

Old and New Syndemics of Drug Use and HIV Infection in Northern Mexico. The Case of Tijuana, Ciudad Juarez and Hermosillo.

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During the last three decades, Mexico has become in an important producer of the majority of illegal drugs that get into the United States. As a result, Drug Trafficking Organizations (DTO) have been strengthened by increasing their economic power, their military capacity and territorial control that hold in the Republic. Some slums came to be disputed territories (Valdés, 2013). Using drugs in this context, turned into a risk activity for the violence associated with the dynamics of selling-buying. It has been documented that violent environments are associated with poor health among drug users and with higher vulnerability for HIV acquisition (Rhodes, Singer, Bourgois, Friedman, & Steffanie, 2005).

On the other hand, the so-called war on drugs waged by the Mexican State has generated as a side effect, the increasing criminalization of drug users. Data about crime incidence show that while in 2001 only 19% of those arrested for drug possession were consumers, after the Federal Government enacted a new law for controlling the micro-drug trafficking, in 2010 the percentage was 58% (Madrazo & Guerrero, 2012)

Most studies that address the issue of drug trafficking, explore its relationship to violence and criminal organization, but not its impact on public health. Nevertheless, it is acknowledge that the increasing power of drug smuggling is associated with the increase of prevalence of drug use in Mexico¹ especially heroine and crystal-meth use² and with younger ages at first drug use, since there are more drugs easily available on the streets. In 2015, it is estimated that there are 141,690 opioid users in the Country, among them, 44% are allocated in the cities of Tijuana, Ciudad Juarez and Hermosillo (see Map 1) (Secretaría de Salud. Centro Nacional para la Prevención y el Control del VIH y el sida (Censida), 2015).

On the other hand, epidemiological studies that address HIV/AIDS epidemic and its relation with injected drug use, usually emphasize individual factors that lead individuals to engage in risky behaviors, ignoring the contextual and structural factors on which such risks occur.

In this context, I got interested on the study of HIV among people who injected drugs, as I saw the suffer of young people in northern Mexico, trying to get their doses, without any social support and expose to stigma and discrimination from the general population but also from

¹ While in 1988 3.3% of the population reported using any drugs sometime in their life, the proportion rose to 14 % in 2011 (Secretaría de Salud. Instituto Nacional de Salud Pública. Instituto Nacional de Psiquiatria Ramón de la Fuente, 2011)

² Between 2002 and 2008, the number of cocaine users rose from 1.2 % in 2002 to 2.4 % in 2008 and the number of crystal-meth users increased 6 times its size during the period (Encuesta Nacional de Adicciones, 2008) and doubled in 2011. At national level, the reported use of heroin increased from 0.01 % in 1988 to 0.2 % in 2008 and is maintained at this level in 2011 (Villatoro-Velázquez, y otros, 2012). Of all users who ask for help at non-governmental treatment centers in 1994, only 1% reported heroin as initial drug in 1997, the proportion rises to 8% and 2006 is 12% (Sistema de Vigilancia Epidemiológica de las Adicciones (SISVEA). Informe 2006).

health providers. They die daily from overdoses, violence, or any health complication that could be avoided.

The study supported by SYLFF Research Abroad compares risk environments for HIV acquisition that male who injected drugs in Tijuana, Ciudad Juarez and Hermosillo struggle with in their daily lives, throughout their biographies of drug use. Risk environment is defined as the space—whether social or physical—in which a variety of factors interact to increase the chances of drug-related harm (20). This framework highlights the multilevel and contextualized nature of HIV risk and the relationship between macro- (i.e., policy-level), meso- (i.e., city) and micro-level (i.e., individual-level) risk factors, such as the relationship between illicit drug policies, local law enforcement practices, and practice of sharing needles by PWID (see diagram 1).

I combined qualitative and quantitative data to have a better understanding of how changes in drug markets in Mexico affect individual biographies of drug use and changes the risk environments for HIV acquisition. During my research staying at UCSD, with the support of SYLFF fellowship and with the guidance of UCSD mentors I enhanced the quantitative analysis and had the opportunity to participate in a series of seminars and research presentations that boosted my understanding of the relationship between HIV/AIDS and injected drug use (IDU) in a more global and structural perspective. In this sense, I could integrate my research in very a stimulating and supportive environment.

Quantitative data come from a survey collected among people who injected drugs (PWID) in their gathering places in Tijuana ($n=670$), Ciudad Juarez ($n=432$) and Hermosillo ($n=392$), during 2011-2012. With these data, I compared the sociodemographic characteristics of the sample by city of residence (See table 1) and by generation (those who were born before 1979 versus those born after 1980) (See table 2).

Findings show that participants from Hermosillo were significantly younger (29.2 vs 38 years old; $p<0.01$), better educated and with less experience of migration than participants from the other two cities. With respect to drug use patterns across the three cities, a significantly larger proportion of participants from Hermosillo reported cocaine as their drug of initiation compared to participants in other cities (8.4%; $n=33$ vs. 6.9%; $n=30$ in Juarez and 5.2%; $n=35$ in Tijuana; $p<0.01$). while almost all participants from Tijuana and Ciudad Juarez reported injecting drugs once a day or more, (96.4%; $n=646$ and 91.2%; $n=394$ respectively) only two thirds of participants from Hermosillo reported injecting at least daily (68.9%; $n=270$) ($p<0.05$). With respect to the political/policy level of risk environment, data showed that around 40% of participants from Hermosillo and Ciudad Juarez reported syringe or needle confiscation by police, but only 9.3% ($n=62$) of those in Tijuana. ($p<0.01$) (See table 1).

Comparing by generations, differences were not significant for Ciudad Juarez and Tijuana, but were significant for users from Hermosillo. Table 2 shows that heroin use is significantly more popular among users born before 1980 (74.3% vs. 84.3%; $p<0.000$), while cocaine and crystal-meth appear as being more popular drugs among the youngest users, born from 1980 (44.9% vs 39.7% and 55.9% vs. 47.4% respectively $p<0.000$). Additionally, older users reported more intense use of injected drugs compared with the youngest ones, but those born after 1980,

reported more prevalence of syringe/needle sharing ($p < 0.1$) and have experienced in a higher proportion syringe confiscation by police ($p < 0.1$) (See table 2).

Given these findings, I conclude selected cities belong to two different types of HIV/AIDS and IDU epidemics. On one hand, Tijuana and Ciudad Juarez exhibit an old syndemic of HIV and IDU, as there are reports of the existence of PWID HIV cases related with injected drug use since late nineties and because there were not found significant differences by generation in these cities. On the other hand, Hermosillo seems to have a recent syndemic of HIV and IDU, given the important differences found by generation and the recent reports of increasing trends in IDU and HIV among this population.

These two syndemics could be associated with the history of drug smuggling in Mexico, considering that Tijuana and Ciudad Juarez –for their strategic position along the US-Mexico border-, have been cities related with smuggling since the early 1950's, while Hermosillo appeared in the smuggling's scene after 2000 with the arrival of DTO's that try to control this territory and the increasing arrival of migrants who are trying to arrive to US through safer train routes than the traditional ones that cross by Ciudad Juarez among other border towns (Chávez & Landa Guevara, 2011)

These findings also provide important insight into how risk environments shape HIV transmission among PWID, and how vulnerable drug-using populations in Mexico may be responding to pressures from drug-related violence, with implications for the prevention of emerging HIV epidemics in settings such as Hermosillo.

In this context, it is urgent to enhance the institutional response, especially in Hermosillo. These efforts must include a sustained scale up in community-based harm reduction services; increasing coordination between HIV/AIDS programs and centers for addiction prevention, control and treatment; integrating HIV prevention into standard of care offered at public and private rehabilitation facilities; committing to scale-up of evidence-based drug treatment interventions such as Opioid-Substitution-Therapy and to guarantee universal access to Anti-Retroviral-Therapy for PWID regardless of their drug use. HIV prevention programming should specifically seek to promote awareness on human rights and harm reduction among Mexico's police and military forces, health promoters and the general society given the proven role that stigma and criminalization play in the spread of HIV (Aggleton & Parker, 2002).

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Map 1. Geographic allocation of Tijuana, Ciudad Juarez and Hermosillo, México

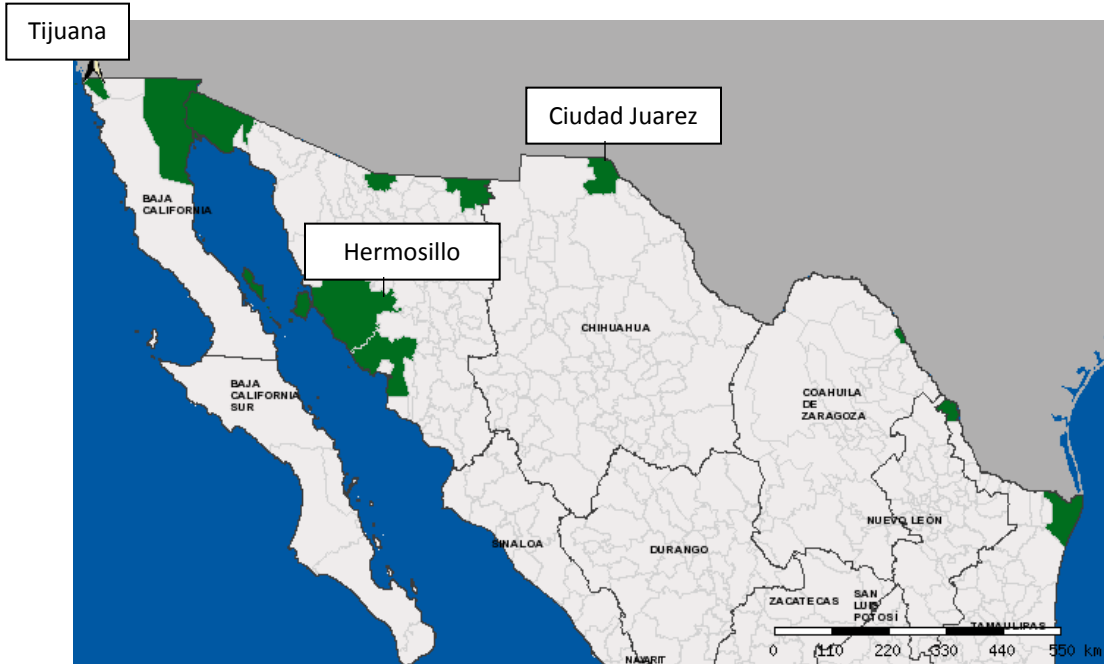


Diagram 1. Variables of the risk environment theoretical framework, included in the quantitative analysis

Risk Environment for HIV acquisition among people who injected drugs in Mexico

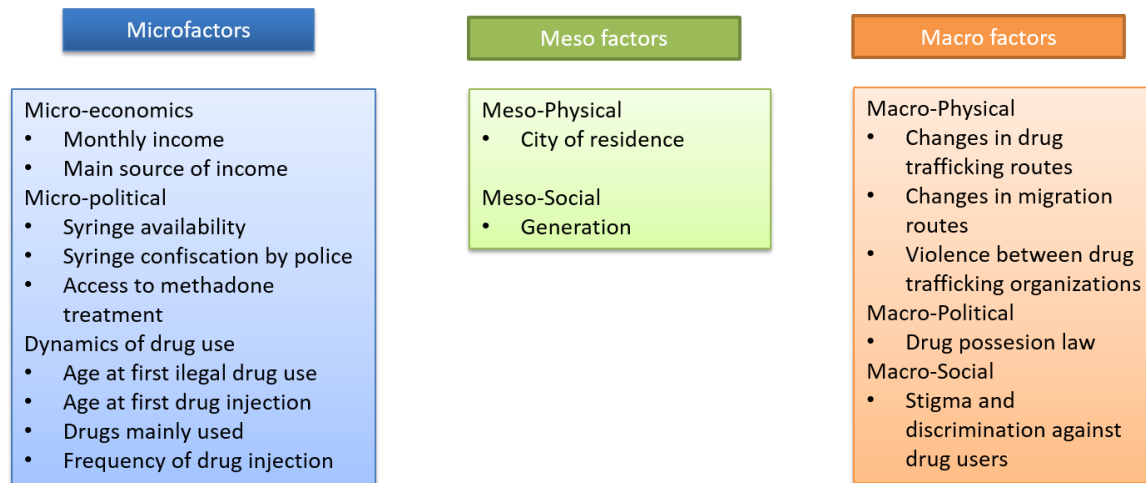


Table 1. Selected characteristics of people who injected drugs by city. México, 2012

	Sample Distribution by city			All (N=1494)
	Tijuana (n=670)	Cd. Juarez (n=432)	Hermosillo (n=392)	
Age (mean) ***	38.9	38.8	29.2	35.7
Sex (%)***				
Women	34.8	25.9	7.9	25.2
Men	65.2	74.1	92.1	74.8
City of birth (%) ***				
Born in the current city of residence	35.7	69.9	79.3	56.9
Born in a different city	64.3	30.1	20.7	43.1
Educational attainment (%) ***				
Uncomplete Secondary or less	60.1	55.9	13.0	47.6
Complete Secondary or above	39.9	41.4	86.0	52.4
Drugs mostly used during last 12 months (%) **				
Heroin	63.4	97.9	77.6	77.2
Cocaine	14.0	37.7	42.1	28.2
Heroin and Cocaine together	14.6	28.7	17.6	19.5
Crystal-Meth	53.0	7.2	53.3	39.8
Crystal-Meth and Heroin together	56.3	2.3	16.1	30.1
Other drugs	0.0	0.5	2.1	0.7
Frequency of drug injection (%) **				
Less than once a day	3.6	8.8	31.1	12.3
Once a day or more	96.4	91.2	68.9	87.7
Frequency of receptive sharing needles (%) ***				
Never	29.0	28.9	41.6	32.3
Less than half of the times	37.9	33.3	29.6	34.4
Half of the times	10.6	14.4	5.6	10.4
More than half of the times	14.9	15.5	16.3	15.5
Always	7.6	7.9	6.9	7.5
Distribution	100%	100%	100%	100%

Notes: Significant differences by city of residence *** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$

Table 2. Selected characteristics of male who injected drugs by generation. Hermosillo, Sonora. México, 2012

	Sample Distribution by generation		All (N=361)
	Born after 1979 (n=245)	Born before 1980 (n=116)	
Migration status (%) **			
Born in Hermosillo	85.1	70.2	80.3
Born in any other city	14.9	29.8	19.7
Educational attainment (%) ***			
Uncomplete Secondary or less	10.2	21.6	13.9
Complete Secondary or above	89.8	78.9	86.1
Drugs mostly used during last 12 months (%) **			
Heroin	74.3	83.6	77.3
Cocaine	44.9	39.7	43.2
Crystal-Meth	55.9	47.4	53.2
Frequency of drug injection (%)			
Less than once a day	35.5	33.0	34.7
Once a day or more	64.5	67.0	65.3
Frequency of receptive sharing needles (%) *			
Never	39.7	50.0	43.0
Less than half of the times	27.3	14.9	23.3
Half of the times	7.4	3.5	6.2
More than half of the times	14.9	24.6	18.0
Always	10.7	7.0	9.6
Distribution	100%	100%	100%

Notes: Significant differences by city of residence *** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$