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Continued drug use during methadone treatment in China: A retrospective analysis of 19,026 service users☆,☆☆,★

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ABSTRACT

This study examined nation-wide data from China to assess client outcomes after 6-months of methadone treatment. Data on 19,026 clients enrolled between April 2008 and March 2010 were reviewed for changes in HIV-risk behaviours and emergence of new HIV cases. Multivariable logistic regression was used to identify factors associated with illicit drug use while in MMT. Clients reported reduced drug use and related risk behaviours and improved social functioning. There were 24 newly-identified cases of HIV. Continued drug use was associated with low attendance (OR = 5.98, 95% CI = 4.69–7.63), frequently seeing drug using friends (OR = 3.72 for daily vs. never, 95% CI = 3.18–4.34) and having a difficult family relationship (OR = 2.03 for difficult vs. good, 95% CI = 1.63–2.52). Methadone dose was not associated with continued drug use while in treatment. The Chinese MMT programme appears to be having a positive influence on those clients who remain in treatment, but needs to explore strategies to increase accessibility.

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1. Introduction

Methadone maintenance treatment (MMT) was introduced in the 1960s to help addicts reduce their dependence on illegal opiates and improve their social productivity (Dole & Nyswander, 1965; Hall, Ward, & Mattick, 1998; Joseph, Stancliff, & Langrod, 2000; Marsch, 1998). The use of MMT increased dramatically in the 1980s and 1990s when policy makers realised that it could help prevent the spread of HIV by reducing injecting drug users' engagement in HIV risk behaviours, especially the sharing of injection equipment as well as sexual risks (Ball, Lange, Myers, & Friedman, 1988; Gowing, Farrell, Bornemann, Sullivan, & Ali, 2006; Sorensen & Copeland, 2000; Ward, Mattick, & Hall, 1998). MMT is now recognised as an important component of any strategy to control HIV infection among injecting drug users (Beyrer et al., 2010). However, many clients never fully abstain from using opiates or other drugs while in treatment (Joseph et al., 2000; McLellan, Lewis, O'Brien, & Kleber, 2000) and may therefore continue to put themselves at risk of HIV and other infections. This is often tolerated by MMT programmes because ceasing treatment for this reason is associated with poorer client outcomes (Joseph et al., 2000; National Consensus Development Panel on Effective Medical Treatment of Opiate Addiction, 1998). Current consensus is that doses between 60 and 100 mg/day are optimal for most clients (National Consensus Development Panel on Effective Medical Treatment of Opiate Addiction, 1998), although the original trials which demonstrated methadone's efficacy used doses above 100 mg/day (Dole, Nyswander, & Kreek, 1966). While most programmes ostensibly follow this recommendation, suboptimal dosing (<60 mg/day) is extremely common (Lin & Detels, 2011; Pollack & D'Aunno, 2008). This may be due to strained human and financial resources which hinder clinics' abilities to meet care standards or because providers or clients prefer abstinence orientation (Fareed, Casarella, Amar, Vayalapalli, & Drexler, 2010; Lin & Detels, 2011). Conversely, clients may know that requesting lower doses can prevent withdrawal without overriding heroin's euphoria should they use it (Goldstein & Brown, 2003). There are also toxicity concerns about using higher doses of methadone (Fareed et al., 2010). Given the biological mechanisms involved, it is not surprising that the most consistent predictor of continued use of illicit opiates in MMT is methadone dose (Faggiano, Vigna-Taglianti, Versino, & Lemma, 2003).

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China introduced MMT in 2004 in response to the rapidly rising number of heroin users and related increases in the prevalence of HIV (Sullivan & Wu, 2007). By March 2010 there were 684 clinics in 27 provinces. Until recently, unsafe behaviours associated with drug use were the biggest cause of HIV infections in the country, and continue to account for roughly 28% of new infections (Ministry of Health of the People's Republic of China, 2012). Sentinel data suggest that 66% of drug users use sterile equipment, but HIV prevalence among this group averages 6%, and is as high as 50% in Yili on the Kazakhstan border (Ministry of Health of the People's Republic of China, 2012). Previous analyses of the MMT programme isolated to selected clinics have suggested that clients do reduce their use of opiates, and this is associated with higher doses of methadone as well as higher education level (Li, Sangthong, Chongsuvivatwong, McNeil, & Li, 2011; Liu et al., 2008). The purpose of the present study was to see if these trends persisted across the country. We examined changes in illicit drug use and engagement in HIV risk behaviours among clients across China who remained in MMT at least 6 months and identified factors associated with continued drug use while in treatment.

2. Methods

2.1. Client data

This study was approved by the IRB of the University of California, Los Angeles. Permission to use the data was granted by the National Center for AIDS/STD Control and Prevention in Beijing, which houses the MMT secretariat and oversees data collection. De-identified data were abstracted from their MMT Data System. Data collection and clinic management improved greatly in 2008 in terms of completeness and consistency, so these analyses are restricted to clients who began treatment between March 2008 and March 2010.

Clients were accepted into MMT if they were aged at least 20 years, were registered as a local resident, met the Chinese Classification of Mental Disorders 3 criteria for drug dependence, had no contra-indications for taking methadone and agreed to the clinics rules (Sullivan, 2011; Yin et al., 2010). Upon admission, clients are asked to provide basic demographic and drug use information for monitoring and evaluation purposes. Most clients are also asked to complete a detailed baseline survey to collect further information for monitoring and evaluation purposes. This survey is conducted face-to-face in a private room and includes data on drug-use, sexual and criminal histories, social functioning (i.e. involvement in crimes, employment and relationship with family and friends) and a blood sample is taken to assess HIV, hepatitis C and syphilis status. Those testing positive for HIV are referred to the National Free ART Program (Ma et al., 2010). A follow-up survey is scheduled for 6 months post-enrolment at which time these data are collected again and the clients' satisfaction with the service is measured. Only follow-up surveys taken within 1 month of the 6 month schedule were included. However, follow-up information was not always collected on time or at all. Reasons given for missing follow-up surveys included that clinic staff may have neglected to enter it into the data system; staff were too busy at the scheduled time of follow-up; or the client may have refused.

Roughly each month, on a random schedule, clients are requested to provide urine samples to assess continued opiate use. There is no standard test used by the programme, although only tests approved for use by the Chinese Food and Drug Administration are used by the clinics. Sensitivity and specificity of the test may vary, but typically they can detect opiates taken within the previous 7 days or to a concentration of $\geq$300 ng/ml.

Methadone is administered daily under the direct observation of staff. There are no options for take-home doses, nor any way to obtain methadone outside the clinics.

Clients can be ejected from the programme if they miss more than 7 consecutive days of treatment, if they cause trouble, or if they use alcohol or drugs (Yin et al., 2010). However, these criteria are not often enforced and clients may be permitted to re-enrol.

2.2. Clinic management

The programme is funded by the Chinese Central Government via the Ministry of Health, collaborating with the Ministry of Public Security and the State Food and Drug Administration, and local provincial governments who allocate funds for the establishment of clinics, but not their ongoing costs. Clients are charged a maximum of CN¥10 (US$1.50) per day for treatment (irrespective of dose), although treatment is free for HIV-positive clients. Clinics use this money for the transportation and storage of methadone, the routine operation of the MMT program clinics, and to provide ancillary services.

Clinics are concentrated in areas of greatest need, with priority given to administrative areas (districts in cities and counties in rural areas) with more than 500 registered drug users (State Council of P.R. China, 2006). Since 2006, clinics in areas with as few as 300 registered drug users can also establish a clinic. The ideal clinic size is 300–500 clients, but clinics vary considerably in size, from a few dozen to nearly 1,500 clients. Clinics should have at least eight trained staff, but at times it may drop below this number; there are many barriers to finding and keeping well-trained staff (Lin et al., 2010). Clinics can be affiliated with either a Center for Disease Control (CDC), hospital, psychosocial health center, community-based medical service, voluntary detoxification center, or a hospital in the public security system. There are also mobile clinics, the first of which was introduced in 2006 to increase access for rural residents, and there were 26 vans in 10 provinces as of 22 March 2010. Transfers between clinics are permitted and are facilitated by a proximity card system, introduced in 2008, which records clients' information and can be used by clients to obtain methadone when they move or travel.

2.3. Continued drug use

Two variables indicated drug use: urine test results and self-reported use. Self-reported use is reported for the previous month, and the most recent urine test result was used. Discordance between the two indicators was examined using a kappa statistic, and the two variables were combined to create a composite variable, where drug use was indicated by either a self-report or a positive urine test or both.

2.4. Other treatment outcomes

Other drug-use-related behaviours measured included injection drug use, needle sharing and HIV status. Data on sexual HIV-risk behaviours were also available and included the numbers of sexual partners and condom use. Also examined were changes in measures of social functioning since improvements in these areas are also important outcomes of MMT. These included employment, criminal activity, client's relationship with their family, and how often they saw their drug-using friends.

2.5. Methadone dose and daily attendance

Clients attend the clinics daily to obtain their methadone dose, which is recorded in the data system. Doses were abstracted, and the median dose for the duration of treatment was calculated. The percentage of attendance was calculated based on the number of days a client received a dose over the 6-month period (182 days).

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