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SPATIAL PATTERNS OF ARRESTS, POLICE ASSAULT, AND ADDICTION TREATMENT CENTER LOCATIONS IN TIJUANA, MEXICO

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Abstract

Aims—In the context of a public health-oriented drug policy reform in Mexico, we assessed the spatial distribution of police encounters among people who inject drugs (PWID) in Tijuana; determined the association between these encounters and the location of addiction treatment centers; and explored the association between police encounters and treatment access.

Design—Geographically weighted regression (GWR) and logistic regression analysis using prospective spatial data from a community-recruited cohort of PWID in Tijuana and official geographic arrest data from the Tijuana Municipal Police Department.

Setting—Tijuana, Mexico.

Participants—608 participants (median age 37; 28.4% female) in the prospective *Proyecto El Cuete* cohort study recruited between January and December 2011.

Measurements—We compared the mean distance of police encounters and a randomly distributed set of events to treatment centers. GWR was undertaken to model the spatial relationship between police interactions and treatment centers. Logistic regression analysis was used to investigate factors associated with reporting police interactions.

Findings—During the study period, 27.5% of police encounters occurred within 500 meters of treatment centers. The GWR model suggested spatial correlation between encounters and treatment centers (Global $R^2 = 0.53$). Reporting a need for addiction treatment was associated with reporting arrest and police assault (Adjusted Odds Ratio = 2.74, 95% Confidence Interval [CI]: 1.25–6.02, $p = 0.012$).

Conclusions—A geospatial analysis suggests that in Mexico, people who inject drugs are at greater risk of being a victim of police violence if they consider themselves in need of addiction treatment, and their interactions with police appear to be more frequent around treatment centres.

Keywords

Tijuana; Mexico; addiction treatment; policing; drug policy; geographically weighted regression; injection drug use

INTRODUCTION

Urban centers in Mexico's northern border region have experienced disproportionate drug-related harms, given their location along a major continental drug trafficking route for cocaine, heroin, marijuana and other illicit drugs [1–6]. Additionally, some northern Mexican jurisdictions such as Tijuana have become major centers of deportation of Mexican-born undocumented individuals from the United States [7], while also serving as a major drug trafficking hub [8]. The population of people who use and inject drugs in Tijuana is composed of a sizable proportion of deportees, many of whom reside within 'El Bordo,' an area of Tijuana directly adjacent to the Mexico-U.S. border [9, 10] characterized by public injecting, homelessness [11], and a high prevalence of injection-related risk behaviours for HIV and hepatitis C transmission among people who inject drugs (PWID) [12].

In an effort to address these and other drug-related harms, Mexico's federal government passed legislation in 2009 prioritizing public health within the country's drug policy [13]. This legislation decriminalized the possession of small quantities of illegal drugs, and individuals apprehended with drugs under these quantity thresholds are given a warning, with a third warning resulting in either incarceration or addiction treatment. Importantly, this policy reform mandates the expansion of addiction treatment, and designates law enforcement as the first point of contact to divert eligible individuals to treatment.

Recent research suggests that despite this reform, expansion of opioid substitution treatment has been slow, while policing practices may be impeding access to addiction treatment among Tijuana's PWID [14]. Further, only three methadone maintenance therapy (MMT) clinics are in operation in Tijuana, all of which charge clients a fee [15]. While addiction treatment centers are certified by the Baja California Instituto de Psiquiatria, this process does not evaluate treatment effectiveness, ensuring only a minimal standard of sanitation and care [16]. Concurrently, policing practices continue to resemble the "pre-reform" period [17].

Findings from other settings have demonstrated that policing can act as a barrier for PWID seeking access to care [18–22]. We therefore sought to 1) determine the spatial orientation of PWID reports of policing encounters in Tijuana; 2) determine the spatial proximity of policing encounters with the location of addiction treatment center locations; and 3) determine whether reporting encounters with police was associated with the likelihood of accessing addiction treatment among PWID.

METHODS

Data Collection

Participants enrolled in the *Proyecto El Cuete*, a prospective, community-recruited cohort of PWID in Tijuana, provided data [23]. Eligible individuals were aged 18 or older, resided in Tijuana, spoke Spanish or English, and reported injecting drugs in the past month, confirmed by visual assessment of 'track marks' (confirmation was undertaken to ensure representativeness sample of active PWID). Beginning in 2011, eligible individuals were recruited through street outreach and referral in shooting galleries, empty lots, and health clinics in ten neighborhoods across Tijuana [23]. At baseline and at six month follow visits, participants completed interviewer-administered questionnaires, were provided with rapid HIV testing, and where relevant, were referred to health clinics operated under Mexico's universal health care system. Questionnaires solicited sociodemographic data, as well as information on drug-related behaviours, interactions with police, and other topics. Participants were provided with a USD$20 honorarium per visit. The study has been approved by the University of California, San Diego Research Ethics Board and all study participants provided written consent.

We obtained three sources of geographic data. First, sample participants provided the spatial location of self-reported interactions with police between January and December 2011. Interactions were categorized as arrests, detainments without arrests, incidents of physical abuse, or incidents of sexual abuse [17], and spatial locations were identified by participants using Google Street View maps, with coordinates entered into ArcMap 10.2 (ESRI, Redlands, CA). Second, the number and addresses of certified addiction treatment centers in Tijuana (updated monthly) were obtained from the Baja California Instituto de Psiquiatria. These addresses were then entered into ArcMap 10.2 as geographic locations. Third, we obtained data on the official rate of arrests by delegación (i.e., borough, which includes multiple colonias or neighborhoods) through a Memorandum of Understanding with the Tijuana Municipal Police Department. This was supplemented with population counts from Mexico's Institute for Metropolitan Planning (IMPLAN) and sociodemographic data from the 2010 Mexican Census.

Spatial Descriptive Analysis

We sought to determine the spatial correlation between police interactions and addiction treatment center locations. First, we generated spatial buffers of 500 meters around the addiction treatment centers. Self-reported police encounters occurring within these buffer areas were then computed. Second, the mean distance of all police encounters to addiction treatment centers in the city of Tijuana was calculated. This was then compared with the mean distance of a randomly generated set of events to addiction treatment centers using *t*-tests. This exploratory approach provides a descriptive analysis to determine whether police encounters are more highly spatially correlated with addiction treatment centers compared with a random set of geographic points.

Third, we employed geographically weighted regression (GWR) to determine the spatial heterogeneity between the location of police interactions (dependent variable) and addiction

treatment centers (independent variable). GWR calculates local spatial statistics by fitting a weighted regression equation for each geographical unit in the study area to assess local variation (for Tijuana, the geographic unit is neighborhood or "colonia") [24]. Local statistics are then compared with the global statistic for the entire geographic area (Tijuana), and units exhibiting local variation differing from the global statistic are identified.

We generated a Moran's I index to ensure that no significant spatial autocorrelation of the residuals from the GWR existed, and that the assumption of independent and identical distribution of the residuals held (a prerequisite for GWR analyses) [24]. Specifically, spatial autocorrelation between GWR residuals indicates that a key explanatory variable is missing (i.e., the model is misspecified), and results are invalid [24]. For the Moran's I analysis, we employed an adaptive kernel approach as this is appropriate given the varying density, size, and distribution of colonias across Tijuana [24]. Two statistics measuring the spatial heterogeneity of the relationship between police interactions and treatment centers, at the colonia-level, were then mapped: Local regression coefficients that quantify the association between the location of police encounters and treatment centers, as well as local R^2 values that measure the spatial variance in the location of police encounters explained by addiction treatment center locations. All analyses were undertaken using ArcMap 10.2.

Multinomial logistic regression subanalysis

We carried out multinomial logistic regression analyses using data from all El Cuete participants (i.e., not only those reporting police interactions) to determine factors associated with the following categorical dependent variable: reporting being arrested in the past six months (Category 1) *vs.* reporting being arrested and physically assaulted by police in the past six months (Category 2) *vs.* neither (Reference Category). Participants that reported neither arrest nor assault were used as the reference category in order to assess differences in addiction treatment outcomes stratified by police interactions. The categorical dependent variable was constructed by combining responses to the following survey questions: 1. "In the last 6 months, how many times were you arrested?" and 2. "Of those times you were beaten in the last 6 months, how many times were you beaten by law enforcement officials?" Responses were then combined into the three categories listed above. The independent variable of interest was defined as accessing any type of professional help for drug or alcohol use in the past six months. Multinomial logistic regression can accommodate categorical dependent variables by generating multiple coefficient estimates for each categorical level of the dependent variable [26]. Factors of interest included: age, gender (male *vs.* female/transgender), delegación of residence, reporting a perceived need for addiction treatment, any recent (i.e., in the past six months) heroin use (i.e., injection or non-injection use), any recent cocaine use, any recent crystal methamphetamine use, and recent speedball (i.e., heroin and cocaine in combination) injection. Self-perceived need for addiction treatment was assessed by the following questionnaire item: "*To what extent would you say that you currently need help for your drug use?*" Responses were dichotomized as 'Some Need/Great Need/Urgent Need' *vs.* 'No Need.' We employed an *a priori* approach whereby all independent variables of interest were entered into the multivariable model to provide the safest estimates of the independent effects of the key

variables. All multinomial logistic regression analyses were performed using SPSS software version 17.0 (SPSS, Chicago, IL).

RESULTS

In total, 461 El Cuete participants provided geographic data on encounters with police between January and December, 2011, with 736 separate incidents of police interactions reported by participants. Participant median age was 37 years (Interquartile Range [IQR]: 31–44), and 28.4% were female. Twenty-four percent of participants had been deported from the United States. Approximately 30% were homeless. Table 1 presents baseline descriptive data, stratified by being arrested and/or physically assaulted in the past 6 months. Table 2 presents population counts across Tijuana's delegaciónes and official arrest rates for 2011. The highest arrest rate is in the Centro (3,740 arrests per 100,000 population), which includes a red light district and is a site of HIV risk behaviors among PWID [10]. The second highest arrest rate (2,435 per 100,000 population) is reported for La Mesa, a borough adjacent to Centro that includes sections of the Tijuana River Canal, within which street-based PWID are known to reside [10] and which has been the site of high-profile police raids against PWID encampments [27].

Figure 1 presents the spatial distribution of police encounters reported by study participants, disaggregated by arrests ($n = 307$; 41.7%), detainments without arrest ($n = 311$; 42.3%), physical assaults ($n = 107$; 14.5%), and sexual assaults ($n = 11$; 1.5%). As shown in Figure 2, 27.5% ($n = 202$) of all police encounters reported by study participants in 2011 occurred within 500 meters of certified addiction treatment centers in Tijuana. Results of a t-test suggest that, compared with a randomly-generated distribution of spatial events, the mean distance of police encounters from certified addiction treatment centers was significantly smaller (773 meters *vs.* 1,245 meters, $p < 0.001$), thus the spatial association between police encounters and certified addiction treatment centers is likely not due to chance.

The results of a Moran's I test on the GWR residuals suggest that the distribution of events in the dataset was not significantly autocorrelated (Moran's I = 0.0002; z-score = 0.200; $p = 0.842$). Result of the GWR analysis assessing the association between police encounters and certified addiction treatment center locations is presented in Figures 3 and 4. Model statistics indicate an appropriate fit ($R^2 = 0.54$; Sigma = 5.61), while Condition Number values (diagnostic evaluating local collinearity) ranged from 1.00–1.69, suggesting low collinearity.

Figure 3 presents the local regression coefficients by colonia. The magnitude of the association between the location of police encounters and treatment centers varies across Tijuana (local regression coefficients range: –0.50, 41.77), with stronger positive associations highlighted in red, and negative associations in blue. For example, colonias in and around the Zona Norte/El Bordo areas (at the northern edge of the Centro delegación), which were previously identified as having heightened drug-related harms [28], also have the highest local regression coefficients. Colonias in the southwestern portion of the La Presa delegación also have higher local regression coefficients compared with other parts of Tijuana.

The global R^2 value indicates that 53% of spatial variation in all police encounters reported throughout Tijuana were explained by the location of addiction treatment centers. Figure 4 presents local R^2 values derived from the GWR. Between 35% and 72% of the variance in the spatial distribution of police encounters can be explained by the location of certified addiction treatment centers in two particular regions of Tijuana: the Zona Norte/El Bordo region in the Centro delegación (highlighted in orange), and the center of the Sánchez Taboada delegación (highlighted in red).

For the subanalysis, the complete sample was used ($n = 608$) regardless of whether participants interacted with police, in order to provide a reference stratum to assess the independent effect of police interactions. This sample did not differ significantly from the restricted sample on age (Median age: 38, IQR: 31–44) or the proportion of female participants (27.6%). Among sample participants, there were no significant differences in the proportion of participants reporting accessing addiction treatment among those who reported no police interactions (Category 0; $n = 220$; 9.5% accessed treatment), being arrested (Category 1; $n = 246$; 8.5% accessed treatment), or being arrested and physically assaulted (Category 2; $n = 142$; 12.7% accessed treatment). Table 3 presents the results of the multinomial logistic regression subanalysis. In a multivariable model, accessing addiction treatment was not significantly associated with either reporting arrest or reporting arrest and physical assault ($p > 0.05$). However, reporting a perceived need for addiction treatment was significantly associated with reporting being arrested and physically assaulted, while older age, recent speedball injection, and residing in Playas de Tijuana were all negatively associated with reporting being arrested and physically assaulted (all $p < 0.05$). Finally, we observed a significant negative association between female gender and both categories of reported police interaction ($p < 0.05$).

DISCUSSION

Over one quarter of encounters with police reported in 2011 by a sample of PWID in Tijuana occurred within 500 meters of certified addiction treatment centers. Further, the results of a bivariate GWR suggest that the location of certified addiction treatment centers explained a substantial proportion of the variation in the spatial distribution of self-reported police encounters. In a subanalysis, PWID who perceived a need for addiction treatment were more likely to report being arrested and physically assaulted.

While preliminary, these results have implications for efforts to increase the uptake of addiction treatment among PWID in Tijuana. First, a central plank of Mexico's 2009 drug policy reform is increasing diversion of drug-dependent individuals to addiction treatment [13, 29]. However, data suggest that during a period immediately following implementation of the reform in Tijuana, PWID continued to experience a high incidence of encounters with police, including arrests, detainments, and both physical and sexual abuse. For example, among a sample of female PWID involved in the sex trade in Tijuana, 17% reported sexual abuse, and 43% reported being financially extorted, by law enforcement [30]. That a substantial proportion of these encounters reportedly occurred in colonias with a higher number of addiction treatment centers underscores the barriers that PWID face in accessing services. These data complement other studies from our setting that suggest that drug-related

policing has intensified after the implementation of the *Narcomenudeo* law. Specifically, data from the Tijuana Municipal Police Department demonstrates that between 2011 and 2013, the number of drug-related arrests across Tijuana increased 72% [31]. During the same period, the spatial pattern of arrests recorded by the Tijuana Municipal Police Department and reported by El Cuete IV sample participants remained static, with hotspots of arrest located near the U.S.-Mexico border, primarily in the Centro delegación [31]. As such, it appears that arrest of PWID is still prioritized over their diversion to addiction treatment after the passage of the *Narcomenudeo* law. This is likely the case given that a recent study undertaken by our group found that less than 5% of self-reported police encounters included referral to addiction treatment [17], despite referral being mandated under the *Narcomenudeo* law.

The concentration of law enforcement activity near public health and harm reduction services can substantially curtail access to these services among PWID, which may lead to increased drug-related risk-taking [20, 32–36], even when laws are enacted to create an enabling legal environment for health and treatment programming for PWID [22]. In the context of Tijuana, a public health-oriented drug policy has been legislated but has encountered substantial barriers to implementation, including a lack of institutional resources to support a robust, evidence-based addiction treatment system. Ongoing targeting of PWID near addiction treatment centers is likely to further undermine the country's meaningful adoption of a public health-oriented drug policy [37].

This study does not provide evidence that police explicitly target PWID at addiction treatment centers. More likely, addiction treatment centers are clustered in areas inhabited by PWID populations, which experience a higher frequency of policing. Indeed, the arrest rate was highest in areas with a high number of certified addiction treatment centers, for example the Centro delegación, which had the highest arrest rate for drug possession, violent crimes, non-violent crimes, and property offenses. Thus, police are patrolling these areas more frequently, which presents greater opportunity for police encounters but these encounters, as reported by PWID, are often for minor offenses. The fact that policing of PWID is occurring near addiction treatment centers may, however, negatively impact health and social outcomes among PWID. Particularly problematic is the fact that one of Tijuana's two certified MMT clinics in 2011 (located in the Centro delegación) was the site of the highest number of police encounters. The concentration of policing near MMT clinics is of concern, given that over 90% of El Cuete sample participants report opioid use [14]. Furthermore, in a previous study undertaken among this sample, only 7.5% of participants reported accessing MMT, suggesting that substantial barriers exist in Tijuana [14]. Opioid dependence has been shown to be associated with acquisitive crime and HIV risk behaviours such as syringe sharing [38], and there is a high prevalence of injection opioid use among PWID in Tijuana [39]. Police activity near addiction treatment centers may therefore undermine efforts to implement the *Narcomenudeo* law, particularly given that MMT has been shown to improve public safety [40–44], while denial of access to public health interventions for PWID may exacerbate drug-related harms [20, 32–36]. However, we caution that further data are needed to determine the nature of policing activities occurring near addiction treatment centers in order to assess their influence on treatment access.

In the subanalysis, participants reporting arrest and physical assault in the past six months were the most likely to also report requiring addiction treatment compared with other participants. This may have multiple potential explanations. First, it is important to note that reporting a need for addiction treatment does not necessarily suggest that participants may in fact be motivated to seek treatment out; indeed, the inverse may be the case, given that highly-dependent PWID have been shown to experience a range of barriers to seeking care [45–48], and a perceived need for treatment may be a proxy for other markers of vulnerability (e.g., drug dependence or homelessness). As such, PWID who report a self-perceived need for addiction treatment may also be more likely to interact with police. Second, arrest and assault by police may influence PWID to perceive that they require treatment, if police specifically target individuals based on their drug use. For example, our research team recently found that approximately one-quarter of the arrests reported by PWID in 2011 was for minor offenses including loitering and disturbing the peace [31] and that less than 5% of these incidents involved a referral to drug treatment or other health service [17]. These elevated police surveillance behaviors may also increase PWID vulnerability to injection-related health harms, such as contaminated syringe sharing or overdose, which have been shown to be associated with both untreated drug dependence and police targeting of PWID [21, 36, 49–51].

Arrest and physical assault by police is also likely to specifically limit access to addiction treatment, given the impact of law enforcement behaviors on health service access among PWID in other settings [33, 52]. By contrast, in-patient addiction treatment is likely to reduce the risk of police interaction among PWID because clients of such facilities primarily remain within the treatment center setting. In this regard, unprovoked encounters with police that involve an unreasonable use of physical force will likely be counterproductive to improving public order, as restricting access to addiction treatment such as methadone has been shown to increase criminal activity, criminal justice system involvement, and illicit drug use among drug-dependent individuals [53]. By contrast, PWID enrolled in addiction treatment have reported a lower risk of public injecting [54] and reductions in drug use [38].

The current study has limitations, as it represents an initial assessment of the spatial correlation between police encounters among PWID and the location of certified addiction treatment centers. Given the use of cross-sectional analytic approaches, we caution against inferring causation, and we characterize these results as preliminary. Because targeted sampling was employed in order to recruit participants, the geographic distribution of self-reported police encounters may also reflect the limitations of this sampling strategy. However, it is noteworthy that self-reported police encounters were spatially distributed quite broadly across Tijuana. Future research should seek to determine whether other factors–including population density, median income by colonia, and the location of police facilities–account for the spatial distribution of self-reported police encounters that we observed. We were also limited to collecting self-reported data on police assault, which may be unreliable. Specifically, participants may have under-reported these experiences as a result of fear of reprisal, or over-reported experiences of assault as a result of either the adversarial nature of PWID-enforcement interactions in Tijuana or the potential trauma experienced during such interactions. We were also not able to determine the context for

reported police assault, and therefore are not able to differentiate between provoked and unprovoked police violence.

Despite these limitations, the current study suggests that a substantial proportion of self-reported police encounters occurred near addiction treatment centers. Further, risk of reporting arrest and physical assault appeared heightened among PWID participants who reported a need for addiction treatment. Given the known deterrent effect of policing on service access among PWID [32–36], the distribution and type of street-level policing will likely need to be modified if adequate access is to be ensured. Indeed, the meaningful implementation of Mexico's drug policy reform requires that multiple sectors–law enforcement, addiction treatment, public health, and the judiciary– work cohesively to identify individuals in need of addiction treatment, and then connect them with adequate care. Interventions such as public health-oriented police training, which has been shown to increase both occupational safety and improve attitudes towards harm reduction-oriented services in other settings [55–57], may therefore be required given ongoing HIV risk behaviours among PWID in Tijuana [30]. To that end, our team is now collaborating with the Tijuana Municipal Police to implement and evaluate the impact of a police education program to address these concerns. It is intended that this training also convey how reductions in sanctioned (i.e., arrest) and unsanctioned (i.e., physical assault) activities by law enforcement among PWID can increase the very low levels of access to addiction treatment in the city [14, 58] and subsequently improve community safety and public order.

Acknowledgments

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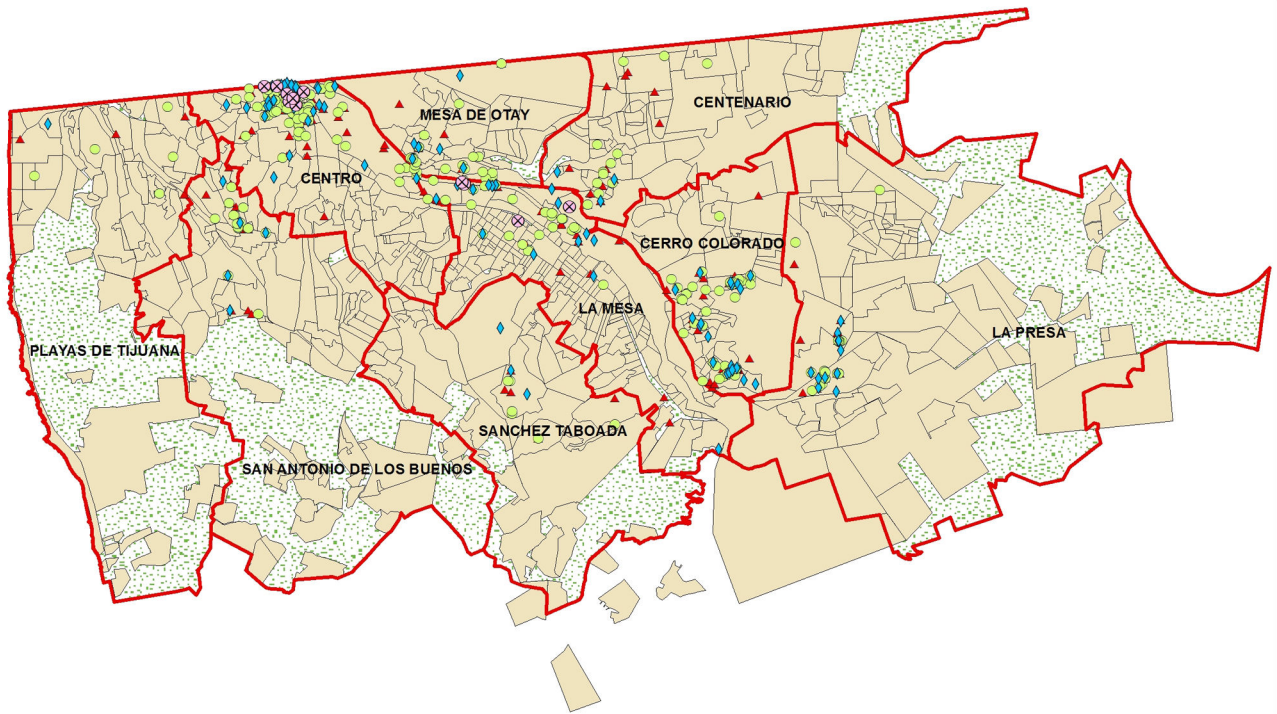
Figure 1.
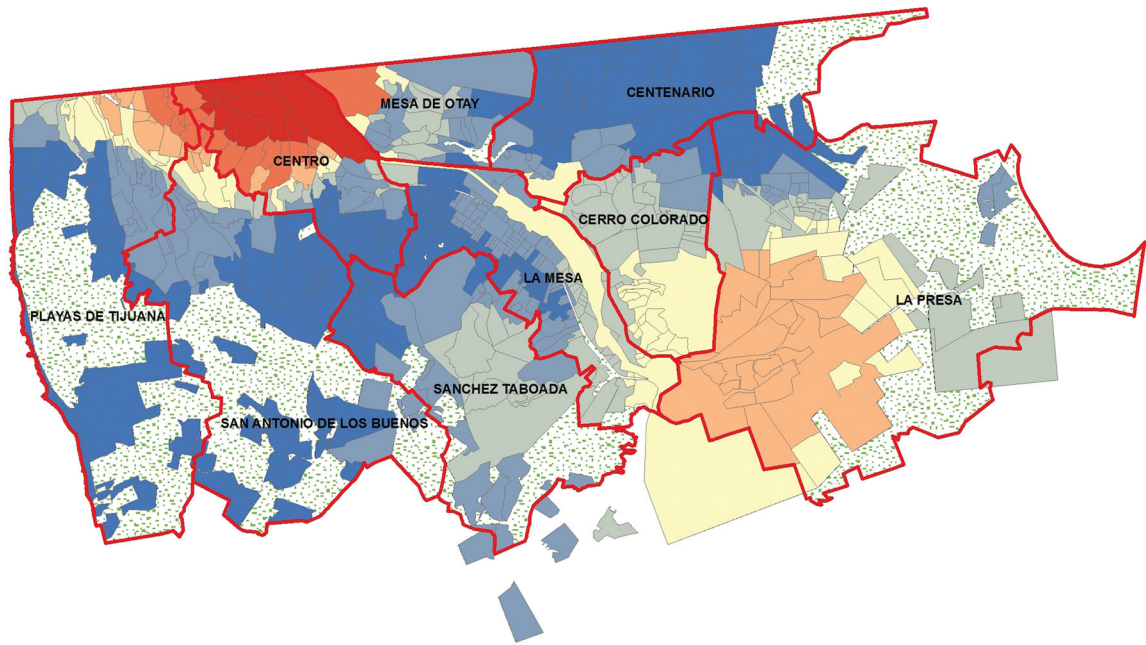Self-Reported Police Interactions Among A Sample of People Who Inject Drugs in Tijuana, 2011 (n = 608)
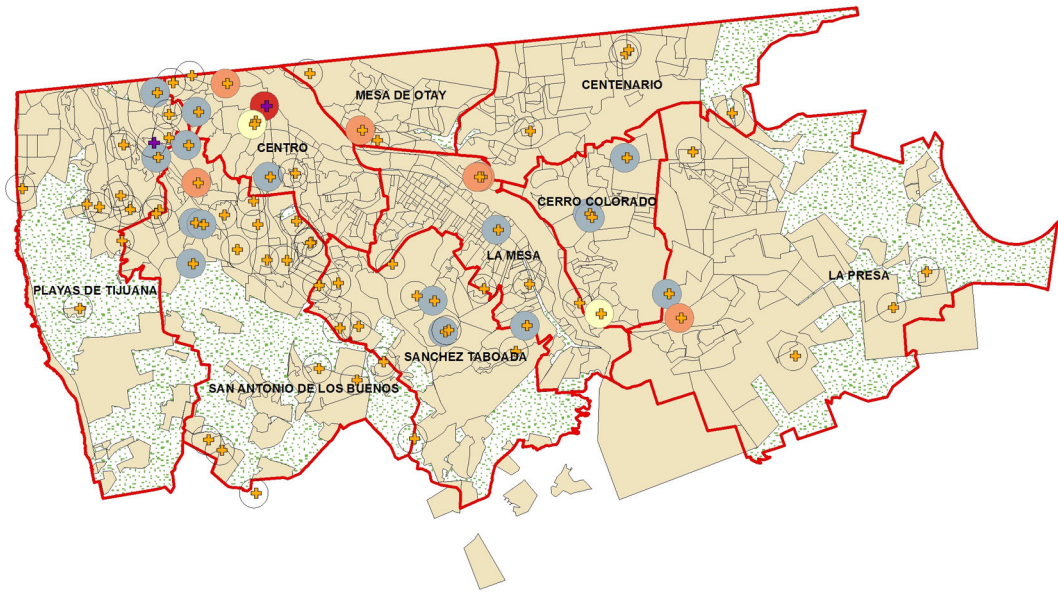
Figure 2.
Police Encounters Reported by People Who Inject Drugs Within 500 Meters of a Certified
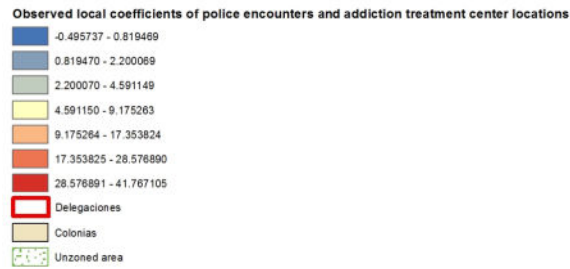Addiction Treatment Center in Tijuana, 2011

Figure 3.
Geographically Weighted Regression of Self-Reported Police Encounters Among People
Who Inject Drugs (n = 608) on Addiction Treatment Center Locations, Tijuana, 2011
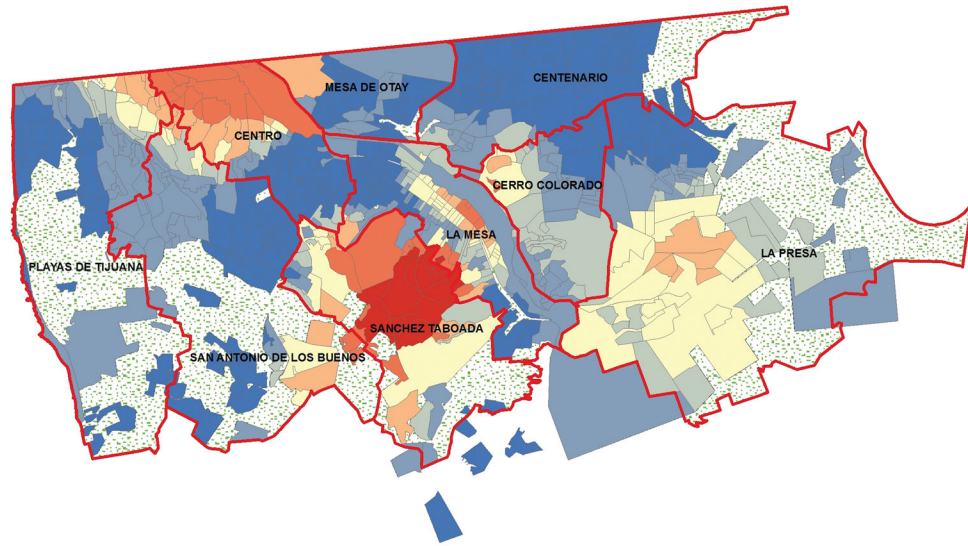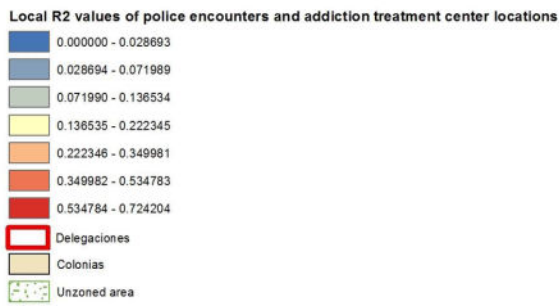
Figure 4.
Geographically Weighted Regression of Self-Reported Police Encounters Among People Who Inject Drugs (n = 608) on Addiction Treatment Center Locations, Tijuana, 2011

Table 1

Baseline characteristics of participants in the *El Cuete* study stratified by type of police interactions in Tijuana, Mexico, 2011 (*n* = 608)

Characteristic		Reported police interactions			Total
		Arrested	Arrested & Physically Assaulted	Neither	
Median age (IQR) *		38 (32–45)	36 (30–41)	37 (30–45)	38 (31–44)
Gender	Female	60	17	90	167
	Male	184	124	130	438
Any recent heroin use	Yes	139	77	140	356
	No	107	65	80	252
Any recent cocaine use	Yes	63	37	87	187
	No	183	105	133	421
Any recent crystal methamphetamine use	No	151	80	120	351
	Yes	95	62	100	257
Recent injection speedball use	Yes	130	78	147	355
	No	116	64	73	253
Recent addiction treatment center access	No	225	124	199	548
	Yes	21	18	21	60
Self-perceived need for addiction treatment	No	26	12	42	80
	Yes	220	130	178	528
Total		246	142	220	608

Note: Recent refers to past six months; speedball refers to heroin and cocaine in combination

*
IQR = interquartile range

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Table 2

Official Municipal Police Department arrest rate per 100,000 and sociodemographic data by delegación, Tijuana, Mexico, 2011

Delegaciónes	Population (2010)*	Drug Possession	Homicide	Injuries	Violent Robbery	Non-violent Robbery	Stolen Vehicle	Overall Arrest rate	Unemployment rate (12 and older)**	Population with at least one approved primary grade (12 and older)**
Centenario	140,291	144.7	0	122.6	71.99	151.11	22.1	1,008.62	2.4%	14.6%
Centro	119,388	532.72	5.86	598.89	271.38	541.09	70.36	3,334.51	1.9%	8.7%
Cerro Colorado	112,517	111.09	4.44	52.44	94.21	126.2	47.1	793.66	2.2%	11.1%
La Mesa	150,300	140.39	7.32	220.89	188.96	406.52	91.82	2,005.99	1.8%	7.8%
Mesa de Otay	83,886	426.77	5.96	242	84.64	236.03	46.49	2,133.85	2.2%	11.8%
Playas de Tijuana	138,837	66.99	2.88	61.22	51.14	110.92	34.57	629.52	2.4%	9.8%
San Antonio de los Buenos	211,100	123.16	0.47	85.74	61.58	120.8	53.53	813.83	2.9%	12.7%
Sanchez Taboada	191,740	121.52	2.09	95.96	36.51	88.66	37.55	748.93	2.8%	17.2%
La Presa ***	445,934	105.62	4.04	69.52	84.99	112.35	41.71	695.62	2.5%	13.1%
Total	1,593,993	162.49	3.45	140.59	96.36	181.24	47.93	1,143.29	--	--

Note: Delegación is defined as a second-level administrative division (i.e., borough)

*
Data obtained from IMPLAN (Institute of Metropolitan Planning of Mexico)

**
Data obtained from INEGI (National Institute of Statistics and Geography of Mexico)

***
Includes La Presa Rural

Table 3

Multivariable multinomial logistic regression analysis for factors related to reporting being arrested or arrested and beaten in the past six months among people who inject drugs in Tijuana, Mexico, 2011 ($n = 608$).

Characteristic	Adjusted OR (95% CI)	
	Recently arrested by police[†]	Recently arrested & physically assaulted by police[†]
Recent addiction treatment access	1.01 (0.42 – 1.60)	1.05 (0.49 – 2.21)
Age	0.99 (0.97 – 1.01)	0.95 (0.92 – 0.98)[*]
Female gender	0.46 (0.29 – 0.71)[*]	0.18 (0.10 – 0.33)[*]
Recent self-perceived need for addiction treatment	1.65 (0.94 – 2.89)	2.74 (1.25 – 6.02)[*]
Any recent heroin use	1.12 (0.58 – 1.38)	0.69 (0.41 – 1.16)
Any recent cocaine use	0.65 (0.39 – 1.08)	0.64 (0.35 – 1.18)
Any recent crystal methamphetamine use	0.98 (0.62 – 1.53)	1.49 (0.87 – 2.56)
Recent speedball injection	0.67 (0.43 – 1.07)	0.51 (0.29 – 0.88)[*]
Delegación of residence		
Centro	REF	REF
Centenario	1.66 (0.65 – 4.23)	1.26 (0.44 – 3.58)
Mesa de Otay	1.55 (0.59 – 4.03)	0.74 (0.24 – 2.31)
La Mesa	1.42 (0.50 – 4.05)	0.68 (0.19 – 2.43)
Cerro Colorado	1.82 (0.89 – 4.33)	2.22 (0.96 – 5.11)
San Antonio	1.97 (0.89 – 4.33)	1.02 (0.42 – 2.48)
Playas de Tijuana	0.64 (0.21 – 1.95)	0.11 (0.01 – 0.99)[*]
Sanchez Taboada	1.13 (0.30 – 4.29)	1.19 (0.28 – 5.09)
La Presa[**]	1.56 (0.80 – 3.06)	0.91 (0.43 – 1.92)

Note: Recent refers to the preceding six months; model is adjusted for factors listed

Note: Cocaine use refers to all modes of administration

Note: OR = odds ratio; CI = confidence interval

[†] Reference category: No arrest or physical assault by police

[*] Denotes p < 0.05

[**] Includes La Presa Rural