Increasing availability of illicit drugs among people who inject drugs in Bangkok, Thailand

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ABSTRACT

Background: In recent years, the Thai government has strengthened drug law enforcement as a strategy to address a continuing epidemic of illicit drug use. We sought to assess temporal trends in street-level availability of illicit drugs among injection drug users (IDUs) in Bangkok, Thailand.

Methods: Using univariate statistics and multivariate logistic regression, we assessed changes in the availability of five substances (heroin, methamphetamine, crystal methamphetamine, midazolam, and illicit methadone) between 2009 and 2011 and examined social, structural and individual factors influencing availability among community-recruited samples of IDUs in Bangkok. Availability was measured in three levels: immediate (available in ≤10 min); moderate (available in 10–90 min); and delayed (available in >90 min; our reference category).

Results: The analyses included 718 IDUs, including 165 (23.0%) women. Controlling for changes in participant characteristics between assessments, and in a period of constant nominal illicit drug prices, moderate availability of all substances increased significantly between 2009 and 2011, with adjusted odds ratios ranging between 2.36 (illicit methadone) and 4.61 (crystal methamphetamine) (all $p < 0.01$). Immediate availability of all substances but heroin also increased (all $p < 0.01$). More immediate availability of methamphetamine was also associated with a history of incarceration ($p < 0.05$).

Conclusions: Despite the Thai government's intensified drug suppression efforts, the availability of illicit drugs among IDUs in Bangkok increased significantly between 2009 and 2011. The findings raise concern about the overreliance on drug law enforcement-based approaches and point to the need for greater investment in evidence-based drug policies.

1. Introduction

Situated along some of the world's major drug trafficking routes (Devaney et al., 2006), Thailand has been contending with a long-standing epidemic of illicit drug use (Assanangkornchai et al., 2008). In response, the Thai government initiated a series of aggressive drug law enforcement-based responses. Since the 1990s, there has been a dramatic increase in incarceration rates for drug-related offenders (Beyrer et al., 2003). In 2002, a system of compulsory drug detention was introduced and has been rapidly expanded in recent years (Pearshouse, 2009). In 2010, the Thailand Office of Narcotics Control Board (ONCB) reported that 116,500 people were admitted to drug treatment facilities, and as many as 63% of these "patients" were in compulsory drug detention (ONCB, 2010). Despite these aggressive drug suppression efforts, the ONCB noted a continuing increase in illicit-substance seizures in recent years (ONCB, 2009, 2010).

Since August 2011, Thai authorities have further strengthened drug law enforcement efforts (Bangkok Post, 2011; ONCB, 2011). Although the extent to which these efforts have affected the supply of and demand for illicit drugs is unknown, available data paint an unfavorable picture. Recent media reports indicated an illicit drug trade "boom" within prisons, with only seven of 143 prisons in the country being free of behind-bars drug trading (Bangkok Post, 2012; Ruangdit, 2012). As well, a previous study suggested that compulsory drug detention has not reduced drug use among people who inject drugs (IDUs) in Bangkok, as drug use typically eventually resumes soon after release from detention (Csete et al.,

2011). Further, intensified drug control campaigns have resulted in police misconduct and fatal shootings of suspects, provoking public concern regarding how drug suppression operations were being implemented (Rakrun, 2012; Human Rights Watch, 2012).

While the Thai government continues to rely on intensive drug law enforcement as a means of suppressing the trade of illicit drugs, we know of no studies that have identified temporal trends in street-level availability of illicit drugs in Thailand. The existence of a serial cross-sectional study of IDUs in Bangkok enabled us to collect data on street-level drug availability at two different time points, the latter of which followed a period of renewed and intensified crackdowns on drugs in 2011. Therefore, our study objective was to assess changes in the availability of five substances that are commonly used among IDUs in Bangkok between 2009 and 2011. As well, we sought to examine social, structural and individual factors influencing drug availability.

2. Methods

2.1. Study design

Data for this study were derived from the Mitsampan Community Research Project, a collaborative research effort involving the Mitsampan Harm Reduction Center (MSHRC; a drug user-run drop-in center in Bangkok, Thailand), the Thai AIDS Treatment Action Group (Bangkok, Thailand), Chulalongkorn University (Bangkok, Thailand), and the British Columbia Centre for Excellence in HIV/AIDS/University of British Columbia (Vancouver, Canada). This is a serial cross-sectional study that aims to investigate drug-using behavior, barriers to accessing healthcare, and other drug-related harm among IDUs in Bangkok. The specific methods employed have been described in detail elsewhere (Hayashi et al., 2012). In brief, between June 2009 and October 2011, the research partners undertook two cycles of surveying involving a total of 757 community-recruited IDUs in Bangkok (317 IDUs between June and July of 2009 and 440 IDUs between July and October of 2011). Potential participants were recruited through peer outreach efforts and word-of-mouth, and were invited to attend the MSHRC or O-Zone House (another drop-in center in Bangkok) in order to be part of the study. Adults residing in Bangkok or in adjacent provinces who had injected drug(s) in the past six months were eligible for participation. All participants provided informed consent and completed an interviewer-administered questionnaire eliciting a range of information, including socio-demographic characteristics, drug use patterns, and experiences with drug law enforcement and accessing healthcare. Upon completion of the questionnaire, participants received a stipend of 350 Thai Baht (approximately US $12). The study was approved by the research ethics boards at Chulalongkorn University and the University of British Columbia.

2.2. Participants and measures

Items assessing the availability of illicit drugs were included in the questionnaires administered in both 2009 and 2011. The availability of a set of five substances (i.e. heroin, methamphetamine pills [locally referred to as *yaba*], crystal methamphetamine [locally referred to as *ice*], midazolam tablets [short-acting benzodiazepine available through private clinics], and methadone for illicit use) were assessed at five levels: (1) available within 10 min; (2) available within 90 min; (3) available within a day; (4) available in more than a day; and (5) do not know the availability. Participants were asked to indicate "how difficult would it be for you to get the following drugs right now in the area where you typically obtain your drugs?" and were also asked to indicate the current street price of each substance.

Participants who completed the interview in 2009 or 2011 were eligible for inclusion. For this study, we excluded individuals who did not know the availability of the drugs in question or those with incomplete data. Further, the sample for each substance was restricted to individuals who reported having used the substance in question in the past six months.

As in a previous study (Nosyk et al., 2012), we conceptualized the availability of the five substances as being an aspect of *supply*, rather than *demand* for the substances in question. We hypothesized that both social/structural factors and individual characteristics were potentially associated with availability. Therefore, explanatory variables considered included: calendar year of study enrolment (2011 *vs.* 2009); age (≤35 years *vs.* 36–45 years *vs.* ≥46 years); gender (female *vs.* male); drug dealing involvement in the past six months (yes *vs.* no); frequent use of each drug of interest in the past six months (>once per week *vs.* ≤once per week); ever in prison (yes *vs.* no); and ever in compulsory drug detention (yes *vs.* no). Drug dealing involvement was ascertained by asking whether drug dealing (i.e. selling or delivering illicit drugs) constituted a source of income in the past six months. Dealing status and frequent use of drugs were considered indicative of stronger contact with a given drug supply chain. Given recent government and media reports indicating large-scale drug dealing in prisons (Bangkok Post, 2012; Ruangdit, 2012), a history of incarceration and compulsory drug detention were also hypothesized to increase the ease of illicit-drug availability as relationships between IDUs and drug dealers

may have been established or expanded while in detention. We note that all data used in our study were self-reported data, which may have been subjected to some potential biases.

2.3. Statistical analyses

As a first step, we examined sample characteristics using descriptive statistics. We also examined frequencies of drugs used more than twice per week in the past six months in an effort to capture primary drugs used among the sample. Then, we plotted univariate trends of the availability of the five drugs between 2009 and 2011. Given low levels of responses for the availability in ≤1 day and >1 day, we combined these categories, thus providing us with a three-level ordered outcome variable: immediate availability (available in ≤10 min); moderate availability (available in >10 min to ≤90 min); and delayed availability (available in >90 min). To examine univariate associations between the three levels of availability for each drug and the explanatory variables, we used the Kruskal–Wallis test.

The distributions of the responses of the explanatory variables over the three-level outcome variables indicated that the proportional odds assumption did not hold. Therefore, we fitted separate multivariate logistic regression models assessing the adjusted odds of moderate availability *vs.* delayed availability, and immediate availability *vs.* delayed availability for each drug of interest. We used an *a priori*-defined statistical protocol based on examination of the Akaike Information Criterion (AIC) and *p*-values to construct an explanatory multivariate logistic regression model. First, we constructed a full model including all variables analyzed in univariate analyses. After examining the AIC of the model, we removed the variable with the largest *p*-value and built a reduced model while keeping the calendar year of study involvement in the model. We continued this iterative process until no variables remained for inclusion. We selected the multivariate model with the lowest AIC score. All *p*-values were two-sided.

As a sub-analysis, we examined changes in the street price of each drug between 2009 and 2011. Unfortunately, items assessing drug purity were not included in the questionnaire, and therefore we were unable to adjust the prices for drug purity, which may have changed between the two years. Because the reported prices of drugs had highly skewed distributions and there was heterogeneity in retail units, presumably due to the unregulated nature of illicit drug markets (Johnson and Golub, 2007), we presented the modal price and unit of each drug, as well as the percentage of the study sample that reported the modal price and unit. All statistical analyses were performed with SPSS software version 18.0.0 (IBM, Armonk, NY, USA).

3. Results

3.1. Summary statistics

Summary statistics on the covariates included in the analysis are provided in Table 1. As shown, a total of 718 IDUs (293 IDUs in 2009 and 425 IDUs in 2011) participated in this study, including 165 (23.0%) women. The median age was 38 years (interquartile range (IQR): 33–47 years). Only 7.4% of the sample reported obtaining income from drug dealing in the past six months. The most commonly used drug in the past six months among the sample was midazolam (75.6%), followed by methamphetamine (67.3%) and heroin (60.7%). The prevalence of crystal methamphetamine use was substantially higher among the participants in 2011 (32.9%) than in 2009 (5.8%), while the prevalence of use of other drugs remained relatively stable over the two calendar years. The majority of participants (66.4%) reported using multiple drugs more than twice per week in the past six months.

3.2. Univariate trends in availability

Trends in the availability of the five drugs assessed are plotted in Fig. 1. As shown, delayed availability of all drugs declined between 2009 and 2011 while moderate availability of all drugs increased. Immediate availability of all drugs, except for heroin, also increased. Changes in the immediate availability of crystal methamphetamine were the most pronounced, increasing almost six-fold (from 5.9% in 2009 to 35.7% in 2011) between 2009 and 2011. Although immediate availability of heroin slightly decreased from 8.3% in 2009 to 7.8% in 2011, there was a marked increase in the moderate availability of heroin, increasing from 47.7% in 2009 to 68.3% in 2011.

The results of univariate analyses showed significant associations between the calendar year of study enrolment and the