International Journal of Drug Policy 56 (2018) 1–5

Contents lists available at ScienceDirect

International Journal of Drug Policy

journal homepage: www.elsevier.com/locate/drugpo

Research Paper

Service providers' adherence to methadone maintenance treatment protocol in China

Chunqing Lin[a,*], Chiao-Wen Lan[a], Li Li[a], Keming Rou[b]

[a] Semel Institute for Neuroscience and Human Behavior, Center for Community Health, University of California at Los Angeles, Los Angeles, CA, USA
[b] National Center for AIDS Prevention and Control, Chinese Center for Disease Control and Prevention, Beijing, China

ARTICLE INFO

Keywords:
Medical protocol
Methadone maintenance treatment
Service providers
China

ABSTRACT

Background: Methadone maintenance treatment (MMT) programs have expanded rapidly in China during the last decade. However, variance in service providers' practice may have an impact on the quality of care received by the patients. This study examined Chinese service providers' adherence to the MMT protocol and its associated factors.

Methods: The study used baseline data from a randomized intervention trial implemented in MMT clinics in five provinces of China. The data were collected from January 2012 to August 2013. A total of 418 service providers from 68 MMT clinics participated in the study. Demographic and job-related characteristics were collected. The providers' adherence to the MMT protocol, MMT knowledge, negative attitudes towards people who use drugs (PWUD), and perceived institutional support were assessed.

Results: The average adherence score was 36.7 ± 4.3 (out of 9–45). Fewer providers adhered to the protocol items where communications with patients or families were required. After controlling for potential confounders, adherence to the MMT protocol was positively associated with perceived institutional support (standardized $\beta = 0.130$; $p = 0.0052$), and negatively associated with prejudicial attitudes towards PWUD (standardized $\beta = -0.357$; $p < 0.0001$). Reception of national-level MMT training was not associated with higher level of adherence to protocol.

Conclusion: The findings suggest the potential benefits of providing institutional support to MMT providers to enhance their level of adherence to the MMT protocol. Intervention effort is needed to reduce negative attitudes towards PWUD among MMT service providers to achieve greater consistency with best-practice recommendations.

Introduction

A large body of literature has shown the efficacy of methadone maintenance treatment (MMT) for treatment of drug addiction and subsequent reduction in HIV risk behaviors and infection (Avants, Margolin, Usubiaga, & Doebrick, 2004; Sullivan, Metzger, Fudala, & Fiellin, 2005). In acknowledgment of the evidence, the Chinese government called for the use of MMT programs to mitigate opiate use and HIV epidemic in the country in 2004 (Sullivan et al., 2015). An evaluation of the pilot programs has shown a reduction in heroin use and drug-related crime and an increase in employment and healthy family relationships among the patients (Pang et al., 2007). The success of the pilot programs has led to a rapid scale-up of the MMT system in China, expanding from the initial eight pilot clinics to 785 clinics in 28 provinces by the end of 2015 (National Center for AIDS/STD Control and Chinese Center for Disease Control and Prevention, 2016). Despite the progress that MMT programs have made in the country, MMT providers are facing challenges that reduce the efficacy of the programs, including lack of training, inadequate knowledge and skills in addiction treatment, misunderstanding about the goals of harm reduction, as well as confusion regarding management of comorbidities (Lin et al., 2010; Yin et al., 2010). Although the Chinese government has issued national guidelines and clinical protocols for management of MMT patients (China Ministry of Health and China Ministry of Public Security and China Food and Drug Administration, 2006), the adherence with the practice guideline is highly variable (Yin et al., 2010). For example, even though the national guideline recommended 60–80 mg daily dose for maintenance stage patients, MMT providers in China usually prescribed a lower than suggested dosage (Sullivan et al., 2015). Some physicians even adjust MMT dosage based on patients' demand (Lin & Detels, 2011). The uncertainties in medical practice and the gap between the best-practice recommendations and clinical practice may

* Corresponding author at: UCLA Semel Institute – Center for Community Health. 10920 Wilshire Blvd., Suite 350, Los Angeles, CA 90024, USA.
E-mail address: lincq@ucla.edu (C. Lin).

https://doi.org/10.1016/j.drugpo.2018.02.018
Received 11 September 2017; Received in revised form 30 January 2018; Accepted 12 February 2018

contribute to high patient drop-out rate and suboptimal treatment outcomes (Cao et al., 2014; Shen et al., 2016).

Treatment protocols are considered as one of the most influential and effective tools to promote evidence-based medicine (Grol & Grimshaw, 2003; Saja, 2013). Effective implementation of treatment protocol was found to improve the quality of care by reducing practice variation, improve clinical outcomes, and reduce the frequency of monitoring and healthcare cost (Mazrou, 2013). A study was conducted in the U.S. Veterans Affairs (VA) health system to examine the impact of consistent adherence to guideline recommendations in drug treatments. It was reported that patients attending clinics where guidelines were more consistently adhered to had a greater reduction in heroin and cocaine use than those attending less guideline-adhered clinics (Trafton, Humphreys, Harris, & Oliva, 2007). Nonetheless, compliance with clinical practice guideline is challenging as it depends on a variety of factors (Quaglini, 2008). Previous studies conducted in the U.S., Canada, European, and African countries have revealed several reasons for physician's non-adherence to clinical guidelines, including lack of awareness or familiarity with the recommendations, perceived usefulness of the guideline, disagreement with the guidelines, or perceived difficulties in applying the guideline in daily practice (Amoakoh-Coleman et al., 2016; Arts, Voncken, Medlock, Abu-Hanna, & van Weert, 2016; Cabana et al., 1999; de la Sierra, Zamorano, & Ruilope, 2009; Quaglini, 2008). It was also reported that physician's compliance with clinical guidelines depended on their personal beliefs and attitudes, availability of support system, and training in clinical guidelines (Sharif, Samara, Titi, & Awartani, 2015).

Despite the efforts to scale up the MMT clinics in China, there is currently a paucity of information regarding how adherent are MMT providers to the guidelines in the country. Even though the factors involved in physician's adherence to guideline have been extensively studied in Western countries for chronic conditions and in emergency care settings (Arts et al., 2016; Ebben et al., 2013), limited studies have been conducted in MMT settings in China. To fill the gap in the literature, the study was conducted to document Chinese MMT providers' level of adherence to clinical guidelines and to assess various factors that are associated with the level of provider adherence. The findings of this study will help to develop strategies for effective guideline adherence and management for MMT programs in China.

Methods

Participant recruitment

The study used the baseline data from a randomized intervention trial, which was implemented in five provinces in China (Sichuan, Guangdong, Shaanxi, Jiangsu, and Hunan). The randomized controlled trial was designed to train MMT service providers to deliver individual counseling sessions with their patients to promote their treatment engagement. The protocol of the trial was registered with clinicaltrials.gov (identifier: NCT01760720). Sixty-eight MMT clinics were randomly selected from the five provinces. To recruit MMT service provider participants, the research staff approached the service providers in person in each of the selected MMT clinics. In a typical MMT clinic in China, there are usually six providers (including doctors, nurses, and pharmacists) who provide direct services to patients, and all of them were invited to participate in the study. Supporting staff, such as security personnel, accountants, and/or cleaners, were excluded. To be eligible for the study, a service provider had to be (1) 18 years or older and (2) currently working at one of the participating MMT clinics. When recruiting service providers, our research staff used a standard recruitment script to introduce the study purpose and procedures in detail. The participants were assured of confidentiality and their right to refuse participation without affecting their employment status at the clinic. Written informed consent was obtained from each respondent. A total of 418 service providers participated in this study with a refusal rate of less than 5%.

Data collection

The data were collected between September 2012 and August 2013. The service providers were surveyed individually in private rooms at the clinic. The assessment was conducted using the computer-assisted self-interviewing (CASI) method that the providers read survey questions on a laptop screen and directly entered their responses to a computer database. A study interviewer was on standby to provide assistance during the assessment. Each assessment lasted approximately 45–60 min. The participants received 30 yuan (USD 4.7) for their participation. The study received approval from the Institutional Review Boards from each participating institute.

Measures

Relevant *demographic information* was collected, including age, gender, and years of education. The survey asked the participants about their *professional profile*, including profession (e.g., doctor, nurse, and others), professional background in MMT-related areas (including detoxification, mental health, and HIV/STD), their years of service at MMT clinic, as well as whether they have received national-level MMT training.

Provider's *adherence to the MMT protocol* was measured by a 9-item instrument that was developed based on China's national MMT guidelines (China Ministry of Health and China Ministry of Public Security and China Food and Drug Administration, 2006). The measure contained statements regarding how a provider treated his or her patients in certain situations, which are presented in Table 2. Experts from the Secretariat for the National MMT Working Group (a group stationed in the National Center for AIDS/STD Control and Prevention, Chinese Center for Disease Control and Prevention. The group is responsible the overall coordination, monitoring, and supervision of MMT programs in China; Yin et al., 2010) confirmed the accuracy and relevancy of these items. Responses were recorded on a 5-point scale ranging from (1) "never" to (5) "quite often" (possible range = 9–45). A higher score indicated a higher level of adherence to the MMT protocol (Cronbach alpha = 0.72).

MMT knowledge was assessed using 19 true-or-false questions originally developed by Caplehorn, Irwig, and Saunders, 1996. The questions were adapted by the study team based on the MMT national guideline (China Ministry of Health and China Ministry of Public Security and China Food and Drug Administration, 2006). The instrument covered various topics regarding MMT eligibility, treatment goal, appropriate dosage, potential side effects, and management of overdose. Sample items included "the purpose of current MMT programs is to achieve abstinence" and "most patients require an average of 60 mg methadone per day for stable treatment". Participants were asked to determine if each statement was true or false, and they received one point for each correct response (range = 0–19). Correct answers to these questions were confirmed by MMT experts in China.

Negative attitudes toward people who use drugs (PWUD) were measured by a 5-item instrument (National Center for Education and Training on Addiction Flinders University, Adelaide Australia, 2006). The five questions were: 1) "to what extent are adverse life circumstances likely to be responsible for a person's problematic drug use?", 2) "to what extent do you feel sympathetic towards PWUD?", 3) "to what extent do you feel concerned towards PWUD?", 4) "to what extent do PWUD deserve the same level of medical care as people who do not use drugs?", and 5) "to what extent are PWUD entitled to the same level of medical care as people who do not use drugs?". Each item was scored on a 5-point Linkert scale from (1) "not at all" to (5) "very much". After the items were reverse-coded, a higher summary score indicated a higher level of negative attitudes toward PWUD (Cronbach alpha = 0.74).

Perceived institutional support was measured by a 9-item instrument that has been developed and validated in a previous study to measure