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RESEARCH ARTICLE

ANALYZING THE RELEVANCE OF NEEDLE EXCHANGE PROGRAMME IN THE ADVENT OF METHADONE MAINTENANCE THERAPY

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MMT- Methadone Maintenance Therapy
OST- Opioid Substitution Therapy
NESP- Needle and Syringe Exchange Programme
WHO- World Health Organization
UNDOC- United Nations Office on Drugs Crime

ABSTRACT

Aims: This study aims to determine the prevalence of relapse in those receiving MMT and study the harmful practices done during the relapses with their perceived causes. **Background:** Opioid dependence carries a high cost to society by resulting in unemployment, crimes and family disruption; not to mention transmission of diseases such as HIV and Hepatitis C. Harm reduction practices, namely Methadone Maintenance Therapy (MMT) and needle exchange programme has been in Malaysia since 2005. For MMT, relapse during treatment remains an issue that hinders successful outcome of reducing transmission of blood-borne infections. **Methods:** This is a mixed-method cross-sectional study done from June-July 2016. All MMT clients in primary care therapy centres in Kuala Nerus district, Terengganu, Malaysia who fulfilled the inclusion and exclusion criteria and consented were included. A semi-structured questionnaire was filled via face-to-face interview and reference to the case records was done. 122 questionnaires were assessed. **Results:** Response rate was 90.2%. Current relapse, defined as any episode of intake of heroine for the past one month after a period of abstinence was 34.4%. Of those relapsed, majority (78.6%) had Hepatitis C, 19.0% had HIV. Majority (97.6%) deny sharing needles during relapse, whom all attributed this due to ease of accessibility of needle exchange programme, and ability to withstand the urge for injection until getting a clean needle due to taking methadone. **Conclusion:** Relapse in opioid addiction remains high in those receiving MMT. Education to avoid harmful injecting practices is important even in this group. To achieve aim of harm reduction, MMT and needle exchange programme need to go hand.

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INTRODUCTION

Substance abuse is both a social and public health problem with a substantial burden to society. Opioid dependence, with an estimated prevalence of 16.5 million in 2013 worldwide (UNDOC, 2013) carries a high cost to society by resulting in unemployment, crimes and family disruption (WHO, 2004) not to mention transmission of diseases such as HIV and Hepatitis C. In Malaysia, there is an estimated 400 000 to 800 000 drug users with 234 000 heroine abusers (Ruger JP *et al*, 2012). Harm reduction approach against HIV/AIDS in this country was introduced and approved by the government in 2003. Methadone Maintenance Therapy (MMT) was introduced as part of the harm-reduction approach in 2005(Gill JS *et al*, 2007) . Other methods of harm reduction is the Needle and Syringe Exchange Programme (NSP) which was introduced in 2006. Methadone is a synthetic opiate receptor agonist used in the treatment of opioid drug addictions.

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Usage of methadone as a therapy prevents opiate users from injecting and sharing needles, which are vehicles for the spread of HIV and other blood borne viruses (Mohamad N *et al*, 2010), and also cause other harms such as damaged veins, local abscesses and endocarditis. This is one of the main aims of the MMT done in government clinics, other than reducing crime rates done by illicit-substance abusers. Those who enrolled in MMT are referred as MMT clients. Other benefits is that the clients are able to work and be employed, as methadone at appropriate doses does not hinder a patient's intellectual capacities or abilities to perform tasks and it corrects the compulsive use of heroin and other opiates (Norsiah A *et al*, 2010). Thus, it improves the clients' quality of life and enables for a normal life. This has been proven in numerous studies where there were improvements in the physical and psychosocial domain in their quality of life (Xiao L *et al*, 2010). In Malaysia, the indicator used to gauge the success of the methadone programme is the retention rate, which ranges from 54.7 to 95%(Norsiah A *et al*, 2010) and urine positivity indicating relapse. Some studies have highlighted the importance of the organization and the characteristics of the treatment being delivered to ensure success of the programme.

For example, although treatment outcome was shown to be influenced negatively by age at first use of heroin, length of drug use, use of cocaine before treatment, and race, but these patient characteristics had less impact on outcome than did programme characteristics (Latowsky, 2006). The more effective clinics were characterized by higher doses of methadone prescribing (Mohamad *et al*, 2010), having a treatment goal of successful ongoing maintenance rather than abstinence, and having better quality counseling, more medical services, better staff-patient relationships, low staff turnover rates, and better management (NIDA, 2014). Needle and syringe exchange programme (NSEP) was also introduced as a harm reduction approach in people who inject drugs. Harm reduction is a term which refers to the practices and programmes designed to reduce the harm associated with usage of psychoactive drugs in the people who are unwilling or unable to stop using it. (WHO, 2011) In the case of NSEP, the associated harms are mainly transmission of blood-borne infections such as HIV, Hepatitis B and C infections.

For harm reduction, to date, Malaysia has focused on both MMT and NSEP. The rapid scale-up of MMT since 2006 was recognized as a landmark achievement, largely attributed to high-level commitment generated through coordinated advocacy efforts. This commitment to scale-up MMT was based on UN recommendations to achieve 60% coverage of an estimated 170 000 PWID in Malaysia (WHO 2011). Usage of methadone as a therapy ideally should prevent opiate users from injecting and sharing needles as they no longer need to inject drugs. Therefore, theoretically, needle and syrine programme role should no longer be needed. Based on this, we embarked on the study to find out the relapse rate of clients on MMT and whether the NSEP is still needed in the current advent and coverage of MMT.

MATERIALS AND METHODS

This is a cross-sectional study done from June to July 2016. Samples were recruited from opioid addicts undergoing MMT at three primary care outpatient treatment centers in Kuala Nerus district, Terengganu, which is situated in the northeastern Peninsular Malaysia. Sample size calculation to determine the prevalence relapse among clients involved in methadone maintenance therapy was done using single proportion formula.

$n = (Z / \Delta)^2 P(1-P)$
n = Minimum required sample size
Z = Value of standard normal distribution = 1.96
= Precision = 0.05
P = Prevalence of relapse from literature

The prevalence of relapse was 8% (George P, 2015)hence minimum required sample size was 113. Considering non response rate of 10%, the sample size calculated was 124. All subjects who came for treatment within the study period who fulfilled the criteria of i) 6 months in therapy ii) a period of abstinence of more than a month; and consented were interviewed face-to-face using a semi-structured questionnaire. Subjects were defined as having current relapse when they admit of taking any illicit heroin for the past one month or have the evidence of positive urine for heroin or new injection mark; with previously being abstinent of heroin during therapy of at least one month by having a negative urine test for heroin. If they had a relapse, they were asked on where they got the supply of syringe and needle, whether sharing of needles were still practiced, and other high risk practices such as sharing of needle or syringe washing containers. Quantitative data were entered and analyzed using Predictive analytics software (PASW) Statistics version 22.0 (SPSS Inc., Chicago, IL, USA). Data were checked and cleaned before analysis. Ethical clearance was obtained from National Medical Research Ethics Committee (NMRR Reference Number: 5-2307-27817) of Malaysia. Those with positive relapse, were then interviewed regarding the harmful practices done during relapse. The interviews were recorded and analyzed using systematic case comparison using Atlas. ti to come up with the results.

RESULTS

All respondents were males of Malay race. Mean age was 36.2. Mean duration in MMT was 1.4 years. Demographic characteristics are shown in Table 1.

Table 1. Demographic Characteristics of Respondents

		n	Percent
Marital Status			
	Married	41	33.6
	Single	64	52.7
	Divorced	17	13.9
Educational status			
	Postsecondary	6	4.9
	Form 4/5	78	63.9
	Form 3 and below	38	31.1
Working status prior to MMT			
	Working	66	54.1
	No stable work	24	19.7
	No work at all	32	26.2
Current working status			
	Working	81	66.4
	No stable work	24	19.7
	No work at all	17	13.9
Income			
	0-1000	78	63.9
	1000-3000	44	36.1
living status			
	With family	111	91.0
	With friend	1	.8
	Alone	10	8.2

Table 2. Percentages of HIV, Hepatits B and Hepatitis C Among Clients

Blood-borne infection	n	%
None	9	21.4 %
HIV	8	19%
Hepatitis C	33	78.6%
Hepatitis B	3	7.1%

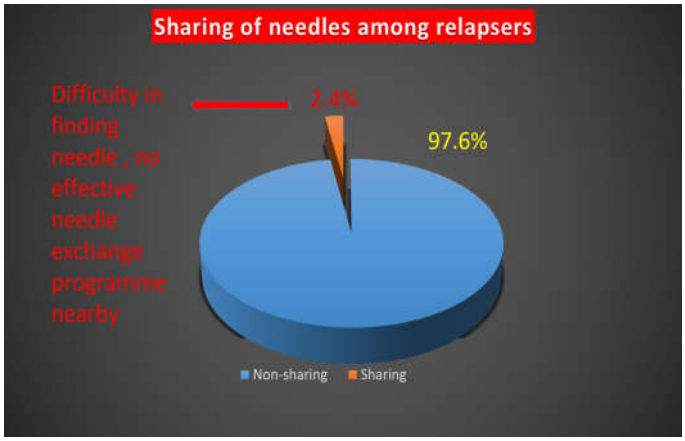

Figure 1.

Majority of the respondents (52.7%) were single (Table 1). The proportion of patients who were married increased from 28.7% to 33.6% after being in the programme. Majority (95.1%) of them had only up to secondary school education. About 66.4% of the patients were employed currently, compared to 54.1% at the time of treatment initiation and most were labourers, fishermen, had small business and a few were drivers. Current relapse, defined as any episode of intake of heroin for the past one month after a period of abstinence was 34.4% (Fig. 1). Table 2 shows the descriptive statistics of the infective status of the clients. Of those relapsed, majority (78.6%) had Hepatitis C, 19.0% had HIV. Majority (97.6%) deny sharing needles during relapse. All attributed this due to ease of accessibility of needle exchange programme, and ability to withstand the urge for injection until getting a clean needle due to taking methadone. 50.8% still shared needle-washing containers despite non-sharing needles, all unaware that this may spread infections. Those who shared needles had both HIV and hepatitis C, could not get any needle despite exchange programme nearby. Figure 1 showed the harmful practices done during relapse, namely sharing of needles and sharing of needle and syringe washing containers. It showed that 2.4% had shared needles. Client B21 had admitted using of needle from others as he had difficulty in getting a clean needle.

"There was a needle exchange programme nearby but it was difficult (to get access to it). I had no choice but to use a friend's needle as I could not bear it (the withdrawal symptoms)" –B21, 32 years old. He was early in the programme compared to others, only 7 months in the MMT. Those not sharing needles admitted that they did not share needles as they had a clean needle from a NSEP nearby. Moreover, all of them claim able to withstand the urge to inject until they got a clean needle. This is most likely due to the benefit of taking methadone. However, all of them admit to share needle washing containers, unaware that this may lead to spreading of infections such as Hepatitis C. The reasons for their relapse were discussed elsewhere.

DISCUSSION

The baseline characteristics of the respondents for this study were quite similar to previous studies being done in Malaysia in terms of age, level of education and marital status (Jacob SA *et al*, 2015) There was increased in rate of employment after being started on MMT from 54 to 66 %. This is similar to a study done in Kuantan, Malaysia showed an increase from 70 to 77% in employment(Ramli M *et al*, 2012). Although the increase in this study was quite large, the final employment proportion was still lower compared to the other studies. This is may be due to the lower employment baseline. This is one factor which should be looked into as improvement in employment is one of the measures indicating effectiveness of this programme. Previous research has shown that addiction was associated with significant brain changes, in particular, related to brain reward circuitry. Areas of limbic system governing emotions and prefrontal cortex governing cognition and social behaviours were directly affected which affect the employability of the addicts. As the treatment instituted and continued, the person showed improved behaviours and better thinking process Volkow ND, 2011). Therefore, those who have a good response to MMT should have no problem in getting a job to secure their income. As can be seen, they were in the lower socioeconomic group with the majority of them earning less than RM1000 per month.

Relapse in MMT clients: Most studies have suggested that relapse is common after treatment for drug addiction. A ten-year prospective follow-up study have shown that approximately one-third of clients who were in full remission relapsed in the first year (NIDA,2014) which is similar with the results for this study. A few other studies show a much less relapse rate (George P, 2015)and some studies show a much higher relapse of 64% (Ramli M, 2012). However, comparing relapse between studies must take into account the definition of relapse used in the study as it may indeed be the cause of discrepancy.

Benefits of Harm Reduction Practise in Reducing HIV: A systematic review of HIV epidemiology in developing countries including Malaysia estimated the prevalence of HIV infection among IDUs was more than 20% (Aceijas C *et al* 2004). Malaysia had one of the fastest growing HIV epidemics in the East Asia and Pacific regions. At the beginning of the epidemic, injecting drug use was the main driver, about 60-75% of all new reported cases. At that time, the disease was mostly confined within the circle of injecting drug users (IDUs) but then spread to every stratum of society (Koh Kwee Choy, 2014). It is estimated that there are around 170,000 IDUs in the country. The prevalence of reported cases among PWID started to decline beginning in 2005, and reached 19.3% in 2014 (MOH Malaysia, 2015). Reduction of HIV transmission in IDUs was mainly attributed to the introduction of harm reduction practices in 2005. In 2010, 40% of new reported HIV cases were from heterosexual transmission, increased from 27% in 2009 as the transmission via IDU continue to reduce. Current reported use of clean needles and syringes during injection has remained above 90% since 2012, reducing from 83.5% in 2009.

Harm reduction programme was initiated in Malaysia formally in 2005 with the Opiate Substitution Therapy (OST) or also called Methadone Maintenance Therapy (MMT). Needle and Syringe Exchange Programme (NSEP) was also started in February 2006. These harm reduction programme, namely the MMT and NSP remain the cornerstone of the Government's HIV prevention strategy. MMT is currently being provided in partnership with NGOs, CBOs and private health practitioners, in government facilities under the Ministry of Health as well as in facilities under Ministry of Education. Is also offered in the National Anti-Drug Agency (NADA) service centres and in prisons (MOH Malaysia, 2015). Given the outreach and extensive current coverage, it may seem that the NSEP have less role to play. However, this study showed that NSEP still is needed in view of the relapse rate and natural expectation of relapse in opioid addicts. It may mean that we need to find ways and means to reduce the relapse rate during MMT. Another point worth mentioning is the crucial need to increase the accessibility of the NSEP. This is noted when a client reported that the NSEP programme was available in his area, but he has difficulty in accessing it, leading to sharing of needles. This study limitations includes a cross-sectional design, relying on recall information by the respondents which is subjected to recall bias.

Conclusion

Relapse in opioid addiction remains high in those receiving MMT in primary care centers in Kuala Nerus, Malaysia Education to avoid harmful injecting practices is important even in this group.

To achieve aim of harm reduction, MMT and needle exchange programme need to go hand to minimize the transmission of blood-borne diseases during opioid re-injecting behaviour.

Conflict of interest: The authors declare no conflict of interest.

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