Review on the demographic and social impact of methadone-medication therapy on Malaysian patients

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Abstract: This study is an observational cross-sectional study aimed to examine the possible demographic and social characteristics of patients enrolled at the Methadone Maintenance Therapy Adherence Clinic (MMTAC) in Malaysia. Medical records from year 2009 – 2011 were reviewed. Demographic, social characteristics and laboratory examinations such as age, gender, race, clinic attendances and urine analysis were recorded. Subjects were selected by means of convenient sampling but based on the specified inclusion and exclusion criteria. Data were analyzed by either Chi-square test, Fisher's exact test Mann-Whitney U-test, with the limit of significance was set at $p \leq 0.05$. Demographically, this study found that the ratio of Malays, Chinese and Indian enrolled to the MMTAC program is similar to the distribution of races in Malaysia. Their starting age for drug use was between 14-35 years and the age to enrolment between 30-58 years. Socially, many are unemployed, lowly educated and married. Most are drug users with a high percentage of HCV accompanied with impaired liver function. Retention rate was 87% but illicit drug use was at 57.50%. However, percentage of employment increased significantly after therapy. The study managed to identify several demographical and social distributions of patients attending the MMTAC. Although attendance rate was high, many were on illicit drug use. Nevertheless, employment rate improved significantly.

Keywords: Methadone, Drug abusers, Malaysia

INTRODUCTION

The National Agency for Anti-Drug Abuse (AADK) in Malaysia has, through its efforts, registered more than 300,000 addicts. Studies have suggested there are an estimated three to four addicts who are not registered with the AADK for every one that is. Hence the potential numbers of addicts in Malaysia is quite staggering, a possible one million addicts in our country of 25 million, or 4% of the population. In comparison, some statistics from the United States estimated that the number of addicts is one in 3,000, or only 0.03% of their population (Malaysian Psychiatric Association, 2006) In Malaysia, heroin was introduced in the late 1960s that led to an epidemic of heroin dependence beginning in the late 1970s and continuing to the present (Chawarski, Mazlan and Schottenfeld, 2005). Until recently, government drug policies emphasized public safety and criminal penalties rather than prevention and treatment. (Scorzelli, 1992). In 2005, the Ministry of Health recommended methadone as maintenance therapy for opioid abusers. The recommendation is further strengthened by WHO guidelines 2009 for the Psychosocially Assisted Pharmacological Treatment of Opioid Dependence which recommend methadone or buprenorphine use rather than detoxification for most patients. By the end of 2009, 10,730 patients have enrolled in the methadone maintenance therapy programs at 157 centres (Methadone treatment in Malaysia, 2010).

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Methadone maintenance treatment is considered as the earliest form and the most widely used form of opioid replacement therapy in the United States, Europe and Australia (Ward *et al*., 1998). By the year 2000, approximately 300,000 people were on methadone in Europe, 180,000 in the United States and 20,000 in Australia (Farrel *et al*., 1999). Methadone has greatly reduced the risk of HIV infection by reducing drug injection and improving the health and quality of life of opiate-dependent people (Dole *et al* 1966, Mattic *et al*., 2003).

Methadone analgesic activity and suppression on withdrawal symptoms activity makes it ideal in heroin detoxification. It is given orally and has a long duration of action. However a sudden withdrawal of methadone after establishment of a high level of methadone dependence produced a much attenuated withdrawal syndrome, developing over a longer period, picking at a much lower level, then dying away over a period of weeks. Methadone has a number of negative effects, points that hinder its effectiveness, which led to an interest in alternative methods of treatment (Mattick 1998). Dependence and withdrawal syndrome occurs if a daily dose is missing. In addition, it can induce respiratory depression or sedation due to overdose, which can be fatal. Moreover, the inconvenience of daily clinic visits may be unattractive to clients.

Methadone also causes drowsiness, changes in mood, constipation, respiratory depression, and other effects

considered typical of opiates. Other common side effects are constipation caused by slower gastric motility, sweating, insomnia, decreased libido or sexual performance and increasing QT interval (Hardman *et al*., 2001 and Krantz *et al*., 2003). Although the liver metabolizes methadone, there is no evidence to prove that methadone is hepatotoxic (Joseph *et al*., 2000). Marray 1992 had earlier reported that abnormal liver functions among patients maintained on methadone are caused by viral infections while hepatitis C are due to contaminated needles or by cirrhosis secondary to alcoholism.

Multiple substance use behaviours among people who are receiving methadone maintenance treatment are very common. Stitzer & Chutuape (1999) mention heroin, cocaine, benzodiazepines, alcohol, cannabis and tobacco as commonly used substances.Talu *et al* (2009) also reported the combined use of opioids and amphetamines.

The possible benefits of methadone maintenance prescribing range from effect on illicit opiate use and injection related risk taking behaviour to reduction in the level of criminal activity and other possible social changes (Farrell *et al*., 1994). Murray (1994) indicates that chronic maintenance with methadone prevents relapse to injection related behaviour and maintains patients in treatment.

Difficulty in carrying out a thorough research in the field of illicit drug use has resulted in few reports but methadone maintenance is the most researched of the available treatments (Farrell *et al*. 1994). However, criticism on researches and evaluations to prove the effectiveness of methadone maintenance treatment is trivial. This led to the stigma that methadone when used as a medication can cause an extended addiction. Therefore, methadone maintenance patients, especially those who are employed and socially stable, suffer of an invisible stigma that affects every aspect of their lives. Stigma, therefore, is the major social issue that confronts socially rehabilitated methadone patients (Gordis, 1991).
This study aim to examine the possible demographic and social characteristics of patients enrolled to the Methadone Maintenance Therapy (MMT) program in Malaysia. Evaluation was base on the patients attending the studied facility and their responses. Thus, the study objective is to evaluate the impact of demography and social factors of patients attending the methadone maintenance therapy.

METHOD

Study design

This observational cross-sectional study was conducted at the government methadone clinic in Klang, Malaysia between 2th February 2010 and 1th April 2010. Ethical approval was obtained from Medical Research Ethical Committee (MREC), Ministry Of Health, Malaysia and the Research and Management Institute (RMI) of MARA University of Technology, Malaysia.Medical records from year 2009-2011 of patients attending the clinic were reviewed. Demographic, social characteristics and laboratory examinations such as age, gender, race, clinic attendances and urine analysis were recorded using a documentation form.

Sampling the subjects

The subjects were selected by means of convenient sampling but based on the specified inclusion and exclusion criteria. The patient can be of both sexes, from any race, on continuous treatment for at least one year and aged between 18 to 65 years. However, patients who had interruptions in treatment or incomplete medical records were-excluded.

STATISTICAL ANALYSIS

SPSS 17 was used for statistical analysis. Data that had been analysed were presented in tables. Chi-square tests or Fisher's Exact test were used for categorical variables. Numerical variables were compared using Mann-Whitney U-test. The limit of significance was set at $p \leq 0.05$.

RESULTS

40 out of 62 patient's records fulfilled the inclusion criteria (the response rate was 64.51%). Their mean age was 41.90(9.61) years. The majority of patients were male and the percentages of Malay, Chinese and Indian were 60%, 30%, 10% respectively. The mean duration of therapy (weeks, SD) was 107.99 (31.36) weeks at the time of study. Overall, 70% were employed, 2% of clients had more than 11 years of education while 42.5% of clients were married.

Demographic features, pattern of substance use, health status is summarised in table 1. The mean age of starting drug abuse was 22.22 (6.81) years and 45% of clients started substance abuse at a very early life of 13 to 20 years old. Three- fourth of the clients were shown positive to hepatitis virus. Most of them had history of intravenous drug use (IVDU). 52.5% of the clients had abnormal liver function associated with hepatitis.

Based on the different levels of drug dependency, the proper initial dose of methadone was determined by the attending physician. The initial starting dose of methadone was 20 mg in 92.50% of the patients. The highest reported dose of methadone was 130 mg per day. Attendance rate during the last one year was 87.00%. According to the patients' records, abnormalities of sleeping (46.34%) and constipation (34.15%) are the most common side effects reported by the patients.

Urinalysis result is used to assess illicit drug use among

the selected patients. For this study, urinalysis reports of six months prior to study were used. Urine sample had been screened for amphetamine, tetrahydrocannabinol, opioids and benzodiazepines by One Step Multi-Drug Urine Test Panel. The urinalysis result was negative for 56.10% of the clients and were then divided into drug free and non-drug free groups for future follow-up.

Table 1: Demographic characteristics

Patients characteristics	N=40
Mean age in years (±SD)	41.90±9.62Age range:30-58 years old
Female Male	2 (5.00%) 38 (95.00%)
Malay Chinese Indian	24 (60.00%) 12 (30.00%) 4 (10.00%)
No formal education &Primary Less than 11 years of education More than 11 years of education	10(25.00%) 28(70.00%) 2(5.00%)
Married Single Divorced	17(42.50%) 17(42.50%) 6(15.00%)
Employed Unemployed	28(70.00%) 12(30.00%)
Mean weeks on treatment(±SD) Minimum weeks on therapy Maximum weeks on therapy	107.9±31.36 47.30 158
History of intravenous drug use	27(67.5%)
Mean age of starting drug abuse(±SD)	22.22±6.81
13-20 21-30 31-40 41-50	18(45.00%) 17(42.50%) 5(12.50%) 1(2.50%)
Hepatitis B	0(0%)
Hepatitis C	31(77.50%)
HIV	3(7.50%)
Impaired liver function	2(5.00%)
HCV+ALF	21(52.50%)
HCV+HIV+ALF	3(7.50%)
Urinalysis negative result for 6 months prior to study	23(57.50%)

Effect of duration of therapy on diminishing drug use was evaluated by categorizing the patients into two groups in years of enrolment by 2.5 years and less. The results showed that duration of therapy had no significant effect on drug use ($\rho>0.05$). Similar results were found for number of missed doses.

Laboratory data of HIV, hepatitis C and liver function tests were recorded from the most recent physician notes. table 2 shows a high percentage of patients had HCV with impaired liver function. In this study, 26(65.00%) ~~of~~ patients had chronic infections and impaired liver function. Hepatitis C infection was found in a high proportion of the patients. It was also found that 17.50% of patients were HIV positive. HCV was found in the majority of patients in methadone maintenance therapy (77.50%). 27 patients reported history of IVDU and was strongly associated with hepatitis C virus infection ($\rho<0.05$). All the cases including Hepatitis C positive, HIV positive and evidence of impaired liver function were referred to medical outpatient clinic for further follow up.

Table 2: Frequency and combination of chronic disease among MMT patients

Chronic diseases	N (%)
HCV positive ALF HCV + ALF HIV + HCV + ALF	7(17.50%) 2(5.00%) 21(52.50%) 3(7.50%)
N(%) disease	33(82.50%)

The number of employed patients from baseline has increased after 1 year of treatment. The percentages to those gaining employment is between 25.00% - 83.33% and Malays are the most employed. The number of those employed before and after enrolment showed that there is statistically significant relationship between employment rate and therapy among all races ($\rho<0.05$).

Table 3: Patients characteristics for effect of duration of therapy to drug use

Patients characteristics	Group 1 N= 23	Group 2N=17	P
Age (years, SD)	43.41,10.45	41.43,9.21	0.53
Drug free period	11/23	6/17	0.64
Number of missed doses	11/23	10/17	0.72

Table 4: Prevalence of Hepatitis virus between IVDU and non-IVDU

Patients characteristics	IVDU(n=27)	Non-IVDU (n=13)	P
Age (years, SD)	43.52,9.54	39.69,9.83	0.25
Hepatitis C	24	6	0.01
HIV +ve	1	1	0.57
Hepatitis B	0	0	1
Impaired liver function	18	11	0.21

Table 5: Employability after 1 year of therapy

Patients characteristics	Before	After	P
Employed (n, %)	26(63.42)	32(78.05)	0.22
Unemployed (n, %)	15(36.58)	9(21.95)	
Total	24	11	

To evaluate the factors that can affect attendance, the patients were divided into two groups based on their missed treatment days during the last one year. Group one had patients with one or more missed treatment days while group 2 were those with no missed treatment days. Race and employment status was used to determine differences in treatment attendance. The result showed that none of these variables had a significant effect on attendance. Table 6 provides the summary of the results.

DISCUSSION

Demographically, this study found that the ratio of Malays, Chinese and Indian enrolled to the MMTC program is similar to the distribution of races in Malaysia (Department of Statistics Malaysia. 2010). Malay was the predominant race and almost all were male. Their starting age for drug use was between 14-35 years and the age to enrolment to MMTAC ranges between 30-58 years and majority were intravenous drug users. Socially, the patients are mostly male, unemployed, lowly educated and married. These findings are almost similar to that reported the National Drug Agency, Malaysia in 2006.

The occurrences of HIV and HCV among patients can be due their high-risk behaviour such as needle sharing among these patients. In addition, HCV infection causes significant long-term health risks for the patients. This finding was similar to those in previous studies by Harris *et al* (2004) and McCarty and Flynn in 2001.

A retrospective study by Harrish *et al*. (2003) evaluated methadone maintenance program by comparing 127 patients on methadone maintenance therapy with those who enrolled in affiliated conventional methadone maintenance treatment program. Their results showed eightyfour percent of patients reported a history of injecting drugs that had hepatitis C virus infection and 6% of these patients were HIV positive.

McCarty and Flynn in 2001 conducted a study to measure implication of hepatitis C infection in a methadone maintenance treatment. Four hundred and sixty patients were tested for hepatitis C. Overall, 87% of this population had evidence of HCV-Ab. Among drug injectors, 96% were HCV-Ab positive.

In this study, 65% of clients had chronic infections and impaired liver function Hepatitis. Hepatitis C infection was found in a high proportion of the patients. In an earlier study in Malaysia, Gillani & Sulaiman (2009) conducted a retrospective study with a six-month prospective study in three-methadone clinics of Penang, Malaysia and found that 8.1% of patients had the chronic disease; the combination of HCV with impaired liver function was identified in 39.5% of the respondents. Observing only one centre in current study can be a good reason for this difference.

This study questioned the effectiveness of the MMTAC program in reducing illicit drug use. Comparing patients enrolled for more than 2.5 years with those less than 2.5 years, illicit drug use has little change where the findings

Table 6: Employment differences among races

Patients characteristics	Malay	Chinese	Indian	P
Employed (n%)	20(83.33%)	8(37.50%)	4(25%)	Malays Vs Chinese(0.38)
Unemployed (n%)	4(17.67%)	3(62.50%)	1(75%)	Malays Vs Indians(0.64)
Total	24	11	5	Chinese Vs Indian(0.63)

Table7: Effect of different variables on treatment attendance

Variable	Group 1	Group 2	P value
Race Malay Non Malay	11(57.90%) 8(42.10%)	14(66.70%) 7(33.30%)	0.81
Employed Unemployed	14(73.70%) 5(26.30%)	14(66.7%) 7(33.30%)	0.89

Notes: Group 1: No missed treatment days, Group2: One or more missed treatment days

were 57.50% and 42.5% respectively. In contrast, A study conducted by Gotthil in 1993 on 229 patients showed that non-illicit drug used decreases over time. Their findings showed that the percentage for non-illicit drug used increases from 35% for patients who enrolled for less than 12 months, 71% for patients enrolled for more than 4 years and 85% for patients remaining in treatment for over 10 years. However, the time of measurement was only for a period of three months as compared to six months in this study. Thus, as Joseph, Stancliff and Langrod stated in 2000, methadone maintenance therapy is a corrective program and cannot be considered as a cure for opioid dependence.

The program however had an impact on employability where employment status increased upon admission. The percentage of employed patients increased to 75% as compared to 33.30% at the time of enrolment. This finding is consistent with the findings of Francis *et al* in 2004 where 61.4% of the participants of 44 clients involved in therapy from one to 278 months gained employment. This finding indicates a considerable change in attitude after undergoing methadone maintenance replacement therapy. Thus, this signify that entering the program may help the patients to re-integrate within the society.

CONCLUSION

The current study managed to identify several demographic and social characteristics of patients attending the MTAC. Information pertaining to their health status, treatment, and illicit drug use and attendance rate was also obtained. While, there was an improvement in employment rate, the study did not show any significant reduction in illicit drug use. However, because of the small sample size of this study the findings might not be generalizable to the overall population. In conclusion, a prospective study seems to be more effective to evaluate clinical outcomes and assess the reasons that lead to continuing illicit drug use among patients while they are involved in methadone therapy.

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