

The Effect of Patients' Characteristics and the Dosage of Methadone Maintenance on Retention of Methadone Therapy in H. Adam Malik General Hospital, Medan

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ABSTRACT

Background: The maintenance phase in methadone maintenance therapy required a long time until the patient was declared recovered, so that it often caused saturation and results in high drop-out rates. Therapy retention or survival of patients in the process of therapy was one indicator of the success of this methadone therapy. This study aims to determine the effect of patient characteristics and methadone maintenance therapy dose on the retention of methadone therapy at H. Adam Malik General Hospital Medan.

Subjects and Method: This study used a cross sectional design and was carried out at H. Adam Malik General Hospital in Medan. The number of samples in this study was the total population of 63 patients in the maintenance phase January 2017 to January 2018. The dependent variable was the retention of methadone therapy and the independent variables included age, education level, marital status, work status, domicile, and average maintenance dose even. The data in this study were obtained from the medical record data of maintenance phase methadone patients and the data analysis was done using multiple logistic regression tests.

Results: The results showed that the average maintenance dose had an effect on retention of methadone therapy (OR = 5.94, 95% CI 1.06 to 33.18, p = 0.042).

Conclusions: The maintenance dose of ≥ 60 mg affects the retention of methadone therapy 6 times higher than the dose of < 60 mg.

Keywords: Therapy retention, patient characteristics, maintenance doses

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BACKGROUND

According to the United Nations Office on Drugs and Crime (UNODC) report, in 2016 there were around 275 million people (5.60%) around the world aged 15-64 years who had consumed drugs, 34 million of whom were Opioids drug users (UNODC, 2018).

The prevalence of drug abusers in Indonesia in 2017 was around 1.77%, where the North Sumatra Province with a prevalence of drug abusers of 2.53% was the province with the number two prevalence of drug abusers in Indonesia after DKI Jakarta Province (BNN, 2017).

Injectable opioids such as heroin or putaw were the types of drugs that have the greatest negative impact on health. Non-sterile use of drugs with needles and shared use were very vulnerable to transmission of HIV/AIDS so that injecting drug addicts were the group most at risk of infection with the HIV virus. There were 10.60 million injecting drug users in the world and 1.26 million of them have HIV (UNODC, 2018). The problem of HIV infection in Indonesia was closely related to unprotected sex and injecting drug use. HIV infection among injecting drug users in Indonesia ranged from 50%-90% (Ministry of

Health, 2014). Another impact of injecting type drug use was to cause deaths from overdoses where according to the UNODC report 76% of drug use disorder cases were caused by injecting opioid drug use in 2015.

To anticipate the consequences of injecting drug use among drug addicts, the government made efforts through maintenance therapy activities using liquid methadone as an opiate substitute (heroin or putaw), known as the Methadone Maintenance Therapy Program (PTRM). PTRM is a form of drug substitution therapy that is replacing drugs used by drug users, which are carried out in medical supervision, with similar or similar effects but using it differently (Kumar, 2016). The aim of methadone therapy is to reduce harm due to the use of needles when using opiate drugs, namely the risk of getting infections such as Hepatitis (B and C) and HIV (Ministry of Health, 2013).

RSUP H. Adam Malik Medan Methadone Clinic is one of the PTRM services in North Sumatra and has been established since 2008. However, the number of addict visits to the H. Adam Malik Hospital Methadone Clinic has decreased significantly each year and new patient visits can be said to be none. Currently, patients who are actively visiting the Methadone Clinic are patients who are in the maintenance stage. As we know that the PTRM program consists of the acceptance stage (mandatory reporting), the initiation stage, the stabilization stage, the maintenance stage, and the phase of cessation of methadone. The maintenance phase requires a long time, which can run for years until the patient's behavior is stable, both in the fields of work, emotions and social life (Ministry of Health, 2013). Because it is long-term so it often causes saturation and results in high dropout rates. At the beginning of 2017, there were around 63 patients actively par-

ticipating in therapy, but a year later the number of active patients dropped to 35 in January 2018.

Therapy retention or survival of patients in the process of therapy was one indicator of the success of this methadone therapy. Some of the results of previous studies in developed countries that there were three main categories of factors that significantly influence the retention of methadone therapy, namely program characteristics included: methadone dosage, urinalysis policy, privilege of bringing home, staff behavior, accessibility of therapeutic services, client characteristics include: age, use multi-drug, therapeutic motivation, psychological functions, and social characteristics include: family support, community support, and peer support (Sarasvita et al., 2012). Therefore, this study aims to determine the effect of patient characteristics and maintenance dose of methadone on the retention of methadone therapy at H. Adam Malik General Hospital Medan.

SUBJECTS AND METHOD

a. Study Design

This was a cross sectional study design. The study was conducted at the Methadone Clinic at the H. Adam Malik Hospital in Medan in November 2018.

b. Population and Samples

The number of samples in this study was the total population of 63 patients in the maintenance phase for the period January 2017 to January 2018.

c. Study Variables

The dependent variable was the retention of methadone therapy and the independent variables were age, education level, marital status, work status, domicile, and average maintenance dose.

d. Instruments

The data in this study were obtained from the medical record data of maintenance

phase methadone patients at the Methadone Clinic at H. Adam Malik Hospital, Medan.

e. Data Analysis

The data obtained in this study were analyzed using multiple logistic regression tests.

RESULTS

Table 1 showed the frequency distribution of patient characteristics, maintenance dose and therapeutic retention during the study

Table 1. Distribution of patient characteristics, maintenance dose, and therapeutic retention

Variable	Total	Percentage (%)
Age		
≤ 35 years	53	84.10
>35 years	10	15.90
Education		
Low	14	22.20
adequate/high	49	77.80
Marital Status		
Single/divorced	37	58.70
Married	26	41.30
Working Status		
Not working	20	31.70
Working	43	68.30
Resident		
Outside Medan	5	7.90
Medan	58	92.10
Average Maintenance Dosage		
< 60 mg	32	50.80
≥ 60 mg	31	49.20
Therapy Retention		
< 365 days	10	15.90
≥ 365 days	53	84.10

period. Table 1 below described the majority of patients aged ≤35 years (84.10%), moderate or high education (77.80%), single / divorced status (58.70%), having work or business (68.30%), and lived in Medan City (92.10%). Based on therapeutic factors, most maintenance patients consumed methadone with a maintenance dose averaging <60 mg (50.80%) and patients with treatment duration 365 days (84.10%).

Table 2 showed the results of multivariate analysis using multiple logistic regression tests. Table 2 illustrated that the average maintenance dose affected the retention of methadone therapy (OR = 5.94 CI 95%= 1.06 to 33.18, p= 0.042), meaning that the

provision of higher methadone doses (≥60 mg) has proved important in maintaining patients in therapy. Educational level variables were not statistically proven to influence the retention of methadone therapy (OR = 3.86 CI 95%= 0.79 to 18.62, p = 0.093).

Table 2. The results of multivariate multiple logistic regression analysis

Variable	OR	95% CI		p
		Lower	Upper	
Education	3.86	0.79	18.62	0.093
Average Maintenance Dosage	5.94	1.06	33.18	0.042
Constant	0.05			0.116

DISCUSSION

1. The relationship between patient characteristics and therapy retention

The results showed that most patients were ≤ 35 years old (84.10%). This result was in accordance with Pahlemy (2010) and Rambe (2018) which stated that the age group of respondents was mostly at the age of ≤ 35 years old. This also in line with the results of the study which stated that the average age of patients in the study was 27.20 years old (Sarasvita et al., 2012) and 33.30 years old (Liu et al., 2009). Age of respondents was a predictor variable of methadone therapy retention (Sarasvita et al., 2012). The estimated risk of leaving therapy increased by 1.29 times in patients who were younger than 30 years old with $p = 0,001$ (Huissoud et al., 2012).

Distribution of respondents based on education level that most patients have moderate/high education level (77.80%). These results were in accordance with the results of the study which stated that the education level of the respondents of methadone maintenance therapy patients was mostly at the medium/high education level, namely high school and college (Rambe, 2018; Pahlemy, 2010; Aprilya et al., 2014; Fathollahi et al., 2016; Yang et al., 2013). Almost all methadone patients who go to the Tebet Health Center, Jakarta have higher education (Rahayu & Syarif, 2013). The level of education contributed to the level of knowledge. The high level of knowledge was expected to increase patient motivation for routine treatment. The results

of study done by Tampubolon (2012) stated that knowledge was related to the methadone patient's need to seek treatment at the PT Morawa Community Health Center Clinic in Deli Serdang District. However, in this study, no measurement was made on respondents' knowledge about methadone maintenance therapy.

The distribution of respondents was based on marital status, most of the patients were single/divorced (58.70%). These results were in accordance with the results of the study done by Pahlemy (2010), which stated that most methadone patients treated at Jakarta RSKO and Fatmawati General Hospital in Jakarta were not married. The majority of methadone therapy patients were not married (Sarasvita et al., 2012; Liu et al., 2009). Marital status played a role in patient compliance in taking methadone therapy. Patients who live with a partner would tend to complete the therapy (Pahlemy, 2010). Most patients who routinely attend methadone maintenance therapy were patients who live with their partners (Li et al., 2019).

The results of this study indicated that the majority of patients have jobs or busyness (68.30%) with the type of work that was mostly self-employed. This was consistent with the results of previous studies in which stated that most methadone maintenance therapy patients had work or busyness (Rambe, 2018; Pahlemy, 2010). Some methadone maintenance therapy patients have both full time and part time jobs (Liu et al., 2009; Rahayu & Syarif, 2013). According to Ward, the occupational status

of patients with methadone maintenance therapy is associated with greater therapy retention and better outcomes after therapy (Pahlemy, 2010).

In this study, some patients were local residents who lived in the city of Medan (92.10%). This was in accordance with the results of a study by Liu et al. (2009) which stated that most methadone maintenance therapy patients were local residents. The patient's domicile was related to the patient's accessibility to the methadone maintenance therapy service itself. Patients who were local residents and close to therapy services tend to be easier to access services provided than patients who were not local residents. Based on the results of this study, it showed that the characteristic variables of patients in this study did not affect the retention of therapy for methadone patients. According to Ward, patient characteristics are predictors of methadone maintenance therapy retention (Pahlemy, 2010).

2. The relationship between maintenance dose and therapy retention

Based on Table 1, it showed that the majority of methadone maintenance patients have >1 year endurance. Retention is one of the success criteria for methadone maintenance therapy programs (Ministry of Health, 2013). Based on the results of this study, the patient retention rate for a year was 55.55% with a dropout rate of 17.46% for 3 months. The study of Vafaenasab et al. (2015) stated that patient retention after 6 months of treatment became 28.36% and study of Rahayu & Syarif (2013) found that the retention rate of methadone maintenance patients for 1 year of treatment was 84.60%.

Based on the results of multivariate analysis with multiple logistic regression tests, it was found that the average maintenance dose had an effect on patient retention in therapy (OR = 5.94 CI 95% = 1.06 to

33.18, $p = 0.042$). This means that the average maintenance dose was a predictor of retention where the maintenance dose on average ≥ 60 mg in this study was 5.90 times more influential on patient retention in therapy compared to the maintenance dose averaged <60 mg. This was in accordance with the results of previous studies which stated that the provision of higher methadone doses of ≥ 60 mg was important in maintaining patients in therapy (Sarasvita et al., 2012; Rahayu & Syarif, 2013). Therapy retention was 1.74 times greater with methadone dosage ≥ 60 mg compared to doses <60 mg (Bao et al., 2009). The daily therapeutic dose of methadone maintenance patients was a predictor of methadone maintenance therapy retention (Yang et al., 2013). Predictor variables in one year of therapy retention using the Cox proportional hazard model were high methadone doses (Fathollahi et al., 2016). According to Ward, administering a higher dose of methadone (≥ 60 mg per day) was basically to prevent drug withdrawal symptoms, induce cross tolerance to the effects of heroin so that it can avoid intoxication and prevent craving against heroin (Pahlemy, 2010). A relatively larger dose of methadone was felt more appropriate to achieve the desired range of therapeutic effects, which was the effect of cross tolerance to the effects of heroin. Increasing the dose of 1 mg of methadone gradually reduced the risk of drop out by 1% (Liu et al., 2009).

Based on the guidelines for implementing the methadone maintenance therapy program issued by the Indonesian Ministry of Health, it was stated that maintenance doses were recommended in the range of 60 to 120 mg per day. The recommendations for dosing can be proven in this study and previous studies have stated that the maintenance dose of methadone ≥ 60 mg has more influence on patient retention

in methadone maintenance therapy than <60 mg. National Institutes of Health (NIH) consensus conference guidelines for methadone maintenance therapy recommend a minimum dose of 60 mg to achieve the best therapeutic results (Bao et al., 2009).

The maintenance dose of ≥ 60 mg affected the retention of methadone therapy by 6 times higher than the dose of <60 mg. The officers at methadone maintenance therapy services pay attention to the administration of methadone doses (i.e. a dose of ≥ 60 mg) to get the desired therapeutic effect by the patient so that they can still keep the patient in therapy until the patient was declared recovered.

AUTHOR CONTRIBUTION

Dian Natalya Simangungson collected data and processed data analysis. Juanita examined the conceptual framework and suggested the methodology. Kintoko Rochadi interpreted the results of data analysis.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

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