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# Overview of Methadone Dosage Administration in Patients Undergoing Methadone Maintenance Therapy

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A B S T R A C T

Narcotics are substances that can cause changes in consciousness and psychoactive effects, while psychotropics are substances that can change a person's feelings, thoughts, or behavior. One of the replacement therapies to prevent intoxication and withdrawal symptoms is methadone maintenance therapy to control dependence and reduce the negative impact of Human Immunodeficiency Virus (HIV)/Acquired Immuno-Deficiency Syndrome (AIDS) transmission. This study aims to obtain an overview of methadone dosage administration in patients undergoing methadone maintenance therapy at the Bangil Community Health Center. This study was conducted retrospectively by collecting medical records of patients undergoing methadone maintenance therapy. The data obtained were 35 patients and analyzed descriptively. The results of demographic data show that the majority of gender is male (33 people), aged 26-35 years 22 people (62.9%), high school education 29 people (82.9%), employed 35 people (100%), and married status 27 people (77.1%). The most common initial dose used was 30-50mg in 23 people (65.7%), the smallest maintenance dose was <60mg in 33 people (94.3%) and the largest maintenance dose was >120mg in 24 people (68.6%)

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## INTRODUCTION

Opiate addicts commonly use heroin and most inject drugs unsafely, both in terms of equipment that tends to be reused and shared, and injection sites that are generally not cleaned first. This results in high susceptibility to infections such as bone and joint infections, endocarditis, sepsis, soft tissue infections, tetanus, and other blood-borne viruses such as Hepatitis B, C, and D and Human Immunodeficiency Virus (HIV) (Kemenkes RI, 2013).

To reduce the harmful effects of injectable opiate use, harm reduction interventions are needed. One approach is a maintenance therapy program that provides methadone in liquid form, known as Methadone Maintenance Therapy Program. Methadone administration does not cause strong sedative effects. Methadone therapy programs are carried out long-term, hence the name Methadone Maintenance Therapy Program. They aim to reduce the risks associated with heroin use and improve quality of life [Kemenkes RI, 2009].

According to data from the National Narcotics Agency (BNN), there were 851 drug abuse cases in 2022, an 11.1% increase compared to the 766 cases in the previous year. Meanwhile, the number of suspects in drug cases in 2022 reached 1,350, a 14.02% increase compared to the 1,184 cases in 2021. Furthermore, in 2022, the BNN successfully confiscated 1,904 tons of methamphetamine, 1.06 tons of marijuana, 262,789 ecstasy pills, and 16.5 kg of ecstasy powder [BNN, 2022].
Methadone is a synthetic opiate drug administered orally to patients as a replacement therapy for opioid addiction. The goal of methadone is to provide users with the opportunity to achieve more stable lifestyles, reduce the risks associated with injecting drug use, and reduce the crime often associated with addiction (Kemenkes RI, 2013).

Research conducted by Megawati et al (2024), the initial dose of methadone maintenance therapy is in the range of 15-30 mg/day. The smallest maintenance dose is 5 mg/day, the largest maintenance dose is 205 mg/day and the average maintenance dose is 91.42 mg/day. Other research shows a significant effect between the largest maintenance dose and the retention rate p value = 0.010; r = 0.431 (Siswidiasari et al., 2024). The results of this study are different, where at the smallest maintenance dose, it shows that there is a significant relationship between the smallest maintenance dose and the retention rate p value = 0.036 with sufficient correlation r = -0.328 (Siswidiasari et al., 2019).

Based on this background, researchers are interested in researching "Overview of Methadone Dosage Administration in Patients Undergoing Methadone Maintenance Therapy".

## LITERATURE REVIEW

Based on the results of research conducted by Megawati et al (2024), the initial dose of methadone therapy for patients using 15 mg/day was 1 person (12.5%), 20 mg/day was 3 people (37.5%), 25 mg/day was 3 people (37.5%), and 30 mg/day was 1 person (12.5%). The smallest maintenance dose was 5 mg/day, the largest maintenance dose was 205 mg/day, and the average maintenance dose was 91.42 mg/day.

According to the results of research conducted by Siswidiasari et al (2024), the results of the analysis of the largest maintenance dose showed a significant effect on the retention rate p value = 0.010; r = 0.431. This is in line with the results of research conducted by Farre et al (2002), high-dose methadone administration is more effective in reducing retention rate than low doses with a value (OR 1.72, confidence interval 95% CI 1.26-2.36). A similar study where the largest maintenance dose had a significant effect with a retention rate p value of 0.021; OR 9.167 (Siswidiasari et al., 2024). The results of another study found that at the smallest maintenance dose, there was a significant relationship p value = 0.036 with a sufficient correlation (r = -0.328) between the smallest maintenance dose and retention rate (Siswidiasari et al., 2019). Another study that is in line with this study was conducted by Wei et al (2013), showing a relationship between dose and retention of methadone therapy patients. Meanwhile, according to the research results of Huissoud et al (2012), there was a significant relationship between the take-home dose and retention p = 0.009.

The success of methadone maintenance therapy can be seen from the retention rate. The retention rate is the length of time a patient undergoes methadone maintenance therapy after receiving stabilization therapy (methadone administration for 6 weeks or 42 days), which is one of the indicators in methadone maintenance therapy. The results of research conducted by Siswidiasari et al (2023), stated that the effect of the duration of narcotic and psychotropic use on retention rate, showed a significant influence between opioid use and retention rate p = 0.030 odds ratios (OR) = 3.193. Patients who use opioids for a longer period are at greater risk of having a large retention rate as much as 3.193 times compared to people who use opioids only in the short term. This study is expected to be a source of information and reference material for research on patients addicted to narcotics and psychotropics regarding retention rate.

The initial dose of methadone is between 20 and 40 mg, with a dose of <40 mg by the end of the first week. Continuity of treatment is crucial if little or no improvement is observed. Patients who have achieved sufficient stabilization with the appropriate methadone dose can resume normal work, reduce violence, and reduce the spread of HIV by reducing needle use. Patients on a stabilization dose in this therapy can also participate in counseling and other behavioral interventions to accelerate improvement and rehabilitation (Kemenkes RI, 2009).

## METHODOLOGY

This study is a non-experimental study conducted retrospectively on narcotic and psychotropic drug dependent patients at Bangil Community Health Center. The inclusion criteria were narcotic and psychotropic drug dependent patients undergoing methadone maintenance therapy at Bangil Community Health Center, narcotic and psychotropic drug addict patients receiving methadone maintenance therapy for the first time at Bangil Community Health Center, patients undergoing therapy for more than 6 weeks (42 days), aged 18 years or older and having tried to stop using opioids at least once. The exclusion criteria were methadone maintenance therapy patients receiving Antiretroviral (ARV) and Anti-Tuberculosis (OAT) drug therapy, incomplete patient medical records/transferred patients/transit patients, pregnant and breastfeeding women. Data were taken from the medical records of outpatients who first participated in the methadone maintenance therapy program at Bangil Community Health Center from December 2023 – January 2024 who met the inclusion criteria. The data obtained were 35 patients and analyzed descriptively.

## RESEARCH RESULT

Demographic Data Results of Methadone Maintenance Therapy Patients

Based on the data in table 1, the most common gender is male 33 people (94.3%), female 2 people (5.7%); age 26-35 years 22 people (62.9%), 36-45 years 12 people (34.3%); 17-25 years 1 person (2.9%), high school education 29 people (82.9%), junior high school 4 people (11.4%), university 2 people (5.7%); employed 35 people (100%); married status 27 people (77.1%), unmarried 5 people (14.3%), and divorced 3 people (8.6%).

Table 1. Demographic Data of Methadone Maintenance Therapy Patients

| Demografi | f | % |
|---|---|---|
| **Sex** | | |
| Male | 33 | 94.3 |
| Female | 2 | 5.7 |
| **Age Group (years)** | | |
| 17–25 | 1 | 2.9 |
| 26–35 | 22 | 62.9 |
| 36–45 | 12 | 34.3 |
| **Education** | | |
| SMP | 4 | 11.4 |
| SMA | 29 | 82.9 |
| PT | 2 | 5.7 |
| **Work** | | |
| Work | 35 | 100 |
| Doesn't work | 0 | 0 |
| **Marital status** | | |
| Not married yet | 5 | 14.3 |
| Marry | 27 | 77.1 |
| Divorced | 3 | 8.6 |

**Methadone Dosage Usage Overview**

Based on the data in table 2, the highest initial dose used was 30-50mg for 23 people (65.7%), <30 mg for 12 people (34.3%); the lowest maintenance dose was <60mg for 33 people (94.3%), 60-100mg for 2 people (5.7%); the highest maintenance dose was >120mg for 24 people (68.6%), and <120mg for 11 people (31.4%).

Table 2. Overview of Methadone Maintenance Dose Usage

| Dose | f | % |
|---|---|---|
| **Initial Dose** | | |
| <30 mg | 12 | 34,3 |
| 30-50 mg | 23 | 65,7 |
| **Smallest Maintenance Dose** | | |
| <60 mg | 33 | 94,3 |
| 60-100 mg | 2 | 5,7 |
| **Highest Maintenance Dose** | | |
| <120 mg | 11 | 31,4 |
| >120 mg | 24 | 68,6 |

## DISCUSSION

Methadone belongs to the opiate class and is administered orally as a replacement therapy for opioid addiction. Methadone is used as a safe and effective drug to help addicts withdraw from heroin, but not to stop them. Continuity of treatment is crucial, as little or no improvement is observed. Methadone has analgesic and euphoric properties due to its action on mu (μ) opioid receptors, similar to other mu (μ) opioid agonists such as morphine. Methadone is a potent synthetic opioid agonist and is well absorbed orally. It can also be administered parenterally and rectally, although the latter is less common. The effects of methadone are qualitatively similar to those of morphine and other opioids. These effects include analgesia, sedation, respiratory depression, and euphoria. Other effects include lowering blood pressure, pupillary constriction, and gastrointestinal effects, such as slowing gastric emptying by reducing motility, increasing pyloric sphincter tone, and increasing sphincter of oddi tone, which can lead to bile duct spasm. Side effects of methadone include sleep disturbances, nausea, vomiting, constipation, dry mouth, sweating, vasodilation and itching, menstrual irregularities, gynecomastia and sexual dysfunction in men, as well as fluid retention and weight gain. These side effects are less common in people who have previously used heroin (Kemenkes RI, 2009).

Several studies have shown that methadone maintenance therapy can reduce dependence in patients addicted to narcotics and psychotropic drugs. The goal of methadone is to provide users with the opportunity to achieve more stable lifestyles, reduce the risks associated with injection drug use, and reduce the crime often associated with addiction. Methadone maintenance therapy is

believed to be the most effective treatment for opioid dependence and to reduce the harms associated with opioid use (Kemenkes RI, 2009).

## CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the study overview of methadone dosage administration in patients undergoing methadone maintenance therapy, it was found that the highest initial dose was 30-50mg at 65.7%, the smallest maintenance dose was <60mg at 94.3%, and the largest maintenance dose was >120mg at 68.6%.

## REFERENCES

BNN. (2022). Indonesia Drugs Report 2022. Badan Narkotika Nasional.

Farre, M., Mas, A., Torrens, M., Moreno, V., & Cami., J. (2002). Retention rate and illicit opioid use during methadone maintenance interventions: a meta-analysis. 65(3), 283–290. https://doi.org/10.1016/S0376-8716(01)00171-5.

Huissoud T, Rousson V, Dubois-arber F. Methadone treatments in a Swiss Region , 2001 – 2008 : a registrybased analysis. 2012. https://doi.10.1186/1471-244X-12-238

Kemenkes RI. (2013). Peraturan Menteri Kesehatan Republik Indonesia Nomor 57 Tahun 2013 Tentang Pedoman Penyelenggaraan Program Terapi Rumatan Metadon. Kementerian Kesehatan Rebublik Indonesia.

Kemenkes RI. (2009). Undang-Undang Nomor 35 Tahun 2009 tentang Narkotika. Kementerian Kesehatan Rebublik Indonesia.

Megawati, S., & Septia, R. (2024). Gambaran Penggunaan Dosis Metadon Pasien Program Terapi Rumatan Metadon (PTRM) di UPT Puskesmas Cibodasari Tangerang Periode Januari-Desember 2022. Jurnal Farmagazine, XI (1), 59–63. http://dx.doi.org/10.47653/farm.v11i1.746

Siswidiasari, A., Probosiwi, N., Laili, N. F., Ilmi, T., Yuniarto, P. F., Krisnadewi A. A. I., & Hermawatiningsih, O. D. (2024). Factors Affecting the Retention Value of Drug Addict Patients in Methadone Maintenance Therapy. International Journal of Contemporary Sciences, 2(3), 183–190. https://doi.org/10.55927/ijcs.v1i5.8665

Siswidiasari, A., Sapto Agus, T. D., & Hermawatiningsih, O. D. (2024). Pengaruh Penggunaan Dosis Metadon Terhadap Nilai Retensi. Parapemikir : Jurnal Ilmiah Farmasi, 13(2), 216–221. https://doi.org/10.30591/pjif.v13i2.6588

Siswidiasari, A., Wahab, C. S., & Hermawatiningsih, O. D. (2023). Pengaruh Lama Penggunaan Narkotika Dan Psikotropika Terhadap. 12(2), 232–242. https://doi.org/10.30591/pjif.v12i2.4971

Siswidiasari, A., Prayitno Setiadi, A. A., & Nurmayanti, L. (2019). Hubungan antara Karakteristik Pasien dan Terapi terhadap Nilai Retensi di RSJ Menur Surabaya. Jurnal Ilmu Kefarmasian Indonesia, 17(2), 132. https://doi.org/10.35814/jifi.v17i2.535

Wei, X., Wang, L., Wang, X., Li, J., Li, H and Jia, W. (2013) A study of 6-year retention in methadone maintenance treatment among opioid-dependent patients in Xi'an, J. Addict. Med., vol. 7, no. 5, pp. 342–348, Sep. 2013, https://doi.org 10.1097/ADM.0B013E31829DA05B.