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Non-suicidal self-injury in Chinese heroin-dependent patients receiving methadone maintenance treatment: Prevalence and associated factors

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ABSTRACT

Background: To date, there have been no studies examining non-suicidal self-injury (NSSI) in Chinese heroin-dependent patients (HDPs) receiving methadone maintenance treatment (MMT). This study determined the prevalence of NSSI and its methods in HDPs under MMT as well as factors significantly associated with NSSI.
Method: We recruited a cross-sectional sample of 652 HDPs from three MMT clinics in Wuhan, China. In total, 603 HDPs (92.5%) completed standardized questionnaires concerning demographic, clinical, and psychosocial data. The presence and methods of NSSI were assessed with two standardized questions.
Results: The one-month prevalence of NSSI in Chinese HDPs receiving MMT was 13.8%. The most common three methods of NSSI were burning (59%), cutting (19.3%), and hitting (9.6%). Significant factors associated with NSSI in multiple logistic regression analysis were unemployment (OR [95%CI] = 2.54 [1.26, 5.10], P = 0.009), a short duration of MMT (OR [95%CI] = 1.04 [1.01, 1.09], P = 0.034), pain (OR [95%CI] = 2.31 [1.05, 5.35], P = 0.028), depression (OR [95%CI] = 4.32 [2.09, 9.00], P < 0.001), anxiety (OR [95%CI] = 3.74 [1.61, 8.70], P = 0.002), and loneliness (OR [95%CI] = 3.04 [1.27, 7.26], P = 0.012).
Conclusions: NSSI is common among Chinese HDPs of MMT clinics. Services for HDPs in MMT settings should include periodic screening for NSSI, adequate pain treatment, and appropriate psychosocial treatment for depression, anxiety, and loneliness.

1. Introduction

Non-suicidal self-injury (NSSI) refers to the deliberate, self-inflicted destruction or alteration of body tissue resulting in immediate damage without a conscious suicidal intent and for purposes not culturally sanctioned (Cipriano et al., 2017). NSSI involves various forms, with self-cutting, head-banging, scratching, and hitting being the four most common types (Cipriano et al., 2017; Skegg, 2005). Although NSSI does not generally cause fatal outcomes, accumulating evidence has shown that NSSI is significantly associated with functional impairment, poor quality of life, premature death, and increased risk of attempted suicide and suicide death (Bergen et al., 2012b; Castellvi et al., 2017; Ribeiro et al., 2016; Zullig, 2016).

NSSI is frequent in patients with substance use disorders, including alcohol dependence or harmful use of alcohol, cannabis use disorder, opioid dependence, and methamphetamine abuse (Darke et al., 2010; Haw et al., 2001; Kimbrel et al., 2018; Maloney et al., 2010). Nevertheless, data regarding the clinical epidemiology of NSSI in patients with heroin dependence are very limited. For example, Darke and colleagues reported a 28% lifetime prevalence of NSSI in a sample of Australian illicit drug users (of whom 90% were psychostimulant users and 75% were heroin users) (Darke et al., 2010). Another study by Maloney et al. found that 25% of the Australian opioid-dependent patients receiving pharmacotherapy maintenance treatment (of whom 12.9% met diagnostic criteria for cannabis dependence) had NSSI during their lifetime (Maloney et al., 2010). The latter study also revealed several risk factors of NSSI including female gender, younger age, more education years, childhood maltreatment, depressive disorders, borderline personality disorder, and comorbid substance use disorders other than opioid use disorders (Maloney et al., 2010). Because the two above-mentioned studies recruited mixed samples of patients with various types of substance use disorders, their findings may not be generalizable to patients who predominately used heroin. Importantly, neither study provided any information on methods of NSSI, which may help identify individuals at high risk of subsequent suicide and determine the type of healthcare resources used by self-harmers (Bergen et al., 2012a; Hawton et al., 2002).

Methadone maintenance treatment (MMT) is an effective treatment

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for reducing opioid withdrawal symptoms and cravings as well as harms associated with opioid use disorder such as crime and HIV-transmission (Karki et al., 2016). For decades, heroin has been the most commonly used illegal drug in China. To address the serious medical and social problems associated with heroin use, China initiated its MMT program in 2004. China has established the largest MMT network in the world so far (Yang et al., 2017a); by 2016, a total of 162,000 heroin users were receiving treatment in 789 community-based MMT clinics nationwide in China (Office of China National Narcotics Control Commission, 2017). However, due to lack of mental health and social service resources in China, the services provided by these MMT clinics are still very basic. Most provide methadone treatment only, and very few provide counselling and psychosocial services (Xu et al., 2017; Zhong et al., 2014). Therefore, it is reasonable that NSSI would be a seriously neglected issue in Chinese MMT clinics; this is further supported by the paucity of studies on NSSI of Chinese heroin users.

To the best of our knowledge, only one study to date has investigated NSSI in Chinese heroin addicts receiving compulsory detoxification treatment (Zhang and Zhang, 2005). This study reported a 9.7% prevalence of NSSI during the period of compulsory treatment and found that injection heroin use, a long duration of heroin use, and more withdrawal symptoms were risk factors for NSSI. In this study, swallowing foreign objects was the most common NSSI method, followed by self-cutting and self-burning. Because of differences in treatment settings (compulsory detoxification vs. community-based MMT) and patient characteristics (acute vs. protracted opioid withdrawal phase), findings on the clinical epidemiology of NSSI may not be applicable to heroin-dependent patients (HDPs) of Chinese MMT clinics.

Given the lack of empirical data on NSSI of HDPs in China, the clinical relevance of NSSI, and the very large number of HDPs under MMT in China, the present study examined the prevalence of NSSI, its subtypes, and factors significantly associated with NSSI in Chinese HDPs receiving MMT. Based on the studies we reviewed above, the hypothesis of this study was that NSSI would be prevalent in HDPs of Chinese MMT clinics and associated with some demographic variables, such as female gender, and a number of clinical and psychosocial factors, such as a long duration of heroin use and depression.

2. Methods

2.1. Subjects and sampling

Between June 2009 and July 2010, a cross-sectional survey was conducted to investigate depressive symptoms, anxiety symptoms, loneliness, self-destructive behaviors, health-related quality of life, and pain experience among HDPs receiving MMT in Wuhan, China (Xu et al., 2017; Yang et al., 2017b). Cluster sampling was used to obtain the sample of HDPs. During the study period, patients of three city-owned MMT clinics were invited to participate in this study. Patients who were 20 years and older (The Ministry of Health of the People's Republic of China, 2006), met DSM-IV diagnostic criteria for heroin dependence, were receiving MMT at the three study clinics, and agreed to join in the study were deemed eligible for this survey. We excluded patients with severe physical diseases, alcohol dependence, organic psychiatric illnesses, or psychotic symptoms.

The study protocol was approved by the Ethics Committee of Wuhan Mental Health Center. All included patients signed an informed consent before the investigation.

2.2. Instruments and procedures

The self-administered questionnaire used in the current survey had four parts: demographic factors (gender, age, education, marital status, employment status, and self-rated economic status), clinical characteristics (method of heroin use, duration of heroin use, length of MMT, methadone maintenance dose, and pain), psychosocial factors (depressive and anxiety symptoms and loneliness), and two standardized questions about NSSI.

We used the 5-point Verbal Rating Scale (VRS) to measure the intensity of pain, which consists of five adjectives describing different levels of pain intensity: 1 = None, 2 = Mild, 3 = Moderate, 4 = Severe, 5 = Very severe (Yang et al., 2017b). Patients were asked "Overall, how intense is your pain now?" and then required to select the adjective which best fits their pain intensity. Patients were categorized as having clinically significant pain if they rated their pain as "moderate", "severe", or "very severe" (Jakubczyk et al., 2016; Yang et al., 2017b).

Depressive and anxiety symptoms were assessed with the Chinese version of Zung's Self-Rating Depression Scale (SDS) and Zung's Self-Rating Anxiety Scale (SAS) (Wang and Ma, 1999), respectively. Both scales have 20 items, and their total scores range between 20 and 80 with higher scores denoting more depressive or anxiety symptoms. A score of 40 on SDS or 43 on SAS is a valid distinguisher of individuals with vs. without clinically significant depression or anxiety in China (Wang and Ma, 1999).

Loneliness was measured with a single question asking how often the respondent feels lonely on a 5-point Likert-type scale: 1 = Always, 2 = Often, 3 = Sometimes, 4 = Seldom, 5 = Never. This single-item measure of loneliness is commonly used in previous studies and well-accepted by individuals with low educational attainment (Dahlberg et al., 2015; Yang et al., 2017a). In accordance with prior studies, the five-category loneliness variable was transformed into a binary variable: lonely (≥ 3) and not lonely (≤ 2).

Based on the definition of NSSI and measures of NSSI used in prior studies (Cipriano et al., 2017; Hughes et al., 2010; Klemera et al., 2017; Portzky et al., 2008; Wan et al., 2011), we assessed NSSI using a question that asked "In the past month did you deliberately hurt yourself but not intend to kill yourself (for example, cut or hit yourself on purpose or take an overdose)?". Respondents who answered "yes" were classified as having NSSI. These self-harmers were further asked to describe the act (or, in case of multiple episodes, the most recent act). Because one-month prevalence reflects a population's current healthcare needs for self-injury prevention and intervention, and "one-month" timeframe is less prone to recall bias than "twelve-month" or "lifetime" frame, we investigated only the one-month prevalence of NSSI in this study.

All patients independently and anonymously completed the questionnaires. Six trained investigators, who were also treating psychiatrists of the HDPs of the three MMT clinics, were assigned to carefully review medical charts and interview patients (when necessary) for eligibility. These investigators also invited eligible patients to participate, read out questionnaires for patients who had difficulty reading, and checked the questionnaires for illogical responses or missing values before collection.

2.3. Statistical analysis

One-month prevalence of NSSI was calculated. Demographic, clinical, and psychosocial characteristics of patients with and without NSSI were described and compared by t-test, Chi-square test, or Mann-Whitney U test, as appropriate. Multivariable logistic regression model with the "Enter" method was used to identify factors significantly associated with NSSI. NSSI was entered as the dependent variable, and all demographic, clinical, and psychosocial factors were entered as independent variables. Odds ratios (ORs) and 95% confidence intervals (CIs) were used to quantify the associations between variables and NSSI. The statistical significance level was set at $p < 0.05$ (two-sided). Data were analyzed using SPSS software version 18.0.

3. Results

Altogether, 743 patients were screened for eligibility, and 652 met the study inclusion criteria. Of these, 16 withdrew informed consent