



The Silent Danger in a Small Bag: Unmasking the "Obat Setelan" Phenomenon in Probolinggo

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Abstract

In Indonesia, the term "*obat setelan*" refers to a form of falsified medicine consisting of various tablets or capsules repackaged together. These products lack official distribution permits from the Indonesian Food and Drug Authority (BPOM), omit essential labeling regarding content or expiration, and are sold outside of regulated pharmaceutical channels. This study aimed to examine the patterns of use and the health impacts associated with *obat setelan* consumption in Probolinggo City. A descriptive cross-sectional study was conducted using a survey method. Questionnaires were distributed to 100 respondents selected via purposive sampling. Data were analyzed using descriptive statistics to categorize user demographics, purchasing behavior, and reported health outcomes. The findings indicate that users are predominantly middle-aged adults (64%) with limited economic means (69% earning below the regional minimum wage) and poor access to healthcare facilities (64%). Usage is driven by the perceived rapid efficacy (39%) in managing pain (27%), with local kiosks serving as the primary source (52%). Notably, 67% of respondents reported adverse physical changes, including "moon face" (18%), a clinical sign often associated with corticosteroid misuse. Furthermore, 45% reported insomnia upon cessation, suggesting a potential trend toward psychological dependence that warrants further clinical investigation. The widespread use of *obat setelan* highlights a significant public health risk linked to low health literacy and poor regulatory oversight in informal markets. Targeted education and stricter enforcement of drug distribution regulations are urgently needed to mitigate these risks.

Keywords: *obat setelan, falsified medicine, self medication*

Introduction

Health is a fundamental human asset, yet barriers to formal medical care have led to the global expansion of self-medication. While the World Health Organization defines self-medication as the treatment of self-recognized symptoms, this practice in developing nations frequently shifts toward the consumption of Substandard and Falsified (SF) medicines (WHO, 2018). In Indonesia, a prevalent form of SF medicine is known locally as *obat setelan*—unauthorized combinations of tablets or capsules repackaged without distribution permits, labels, or dosage instructions (Sitompul et al., 2024). According to the Indonesian Food and Drug Authority, these products bypass safety and quality standards, posing significant public health risks (BPOM RI, 2012). The prevalence of self-medication in Indonesia is high; data from the Central Bureau of Statistics indicated that in 2024, 79.93% of the population in East Java practiced self-medication (BPS,

2024). This trend is driven by high medical costs, limited consultation time, and the accessibility of informal markets (Nguyen et al., 2023; Banda et al., 2021). However, the transition toward *obat setelan* represents a dangerous escalation of irrational drug use. These packages often contain potent prescription-only drugs, such as dexamethasone and piroxicam, mixed with analgesics (Walidah et al., 2024). While users prioritize perceived rapid efficacy, literature suggests that such uncontrolled polypharmacy is reported to be associated with gastrointestinal disturbances and clinical signs like "moon face," although established causality requires more rigorous clinical monitoring (Ulinnuha, 2018; Rashid et al., 2020).

Despite these risks, the circulation of *obat setelan* has expanded significantly. BPOM reported a staggering increase in online findings related to these illegal sales, jumping from 134 links in 2023 to 2,345 links in 2024 (BPOM, 2023). Probolinggo City serves as a critical study site for this phenomenon due to its high concentration of informal sector workers and geographic pockets with limited healthcare access. Preliminary observations in Probolinggo indicate that *obat setelan* is often a preferred norm for treating chronic pain among physical laborers, despite emerging reports of adverse effects within the local community (Efayanti et al., 2019). While previous studies have explored self-medication broadly or focused on the chemical analysis of illegal drugs, there is a distinct research gap concerning the specific behavioral patterns and reported physical impacts among urban-marginal populations. Existing research predominantly focuses on legal pharmaceutical channels (Suryono et al., 2019; Octavia, 2019), leaving the sociological drivers and immediate health consequences of *obat setelan* in informal markets under-documented. This study aims to fill that gap by analyzing the patterns of use and health impacts in Probolinggo City, providing an evidence base to strengthen public health education and regulatory oversight.

Materials and Methode

This study employed a descriptive quantitative design using a survey method to describe the behavior and perceived impacts of *obat setelan* use among the community in Probolinggo City, East Java, Indonesia. The study was conducted from September to October 2025. Survey methods were selected because they enable the collection of information from respondents through questionnaires to obtain an overview of a particular phenomenon (Tamaulina et al., 2024). The study population consisted of all residents of Probolinggo City, which has a total population of 245,054 individuals distributed across five districts: Kademangan, Wonoasih, Mayangan, Kanigaran, and Kedopok. The minimum sample size was calculated using the Lemeshow formula with a 95% confidence level, a population proportion of 0.5, and a 10% margin of error, resulting in a minimum requirement of 96 respondents, which was rounded to 100 respondents. A margin of error of 10% was considered acceptable because this study aimed to provide an initial descriptive overview of the phenomenon in the community. Sample distribution across districts was determined using proportional allocation.

This study applied a non-probability sampling method with a purposive sampling technique, in which respondents were selected according to predefined inclusion criteria (Sugiyono, 2019; Widodo et al., 2023). Purposive sampling was chosen because the study specifically targeted individuals with experience using *obat setelan*, making it difficult to identify respondents through probability sampling. However, this technique may increase the risk of selection bias and limit the generalizability of the findings. The inclusion criteria were residents of Probolinggo City aged ≥ 17 years who had used *obat setelan*, were able to read and write, and were willing to participate in the study. Pregnant and breastfeeding women were excluded from participation (Notoatmodjo, 2010).

The study variables included behavior related to *obat setelan* use and the perceived impacts of its use (Sugiyono, 2019). Behavior related to *obat setelan* use referred to respondents' practices in obtaining, selecting, using, and storing the products. These variables were operationalized

through questionnaire items addressing frequency of use, source of acquisition, reasons for consumption, number of products consumed, and storage practices. The perceived impacts of *obat setelan* use referred to respondents' self-reported physical or social consequences following consumption, measured through questions regarding adverse effects, actions taken after experiencing side effects, and complaints experienced after discontinuation of use (Notoatmodjo, 2014).

Data were collected using a structured questionnaire developed based on constructs related to the behavior and impacts of *obat setelan* use (Kharisma & Anggraeni, 2018). The questionnaire underwent content validity assessment through expert judgment to evaluate the relevance of the items to the study variables (Hendryadi, 2014). In addition, reliability testing was conducted using Cronbach's alpha to assess the internal consistency of the questionnaire items. The study procedures included proposal development, ethical clearance application, research permit acquisition, questionnaire development, data collection, data processing, and data analysis. Data were analyzed using descriptive statistics with Microsoft Excel to summarize respondent characteristics, patterns of *obat setelan* use, and perceived impacts. Descriptive analysis was considered appropriate because the primary objective of the study was to provide an overview of the phenomenon rather than to examine causal relationships or associations between variables. Data processing procedures included editing, coding, data entry, and data cleaning to ensure completeness and accuracy (Notoatmodjo, 2010).

Result and Discussion

1. Respondent Characteristics

Based on the research conducted, a sample of 100 respondents who met the inclusion and exclusion criteria was obtained. The characteristics of each respondent are shown in Table 1.

Tabel 1. Respondent characteristics

Characteristic	Frequency (n)	Percentage (%)
Age		
17 - 25 years	6	6%
26 - 35 years	17	17%
36 - 45 years	36	36%
46 - 55 years	28	28%
56 - 65 years	13	13%
Total	100	100%
Education		
No schooling	16	16%
Elementary School	24	24%
Junior High School	15	15%
Senior High School	30	30%
University	15	15%
Total	100	100%
Income		
0-2.953.000	69	69%
≥ 2.953.000	31	31%
Total	23	100
Occupation		
Formal		
Employee	19	19%
Civil Servant	3	3%
Teacher or Lecturer	10	10%
Informal		
Housewife	8	8%

Farmer	8	8%
Laborer	11	11%
Trader	24	24%
Fisherman	5	5%
Student	2	2%
Construction Worker	10	10%
Total	100	100%
Distance from Home		
> 2 km (far)	64	64%
≤ 2 km (near)	36	36%
Total	100	100%
Riwayat Pengobatan		
Analgesic / Antipyretic	32	32%
Antacid	10	10%
Antibiotic	7	7%
Antidiabetic	9	9%
Antihypertensive	5	5%
Antihistamine	8	8%
Anti-inflammatory	7	7%
Antifungal	2	2%
Antitussive	1	1%
Gout medication	2	2%
Antidiarrheal	1	1%
Cholesterol medication	4	4%
Herbal medicine	3	3%
Laxative	1	1%
Hemorrhoid medication	1	1%
Vitamins	4	4%
None	2	2%
Total	100	100%

Based on the demographic data presented in Table 1, of the total 100 respondents, the results showed that the majority of *obat setelan* users were in the 36–55 years age group, accounting for 64% of respondents. This age group represents the productive working age with high levels of activity, making individuals more susceptible to complaints such as pain, muscle aches, and fatigue, which may encourage the use of *obat setelan* (Ministry of Health of the Republic of Indonesia, 2021). In terms of educational background, most respondents had low to intermediate levels of education, including elementary school graduates (24%), senior high school graduates (30%), and those with no formal education (16%). Lower educational attainment is associated with limited knowledge regarding drug safety and the risks of using medicines without official distribution permits (Sitindaon, 2020).

From an economic perspective, 69% of respondents earned below the regional minimum wage (IDR 0–2,953,000). Limited financial capacity tends to drive individuals to choose *obat setelan*, which is perceived as cheaper and more easily accessible, despite the lack of assurance regarding its quality and safety (Wulandari et al., 2023). Regarding occupation, *obat setelan* users were predominantly traders (24%), employees (19%), laborers (11%), and construction workers (10%). Individuals engaged in informal and physically demanding occupations are more likely to experience fatigue or pain, thereby prompting the use of *obat setelan* to maintain stamina and productivity (BPS, 2023).

In terms of healthcare access, 64% of respondents lived more than 2 km away from formal healthcare facilities. Long distances, transportation costs, and waiting times contribute to the preference for self-medication using *obat setelan*, which can be easily purchased from local shops

or drugstores without supervision by healthcare professionals (Sitompul et al., 2024). The history of medication use prior to consuming *obat setelan* indicated that analgesic/antipyretic drugs were the most commonly used (32%). The high use of analgesics suggests that pain and fever were the predominant health complaints in the community, which subsequently encouraged individuals to seek alternative treatments such as *obat setelan* when symptoms did not improve (Gupta & Chakraborty, 2022).

2. Falsified Medicine or “Obat Setelan” Use Behavior

Based on the results of research on 100 samples, data on the pattern of counterfeit drug use in Probolinggo City was obtained.

Table 2. *Obat setelan* use behavior

Behavior	Frequency (n)	Percentage (%)
Reason		
Effective	39	39%
Affordable	6	6%
Practical	23	23%
Received recommendations from others	30	30%
Habit passed down through generations	2	2%
Total	100	100%
Place of Purchase		
Drugstore	8	8%
Small shop / convenience stall	52	52%
Friend	27	27%
Family	11	11%
Herbal medicine seller	1	1%
Online store	1	1%
Total	100	100%
Type of Symptoms		
Pain	27	27%
Gout	24	24%
Fever	12	12%
Cough	5	5%
To increase stamina or body immunity	17	17%
Toothache	15	15%
Total	100	100%
Frequency of Medication Consumption		
1–3 times per week	66	66%
4–6 times per week	30	30%
> 6 times per week	4	4%
Total	100	100%
Number of Combined Medicines		
1 medicine	5	5%
2 medicines	55	55%
3 medicines	40	40%
Total	100	100%
Number of medicine packages		
1 set	4	4%
2 sets	69	69%
3 sets	25	25%
More than 3 sets	100	100%
Total	32	%

Time of Starting to Consume Combined Medicines	10	10%
< 6 months	57	57%
6 months – 1 year	37	37%
1 year – 3 years	5	5%
More than 3 years	1	1%
Total	100	100%

Based on the demographic data presented in **Table 2**, of the total 100 respondents, the results related to behavior in the use of *obat setelan* are described as follows.

a. Reasons for Use

Most respondents reported consuming *obat setelan* because they perceived it to be effective (39%), followed by practicality (23%), recommendations from others (30%), and affordability (6%). This perception of effectiveness likely arises because *obat setelan* often contains combinations of active substances such as analgesics, corticosteroids, and antihistamines, which provide rapid symptomatic relief, although the effects are usually temporary. Recommendations from close acquaintances reinforce social trust in self-medication practices, causing this behavior to be repeated and even become a habitual or intergenerational practice. These findings are consistent with previous studies reporting that individuals tend to rely more on the experiences of people close to them than on healthcare professionals when selecting non-prescription medicines.

b. Sources of Acquisition

Obat setelan was most commonly obtained from small shops, drugstores, pharmacies, mobile vendors, and traditional herbal sellers. This indicates that its circulation has penetrated various distribution channels, including formal healthcare facilities, reflecting weaknesses in drug regulatory control. Many of these medicines were repackaged without proper labeling, leaving consumers unaware of the dosage, active ingredients, or expiration dates.

c. Health Complaints Treated

The main complaints prompting the use of *obat setelan* included pain (27%), gout (24%), stamina enhancement (17%), and toothache (15%). This pattern is consistent with the typical composition of *obat setelan*, which commonly contains analgesic and anti-inflammatory agents.

d. Frequency of Use

The frequency of *obat setelan* consumption was relatively high: 66% of respondents consumed it 1–3 times per week, 30% consumed it 4–6 times per week, and 4% reported using it more than six times per week. This repeated consumption pattern indicates that *obat setelan* is no longer used occasionally for acute illness but has become a routine practice. Such behavior reflects irrational self-medication and may increase the risk of adverse effects, overdose, and drug dependence. The World Health Organization (2020) has emphasized that continuous self-medication without medical supervision can delay diagnosis, increase the risk of complications, and worsen health outcomes.

e. Number of Medicines per Setelan Package

Most respondents consumed *obat setelan* containing two types of drugs (55%), followed by three types (40%), while only 5% consumed a package containing a single drug. These packages often included combinations of analgesics, nonsteroidal anti-inflammatory drugs (NSAIDs), antibiotics, antihistamines, and corticosteroids without clear dosage information, thereby increasing the risk of drug interactions and adverse effects.

f. Number of Setelan Packages Consumed Until Symptom Relief

The majority of respondents required two setelan packages (69%), followed by three packages (25%), to experience symptom improvement. Only 4% reported symptom relief after consuming one package, while 2% consumed more than three packages. This pattern suggests that dosage determination was based on personal perception rather than medical recommendation, contributing to repeated and irrational self-medication practices.



Figure 1. *Obat setelan*

Through documentation, it appears that the setelan medication used by respondents consists of tablets of various colors: white, yellow, orange, and pink, and in various shapes ranging from circular to oval. Based on organoleptic identification and pharmacologic references, the white tablet is likely to be paracetamol or amoxicillin, while the yellow tablet may be vitamin B complex or mefenamic acid. The orange or pink tablet is likely to contain pyroxecam or dexamethasone, which are classified as strong medications.

g. Duration of *Obat setelan* Use

As many as 57% of respondents had started using *obat setelan* within the past six months, 37% within 6 months to one year, and only 6% had been using it for more than one year. These findings indicate a rapidly growing trend of new users, driven by ease of access and recommendations from people in their social environment.

3. *Obat setelan* Use Impact

The results of a study of 100 respondents show that the use of falsified drugs over a period of time causes side effects.

Table 3. Side effects experienced by respondents

Description	Frequency (n)	Percentage (%)
Side Effects		
Ever	67	67%
Never	33	33%
Types of Side Effects That Occur		
Fever	1	1%
Diarrhea	7	7%
Dizziness	16	16%
<i>Moonface</i>	18	18%
Hypertension	2	2%
Drowsiness	12	12%
Osteoporosis	2	2%
Stomach pain	5	5%
Swollen legs	4	4%
Time of Side Effect Onset		
Appeared after using the medication	7	7%
Appeared after several uses	60	60%
Duration of Side Effects		
Less than 1 week	51	51%

More than 1 week	16	16%
Actions Taken When Side Effects Occurred		
Consumed the combined medicine again	17	17%
Stopped consuming the combined medicine	50	50%
Consultation with Medical Personnel		
Yes	33	33%
No	67	67%
Total	100	100%

Based on the demographic data presented in Table 3, of the total 100 respondents, the results showed that 67% of respondents experienced side effects after consuming *obat setelan*, indicating that more than half of users reported adverse effects despite many of them believing that *obat setelan* is safe. Drug-related side effects are harmful responses that may lead to new illnesses or even death (Zazzara et al., 2021). This finding is consistent with Amir-Azodi et al. (2024), who emphasized that drug misuse poses a risk of long-term negative outcomes, particularly when medicines are consumed repeatedly without medical supervision. This phenomenon also supports the findings of Sari et al. (2025), who reported that *obat setelan* carries a high risk of adverse effects due to being repackaged without clear labeling, lacking information on composition, and having no official distribution permit from the Indonesian National Agency of Drug and Food Control (BPOM). The types of side effects reported in this study included moon face (18%), dizziness (16%), drowsiness (12%), diarrhea (7%), gastric pain (5%), lower limb edema (4%), osteoporosis (2%), and hypertension (2%). The wide range of adverse effects is closely associated with the composition of *obat setelan*, which typically consists of combinations of prescription drugs such as corticosteroids, nonsteroidal anti-inflammatory drugs (NSAIDs), analgesics, and antihistamines. These drugs are consumed without clear dosage instructions and are often taken repeatedly.

Consistent with the literature, NSAIDs are known to cause gastric pain, dyspepsia, and even gastrointestinal bleeding (Bethesda, 2020; Khairunnisa, 2024), while long-term use of corticosteroids such as dexamethasone may lead to moon face, hypertension, osteoporosis, and immunosuppression (Saputro et al., 2023). In addition, combinations of analgesics and antihistamines may cause dizziness and drowsiness (Ernawaningtyas, 2013). The majority of respondents (60%) reported that side effects appeared after repeated use, indicating that drug accumulation was a major trigger for these complaints. Half of the respondents (50%) discontinued the use of *obat setelan* after experiencing side effects; however, 17% continued using it because they believed the symptoms represented a new illness or because they felt dependent on the medicine (Sari et al., 2025; Sitompul et al., 2024). This pattern reflects irrational self-medication behavior and suggests a potential risk of psychological dependence. Furthermore, 67% of respondents did not consult healthcare professionals after experiencing side effects, influenced by limited knowledge of drug-related risks, the perception that symptoms were mild, restricted access to healthcare services, and low trust in medical professionals (Amir-Azodi et al., 2024). Such conditions may perpetuate cycles of dependence and further deteriorate health outcomes.

Table 4. Symptoms Experienced by Respondents When Not Taking Prescription Medication

Description	Frequency (n)	Percentage (%)
Physical Symptoms (Weakness or Pain)		
Ever	40	40%
Never	60	60%

Psychological Symptoms		
Stress	4	4%
Anxiety	35	35%
Difficulty sleeping	45	45%
Restlessness	16	16%
Interference with Daily Activities		
Yes	40	40%
No	60	60%
Total	100	100%

Based on the demographic data presented in Table 4, of the total 100 respondents, the results indicated a tendency toward dependence on *obat setelan* among a proportion of respondents. As many as 40% of respondents reported experiencing physical symptoms such as weakness and pain when they did not consume *obat setelan*, while 60% reported no physical complaints. In addition, psychological symptoms were also identified, including difficulty sleeping (45%), anxiety (35%), restlessness (16%), and stress (4%). This pattern suggests the presence of both physiological and psychological dependence resulting from prolonged and uncontrolled use of *obat setelan*.

Psychosomatic symptoms such as insomnia, anxiety, and restlessness may be explained by the abrupt discontinuation of *obat setelan*, which is suspected to contain corticosteroids such as dexamethasone. Long-term corticosteroid use can disrupt stress hormone (cortisol) regulation; therefore, sudden withdrawal may trigger withdrawal symptoms, including weakness, insomnia, and anxiety (Saputro et al., 2023; Omokhua-Uyi & Van Staden, 2021). Many respondents reported feeling an increase in energy while using *obat setelan*, and the loss of this sensation after discontinuation led to discomfort that was perceived as psychological distress.

These findings are consistent with Sari et al. (2025), who stated that the rapid symptomatic effects of *obat setelan* contribute to the development of behavioral dependence, in which users rely on short-term relief rather than actual disease resolution. Furthermore, 40% of respondents acknowledged that their daily activities were disrupted when they did not consume *obat setelan*, resembling mild withdrawal symptoms following the cessation of regularly consumed active substances. Overall, these findings demonstrate that the use of *obat setelan* not only causes physical adverse effects but also has the potential to induce long-term dependence. If left unaddressed, this condition may evolve into a high-risk habitual behavior within the community, as cautioned by Darmawan and Sumiwi (2025).

CONCLUSIONS

The use of *obat setelan* remains widespread in Probolinggo, particularly among middle-aged adults in the non-formal sector who face economic constraints and limited access to healthcare facilities. The prevalence of this practice is driven by perceived efficacy in pain management, with over half of users bypassing professional channels to acquire unidentified drug combinations from local shops. This behavior is characterized by a significant lack of literacy regarding dosage, indications, and the inherent risks of polypharmacy. The health impact is substantial, with 67% of users experiencing adverse effects—most notably "moon face"—often within the first week of use. While most individuals cease consumption upon the onset of physical symptoms, the vast majority do not seek professional medical consultation. Furthermore, reported symptoms such as insomnia following cessation suggest a potential for psychological dependence, though this observation requires more rigorous clinical investigation to establish causality.

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