 mg and +228% for the 15 mg varieties, although the use of injectable morphine remained stable. Fentanyl displayed mixed results; while injectable forms increased by +53%, transdermal patches underwent a notable decline ranging from -82% to -100%. The use of pethidine remained steady, reflecting a +12% increase and confirming its ongoing role in acute care.

In pharmacies (Table 5), opioid usage was the lowest and exhibited a downward trend over time, decreasing by 19% to an average of 1,054,201 mg ($\pm$ 110,507). Codeine continued to be the primary dispensed opioid, but most formulations saw declines ranging from -9% to -27%, with the exception of the 30 mg tablet, which increased by +28%. Morphine use remained minimal, with slight growth in the 15 mg tablet (+157%), though overall volumes remained low. The use of fentanyl was negligible and experienced a steep decline of -85% to -100%. Notably, pethidine and oxycodone were discontinued by 2024.

Table 5. Opioid Use in Pharmacies in Surabaya*

No.	Types of Drugs	Dosage Form	Dosage Strength	Dose Use (mg)			Mean $\pm$ Std	% Trend
				2022	2023	2024		
1	Codeine	Capsule	30 mg	2,600,400	636,000	1,252,200	1,496,200 $\pm$ 1,004,673	-52%
2	Codeine	Syrup	11.11 mg/5ml	131,054	16,398	20,131	55,861 $\pm$ 65,145	-85%
3	Codeine	Tablet	10 mg	1,858,000	2,645,000	1,351,000	1,951,333 $\pm$ 652,029	-27%
4	Codeine	Tablet	15 mg	3,628,500	3,838,500	2,745,000	3,404,000 $\pm$ 621,342	-24%
5	Codeine	Tablet	20 mg	12,572,000	11,606,000	11,412,000	11,863,333 $\pm$ 72,062	-9%
6	Codeine	Tablet	30 mg	117,000	255,000	150,000	174,000 $\pm$ 21	+28%
7	Fentanyl	Injection	50 mcg/ml	15	43	2	20 $\pm$ 21	-87%
8	Fentanyl	Injection	100 mcg/2 ml	N/A	4	1	2 $\pm$ 2	0%
9	Fentanyl	Patch	12 mcg/h	36	38	5	27 $\pm$ 18	-85%
10	Fentanyl	Patch	25 mcg/h	24	110	N/A	67 $\pm$ 61	-100%
11	Hydromorphone	Tablet	8 mg	N/A	N/A	N/A	N/A	0%
12	Morphine	Injection	10 mg/ml	N/A	400	100	250 $\pm$ 212	0%
13	Morphine	Tablet	10 mg	26,400	13,200	17,700	19,100 $\pm$ 6,710	-33%
14	Morphine	Tablet	15 mg	6,300	9,000	16,200	10,500 $\pm$ 5,118	+157%
15	Morphine	Tablet	30 mg	N/A	N/A	N/A	N/A	0%
16	Morphine	Syrup	10 mg/5 ml	N/A	N/A	N/A	N/A	0%
15	Oxycodone	Injection	10 mg/ml	100	N/A	N/A	100 $\pm$ 0	-100%
17	Oxycodone	Tablet	10 mg	N/A	N/A	N/A	N/A	0%
19	Pethidine	Injection	50 mg/ml	2,000	1,000	N/A	1,000 $\pm$ 707	-100%
20	Remifentanyl	Injection	2 mg/ml	N/A	N/A	N/A	N/A	0%
21	Sufentanil	Injection	50 mcg/ml	N/A	14	N/A	14 $\pm$ 0	0%
Total Average				1,163,435	1,056,706	942,463	1,054,201 $\pm$ 110,507	-19%

*The number of opioids reported to SIPNAP system

DISCUSSION

This study investigated the accessibility and utilization of therapeutic opioids in Surabaya from 2022 to 2024. The findings indicate a generally low and uneven trend in opioid use, marked by slight increases in utilization within hospitals and clinics, while pharmacy availability consistently declined. Overall, access to opioids in Surabaya remains limited, reflecting broader global disparities in pain management between high-income and low- and middle-income countries (LMICs).

Decreasing Access and Distribution Patterns

The results presented in Tables 1 and 2 demonstrate a declining trend in both the distribution and use of opioids, particularly for fentanyl and codeine syrup. The diminished availability of fentanyl injections and patches points to ongoing supply constraints, likely stemming from shortages of raw materials and limited distribution capabilities¹³. Moreover, the absence of hydromorphone and oxycodone in the market further highlights this decline in product diversity. These findings are consistent with Ju et al. (2022), which reported that opioid consumption in LMICs has made little progress over the last decade, perpetuating significant global disparities in pain management¹⁴.

Regulatory and Systemic Barriers

Although there was a slight increase in opioid use at hospitals (+4%) and clinics (+7%), pharmacies experienced a significant decline in dispensing opioids, dropping by 19% (see Tables 3–5). This trend highlights ongoing regulatory and systemic barriers that hinder community-level access.

Indonesia's stringent narcotics control policies—mandating detailed documentation, restricting prescriber authority, and imposing extensive reporting requirements—have led many pharmacies to hesitate in stocking or dispensing opioids. The lack of on-site doctors in numerous pharmacies further complicates access, as dispensing requires a valid prescription. Moreover, frequent audits and the threat of regulatory penalties discourage facilities from providing opioids, resulting in limited supply at the primary care level. These observations align with previous research suggesting that overly strict regulations lead to under-prescribing and restrict the availability of controlled medicines in low- and middle-income countries (LMICs)⁴.

Comparison with International Context

Compared to global standards, Indonesia's opioid consumption remains among the lowest worldwide. According to international data that employs the defined daily dose (DDD) per 1,000 population, low- and middle-income countries (LMICs) are expected to have an opioid consumption ranging from 3 to 10, yet Indonesia falls significantly below this threshold¹⁵. Regional comparisons reveal much higher averages, with East and Southeast Asia at 189, South America at 347, and more than 9,000 in Western and Central Europe⁴. This stark disparity highlights how restrictive regulations and limited supply chains have obstructed progress toward equitable access. While caution is essential to avoid misuse and addiction—as demonstrated by the opioid crisis in North America—Indonesia's current consumption levels suggest a concerning trend of under-treatment of pain rather than overuse¹⁶.

Clinical and Ethical Implications

The restricted access to opioids has profound implications for patient care, particularly for individuals suffering from chronic, cancer-related, or terminal pain. The limited availability of morphine injections and the discontinuation of stronger opioids suggest that many patients are not receiving adequate analgesic relief. Barriers such as insufficient training, fear of dependency, and administrative burdens on both prescribers and pharmacists mirror challenges faced in other LMICs, including Ethiopia, Congo, and Brazil^{17–19}. In those regions, cultural stigma, limited foreign currency for imports, and deficient data systems further exacerbate access issues. Collectively, these systemic barriers represent a violation of the WHO's principle that access to pain relief is a fundamental human right.

Policy and Practice Implications

The findings of this study reflect the necessity for a balanced approach to opioid governance—striking a delicate equilibrium between maintaining control and enhancing access for legitimate medical use. The constrained prescribing capacity among healthcare providers, coupled with the complexity of regulations, has hindered the rational use of opioid therapy. Research by Setyabudi et al. (2015) and Indrayani et al. (2018) similarly identified stringent regulations, limited training for providers, and insufficient knowledge of opioid pharmacology as significant barriers to access. To address these challenges, several strategies are proposed: (1) Refining policies to streamline procurement, reporting, and prescribing processes, (2) Implementing capacity-building programs to educate healthcare professionals in pain assessment, dosing, and opioid safety, (3) Enhancing supply chain management to ensure consistent availability of products, (4) Fostering improved inter-sector collaboration among hospitals, pharmacies, and health authorities to facilitate safe distribution and monitoring^{20,21}. By adopting these measures, we can strengthen pain management systems and align Indonesia's opioid access framework with the recommendations of the WHO and INCB for balanced control.

Limitations

This study is limited to secondary data derived from distribution and utilization reports, without delving into patient-level clinical outcomes. While it identifies trends in accessibility and usage, it does

not fully elucidate prescribing decisions or patient needs. Future research should incorporate qualitative assessments of prescriber attitudes and quantitative evaluations of unmet analgesic demand to bolster evidence-based policy reform.

CONCLUSION

Access to and use of opioids in Surabaya remain limited and inconsistent, showing modest increases in hospital and clinic use, yet a significant decline in availability at pharmacies. These findings indicate that regulatory challenges, supply chain issues, and gaps in knowledge continue to hinder equitable pain management. It is crucial to strengthen regulatory frameworks, enhance professional capacity, and improve product availability to ensure that opioids are both safely controlled and readily accessible for patients in need.

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CONFLICT OF INTEREST

All the author declare that there is no conflict of interest in this research

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