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Research Paper

Factors associated with concurrent heroin use among patients on methadone maintenance treatment in Vietnam: A 24-month retrospective analysis of a nationally representative sample



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ABSTRACT

Background: Methadone maintenance treatment (MMT) is highly effective for reducing heroin use and HIV transmission among people who inject opioids. We sought to measure and understand factors associated with continued heroin use, a critical factor affecting treatment outcome among MMT patients in Vietnam. Method: We collected data from medical charts of a nationally representative sample of patients who were on MMT from May 2008 to December 2013. We selected 10 MMT clinics using probability proportional to size and 50 patients/clinic by systematic random sampling. Concurrent heroin use was defined by self-report/positive urine test recorded in patient charts during month 3, 6, 12, and 24 after MMT initiation. We used multivariable logistic regression to identify factors associated with concurrent heroin use over the first 24 months in treatment. Findings: All clients used heroin at baseline; concurrent heroin use was 55% at month 3; 19%, 14.6% and 15.2% at month 6, 12, and 24, respectively. Having no family emotional/financial support at baseline versus having this support (AOR = 2.03; 95% confidence interval [CI] = 1.17-3.53); using heroin for < 15 years versus ≥ 15 years at baseline (AOR = 1.55; 95% CI = 1.01-2.38); being HIV-infected/not on antiretroviral treatment (ART; AOR = 1.79; 95% CI = 1.07-2.98) or being HIV infected/on ART (AOR = 2.39; 95% CI = 1.61-3.55), versus not being HIV infected; baseline methamphetamine use versus non-use (AOR = 2.68; 95% CI = 1.08-6.65), were associated with increased odds of concurrent heroin use among patients. Conclusion: The association between concurrent heroin use among MMT patients and lack of family emotional/

financial support, highlights the critical importance of these types of support for successful treatment. Association with shorter heroin use history suggests motivational enhancement may reduce concurrent heroin use. Living with HIV, whether on ART or not, is associated with increased concurrent heroin use and suggests safe injection commodities and education, and drug–drug interaction management, are needed for this subgroup. Though few MMT clients reported baseline methamphetamine use, its association with later heroin use suggests the need for effective methamphetamine use interventions.

Background

People who inject drugs (PWID) account for the largest number of people living with HIV (PLHIV) and new HIV cases in Vietnam. The

Vietnam Administration of HIV/AIDS Control (VAAC) reported that PWID accounted for 36.1% of all newly identified HIV cases in 2015. Methadone maintenance treatment (MMT) is a highly effective intervention for reducing both heroin use and HIV transmission among

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Abbreviations: AIDS, acquired immunodeficiency syndrome; AOR, adjusted odds ratio; ART, antiretroviral treatment; ARV, antiretroviral drugs; CDC, The U.S Centers for Diseases Control and Prevention; CI, confidence intervals; FPC, finite population correction; HIV, human immunodeficiency virus; MAR, missing at random; MMT, methadone maintenance treatment; OR, odds ratio; PEPFAR, The President's Emergency Plan for AIDS Relief; PLHIV, people living with HIV; PWID, people who inject drug; PPS, probability proportional to size; UNODC, The United Nations Office on Drug and Crime; UNAIDS, The Joint United Nations Programme on HIV/AIDS; VAAC, The Vietnam Administration of HIV/AIDS Control; WHO, The World Health Organization

PWID (Chen, Xia, Hong, Hall, & Ling, 2013; Farrell, Gowing, Marsden, Ling, & Ali, 2005; Lawrinson et al., 2008; Wang, Wei, Wang, Li, & Li, 2014; Zou, Ling, & Zhang, 2015). MMT programs were established in Vietnam in 2008, to reduce heroin use and HIV transmission among PWID. By September 2016, there were 265 clinics operating in 62 provinces, serving approximately 50,000 patients. However, in 2014, the Vietnam Ministry of Public Security estimated that there were 140,000 heroin users across the country, thus, the need for MMT in the country remains high.

In Vietnam, criteria for admission into the MMT program include: (1) medical diagnosis of opioid dependence; (2) no contraindications for methadone use; (3) age ≥ 18 years at admission; (4) written voluntary consent for participation in the program; and (5) not being prosecuted for or charged with a criminal offence during admission (the period between registration and induction). According to the Ministry of Health (MOH) guidelines, all patients must present daily to MMT clinics to receive their methadone dose. In Vietnam, a patient is considered to have stopped methadone treatment if he/she misses at least 30 consecutive dose-days; if a patient chooses to resume treatment after that point, he/she would be considered to be a new patient. Clinicians are required to monitor concurrent heroin use among MMT patients at least monthly during the first 12 months and at least quarterly thereafter.

Concurrent heroin use among patients enrolled in MMT programs has been widely studied. Elsewhere, the proportion of those in opioid substitution programs found to be using opiates at 12 months is 22.5% in China (Chen, Xia et al., 2013) and 29% in the United States (White et al., 2014). Previously, studies in Vietnam have identified a lower prevalence of concurrent heroin use among MMT patients compared with China and the United States (Chen, Xia et al., 2013; Tran, Ohinmaa, Mills, Duong, & Nguyen, 2012; Tran et al., 2015; White et al., 2014). Factors associated with concurrent heroin use among MMT patients have included history of opiate use prior to treatment (Darke et al., 2005; Tran et al., 2012; Wang et al., 2015), clinical factors (Baumeister et al., 2014; Lin, Wu, & Detels, 2011; Lions et al., 2014; Luo et al., 2016; Tran et al., 2012; Tran et al., 2015) and lack of family support at baseline (Lin et al., 2011; Luo et al., 2016; Sullivan, Wu, Cao, Liu, & Detels, 2014).

Despite the fact that the MMT program in Vietnam has been available since 2008, there are no national data on outcomes. Previous MMT outcome studies in Vietnam – including the reduction of heroin use, program retention, and improvement of quality of life – were limited to one or two provinces. In addition, the rapid scale-up of the MMT program in Vietnam has led to concerns that service quality might contribute to suboptimal treatment outcomes, including the increase of concurrent heroin use. National data are needed to assess national level outcomes and inform more specific and targeted national strategies for reduction of continued heroin use. In this study, we sought to identify and understand factors associated with continued (i.e., concurrent) heroin use among MMT patients in Vietnam.

Methods

MMT monitoring procedure

Clinicians can assess concurrent heroin use by urine test or patient self-report. Urine tests will detect heroin use if this occurred within two days of the test (Smilh, Shimomura, Summers, & Paul, 2000), whereas patients are asked to report on heroin use over the past month. Consequently, lab test results might not be consistent with self-report. Therefore, if a patient reports recent heroin use, urine testing is not always conducted. Information on concurrent heroin use should be documented in the patient charts for clinical decision-making; for example, to note the potential need to increase methadone dose. HIV status must be documented at baseline either with an official certificate of HIV positive status or by testing at the MMT clinic. Patients who refuse testing at baseline must be offered testing at each monthly/ quarterly review session. HIV-negative patients are retested for HIV every 6 months. Patients who are HIV-infected but not registered for HIV care are referred to the public HIV clinics.

Study design

We conducted a retrospective cohort study of a nationally representative sample of patients enrolled in MMT from May 2008 to December 2013. Our goal was to assess concurrent heroin use among MMT patients in their first 24 months in treatment. Data were collected from patient charts by trained staff using a standardized data collection tool. This study was formally reviewed at the U.S. Centers for Disease Control and Prevention and determined to be a program evaluation activity that did not require review by the Institutional Review Board.

Subject and sampling

We wanted to assess 24-month concurrent heroin use, therefore only MMT clinics that started providing MMT before January 2012 - 24months before the time of data collection – were eligible for inclusion in the study. A total of 41 MMT clinics met this criterion. Within these clinics, only patients who started treatment before January 2012 were eligible for inclusion. The total eligible patient population was 6931.

Ten MMT clinics were selected from the 41 eligible clinics using the probability proportional to size (PPS) sampling method. In the second stage, 50 patients were selected by systematic random sampling from each selected clinic, using the list of eligible patients.

Data collection and management and variable definition

Trained staff collected data from the charts of 500 selected clients onto standardized abstraction forms. Abstraction forms were tailored to specific time periods for baseline (prior to treatment initiation) and periods of follow-up. Information abstracted at baseline included demographics (age, sex, education level, employment status, marital status), family emotional/financial support (yes, no), total number of years and frequency of heroin use, methamphetamine use prior to MMT initiation, and HIV status (negative, positive but not on ART, and positive and on ART). Information on family emotional/financial support was assessed and documented by MMT counselors according to patients' self-report upon registration for treatment following the national standard counseling procedure.

Follow-up data included methadone dose, concurrent heroin use, methamphetamine use, HIV status (from official report or clinic testing), and ART status. Follow-up time periods for the purposes of abstraction and analysis were 0–3 months, 3–6 months, 6–12 months, and 12–24 months. The methadone dose for the last day of each time period was collected. Concurrent use of heroin was abstracted for the 30 days prior to the end of each time period (e.g., 60–90 days for the 0–3 month period). Missed methadone dose-days and HIV and ART status were abstracted anytime they were noted in charts during each of the follow-up periods. Data were double-entered using Epi-Info software, and all discrepancies were resolved. Illogical data were double checked with clinic staff.

A patient was considered to be using heroin concurrently with methadone if, during month 3, 6, 12, or 24 of treatment, he/she: 1) self-reported any heroin use; and/or 2) had any urine test positive for heroin as documented in the medical chart. In order to ensure consistency with WHO/UNODC/UNAIDS Technical Guide for countries to set targets for universal access to HIV prevention, treatment and care for injecting drug users (2012) as well as with previous research (Baumeister et al., 2014), we categorized dosage as low (< 60 mg/day), medium (\geq 60–100 mg/day), or high (> 100 mg/day). Missed dosedays were dichotomized into "missed any dose-day" or "did not miss any dose-day" during each of these reviewed periods.

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