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POLICE BRIBERY AND ACCESS TO METHADONE MAINTENANCE THERAPY WITHIN THE CONTEXT OF DRUG POLICY REFORM IN TIJUANA, MEXICO

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Abstract

Aims—In 2009, Mexico passed legislation to decriminalize drug possession and improve access to addiction treatment. We undertook research to assess the implementation of the reform among a cohort of people who inject drugs (PWID) in Tijuana. This study specifically sought to determine whether discretionary policing practices like extortion impact access to methadone maintenance therapy (MMT) in Tijuana, a city characterized by high levels of drug-related harms.

Methods—Generalized estimating equation analyses were used to construct longitudinal confounding models to determine the association between paying a police bribe and MMT enrolment among PWID in Tijuana enrolled in a prospective cohort study. Outcome of interest was MMT enrolment in the past six months. Data on police interactions and MMT enrolment were also obtained.

Results—Between October, 2011 and September, 2013, 637 participants provided 1,825 observations, with 143 (7.8%) reports of MMT enrolment during the study period. In a final confounding model, recently reporting being forced to pay a bribe to police was significantly

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Contributors

All authors had full access to all data and have read and approved the text as submitted to DAD. DW performed initial analyses and drafted the manuscript. KW, LB, GR, PGZ and SS all contributed substantially to methodological issues and manuscript revisions.

Conflicts of Interest

All authors declare that (1) no authors have support from any companies for the submitted work; (2) no authors have relationships with companies that might have an interest in the submitted work in the previous 3 years; (3) their spouses, partners, or children have no financial relationships that may be relevant to the submitted work; and (4) DW, KW, LB, GR, PGZ and SS have no non-financial interests that may be relevant to the submitted work.

associated with an increased likelihood of accessing MMT (Adjusted Odds Ratio = 1.69, 95% Confidence Interval: 1.02 – 2.81, $p = 0.043$). However, in 56 (39.2%) cases, MMT enrolment ceased within six months. The majority of participant responses cited the fact that MMT was too expensive (69.1%).

Discussion—Levels of MMT access were low. PWID who experienced police extortion were more likely to access MMT at baseline, though this association decreased during the study period. Coupled with the costs of MMT, this may compromise MMT retention among PWID.

Keywords

Tijuana; Mexico; injection drug use; discretionary policing; bribery; extortion; methadone maintenance therapy; drug policy

1. INTRODUCTION

Tijuana, Mexico is a well-known transit point for illegal drugs such as cocaine, methamphetamine and heroin (UNODC, 2012), primarily destined for markets in the United States and Canada (UNODC, 2010). As with many centers of drug production and traffic, Tijuana is also the site of a large open-air drug market in and around the Zona Norte, a neighbourhood adjacent to the Mexico-U.S. border, which has become the epicenter of drug use and related risk behaviours among people who inject drugs (PWID; Brouwer et al., 2012, 2006; Thomas et al., 2008; Willoughby, 2003). In 2009, the Mexican federal government approved passage of a law that decriminalized drug possession for personal consumption (Consejo Nacional contras las Adicciones, 2010; Moreno et al., 2010) and sought to divert drug-dependent individuals to addiction treatment facilities, including methadone maintenance therapy (MMT) (Consejo Nacional contras las Adicciones, 2010). Unfortunately, challenges remain in scaling up MMT across Tijuana (Syvertsen et al., 2010), while PWID continue to experience high levels of arrest and detainment (Brouwer et al., 2012; Volkmann et al., 2011), along with discretionary and arbitrary policing (Beletsky et al., 2012).

By law, police officers are the key points of contact for facilitating PWID diversion into evidence-based treatment in Mexico (Consejo Nacional contras las Adicciones, 2010). Concerns therefore exist that discretionary policing of PWID in Tijuana, and police extortion in particular (Miller et al., 2008), may influence the capacity of PWID to access MMT. This is because MMT is not subsidized in Tijuana, and the city's population of PWID is characterized by extreme poverty related to migration, deportation, and low economic mobility (Magis-Rodríguez et al., 2004; Ojeda et al., 2011; Strathdee et al., 2008). Further, the identification of barriers to the implementation of Mexico's drug policy reform has implications for other jurisdictions considering or in the process of enacting similar public health-oriented drug policies, particularly in middle- and low-income settings. This study therefore sought to determine whether discretionary policing practices like extortion impact access to MMT in Tijuana, a city characterized by high levels of drug-related harms.

2. METHODS

2.1 Recruitment and eligibility criteria

Data from a longitudinal observational cohort of street-based PWID residing in Tijuana (*Proyecto El Cuete*) were employed. Eligibility criteria and enrolment processes have been previously described (Robertson et al., 2014; Robinson et al., 2006; Salganik and Heckathorn, 2004). In brief, at baseline and semi-annual follow-up visits, participants completed an interviewer-administered questionnaire soliciting data on sociodemographics, drug-related behaviors, interactions with police, experiences with addiction treatment, and other relevant domains. Participants were provided with a USD\$20 honorarium per visit. The study was approved by the Institutional Review Board of the University of California, San Diego School of Medicine and the Ethics Board of the Colegio de la Frontera Norte, Tijuana; all study participants provided written consent prior to enrolment. With respect to obtaining consent, in all cases the interviewer read the consent form aloud and, once completed, a discussion was then undertaken between the interviewer and participant to ensure that the participant understood the consent form and the steps involved in participation. If satisfied, the participant then signed the consent form, witnessed by the interviewer.

2.2 Measures

The present study included data from participants enrolled between October 1st, 2011 and September 30th, 2013. The outcome of interest was defined as reporting enrolment in MMT in the previous six months. The primary independent variable of interest was reporting being forced to pay a bribe to police in the previous six months (i.e., participants were asked whether they had been stopped by law enforcement in the previous six months, and if so, whether they paid a bribe). Potential confounders previously identified in the literature included: age (Dürsteler-MacFarland et al., 2011; Weiss and Petry, 2013), gender (Kelly et al., 2011), any use of heroin (Mattick et al., 2009), cocaine (Castells et al., 2010; Weiss and Petry, 2013), or methamphetamine (including crystal methamphetamine; Shekarchizadeh et al., 2012), reported frequency of injection drug use (i.e., daily vs. non-daily/none; Amato et al., 2002; Ferri et al., 2010), follow-up visit (Kelly et al., 2011), self-perceived need for addiction treatment (none or some need vs. a great or urgent need), and a visit-by-bribe interaction term. This last variable was included because changes to discretionary policing practices may have evolved over the study period given the ongoing implementation of the drug policy reform (Syvertsen et al., 2010). The frequency of injection drug use was lagged by one follow-up visit to avoid reverse causality, wherein the outcome of interest (i.e., MMT enrolment) may have impacted injecting frequency.

2.3 Analyses

Univariate and multivariate GEE analyses for binary outcomes were employed. These methods provide modified standard errors adjusted by multiple observations using a first-order autoregressive correlation structure to account for dependence between multiple responses (Liang and Zeger, 1986; Zeger and Liang, 1986). A two-stage process, as recommended by Greenland and others (Maldonado and Greenland, 1993), was employed. First, univariate GEE analyses were generated to determine whether the independent

variable of interest (recently paying a bribe to police) and potential confounders (as listed above) were associated with MMT enrolment. Second, a multivariate GEE model was constructed that included all potential confounders, which were removed using a backward selection approach to fit restricted models. Potential confounders were removed from the model in sequence if the coefficient for the independent variable of interest (i.e., reporting paying a bribe to police) in the full model did not change by more than 5% in the restricted model. This process continued until only those variables that, upon removal, caused a relative change of more than 5% in the coefficient for the variable of interest remained.

Finally, two subanalyses were undertaken. The first investigated the characteristics of bribery events and MMT enrolment patterns. The second used Spearman's rho to investigate whether, among participants enrolled in MMT, a significant trend existed in the proportion paying a bribe to police over time. All statistical analyses were performed using SPSS software version 17.0 (SPSS, Chicago, IL).

3. RESULTS

3.1 Baseline characteristics

A total of 637 participants completed at least one interviewer-administered questionnaire between October 1st, 2011 and September 30th, 2013. Table 1 presents baseline characteristics of participants stratified by reporting paying a bribe to police in the six months prior to baseline. In total, participants contributed 1,825 observations throughout the study period (median: 2 visits per person; Interquartile Range [IQR]: 1–3 visits), which included 145 MMT enrolment events and 692 police bribery events. The proportion of those reporting paying a bribe decreased from approximately 50% at baseline to 28% by the close of the study period. Over 96% of participants completed at least one follow-up visit during the study period. Those lost to follow-up did not differ significantly from the overall sample on age, gender, use of heroin, cocaine, or crystal methamphetamine, self-perceived need for addiction treatment, or reporting paying a bribe to police.

3.2 Results of GEE confounding model

Table 1 also presents results from the univariate analyses and final multivariate model. Despite adjustment, reporting paying a bribe to police in the past six months was significantly associated with an increased likelihood of reporting accessing MMT in the previous six months (Adjusted Odds Ratio [AOR] = 1.69, 95% Confidence Interval [CI]: 1.02 – 2.81, $p = 0.043$). Additionally, reporting methamphetamine use in the previous six months (AOR = 0.61, 95% CI: 0.41 – 0.93, $p = 0.021$) and an interaction term for reporting paying a bribe and follow-up interview visit (AOR = 0.67, 95% CI: 0.48 – 0.94, $p = 0.019$) were both significantly associated with accessing MMT in the previous six months.

3.3 Results of subanalysis

The first subanalysis investigated participant experiences with police bribery and MMT enrolment throughout the study period. Among participant responses indicating an arrest in the previous six months ($n = 1,052$) the median number of times that participants reported being arrested in the previous six months was 3 (IQR = 2 – 8). Further, the median number

of times that participants reported paying a bribe during these events was 1 (IQR = 1 – 3). The median reported daily price of MMT paid by participants was 78 pesos (approximately 6 USD). In 56 (39.2%) cases, MMT enrolment ceased within six months. The majority of participants (69.1%) reported ceasing MMT enrolment because MMT was too expensive, while 20% cited difficulties in making daily visits to a MMT clinic. Further, in a second subanalysis restricted to participants enrolled in MMT at each follow up visit, a significant trend was detected whereby those enrolled in MMT were increasingly less likely to report paying a bribe to police over time (Spearman's $\rho = -0.418, p < 0.001$).

4. DISCUSSION

Among a sample of PWID in Tijuana, Mexico, half of participants reported paying a bribe to police in the six months prior to baseline. Reporting recently paying a bribe to police was independently associated with an increased odds of accessing MMT in the previous six months; however, the odds of accessing MMT decreased among those reporting paying a police bribe over time. While high profile drug policy reforms have been implemented in a number of high income settings such as Portugal (Greenwald, 2009), Switzerland (Nordt and Stohler, 2006), and the United States (Harkinson, 2013), little data exists regarding the barriers to implementation of public health-oriented drug policy reforms in middle- and low-income settings. The present study therefore has implications for policymakers seeking to enact such reforms in settings characterized by weak rule of law and fewer institutional resources.

Tijuana is one of the Mexican urban settings most deleteriously impacted by drug-related harms, with a PWID population estimated at 10,000 among whom HIV prevalence is believed to be as high as 4% among males and 10% among females (Brouwer et al., 2006; Strathdee et al., 2012). Observers have identified macro-level barriers to the implementation of Mexico's drug policy reform, with the lack of scale up of MMT (only three MMT clinics operate in Tijuana, and all charge user fees) as a major contributing factor (Syvertsen et al., 2010). This study further suggests that micro-level factors influence the capacity of PWID to access MMT by potentially reducing their ability to generate sufficient income to support enrolment and retention in MMT. Indeed, we did not detect a measurable increase in MMT enrolment among participants during the period of implementation of the drug policy reform.

That PWID who reported paying a bribe were found to be more likely to access MMT enrolment was unexpected, though the inclusion of a visit-by-bribe interaction term suggests that the positive association between paying bribes and accessing methadone decreased during the study period. This is demonstrated in Figure 1 and confirmed via the second subanalysis, which found that the proportion of participants enrolled in MMT reporting paying a bribe decreased significantly over time. These results may be explained by a number of potential pathways. First, PWID who have a higher income may be able to pay for MMT and also more likely to be targeted for extortion by police. Second, PWID may be targeted by police based on their MMT enrolment, given that capacity to enroll in MMT may be a proxy for increased income acquisition. Third, MMT enrolment may stabilize drug dependence among PWID and thereby facilitate a greater capacity for income acquisition,

which may in turn result in a higher risk of being targeted by police for extortion. Finally, MMT access may be a proxy for increased interactions with police, as police may target MMT clinics, as has occurred with drug-related public health interventions in other settings (Bluthenthal et al., 1997; Hayashi et al., 2014; Rhodes et al., 2003; Wood et al., 2003).

Regardless of the associative pathways, the fact that MMT requires payment in Tijuana means that police extortion may act as a potential barrier to retention in MMT. This is because Tijuana's street-based PWID population is characterized by extreme poverty and, as such, police extortion likely reduces the capacity of PWID to continue payment for MMT. This is particularly problematic given that the results of the subanalysis suggest that participants reported a median of three arrests in the previous six months, with a median of one bribery event. Cessation of MMT was also high, with the primary reason being that treatment was too expensive. The proportion of participants who reported ceasing MMT within six months in this study is comparable to the overall retention rate reported in a meta-analysis of MMT treatment retention (Bao et al., 2009), though it compares unfavorably with retention rates reported in Israel (Peles et al., 2006), England (Gossop et al., 2001), and in certain settings in the United States (Farré et al., 2002). Retention in MMT has previously been shown to improve health outcomes among MMT clients (Gossop et al., 2001; Hser et al., 2004; Zhang et al., 2003); along with low levels of enrolment, there is a clear need to reduce barriers to MMT in Tijuana to meaningfully address drug-related harms.

Importantly, the association between the visit-by bribe interaction term and MMT enrolment suggests that the impact of bribery on the likelihood of accessing MMT decreased throughout the study period. This result is open to multiple interpretations, including the potential that individuals who were forced to pay bribes were increasingly unable to access MMT during the study period; or that PWID not accessing MMT were increasingly targeted by police. That the proportion of the total sample reporting being targeted for extortion decreased from approximately 50% to 25% during the study period, however, suggests the incidence of police extortion in general may be fluctuating. Further, the results of the second subanalysis suggest that those enrolled in MMT were increasingly less likely to report paying a bribe over time, which may indicate that this group was increasingly less likely to interact with police. This may be because of reductions in drug-related harms achieved through MMT enrolment.

These findings have a number of implications for the implementation of national drug policy reforms in Tijuana, and beyond. First, while experiences of bribery appear to have decreased among the sample, this may or may be related to shifting PWID behaviors to elude such incidents, rather than improvements in police practices. Such coping strategies to avoid police contact (such as rushing injections, or dispersion of drug use to less policed areas) may, however, precipitate public health harms (Strathdee et al., 2014). Given the substantial prevalence of extortion experiences reported, targeted structural interventions may be required in order to shift police knowledge, attitudes and practices to better align them with public health goals (Beletsky et al., 2011). This may include changes in police training, increased pay for officers to deter extortion, improved management, as well as efforts to promote police professionalism (Strathdee et al., 2014). Additionally, as noted above, there are currently only three MMT clinics in Tijuana, all of which charge for the dispensation of

treatment, unlike settings such as Canada, where methadone is provided free of charge in certain provinces under a universal health care approach ostensibly similar to Mexico's (Stueck, 2014). As such, the very low levels of MMT enrolment reported by participants during the study period are likely the result of both structural (i.e., lack of MMT clinics) and economic (i.e., unaffordable MMT clinics) barriers. Such economic barriers have been found to impact access and retention of PWID in MMT in other settings, including U.S. states (Deck and Carlson, 2004, 2005); Mexico should therefore ensure that MMT is covered under the country's universal health care system.

This study has limitations consistent with the use of observational research methods among marginalized street-based drug-using populations. First, participants were not randomly sampled for inclusion in the cohort. Second, because illicit drug use remains highly stigmatized within Mexico and globally, drug-related behaviors may have been underreported. Similarly, given safety concerns, participants may have underreported interactions with police, and bribery events in particular. Third, while we carried out a confounding model-building approach, we were likely unable to account for all potential confounders potentially impacting the association between bribery and MMT enrolment. Finally, given the heightened risk environment for drug-related harms and discretionary policing in Tijuana, generalizability of these findings to other street-based PWID populations may be limited, though the results may nevertheless be relevant to other settings experiencing ongoing discretionary and arbitrary policing among PWID populations (Davis et al., 2005; Rhodes et al., 2003; Werb et al., 2008).

In sum, in a longitudinal study among street-based PWID in Tijuana, reporting paying a bribe to police was significantly associated with increased odds of MMT enrolment at baseline, though this association decreased throughout the study period, with a non-significant association between bribery and methadone enrolment at the close of the study period. The low level of enrolment in MMT among the sample, as well as the fact that the majority of those who ceased MMT reported doing so for economic reasons, raise important concerns regarding barriers to MMT access and retention among PWID in Tijuana, and have implications for other middle- and low-income settings seeking to enact drug policy reforms. Police education and an expansion of subsidized MMT in Tijuana are therefore likely needed to ensure meaningful implementation of Mexico's drug policy reform in settings experiencing severe drug- and drug policy-related harms.

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Highlights

- Mexico's drug policy reform seeks to connect drug users with addiction treatment
- Arbitrary policing remains a barrier to treatment among drug users
- We observed a very low level of methadone access (<10%) though participants reported very high levels of heroin use (>90%)
- Paying a bribe to police was associated with accessing methadone, though an interaction term suggests that this association weakened during the study period

Figure 1.
Log odds of accessing methadone by reporting paying a bribe to police among injection drug users in Tijuana, October, 2011 to September, 2013 (n = 637).

Table 1

Baseline characteristics and analytic results of factors related to methadone maintenance therapy access among participants in the *El Cuete* study in Tijuana, Mexico, October 2011 to September 2013 ($n = 637$).

Characteristic	Reporting paying a bribe to police		
	Total (%) ($n = 637$)	Yes (%) ($n = 308$)	No (%) ($n = 329$)
Sociodemographic factors			
Median age (IQR) *	38.6 (32.3 – 45.3)	38.3 (32.0 – 44.7)	39.4 (33.0 – 46.1)
Male gender	395 (62.1)	217 (70.4)	178 (54.3)
Drug-related behaviors			
Recent enrolment in MMT	48 (7.5)	28 (9.1)	20 (6.1)
Recent heroin use	586 (92.0)	297 (96.4)	289 (87.8)
Recent cocaine use	57 (8.9)	39 (12.7)	18 (5.5)
Recent methamphetamine use	444 (69.7)	249 (80.8)	195 (59.3)
Self-perceived need for addiction treatment	301 (47.3)	163 (52.9)	138 (41.9)

Univariate and multivariate results of generalized estimating equation analyses

Characteristic	Unadjusted OR (95% CI)	Adjusted OR (95% CI)	<i>p</i> value *
Recently paid bribe to police	1.07 (0.77 – 1.50)	1.69 (1.02 – 2.81)	0.043
Age	0.96 (0.94 – 0.99)	--	--
Recent heroin use	0.61 (0.33 – 1.12)	--	--
Recent cocaine use	1.05 (0.56 – 1.98)	--	--
Recent methamphetamine use	0.64 (0.43 – 0.96)	0.61 (0.41 – 0.93)	0.021
Frequent injection drug use [†]	0.94 (0.73 – 1.21)	--	--
More recent follow-up visit	0.93 (0.79 – 1.09)	1.08 (0.87 – 1.33)	0.499
Self-perceived need for addiction treatment	1.10 (0.80 – 1.53)	--	--
Visit-by-Bribe	0.91 (0.77 – 1.08)	0.67 (0.48 – 0.94)	0.019

Note: All drug use variables refer to non-injection use in the preceding six months

Note: IQR = interquartile range; OR = odds ratio; CI = confidence interval

* *p* value for adjusted odds ratio;

[†] lagged by one follow up visit