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Social and structural conditions of deportation that influence HIV risk among Mexican deportees who inject drugs in the US-Mexico border

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Pinedo Bañuelos, Miguel

Publication Date
2015-01-01

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Social and structural conditions of deportation that influence HIV risk among Mexican deportees who inject drugs in the US-Mexico border

A dissertation submitted in partial satisfaction of the requirements for the degree Doctor of Philosophy in

Public Health (Global Health)

by

Miguel Pinedo Bañuelos

Committee in charge:

University of California, San Diego

Professor Victoria D. Ojeda, Chair
Professor Jose Luis Burgos, Co-Chair

San Diego State University

Professor Caroline Macera
Professor Ramona Perez
Professor Maria Luisa Zuñiga

2015
The Dissertation of Miguel Pinedo Bañuelos is approved, and it is acceptable in quality and form for publication on microfilm and electronically:

University of California, San Diego
San Diego State University
2015
DEDICATION

This dissertation represents the culmination of years of study and commitment to the field of migration and health research and is dedicated to my parents Lazaro and Casimira Pinedo, who in search of a better life and opportunities for their future children left their native and beloved Mexico, I am forever grateful. It is also devoted to my brother Alexandro Pinedo whose inspirational work ethic and invaluable support throughout my academic trajectory has been instrumental to my success. Lastly, I wholeheartedly dedicate this dissertation to my community, Latino migrants and their children. It is my aspiration that my research contributes to reducing existing health disparities and creates positive change for those of us whose health and wellbeing is impacted by migration. To the children of Latino migrants—the children of housekeepers, drivers, janitors, fast-food cooks, and other service workers—it is my hope that my success creates an opportunity for you and others from our community to succeed.
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ACKNOWLEDGMENTS
This dissertation would not have been possible without the invaluable support of many people. First, I would like to acknowledge my dissertation committee members whose mentorship and guidance throughout this whole process is reflected in every aspect of this work. I would like to thank my committee chair and advisor Dr. Victoria D. Ojeda for her expertise and mentorship during my doctoral training that has been instrumental to my professional development and growth as a researcher. I sincerely thank Dr. Jose Luis Burgos and Dr. Maria Luísa Zuñiga who took an invested interest in my success since starting this doctoral program and whose expertise provided critical guidance that shaped this dissertation; and to Dr. Ramona Perez and Dr. Caroline Macera for their vital expertise and input into the development of this dissertation. I would also like to thank Dr. Steffanie Strathdee and Dr. Thomas Novotny for their leadership and support during my time in the Joint Doctoral Program in Public Health and to my cohort mates for their vital support.

I would also like to acknowledge and thank my family and friends, including my parents Lazaro and Casimira Pinedo, and brother Alexandro Pinedo, for encouraging and supporting all my professional and academic undertakings. I am grateful for my dear friend Liliana Sandoval who served as a great source of emotional support throughout my graduate studies and who always took the time to proof read my manuscripts.

I would like to acknowledge the financial sources that have supported my doctoral training, which allowed me to not only pursue, but accomplish my lifelong dream of earning my doctorate degree: the National Institute on Drug Abuse Research Fellowship to Promote Diversity in Health-Related Research (R37DA019829-S1) and the Fogarty International Centre of the National Institutes of Health under the AIDS International Training Research Fellowship (D43TW008633) and the University of
California Health Institute GloCal Health Fellowship (R25TW009343) awards. Lastly, I would like to acknowledge the McNair Scholars program at UC San Diego, which initially inspired me to pursue a graduate and doctorate degree as an undergraduate and to the Mexican Migration Field Research Training Program, under the leadership of Dr. Wayne Cornelius, for sparking my passion in migration-related health research as a young scholar.

Chapter 2, in full, is a reprint of material as it appears in journal *Microbes and Infection*: Pinedo M, Burgos JL, Ojeda VD. A Critical Review of Social and Structural Conditions that Influence HIV Risk among Mexican Deportees. Miguel Pinedo was the primary investigator and author of this paper.

Chapter 3, in part, has been submitted for publication of the material as it may appear in the *Journal of Studies on Alcohol and Drugs*: Pinedo M, Burgos JL, Zuñiga ML, Perez R, Macera CM, Ojeda VD: Police victimization among persons who inject drugs along the US-Mexico border. Miguel Pinedo was the primary investigator and author of this paper.

Chapter 4, in part, has been submitted for publication of the material as it may appear in the *Journal of Immigrant and Minority Health*: Pinedo M, Burgos JL, Zuñiga ML, Perez R, Macera CM, Ojeda VD. Correlates of depressive symptoms among deported Mexican migrants who inject drugs in the US-Mexico border region. Miguel Pinedo was the primary investigator and author of this paper.
VITA, PUBLICATIONS, AND FIELD OF STUDY

VITA

2015  Doctor of Philosophy in Public Health (Global Health)
University of California, San Diego & San Diego State University

2011  Master of Public Health in Health & Social Behavior
University of California, Berkeley

2008  Bachelor of Science in Psychology & Bachelor of Arts in Latin American Studies, Honors with Distinction
Minor in Studio Art
University of California, San Diego

PUBLICATIONS

Published


Submitted & Under Review


**FIELDS OF STUDY**

Major Field: Public Health (Global Health & Epidemiology)

Studies in drug abuse and HIV epidemiology  
Professor Victoria D. Ojeda, UC San Diego  
Professor Jose Luis Burgos, UC San Diego  
Professor Caroline Macera, San Diego State University

Studies in population mobility, migration, and US-Mexico migration  
Professor Victoria D. Ojeda, UC San Diego

Studies in marginalized and drug using populations along the US-Mexico border  
Professor Victoria D. Ojeda, UC San Diego  
Professor Jose Luis Burgos, UC San Diego  
Professor Maria Luisa Zuñiga, San Diego State University  
Professor Ramona Perez, San Diego State University
ABSTRACT OF THE DISSERTATION

Social and structural conditions of deportation that influence HIV risk among Mexican deportees who inject drugs in the US-Mexico border

by

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Background: Along the US-Mexico border persons who inject drugs (PWID) with a history of deportation from the US are at increased risk for HIV as compared to non-deported PWID. However, drivers and factors contributing to this elevated HIV risk among deported PWID are poorly understood.

Aims: The aims of this dissertation were to: (1) to critically review evidence linking deportation and HIV risk in Mexico; (2) to identify the relationship between deportation and recent (i.e., past 6 months) police victimization experiences (e.g., physical violence, extortion) among PWID in Tijuana, Mexico; and (3) to describe the prevalence and correlates of depressive symptoms among deported PWID in Tijuana, Mexico.
**Methods:** In Chapter 2, a critical review of evidence linking HIV risk and deportation was conducted using existing peer-reviewed research with deported migrants in Mexico. Chapter 3 and 4 draws from questionnaires collected among PWID (n = 733) participating in a longitudinal prospective cohort study in Tijuana. Chapter 3 examines the baseline questionnaires of 733 PWID. Chapter 4 draws on data collected among a subset sample of PWID with a history of deportation (n = 132).

**Results:** Chapter 2 found that deported migrants in Mexico commonly display a higher prevalence of HIV risk behaviors and HIV infection, especially among males and PWID. Various environmental influences that migrants experience post-deportation that may elevate their risk for acquiring HIV infection are discussed. Chapter 3 found that 56% of PWID had experienced police victimization in the past 6-months; differential experiences with police between deported and non-deported PWID were documented. Factors related to being a migrant and a drug user were independently associated with recent police victimization. Chapter 4 found that 45% of PWID reported current symptoms of depression, which was associated with having been initially detained in the US for a crime-related reason before being deported and perceiving needing help with current drug use.

**Conclusion:** HIV vulnerability among migrants who inject drugs is closely linked to their social and physical experience with their receiving environments post-deportation. Structural interventions targeting various social and structural environmental factors are warranted to reduce risks associated with HIV infection.
CHAPTER 1: INTRODUCTION

In the United States (US), the deportation of migrants has increased fourfold since the 1990s and has reached unprecedented numbers.\textsuperscript{1-3} Mexican nationals are the most at-risk group for deportation.\textsuperscript{4} Deported Mexican migrants are commonly displaced to northern Mexican cities along the US-Mexico border; the border city of Tijuana is the primary deportee receiving community.\textsuperscript{5,6} This region is characterized by a high prevalence of HIV and pervasiveness of drug use, including injection drug use.\textsuperscript{7} Among persons who inject drugs (PWID) in Tijuana, deportees are exceedingly at risk for HIV infection as compared to non-deportees.\textsuperscript{8} Despite the pervasiveness of deportations of Mexican migrants, little is known about factors that contribute to vulnerabilities that negatively impact the health of deportees, including drivers of HIV. This dissertation will delineate social and structural conditions in post-deportation settings that may contribute to increased risk for HIV transmission (or acquisition) through the following aims:

1. To critically review evidence linking deportation and HIV risk in Mexico (Chapter 2);
2. To identify the relationship between deportation and recent (i.e., past 6 months) police victimization experiences (e.g., physical violence, extortion) among PWID in Tijuana, Mexico (Chapter 3); and
3. To describe the prevalence and correlates of depressive symptoms among deported PWID in Tijuana, Mexico (Chapter 4).
BACKGROUND & SIGNIFICANCE

Migration, deportation, and HIV risk

Globally, HIV disproportionally impacts migrant populations;\textsuperscript{7,9-11} deported migrants are similar in this respect. The process of migration has been linked to various social and structural conditions that influence the risk of HIV infection. These conditions may include poverty, barriers to employment, extended separations from spouses and family members, severed social support networks, social isolation, stigma and discrimination, substandard living conditions, barriers to health care, and exposure to more liberal cultural norms regarding drug use and sexual practices.\textsuperscript{12-16} These circumstances in the host country may render migrants vulnerable to high-risk activities and behaviors (e.g., substance abuse, unsafe drug use practices, unsafe and casual sex, paying for sex) as they cope with stressors of their new environment.\textsuperscript{9,12,14,15,17} Migrants also commonly display low levels of educational attainment, mixed knowledge of HIV transmission modes, perceive to be at less risk to HIV, have poor knowledge of proper condom use, and inconsistently use condoms—further shaping their risk to HIV acquisition.\textsuperscript{12,17-21} Migrant’s HIV vulnerability may be further impacted by deportation.

Deportation of foreign nationals is a global phenomenon.\textsuperscript{22-29} Deportation refers to the removal or expulsion of a non-citizen to his native country by the order of the host country’s federal government. In the US, the deportation of a migrant can occur for a variety of reasons, but most often occurs as a result of violating immigration laws (e.g., entering the country without proper documentation, overstaying a visa) or committing a criminal offense (e.g. aggravated felonies, drug-related offenses, firearms offenses, domestic violence crimes).\textsuperscript{2,28,30,31} Being deported carries various unintended consequences; deportation can be a stressful and an emotionally daunting experience as migrants are faced with great uncertainty over their future and well-being. Deported
migrants may experience a loss of familial and social support as a result of being separated from their family and friends who remain in the host country and loss of economic support due to loss of employment.\textsuperscript{22,32-34} Many may internalize sentiments of shame and embarrassment for returning to their native country ‘empty-handed’ and being perceived as ‘spoiled,’ a ‘failure,’ or a ‘criminal’ by their new receiving communities.\textsuperscript{26,32,33,35-37} Many struggle to re-incorporate into their respective society, especially migrants who have been abroad for an extensive time period and no longer identify with their native country.\textsuperscript{22,26,35,37}

In the US, deportation of foreigners has increased four fold since the 1990s, reaching record numbers.\textsuperscript{4} More than 4 million migrants have been deported from the US since 2001.\textsuperscript{2} About half of these deportations occurred between 2008 and 2014, a time frame marked with a dramatic exponential increase in deportations by the US.\textsuperscript{2} Migrants of Mexican-origin are most at risk for deportation, in part because they make up the largest proportion of the foreign-born and undocumented population in the US. Of the 11.2 undocumented migrants who are estimated to be currently residing in the US, \textasciitilde58\% are Mexican nationals.\textsuperscript{38} Mexican migrants comprise the greatest percentage of all US-deported migrants. Annually, \textasciitilde67\%-75\% of all deportees are of Mexican-origin and primarily male.\textsuperscript{2,39} US deportation policies increasingly target migrants with criminal histories.\textsuperscript{1,2,34} In 2013, 82\% of all deportees had been previously convicted of a crime, compared to 31\% in 2008.\textsuperscript{3} Criminal and drug-related offenses commonly contribute to the deportation of Mexican migrants.\textsuperscript{18,30,35} In 2013, 46\% of deportations among Mexican migrants were linked to a criminal offense, including drug-related.\textsuperscript{2} In this respect, Mexican deportees are a highly vulnerable segment of the Latino population because they are at elevated risk for substance use and related harms well before being forcefully repatriated to Mexico.
Deported Mexican migrants have been identified as a subpopulation that is at high-risk for HIV infection as compared to migrants without a history of deportation and the general Mexican population.\textsuperscript{8,18,40-43} Associations between deportation and HIV infection have been documented along the US-Mexico border.\textsuperscript{8,43} A 2012 cross-sectional study among Mexican deportees (n = 693) in the US-bordering city of Tijuana found that among males, 0.8\% were HIV positive.\textsuperscript{43} Utilizing population weights, an HIV prevalence of 1.23\% was estimated among male deportees in Tijuana—suggesting a concentrated HIV epidemic among deported males in this region.\textsuperscript{43} Deportees who inject drugs may be at even greater risk for HIV. A study of 1,056 PWID in Tijuana found that out of the 31 males who tested positive for HIV, 22 or 71\% had a history of deportation. The HIV prevalence among deported male PWID (n=377) was estimated at 6\%.\textsuperscript{8} This elevated HIV prevalence among deported males can be attributed in part to a higher frequency of engagement in HIV-transmitting risk behaviors that are commonly observed among male deportees, compared to their non-deported counterparts. This includes a higher prevalence of high-risk sexual behaviors (e.g., non-consensual sex, unprotected sex, sex with a PWID, transactional sex, paying for sex), lifetime and past 6-month history of sexually transmitted infections (STIs), and unsafe drug using practices (e.g., sharing syringes, experimenting with new drugs, injecting drugs at higher frequencies).\textsuperscript{18,42-45}

Although past studies have documented an elevated HIV prevalence among deportees in Mexico, especially males, little is known about factors that are driving this disparity. There is a paucity of data on social and structural conditions that may increase migrant’s susceptibility to drug abuse and risky-sexual practices that predispose them to infection in their native country. Scant data suggest that post-deportation, Mexican migrants encounter multiple social, structural, emotional, and economic stressors\textsuperscript{35,36,45,46}—these factors may carry important health implications, including
elevating their likelihood of becoming infected with HIV. Given the lack of research
documenting links between deportation and HIV vulnerability, the first aim of this
dissertation is to critically review and synthesize evidence linking deportation and HIV
risk in Mexico (Aim 1).

**Injection drug use, police victimization, and HIV risk**

Globally, injection drug use has been associated with HIV infection and risk
behaviors.\textsuperscript{47-50} HIV transmission via injection drug use is prevalent across diverse
settings and a growing epidemic; a concentrated HIV epidemic among PWID exists
worldwide. Of the 15.9 million PWID that are estimated to be living in the world, 13% or 3
million are estimated to be living with HIV. PWID account for 80% all of HIV infection
cases in Eastern Europe and Central Asia.\textsuperscript{51} Similarly, Latin America accounts for a
large PWID population estimated at 2 million, of these 25% are infected with HIV.\textsuperscript{51}

Within the Latin American region, Mexico accounts for the largest proportion of HIV
infection resulting from injection drug use.\textsuperscript{51} Although PWID have an increased likelihood
of acquiring HIV given the nature of risks associated with injection drug use, public
health harm reduction strategies (e.g., needle exchange programs, interventions aimed
at educating PWID on safer injection practices) have shown to be successful in
mitigating risks associated with HIV acquisition.\textsuperscript{52-55} Nonetheless, other social and
structural environmental factors may have a direct effect on the risk behaviors of PWID.

A large body of research suggests that the HIV risk behaviors of PWID may be
influenced by their interactions with law enforcement.\textsuperscript{56-66} Police targeting is common
among PWID given their high visibility (e.g., high rates of homelessness, increasing time
spent on the street) and involvement in drug-related activities. Problematic policing
practices among PWID are widespread. Experiences of extortion, sexual coercion,
violetic, and unlawful arrests at the hands of law enforcement officers have been
These experiences of victimization by police can have an indirect impact on the behaviors of PWID and increase their risk to HIV. PWID who have experienced victimization by police may be more likely to inject in high-risk environments such as shooting galleries (i.e., abandoned buildings, alleyways, hidden rooms) and seek the assistance of ‘hit doctors’ (i.e., a person who provides assistance with injections) in order to evade police. Such behaviors have been linked with HIV infection. Past adverse experiences with police may also discourage PWID from adopting protective behaviors such as carrying clean syringes and attending needle exchange programs thereby increasing their odds of engaging in needle sharing, rushing injections, and other health damaging behaviors that increases their risk to HIV.

Accounts of police victimization are widespread along the US-Mexico border. Police victimization in this region has been linked to HIV infection and HIV risk behaviors. PWID in Tijuana are one of the primary transmission groups driving the HIV epidemic in the US-Mexico border region. Among PWID in Tijuana 4% of males and 10% of females are estimated to be living with HIV. PWID with a history of deportation may be more vulnerable to HIV infection. One study of PWID in Tijuana found an independent association between deportation and HIV positivity: deported PWID had four times the odds of being infected with HIV as compared to non-deported PWID. In qualitative interviews, deported PWID in Tijuana describe police targeting and victimization for carrying clean syringes (which is legal in Mexico), having visual markers of injection drug use (i.e., ‘track marks’), and for lacking legal Mexican identification documents—which are commonly lost during their migration trajectories. As a result, deported PWID describe taking additional health damaging risks (i.e., binging on drugs after arrests, avoid carrying clean syringes) as a strategy to reduce future encounters with police.
Deportees in Tijuana are highly stigmatized. Local community members from receiving communities are highly aware of US deportation policies that concentrate on the removal of criminal migrants, as such, deportees are commonly associated with crime, gang activity, and drug use. Deportees may be easily distinguishable from the local community given social and cultural differences associated with being ‘Americanized.’ Markers such as having tattoos, different styles of dress, speaking English or inability to speak Spanish and unfamiliarity with local colloquialisms, differentiates deportees from local community members. Compared to non-deportees, some deportees may be more likely to be targeted by police in Tijuana and experience subsequent victimization given their visible characteristics that may quickly identify them. If true, deported PWID may be more likely to engage in high-risk injection behaviors compared to non-deported PWID, which may in part explain the difference in HIV risk among deported and non-deported PWID in Tijuana. The second aim of this dissertation will examine the relationship between deportation and police victimization using a sample of PWID in Tijuana, Mexico (Aim 2).

**Mental health, injection drug use, and HIV risk**

A high prevalence of depressive symptoms and other mental health problems have been documented among PWID worldwide. For instance, a study of 420 PWID recruited from needle and syringe exchange programs in 3 distinct geographical areas of Delhi, India found that 84% of PWID displayed moderate or worse symptoms of depression. Comparable rates of depressive symptoms among PWID have been found in various countries. PWID with poor mental health may be more susceptible to HIV compared to PWID with better mental health outcomes. PWID who present symptoms of depression are more likely share syringes, share drug injection equipment,
have increased number of sexual partners, and trade sex than PWID who do not display depressive symptoms.\textsuperscript{77,78,80,81} Improving the mental health of PWID is a critical component of HIV prevention among this population. Numerous studies suggest that PWID receiving treatment for a mental health disorder display a reduction in HIV risk behaviors (e.g., sharing syringes).\textsuperscript{77,81,86,89,90} Similar to other settings, researchers have found an elevated prevalence of depressive symptoms among PWID in Tijuana.\textsuperscript{84} However less is known about the mental health status of deported PWID. In general, research suggests that displaced and migrant populations are at increased risk for poor mental health.\textsuperscript{91} In Mexico, migrants exhibit higher rates of depression, anxiety, and substance abuse and dependence compared to non-migrants.\textsuperscript{92-94} One study of 1,690 deported Mexican migrants along the US-Mexico border found that the prevalence of mental health problems surpassed what is commonly found in the general population.\textsuperscript{40} Taken together, deported PWID may be at increased risk for poor mental health compared to non-deported PWID and research has documented higher rates of receptive needle sharing, increased frequency of injection use, and experimentation with new drugs among deported PWID.\textsuperscript{18,35,36,44,45} Poor mental health status among deported PWID may help explain the difference in HIV risk profile between deported and non-deported PWID in Tijuana. The relationship between mental health and deportation among PWID in Tijuana remains to be empirically assessed. The third aim of this dissertation will describe the prevalence and correlates of depressive symptoms among a sample of deported PWID in Tijuana, Mexico (Aim 3).
STUDY SETTING

The studies that comprise this dissertation were nested within parent studies conducted in the border city of Tijuana, Mexico located in the Mexican state of Baja California. Tijuana lies directly south of San Diego, California and is considered the busiest land border crossing in the world. Tijuana is a large urban city with a population of 1.6 million residents, making it the largest Mexican border city, including a dynamic and diverse migrant population. Available economic opportunities (e.g., maquiladoras, tourism) have dramatically increased the inflow of migrants from poorer regions of Mexico and elsewhere, especially Central America. The city’s close proximity to the US also serves as a positive pull factor for migrants seeking to cross into the US. According to Mexico Census data, ~52% of the city’s current residents are migrants (i.e., born outside Baja California). Adding to this migrant population are Mexican deportees who are increasingly displaced to Tijuana. Mexican deportees are delivered primarily to Mexican immigration offices situated along Mexico’s northern border. Tijuana serves as the primary deportee receiving community. More than 815,000 Mexican migrants were displaced from the U.S. to Tijuana between 2008 and 2013 alone. Following deportation, a significant proportion of deportees re-settle in the city due to lack of resources to move elsewhere, hopes to re-enter the US, or to remain within close proximity to the US, which facilitates access to US-based family members.

Regions of Tijuana, especially the city’s northern border, have been characterized as a high-risk environment due to social and physical environmental contexts that facilitate the transmission of HIV. Though the HIV epidemic in Mexico is relatively low with a prevalence of 0.3% among the general adult population aged 15-49, making it one of the lowest HIV prevalence in all the Americas, Tijuana’s local HIV prevalence surpasses it three-fold (0.9%). This HIV epidemic in the city’s
northern region has been closely linked to drug use, sex work, and migration, including deportation. Tijuana also has a thriving illicit drug retail market as it is situated along a major drug trafficking route. Drugs not successfully trafficked into the US are sold cheaply in the community. This facilitated access to drugs has contributed to the growing local prevalence of drug abuse, which exceeds the national mean. High rates of methamphetamine, heroin, and cocaine use are prevalent in Tijuana. Injection drug use is also widespread in the city. Tijuana reportedly has the largest PWID population per capital in all of Mexico; anywhere from 6,400 to 10,000 PWID reside in the city. The city’s established commercial sex industry is located in the city’s northern border with the US, the Zona Roja (Red Light District). In this area, sex work is quasi-legal and tolerated, increasing access to high-risk sexual activities. Sex work typically occurs in contexts that increase HIV risk. Approximately 4,800-9,000 female sex workers (FSW) reside and work in the city. It is important to note that deportees make up part of these high-risk subpopulations.

The intermixing of structurally vulnerable populations and pervasiveness of high-risk activities (e.g., unsafe drug use, sex work) contribute to HIV transmission in Tijuana. The HIV epidemic is largely concentrated among Tijuana’s structurally vulnerable populations (e.g., PWID, FSWs, migrants, deportees). These populations face numerous social and structural barriers that elevate their HIV risk, including stigma, discrimination, high rates of homelessness and poverty, and barriers to health care, drug treatment, and HIV testing. Among the city’s structurally vulnerable populations, 4% of male PWID, 10% of female PWID, 6% of FSW, 12% of FSW who are PWID, 6% of male PWID who have been deported from the US, and 1.2% of male deportees are projected to be currently living with HIV. Social and
environmental factors may promote engagement in high-risk activities that increase susceptibility to acquiring HIV among Tijuana’s most vulnerable residents.

THEORETICAL FRAMEWORK

Adaptation of an Ecological Model of Health to better understand HIV risk among deported Mexican migrants who inject drugs

The theoretical framework guiding this dissertation to better understand HIV risk (Aim 1; Chapter 2), including determinants of police victimization (Aim 2; Chapter 3) and mental health status (Aim 3; Chapter 4), among deported Mexican migrants who inject drugs is based on an adapted ecological model of health that draws from Rhode’s et al. (2005) framework of the ‘HIV risk environment’ and Tannenbaum’s (1938) labeling theory (Figure 1.1). An ecological model of health approach expands the focus from individual-level factors that affect health and underscores the importance of environmental contexts in shaping health behaviors, risk practices, and health outcomes. Individual’s health and behaviors are formed by their interactions with their social and physical environments. Under this framework, the environment is conceptualized as operating at various domains of influence, including physical, social, economic, and policy. Factors within each domain constantly interact and shape HIV risk practices for persons who co-exist in that environment and may contribute to existing health disparities. Rhodes and colleagues (2005) conceptualization of the ‘HIV Risk Environment’ also considers the environmental influences in which behaviors take place vis-à-vis HIV infection and has been previously applied to understand HIV risk among PWID in diverse settings, including Tijuana, Mexico. We draw on this framework to better understand the post-deportation HIV risk environment of deportees (Aim 1; Chapter 2) that may predispose them to experiences of higher HIV risk than their non-
deported counterparts. Aim 2 (Chapter 3) also applies constructs of labeling theory to examine an important environmental characteristic, police victimization, to better understand factors operating at the social level of influence that may impact how law enforcement officials respond to deportees and PWID (discussed in further detail below). The continuing sections describe various environmental influences at the physical, social, economic, and policy level that may contribute to HIV vulnerability and poor health among deportees.

**Physical influences.** The physical characteristics of the environments to which deportees are displaced to may foster circumstances that increase susceptibility to HIV. Deportees are delivered primarily to Mexican immigration offices situated along Mexico’s northern border at odd hours and with very few possessions and resources (e.g., money, housing). Given their long extended residencies in the US, which is commonly observed among deported migrants, many are unfamiliar with Mexico and lack social ties. Additionally, US-bordering cities where deportees are habitually relocated to are situated along important drug trafficking corridors resulting in a strong presence of drug availability and access, which may influence drug access, use, abuse and related harms. Following deportation, deportees may struggle with securing long-term housing as a result of broader social, structural, and economic barriers—homelessness is ubiquitous with deportation. The physical environments in post-deportation settings may shape deportee’s HIV risk.

**Social influences.** Social-level influences related to HIV risk include stigmatization and discrimination for being deported. Stigma and discrimination against deportees is widespread in Tijuana, where they are perceived as the cause for social prevailing problems, including increased rates of crime, violence, and drug abuse. Deportee-receiving communities are aware of US-deportation policies that
target the expulsion of criminal migrants, exacerbating how they are perceived in their social environment. As such, deportees may be a socially rejected segment of their receiving communities. Visual and cultural markers such as forms of dress, tattoos, language (i.e., colloquialism, speaking English, lacking Spanish proficiency) associated with being ‘American’ quickly differentiates some deportees from local community members. Physical characteristics associated with being a deported migrant may result in being labeled a ‘deportee’ and contribute to stigma and discrimination; physical characteristics of being a ‘deportee’ may also facilitate police targeting and subsequent victimization, and influence risk behaviors.

**Economic influences.** Deportees may be economically marginalized following deportation due to multiple barriers they face to securing employment. Mexican deportees often lack legal Mexican identification documents (e.g., government issued identification, birth certificate) needed to prove Mexican citizenship to gain formal employment. These documents are commonly lost during deportee’s migration trajectories or confiscated during the deportation process. Stigma against migrants and deportees may also hinder access to formal employment. As a result, deportees resort to working in the informal economy to make ends meet, which may include activities such as working odd jobs, selling goods on the street (i.e., street vendor), and high-risk activities including trading and selling sex. Poverty, economic insecurity, and economic strategies employed by deportees may elevate their risk for acquiring HIV.

**Policy influence.** Various policy-level environmental influences impact the risk of acquiring HIV for deportees. Deportees are disconnected from their new environments and unfamiliar with local resources. Overall, deportees tend to underutilize health care services, drug treatment, and HIV testing and treatment. Broader structural barriers
may also shut out deportees from accessing care. Mexico provides universal health insurance to all Mexican citizens via *Seguro Popular* (i.e., Population Health Insurance). Deported migrants may attain health coverage through *Seguro Popular*, however many lack the legal identification documents that are needed to prove Mexican citizenship and as a result are ineligible. Attaining these documents is difficult as deportees often lack the resources required to travel to their birthplace to replace these documents.\(^6,35,36\)

**Labeling Theory**

Chapter 3 of this dissertation (Aim 2) examines an important environmental risk characteristic operating at the social level of influence, police victimization. Constructs of *labeling theory* are used as the analytic framework to better understand the social environment of deported PWID in their post-deportation setting.\(^{115-118}\) Labeling theory draws from broader concepts of sociological and criminology research and postulates a useful framework for investigating how law enforcement officials respond to deportees and PWID. This theory posits that specific labels are attached to individuals who engage in behaviors or possess specific characteristics associated with a ‘label.’ Labels such as ‘injection drug user’ or ‘deportee’ carry negative connotations and are associated with characteristics that are socially devalued. Once a label (i.e., drug user, deportee) has been attached to an individual, stereotypes and beliefs associated with that label are evoked and attached to the individual as well. This in turn influences the behaviors of local community members, including law enforcement, and impacts how they behave and interact with such individuals. Non-deviant behaviors may be perceived as deviant as a result of adverse labels. For instance, common day activities such as social interactions (i.e., walking in the street, social gatherings) in public settings may be potentially perceived as suspicious or deviant as a result of adverse labels, especially by law enforcement. In Tijuana, problematic policing practices are widespread.\(^{67,119}\) Being
branded a *deportee* and a *PWID* may come easily given physical markers that distinguish them from the broader community, which may facilitate police targeting and victimization. This analytic framework can enhance our understanding of the link between deportation and police victimization by exploring various factors operating at different levels of environmental influence that may be related to characteristics that may result in being labeled as a *deportee* or *drug user*. Figure 1.2 depicts the operationalization of the dissertation.

**AIMS & HYPOTHESES**

Based on our theoretical framework described above and review of the relevant literature, the aims and hypotheses of this dissertation were:

**Aim 1.** To critically review evidence linking deportation and HIV risk in Mexico (Chapter 2).

**Aim 2.** To identify the relationship between deportation and recent (i.e., past 6 months) police victimization experiences (e.g., physical violence, extortion) among PWID in Tijuana, Mexico (Chapter 3).

**Hypotheses:** Deported PWID will be more vulnerable to police victimization in the past 6 months than non-deported PWID. Visual identifiers and characteristics that may facilitate police profiling will be associated with recent police victimization.

**Aim 3.** To describe the prevalence and correlates of depressive symptoms among deported PWID in Tijuana, Mexico (Chapter 4).

**Hypotheses:** Deported PWID who report depressive symptoms will be more likely to engage in high-risk injection practices (e.g., sharing syringes, use a hit doctor) than PWID who do not report depressive symptoms. Social and structural factors that may act
as barriers to incorporating back into Mexican society will be associated with depressive symptoms.

**OVERVIEW OF RESEARCH METHODS**

The three manuscripts that comprise this dissertation utilize data from two different sources. Existing peer-reviewed research based on original studies conducted with deported migrants in Mexico was used for Aim 1 (Chapter 2). Findings from Aim 1 (Chapter 2) informed Aim 2 & 3 (Chapter 3 & 4) by identifying critical factors specifically related to the HIV risk of deported Mexican migrants in post-deportation settings that could be explored using original data. Data for Aim 2 & 3 (Chapter 3 & 4) originated from *Proyecto El Cuete Phase IV* a longitudinal cohort study of PWID residing in Tijuana, collected at two distinct time points.¹²⁰ Aim 2 (Chapter 3) uses the baseline data collected among 733 PWID in Tijuana and Aim 3 (Chapter 4) uses data collected at follow-up visit 7 among a subset sample of PWID with a history of deportation (n = 132). Pinedo led and designed data collection for Chapter 4; questionnaire development was informed by findings from Aim 1 (Chapter 2). Pinedo also led the analysis for Chapter 2, 3 and 4. An abbreviated description of the research methods for this dissertation is provided below. More detailed information regarding the research methods utilized for each aims are provided in their respective chapters. Research protocols were approved and ethics approval was obtained from the Institutional Review Board of the University of California, San Diego and the Ethics Board of the *Colegio de la Frontera Norte*, Tijuana before commencing studies described in Chapters 3 & 4.

**Chapter 2: Linking deportation and HIV risk in Mexico**

In Mexico, a small body of data indicates that deported Mexican migrants are at increased risk for HIV infection. When compared to non-migrants and non-deported
migrants, migrants with a history of deportation commonly display a higher prevalence of HIV risk behaviors (i.e., harmful drug using behaviors, high risk sexual practices) and HIV infection. However, drivers of HIV and factors that may account for these differences are poorly understood. To assess how social and structural condition following deportation may influence the HIV risk of Mexican deportees a critical review of existing literature linking HIV and HIV risk among deported Mexican migrants was conducted.

**Data collection:** Articles were considered eligible for the review if they were written in English or Spanish, published between 1996 and 2013, the study population was Mexican migrants deported from the US, the study described HIV prevalence or post-deportation HIV risk factors, and consisted of peer-reviewed research based on original studies. From October to December 2013, peer-reviewed databases across various disciplines were searched using the following search terms: “Deportation OR deportee OR deported OR forced migration OR repatriated OR returned migrant” AND “HIV OR HIV risk OR substance use OR drug use OR injection drug use OR sex work OR commercial sex work OR prostitution” AND “Mexico OR Mexican.” Our searched strategy retrieved a total of 126 unique articles, which were screened for eligibility criteria; 19 articles met eligibility criteria and were included.

**Data analysis:** Articles were organized using two Microsoft Excel databases. Articles were grouped together according to study design: (1) epidemiological quantitative studies and (2) qualitative/ethnographic studies. Each database recorded critical article information (e.g., authors, year of publication, study setting and design). Epidemiological studies were used to describe the HIV prevalence and HIV risk factors of deported Mexican migrants. Qualitative/ethnographic data was examined to describe various levels of environmental influences at the physical, social, economic, and policy
levels that may elevate deportees’ HIV risk. We report on key features and common themes found in our review of the literature.

**Chapter 3: Police victimization and deportation along the US-Mexican Border**

Deported PWID in Tijuana may be more vulnerable to police victimization compared to non-deported PWID. This may, in part, explain the elevated HIV risk profile that is commonly displayed by PWID with a history of deportation. However, the relationship between police victimization and deportation has not been previously assessed. This chapter explores correlates of recent (i.e., past 6 month) police victimization among PWID residing in Tijuana.

**Data collection:** Data were collected as part of *Proyecto El Cuete Phase IV* (PI: Strathdee), which recruited a total sample of 733 PWID in Tijuana between 2011 and 2013. Participants completed a structured cross-sectional questionnaire at baseline and at 6-month follow up visits, which was administered by a trained and bilingual interviewer. This chapter uses data collected at baseline. PWID were eligible for this study if they were 18 years or older, injected drugs in the past month, had no plans to move permanently from Tijuana, and were able to speak Spanish or English.

**Data analysis:** Our dichotomous variable was ‘recent police victimization.’ We operationalized ‘police victimization’ by combining affirmative responses to the following questions related to problematic policing practices in the past 6 months: 1) asked for a bribe, 2) had money or valuables confiscated, 3) had legal identification documents confiscated, 4) had syringes confiscated, 5) been physically beaten (hit, punched, kicked), 6) had belongings burned or destroyed, 7) been forced to leave place of residency, and 8) asked for a sexual favor to avoid arrest. We conducted univariate and multivariate logistic regression to identify factors independently associated with recent experiences of police victimization. We also conducted descriptive statistics for
measures of types police victimization experiences among PWID who reported recent
police victimization, stratifying by deportation status.

Chapter 4: Depressive symptoms among deported PWID in Mexico

Little is known about the mental health status of deported migrants who inject
drugs in Mexico. Poor mental health among deported PWID may shape their HIV risk.
We assessed the mental health status of deported PWID residing in Tijuana.

Data collection: In 2014, at follow-up visit 7, PWID participating in Proyecto El
Cuete Phase IV who reported ever being deported from the US completed a
supplemental questionnaire specific to their deportation and post-deportation
experiences, and mental health status. A total of 132 PWID reported previously being
deported from the US and were interviewed by a trained interviewer.

Data analysis: Our dichotomous dependent variable was defined by the Center
for Epidemiologic Studies Short Depression Scale (CESD-10). This is a 10-item
screening instrument with strong predictive validity for identifying depressive symptoms
associated with clinical depression. A summary score ranging from 0 to 30 points is
calculated, with a score of 10 or more points indicating the presence of depressive
symptoms. Multivariate analyses identified correlates associated with depressive
symptoms.
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Figure 1.1. Theoretical framework for understanding HIV risk among deported Mexican migrants who inject drugs. Adaptation of Dahlberg (2002), Rhodes (2005), & Tannenbaum, (1938)
Figure 1.2. Operationalization of the Dissertation
CHAPTER 2: Linking deportation and HIV risk in Mexico

Title: A critical review of social and structural conditions that influence HIV risk among Mexican deportees

Authors: Miguel Pinedo\textsuperscript{1, 2}, José Luis Burgos\textsuperscript{1}, Victoria D. Ojeda\textsuperscript{1}

\textsuperscript{1} Division of Global Public Health, Department of Medicine, University of California, San Diego School of Medicine, Institute of the Americas, 10111 N. Torrey Pines Road, Mail Code 0507, La Jolla, CA 92093.

\textsuperscript{2} Joint Doctoral Program in Public Health, San Diego State University and University of California San Diego (SDSU/UCSD), San Diego, CA, USA

Abstract

Mexican migrants who are deported from the US may be at elevated risk for HIV infection. Deportations of Mexican migrants by the US have reached record numbers. We critically reviewed existing literature to assess how social and structural conditions in post-deportation settings can influence Mexican deported migrants’ HIV risk. We also identify critical research gaps and make research recommendations.

Keywords: migration; deportation; migrant health; HIV; HIV risk; Mexico
Introduction

Mexican migrants in the US are disproportionately at risk for HIV infection.\textsuperscript{1-3} Migration has been linked to various risk factors (e.g., poverty, stigma, severed social support networks) that influence HIV risks, including increased susceptibility to risky sexual practices and drug abuse.\textsuperscript{1-4} In 2010, Latino migrants accounted for over one-fifth (21%) of all new HIV infections; \textsimilarity{87%} of these cases are among men.\textsuperscript{5} A small body of data suggests that Mexican migrants who are expelled from the US and returned to their home countries (i.e., deportees) may be at even greater risk for HIV.\textsuperscript{6-8} Post-deportation, individuals face multiple psychological, emotional, and economic stressors that influence their mental and physical health, including HIV vulnerability.\textsuperscript{7-10} In the US, deportation of foreigners has increased four-fold since the 1990s; Mexican nationals account for the majority of deportees (>75%),\textsuperscript{11} mainly because they make up the largest undocumented population in the US.\textsuperscript{12} Little is known about the health vulnerabilities of deported Mexican migrants.\textsuperscript{7,9}

In 2012, US deportations reached record numbers with more than 409,000 foreigners being deported.\textsuperscript{13} More than 1.9 million migrants have been deported since 2009.\textsuperscript{14,15} In 2003 the US Department of Homeland Security (DHS) was created, which streamlined the process of deportation.\textsuperscript{16} In 2008 the DHS shifted its priorities to target migrants with criminal convictions who are considered to be the main threat to society.\textsuperscript{17,18} Migrants with convictions for aggravated felonies, drug-related offenses, firearms offenses, domestic violence crimes, and crimes of ‘moral turpitude’ are now at greater risk for deportation.\textsuperscript{19} Deportations of migrants with criminal backgrounds have increased, especially for drug-related offenses. In 2013, 82% of all deported migrants had a prior criminal conviction,\textsuperscript{20} compared to 31% in 2008.\textsuperscript{21} Additionally, deportations of long-term migrants with strong US and familial ties are also increasing.\textsuperscript{14} Mexican
deportees may be a high-risk HIV transmission group given that they are at elevated risk for HIV in the US and commonly deported with a drug use and criminal history. HIV vulnerability depends upon physical and social contexts.

The Mexican communities to which deportees are relocated may increase their exposure to HIV and related unsafe behaviors. Migrants are often deported to northern US-bordering cities, including Tijuana, that have been plagued with increasing levels of drugs, drug-related violence, and sex work.\(^2\)\(^2\)\(^2\)\(^2\) Notably, Tijuana receives the highest number of Mexican deportees; ~300 Mexican deportees are displaced to Tijuana daily, representing ~40% of all deported Mexican migrants.\(^2\)\(^4\) In 2010, ~135,000 Mexican migrants were deported to Tijuana.\(^2\)\(^4\) Tijuana's estimated HIV prevalence is 3 times as high as Mexico’s average (0.9% vs. 0.3%, respectively),\(^2\) and has an established drug and sex culture.\(^2\)\(^2\)\(^5\) The local drug use prevalence surpasses the national average, including high rates of heroin, cocaine, and methamphetamine consumption.\(^2\)\(^6\)\(^2\)\(^7\) Injection drug use is also pervasive; ~6,400 to 10,000 injection drug users (IDUs) reside in Tijuana.\(^2\)\(^5\) Sex work is tolerated and quasi-legal in Tijuana’s Zona Roja (Red Light District); ~4,800 to 9,000 sex workers live and work in the city.\(^2\)\(^5\)\(^2\)\(^8\) The intermixing of large numbers of vulnerable populations (e.g., drug users, sex workers, migrants)\(^2\)\(^8\) suggests that Tijuana is a high-risk environment and may contribute to HIV transmission among vulnerable persons. Environments such as Tijuana’s may thus influence deportees’ sexual and drug abuse behaviors.

Rhode’s HIV risk environment framework can be used to understand deportees’ HIV risk.\(^2\)\(^9\)\(^-\)\(^3\)\(^1\) Under this framework, the environment is conceptualized as operating at different domains of influences, including at the physical (e.g., drug availability, homelessness), social (e.g., stigma, discrimination), economic (e.g., employment,
poverty), and policy levels (e.g., access to care, drug treatment). Factors within each level of influence constantly interact and shape risk practices and vulnerability to HIV among individuals who co-exist in that environment. Little is known about the post-deportation HIV risk environment. This critical review assesses how social and structural conditions in post-deportation settings can influence deported Mexican migrants’ HIV risk, identify critical research gaps, and make future research recommendations.

Methods

Inclusion criteria

Articles that met the following criteria were considered for inclusion: (1) written in English or Spanish, (2) published between 1996 and 2013, (3) the study population was Mexican migrants deported from the US, (4) described HIV prevalence or post-deportation HIV risk factors, and (5) consisted of peer-reviewed research based on original studies. The year 1996 was chosen as the lower boundary for our review since new US immigration control policies that facilitated the mass deportation of migrants were implemented at that time.

Search strategy

From October to December 2013, we searched peer-reviewed databases across various disciplines including PubMed, PsycINFO, Sociological Abstracts, and Web of Science for published articles pertaining to topics of deportation and HIV risk. Titles and abstracts were searched by combining the following search terms: “Deportation OR deportee OR deported OR forced migration OR repatriated OR returned migrant” AND “HIV OR HIV risk OR substance use OR drug use OR injection drug use OR sex work OR commercial sex work OR prostitution” AND “Mexico OR Mexican” The above search terms in English and Spanish were also entered into SciELO, a Spanish international
database. References within potentially relevant articles were reviewed to identify further potential articles for inclusion.

Data collection and management

Citations were managed using Endnote X5 software (Thomson Reuters Scientific Inc., New York, NY). Our searched strategy retrieved a total of 147 articles (Fig. 2.1). After deleting duplicates, 126 unique articles remained. The first author screened retrieved articles to determine eligibility by first examining titles and abstracts; 84 articles were not directly relevant to our review objectives, which narrowed our search to 42 potentially relevant articles. An additional 3 articles were identified via cross-referencing article citations and screened for inclusion. A total of 45 full-texts were reviewed for content surrounding the following topics: (1) HIV prevalence, and (2) post-deportation HIV risk behaviors and factors (e.g., homelessness, stigma, poverty, barriers to health services). After reviewing full-texts, 26 articles were excluded on the basis that they did not describe original research (e.g., commentaries, review articles, short communications), did not differentiate on deportees as a subsample of migrants, did not focus on deported Mexican migrants, or did not described post-deportation experiences or HIV risk factors (e.g., examined pre-US migration factors or experiences in the US). A total of 19 articles met our inclusion criteria for this review. Two Microsoft Excel databases were created to organize and group articles into: epidemiological quantitative studies (n=12; Table 1) and qualitative/ethnographic studies (n=7; Table 2). Each database recorded important article information, including: title, authors, year of publication, study location, study design, population sample (i.e., total sample; deportee sample), and important findings relating to HIV risk or infection. Key themes and findings were compared across studies examining consistencies and contradictions.
Results

Epidemiology of HIV and deportation

Studies examining associations between HIV and deportation have been documented along the US-Mexico border (Table 2.1). Deported males appear to be especially at risk for HIV. A 2012 cross-sectional study utilizing probability-based sampling among deported Mexican migrants (n = 693) in Tijuana found an HIV prevalence of 0.8% in male deportees; the population HIV prevalence among deported migrants was estimated to be at 1.23%. This study did not detect any cases of HIV among female deportees. In a prospective cohort study that employed respondent driven sampling of 1,056 IDUs residing in Tijuana, Strathdee et al. (2008) found that among HIV positive male IDUs (n = 31), 71% (n = 22) were deportees. Out of 16 female IDUs who tested positive for HIV, only 2 (13%) had a prior deportation. The adjusted odds ratio (AOR) for HIV infection among deported male IDUs was 4 times that of non-deported male IDUs. No statistically significant relationship between deportation and HIV was found among deported female IDUs. A cross-sectional cohort study of 620 female sex workers who inject drugs (FSW-IDUs) in Tijuana and Ciudad Juarez, Mexico also found no association between deportation and HIV positivity. The elevated HIV prevalence documented among male deportees is indicative of an increased HIV risk profile. Importantly, these studies were unable to determine the country where HIV infection was acquired.

HIV risk behaviors

Deportees often present a higher HIV risk profile than non-deported populations (Table 2.1). A 2006 study among Mexican migrants (n = 1,429) returning to Tijuana either voluntarily or as a result of being deported, or arriving to Tijuana from other Mexican regions found a higher prevalence of past 6-month high-risk sexual practices in
Males were over-represented among deportees in the sample (85%). The population estimated prevalence of having engaged in non-consensual sex, sex with an IDU, transactional sex, or sex with a transvestite man in the past six-months was highest among deportees (6.1%) compared to migrants returning from the US voluntarily (2.2%) and migrants from other Mexican border regions (2.7%). Rangel et al (2012), documented a higher population prevalence of lifetime history of STIs (22%), last 12-month rates of unprotected sex (63%), sex with multiple partners (18.1%), casual partners (25.7%), and with sex workers (8.6%) among deported migrants in Tijuana than has been found among Mexican migrants in the US and Mexico. The majority of deportees sampled in this study were males (91%). These high-risk behaviors are not limited to sexual practices.

Deportees may engage in harmful drug using practices. Brouwer et al. (2009) found that among IDUs in Tijuana (n=219), deportees were significantly more likely to inject multiple times a day versus non-deported IDUs (OR: 5.52; 95% CI: 1.62–18.8). Increased frequency of drug injection increases the likelihood acquiring and transmitting HIV, potentially because past 6-month distributive (71%) and receptive needle sharing (76%) was high among IDUs in this study. Deportees’ risky drug use practices may also facilitate HIV transmission across borders. Wagner et al. (2011) found that deported IDUs in Tijuana were increasingly more likely to have ever injected with someone from the US (53% vs. 27%; p<0.0001), compared to non-deported IDUs. This may be the result of their ongoing relationships with persons from the US post-deportation. Deportation can also impact the behaviors of drug using deportees. Among deported male IDUs in Tijuana (n = 328), Robertson et al. (2012) document that 16% of males (n = 52) used new drugs or combinations of drugs following their most recent deportation,
primarily heroin, methamphetamines, or both drugs combined.²⁷ Few studies have documented protective factors for HIV among deportees.

Only one study reported an association between protective factors and deportation. Among male clients of female sex workers (FSWs) living in Tijuana (n = 393), deportees were more likely to report feelings of higher-efficacy for condom use than non-deportees (41 vs. 27%; p = 0.01).³⁸ However, this relationship did not retain statistical significance in multivariate analyses. This study was limited by the fact that frequency of condom use was not measured. Further studies are needed to determine factors driving preventive behaviors among deportees.

The post-deportation HIV risk environment

The following section describes social and structural conditions in post-deportation settings that contribute to HIV risk. We describe various levels of environmental influences at the physical, social, economic, and policy levels that may elevate deportees’ HIV risk and report on key features and common themes found in our review of the literature.

Physical influence

Social disruption

Deportees often have extensive family and community ties to the US. Many deportees have been long-term residents.⁶,¹⁰ Some were taken to the US as youths.¹⁰,³⁹ These migrants were raised in the US, attending public schools, speaking English, and adopting American culture and customs. In Tijuana, deportees commonly identify the US as their home, speak English, and report prolonged US residencies (range 9 to 13 years).⁶,⁷,³⁴ Deporting established migrants can produce various social conditions that impact their livelihood and health post-deportation.
Deportation disrupts migrant’s lives. Deportees may be inserted to unfamiliar environments. Immediately following deportation, deportees are left to fend for themselves with few belongings or money, a secure place to spend the night, and difficulties communicating with family members.\textsuperscript{9,10,39} Many deportees lack cultural familiarity with their native countries, may not speak the language, or may lack local social and family connections in the receiving country.\textsuperscript{9,22,39} This can be a traumatic experience for many. Deported Mexican migrants regularly describe intense feelings of fear, social and cultural displacement, isolation, frustration, and disorientation with their new environments.\textsuperscript{9,39,40} Such sentiments can influence engagement in risky activities as a form of coping mechanism.

Drug use and unsafe sexual practices have been linked to feelings of isolation, loneliness, and separation from spouses, children, and extended family among deportees.\textsuperscript{9,10,39} Qualitative interviews were conducted among deported male (n=24)\textsuperscript{9} and female (N=12)\textsuperscript{40} IDUs in Tijuana in 2011 and 2012, respectively. Deportees described initiating, relapsing, or increasing drug use in order to deal with the emotional and psychological distress resulting from their deportation. Robertson et al., (2012) found an independent association between increasing numbers of deportations (AOR: 1.11 per deportation; 95% CI: 1.03-1.20) and feelings of sadness after being deported (AOR: 2.69; 95% CI: 1.41-5.14) with trying new drugs or new combinations of drugs among deported male IDUs in the same setting.\textsuperscript{7} High-risk sexual practices may also occur. Deportees in Tijuana explain paying for sex with FSWs to buffer feelings of isolation resulting from the dissolution of romantic relationships with their partners in the US.\textsuperscript{39} The emotional and psychological consequences of deportation may render migrants vulnerable to high-risk drug and sexual practices, elevating their risk for acquiring HIV.
High-risk environments

Deportees may encounter increased opportunities to engage in high-risk behaviors following their repatriation; these behaviors may be further influenced by their physical, emotional, and socio-demographic vulnerable state.\(^7\) Mexican migrants are increasingly deported to northern US-bordering cities that have been plagued with increasing levels of drugs, drug-related violence, and sex work.\(^7\) Ojeda et al. (2011) found that deported male IDUs residing in Tijuana perceived the social, drug, and economic climates of their new environments as facilitating their drug use behaviors, including relapse and transition into injection drug use.\(^9\) This includes widespread availability and perceived lower cost of drugs, syringes and injecting equipment, shooting galleries, and a large IDU community.\(^9\) Deportees also perceived drug use as carrying fewer consequences in Mexico than in the US. Robertson et al. (2012) found similar themes in the narratives of deported female IDUs in Tijuana.\(^10\) Women described relapsing into drug use, experimenting with new drugs, and initiating drug use as a result of the pervasive presence of drugs in their environments and new social networks that included drug users.\(^10\) Characteristics of receiving communities may influence deportees’ drug use and sexual behaviors.

The presence of a prominent sex industry can also impact the sexual behaviors of deportees.\(^39,41\) In a qualitative study of deported male clients of FSWs in Tijuana, Goldenberg et al. (2010) found that deportees perceived paying for sex as more socially acceptable and accessible than in the US,\(^39\) a factor that was linked to accounts of unprotected sex with FSWs. Interestingly, these deportees reported never engaging or being exposed to FSWs while in the US.\(^39\) Female deportees residing in Tijuana have also described the ubiquitous local sex industry as influencing their decision to initiate
sex work, especially for survival.\textsuperscript{10,42} Sex work commonly occurs in contexts that increase susceptibility to HIV. Inserting deportees into high-risk HIV environments can play an important role and shape their risk for acquiring and transmitting HIV.

\textit{Homelessness}

Homelessness is ubiquitously associated with deportation. Access to secure housing is a widespread concern for deportees, as they are inserted into new environments at odd hours or without a guarantee of stable or safe housing.\textsuperscript{7,43} Some deportees share the costs of temporary housing (i.e., motels) or rented rooms.\textsuperscript{40} Those who are unable to find shelter are forced to sleep on the streets.\textsuperscript{7} Securing long-term housing is a great challenge given deportees' low socio-economic profile and lack of economic opportunities.\textsuperscript{10,36} Deported women who are homeless may face greater vulnerabilities, and may be more likely to trade sex as a means to secure housing and other resources.\textsuperscript{40} Homeless deportees are at increased risk for HIV given social and structural risk factors associated with lacking secure housing.

\textit{Social influence}

\textit{Stigma}

Migrants experience social stigma and discrimination following their deportation since receiving communities are aware of US policies that concentrate on the expulsion of deportees with lengthy criminal and incarceration histories.\textsuperscript{44,45} Deportees are associated with delinquency, gang activity, and drug use and perceived as the cause of social existing problems including increase drug use and crime.\textsuperscript{44,45} Stigmatized populations commonly share a social identity and characteristics that are socially devalued by the larger society. Physical (e.g., tattoos, clothing) and cultural (e.g., mannerisms, Spanish language deficiencies) differences associated with being
‘Americanized’ can quickly differentiate deportees from ‘locals.’ Identifying deportees is quite simple, “with their hair cropped short, arms, torso, and neck covered with tattoos and dressed in a distinctive style—Timberland shoes, baggy pants, and oversized, creased tee shirts—these young ex-migrants and immigrants stand out in their communities.” Such characteristics quickly ‘brand’ deportees into their own separate social group within the community, such as los deportados (‘the deportees’). Being stigmatized and socially rejected by their receiving community adversely impacts their mental well-being.

Deportees’ emotional health is tied to social experiences in receiving communities. Deportees frequently internalize and describe feeling shameful and embarrassed for being branded as a ‘failure’ or ‘criminal’—returning ‘empty-handed’ to their native country. Unable to cope, many deportees experience intense depression and desperation. Deportees along the US-Mexico border describe a sense of ‘giving up’ on themselves, having little concern or regard about their physical or emotional health. Feelings of fatalism are perceived as the cause of their high-risk behaviors, including unprotected sex with FSWs and other partners, alcohol and substance abuse, and unsafe drug use. Social environments can have strong influences on the behaviors and health of deported individuals.

**Police targeting and victimization**

Local law enforcement officers shape HIV risks via policing practices. In qualitative interviews conducted with male deported IDUs in Tijuana, deportees describe being harassed by police, especially for carrying clean syringes or for having visual indicators of drug injection use (e.g., ‘track marks’). Being targeted often led to incarceration. Such experiences resulted in harmful drug use, including sharing injection
equipment while incarcerated or bingeing on drugs following their release. Similarly, deported female IDUs describe being fearful of being harassed or detained by police for carrying clean syringes, being a “known drug user,” or lacking legal identification documents.\textsuperscript{10} Fearing adverse encounters with police, women took additive risks to remain hidden, such as injecting in high-risk environments (e.g., shooting galleries) and avoided carrying clean syringes—increasing their likelihood of sharing needles. Abuse by criminal justice systems can reduce adoption of preventive behaviors among vulnerable populations, increasing the odds of HIV infection. IDU deportees may also be more likely to be targeted by police, versus non-deported IDUs. Pollini et al. (2009) found that compared to non-deported male IDUs residing in Tijuana, IDU deportees were more likely to have ever been incarcerated (AOR: 1.61; 95% CI: 1.12-2.5).\textsuperscript{46}

Abusive and arbitrary policing practices can operate as ‘social-structural’ drivers for HIV risk.

\textbf{Economic influence}

\textit{Economic vulnerability}

Deportees typically arrive with little or no money; finding work is a difficult task.\textsuperscript{39,44} Deportees often lack legal identification documents (e.g., government issued identification, birth certificate) that are needed to prove citizenship.\textsuperscript{7,10} Lacking these documents excludes deportees from the formal economy and limits economic opportunities post-deportation. Deportees who are excluded from the formal economy may engage in other means of survival. Participating in the informal economy are many times the only options for deportees. For example, in Tijuana, deportees may work as jaladores, middlemen who recruit clients for FSWs.\textsuperscript{39,41} Given the district’s prominent US-based clientele, deportees’ English knowledge and familiarity with American culture
is positively perceived by employers in the sex work industry (e.g., bars, brothels). Female deportees may also engage in sex work in order to survive economically, which places them at risk for coerced sex and trafficking. The economic strategies employed by deportees in response to social and structural barriers places them in situations that increase their risk for HIV.

**Policy influence**

**Access to health services**

Deportees, especially males, present a high prevalence of HIV risk behaviors and infection. Yet, post-deportation access and utilization of health services is low. A 2009 study of deported IDUs (n = 219) in Tijuana documented low access health service (15 vs. 32%; p=0.05), drug treatment (32 vs. 54%; p<0.05), or HIV testing (24 vs. 41%; p=0.05), when compared to non-deported IDUs. Rangel et al. (2012) found a population estimate of HIV testing at 51% for deportees. Notably, among deportees with a STI diagnosis in the past year, an estimated 39% had received treatment. Lack of familiarity with local resources and economic constraint disconnect deportees from health services. This may also affect the health behaviors of deportees. Muñoz et al. (2013) found that HIV-positive deportee patients were significantly less likely to be adherent to their antiretroviral medication (AOR: 0.35; 95% CI: 0.12–0.96), compared to non-deported HIV-positive patients. Access to health services and HIV testing is a critical issue for reducing HIV transmission and preventing disease progression.
Research gaps and recommendations

Study design

The relationship between deportation and HIV infection and risks has been primarily examined through cross-sectional studies. Thus, temporality is a critical limitation since extant studies have yet to establish causal pathways between deportation and HIV. Given deportees’ extensive migration trajectories, determining when and in what country HIV infection was acquired is difficult. Temporality of HIV risk behaviors is also problematic. HIV risk behaviors may be acquired prior to migrating to the US, while in the US, or post-deportation. Moreover, many migrants experience more than one deportation experience, adding further complexity to issues of temporality. Sources of vulnerability may differ between the first and subsequent deportation experiences. Thus, longitudinal studies conducted with a broader deportee population can overcome these limitations. Such a study design can also test whether deportation precedes HIV infection and can shed light on interactions between individual, social and environmental factors.

To our knowledge only one small pilot longitudinal feasibility study among deportees has been conducted. Ojeda et al., (2012) recruited 19 newly deported Mexicans in Tijuana with a 1-month follow up period (n = 6 visits) to determine the feasibility of a longitudinal study among deportees and retention strategies in health research. Preliminary data suggest that such a study may be feasible if diverse communication methods and settings for conducting interviews are available, and flexibility in study participation (i.e., dates, times) are implemented. Deportees’ mobility within post-deportation communities or attempted or successful returns to the US may
result in loss-to-follow up. Research involving a large cohort of newly deported migrants is needed to further develop strategies to retain deportees in longitudinal health research.

Extant data on HIV and deportation are derived primarily from cohort studies that were not designed to study migration. These studies also focus on high-risk populations (e.g., IDUs, FSWs) and have primarily been conducted in Tijuana, Mexico. Though Tijuana is the primary receiving community for Mexican deportees, migrants are also deported elsewhere in Mexico. Deportations to US-bordering communities in Tamaulipas and Coahuila increased 5-fold between 2009 and 2012. These communities have experienced widespread drug-related violence and drug use in recent years, which can potentially influence HIV risks. Moreover, less is known about the experiences of deportees outside of the US-Mexico context. Deportation of migrants from Guatemala, El Salvador, Honduras, and the Dominican Republic are increasing. These deportees can potential influence the HIV epidemics in their respective countries, which are rapidly approaching generalized epidemics. More empirical data is needed for Mexican deportees in border and non-border cities, and with deportees from other countries to better understand the comparative post-deportation experiences of deported migrants in diverse contexts.

*HIV vulnerability among female deportees*

Associations between deportation and HIV serostatus among women have not been found, possibly because cohorts of deportees are primarily dominated by males (~89%). Present studies are likely underpowered to fully investigate the relationship between HIV status and risk among female deportees. Future studies should examine HIV infection and risks among larger samples of female deportees as sources of vulnerability may differ from those experienced by males.
Post-deportation social networks

Deportees' social networks may change post-deportation yet neither the social networks nor the evolution of networks following deportation have been studied systematically.\textsuperscript{9,10} Limited research among deported IDUs suggests that their drug use behaviors evolved following deportation, including experimenting and injecting new drugs.\textsuperscript{7,9} This may in part be the result of new social networks, especially with drug users, which influences the drug use behaviors of deportees.\textsuperscript{10,36} Social networks with US-based drug users may also be maintained, resulting in cross-border drug use and receptive needle sharing among IDU deportees.\textsuperscript{37} Lack of empirical research on deportees’ social networks post-deportation represents an important scientific gap in understanding how migrants’ drug abuse risk profile may change following deportation.

Conclusion

The limited data on deportation and HIV consistently finds that deportees, especial males, return to Mexico with a high HIV risk profile. The increasing number of deportations by the US highlights the need to better understand the link between deportation and HIV. Access to health services, drug treatment, and HIV testing post-deportation are critical factors to consider in relation to HIV prevention and treatment among deportees. Deportees’ underutilization of these services may be the result of broader structural factors. Though Mexico provides universal health insurance through Seguro Popular (i.e., Population Health Insurance), residents must provide proof of Mexican nationality, which many deportees lack.\textsuperscript{10,22,58} Evidence-based drug treatment services in Tijuana are also limited; use of existing services may be discouraged as a result of adverse experiences (e.g., physical or verbal abuse by staff).\textsuperscript{59}
Limited measures to decrease deportees’ vulnerability have been implemented in Mexico. The Mexican Government established in 2007 the Humane Repatriation Program. This program was first piloted in Tijuana and has been expanded to nine other Mexican border cities, with a planned rollout to 23 cities. Short-term re-integration services are provided to newly deported Mexican nationals (e.g., temporary shelter, food, clothing, transportation, medical attention). In 2009, ~47% of deportees used these services. Additional evaluation is needed to understand whether social re-integration services facilitate deportees’ return to Mexico and mitigate the social and structural factors that elevate the risk of HIV. Protecting deportees’ can have broader positive community-level health and social impacts. More deportee-focused health research is needed to identify cost-effective interventions and policies that can reduce HIV infection and related social and economic vulnerabilities among deported migrants.

Acknowledgments

We acknowledge funding from the following sources: the UC GloCal Fellowship funded by the Fogarty International Center of the National Institutes of Health under Award Number R25TW009343; the Fogarty International Centre AIDS International Training Research Program under the grants D43TW008633; the National Institutes of Health National Institute on Drug Abuse grants K01DA025504, R37DA019829, and R37DA019829-S1; the National Institute on Mental Health grant K01MH095680; and the University of California Global Health Institute.

Chapter 2, in full, is a reprint of material as it appears in journal *Microbes and Infection*: Pinedo M, Burgos JL, Ojeda VD. A Critical Review of Social and Structural Conditions that Influence HIV Risk among Mexican Deportees. Miguel Pinedo was the primary investigator and author of this paper.
Figures

Figure 2.1. Flow chart depicting the search strategy for articles between 1996-2013 focused on deportation and HIV and HIV risk among Mexican deportees.
### Tables

Table 2.1. Epidemiological studies examining associations between deportation and HIV and HIV risk among Mexican deportees, 2006-2013.

<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
<th>Year</th>
<th>Location</th>
<th>Study Design</th>
<th>Population</th>
<th>Sample Size</th>
<th>Major Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HIV Prevalence</strong></td>
<td>Rangel et al.</td>
<td>2012</td>
<td>Tijuana, Mexico</td>
<td>Cross-sectional</td>
<td>Mexican migrants</td>
<td>Total: 693</td>
<td>Deportees: 693 (100%)  An HIV prevalence of 0.8% was found among deported males; no cases of HIV among deported females were detected. The HIV population estimate for deported males was 1.23%. Results also indicate inadequate levels of HIV testing, little knowledge of HIV status, and poor access to HIV and STI treatment.</td>
</tr>
<tr>
<td>A two-way road: Rates of HIV infection and behavioral risk factors among deported Mexican labor migrants [6]</td>
<td></td>
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<tr>
<td><strong>Social and structural factors associated with HIV infection among female sex workers who inject drugs in the Mexico-US Border Region [32]</strong></td>
<td>Strathdee et al.</td>
<td>2011</td>
<td>Tijuana and Ciudad Juarez, Mexico</td>
<td>Cross-sectional</td>
<td>Female sex workers who are injection drug users</td>
<td>Total: 620 Deportees: 55 (9%)</td>
<td>Among FSW-IDUs who tested positive for HIV (n=33), 9% (n=3) were deportees. No independent association was found between deportation and HIV status.</td>
</tr>
<tr>
<td><strong>Differential effects of migration and deportation on HIV infection among male and female injection drug users in Tijuana, Mexico [8]</strong></td>
<td>Strathdee et al.</td>
<td>2008</td>
<td>Tijuana, Mexico</td>
<td>Cross-sectional</td>
<td>Injection drug users</td>
<td>Total: 1,056 Male Deportees: 377 (42%) Female deportees: 36 (23%)</td>
<td>Among male IDUs who were HIV positive (n=31), 71% (n=22) were deportees; among HIV positive female IDUs (n=16), 13% (n=2) were deportees. The adjusted odds for HIV infection were 4 times higher among male IDUs who were deported than non-deported males IDUs (AOR: 4.00; 95% CI: 1.67-9.44). No statistically significant relationship between HIV and deportation was found among female IDUs.</td>
</tr>
</tbody>
</table>
Table 2.1 Epidemiological studies examining associations between deportation and HIV and HIV risk among Mexican deportees, 2006-2013, continued.

<table>
<thead>
<tr>
<th>HIV Risk Behaviors</th>
<th>Authors</th>
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<tr>
<td>Deportation history among HIV-positive Latinos in two US-Mexico border communities</td>
<td>Muñoz et al.</td>
<td>2013</td>
<td>San Diego, USA and Tijuana, Mexico</td>
<td>Cross-sectional</td>
<td>HIV-positive Latino patients</td>
<td>Total: 283</td>
<td>Deported HIV-positive patients were more likely to be male (AOR: 2.77; 95% CI: 1.18–6.48) and report lifetime cocaine use (AOR: 2.46; 95% CI: 1.33–4.57). HIV-positive deportee patients were significantly less likely to be adherent to their antiretroviral medication (AOR: 0.35; 95% CI: 0.12–0.96), compared to non-deported HIV-positive patients.</td>
</tr>
<tr>
<td>US drug use and migration experiences of Mexican female sex workers who are injection drug users</td>
<td>Ojeda et al.</td>
<td>2012</td>
<td>Tijuana and Ciudad Juarez, Mexico</td>
<td>Cross-sectional</td>
<td>Female sex workers who are injection drug users</td>
<td>Total: 315</td>
<td>Among US-Mexico migrant FSW-IDUs (n=85), 46% (n=39) were deportees. On average, deported FSW-IDUs experienced nearly 3 lifetime deportation experiences. Independent associations between deportation and ever consuming drugs in the US were not found.</td>
</tr>
<tr>
<td>Correlates of self-efficacy for condom use among male clients of female sex workers in Tijuana, Mexico</td>
<td>Volkmann et al.</td>
<td>2012</td>
<td>Tijuana, Mexico</td>
<td>Cross-sectional</td>
<td>Male clients of female sex workers</td>
<td>Total: 400</td>
<td>Deported males were more likely to have higher self-efficacy for condom use (41 vs. 27%; p=0.01) than non-deported males. This relationship did not remain significant in multivariate analyses.</td>
</tr>
</tbody>
</table>


Table 2.1 Epidemiological studies examining associations between deportation and HIV and HIV risk among Mexican deportees, 2006-2013, continued.

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<tr>
<td>Male injection drug users try new drugs following US deportation to Tijuana, Mexico [7]</td>
<td>Robertson et al.</td>
<td>2011</td>
<td>Tijuana, Mexico</td>
<td>Cross-sectional</td>
<td>Injection drug users (male)</td>
<td>Total: 328 Deportees : 328 (100%)</td>
<td>One in six male deported IDUs (n=52, 16%) tried new drugs following their most recent deportation. New drugs included heroin (n=31), methamphetamine (N=5), or both drugs combined (n=17). Trying new drugs following deportation was independently associated with increasing numbers of US deportations (AOR: 1.11 per deportation; 95% CI: 1.03-1.20) and feeling sad following most-recent deportation (AOR: 2.69; 95% CI: 1.41-5.14).</td>
</tr>
<tr>
<td>Cross-border drug injection relationships among injection drug users in Tijuana, Mexico [36]</td>
<td>Wagner et al.</td>
<td>2011</td>
<td>Tijuana, Mexico</td>
<td>Cross-sectional</td>
<td>Injection drug users</td>
<td>Total: 1,056 Deportees : 413 (39%)</td>
<td>Deported IDUs were more likely to have ever injected with someone from the US (53% vs. 27%; p&lt;0.0001), compared to non-deported IDUs.</td>
</tr>
<tr>
<td>The Harm Inside: Injection during incarceration among male injection drug users in Tijuana, Mexico [45]</td>
<td>Pollini et al.</td>
<td>2009</td>
<td>Tijuana, Mexico</td>
<td>Cross-sectional</td>
<td>Injection drug users (male)</td>
<td>Total: 898 Deportees : 377 (42%)</td>
<td>IDU male deportees are more likely to report ever being incarcerated versus male IDUs who have not been deported (AOR: 1.61; 95% CI: 1.12-2.5).</td>
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Table 2.1 Epidemiological studies examining associations between deportation and HIV and HIV risk among Mexican deportees, 2006-2013, continued.

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<tr>
<td>Deportation along the US-Mexico border: its relation to drug use patterns and accessing care [34]</td>
<td>Brouwer et al.</td>
<td>2009</td>
<td>Tijuana, Mexico</td>
<td>Cross-sectional</td>
<td>Injection drug users</td>
<td>Total: 219</td>
<td>Compared to non-deported IDUs, IDU deportees were more likely to inject multiple times per day (OR: 5.52; 95% CI: 1.62-18.8), and less likely to access (past 6 months) medical care (OR: 0.37; 95% CI: 0.13-1.00; p=0.05), drug treatment (OR: 0.41; 95% CI: 0.19-0.89), or HIV testing (OR: 0.44; 95% CI: 0.19-1.02; p=0.05).</td>
</tr>
<tr>
<td>Social and environmental influences shaping risk factors and protective behaviors in two Mexico-US Border Cities [42]</td>
<td>Ramos et al.</td>
<td>2009</td>
<td>Tijuana and Ciudad Juarez, Mexico</td>
<td>Cross-sectional</td>
<td>Injection drug users (male)</td>
<td>Total: 428</td>
<td>IDUs living in Tijuana were 12 times more likely to have been deported from the US compared to those living in Ciudad Juarez. Authors conclude that the high rates of mobility and deportation observed in Tijuana may help explain why IDUs residing in Tijuana were more likely to be homeless, inject outside or at a shooting gallery, and spend the majority of their time ‘on the street.’</td>
</tr>
<tr>
<td>Prevalence of risk factors for HIV infection among Mexican migrants and immigrants: Probability survey in the Northern border of Mexico [33]</td>
<td>Rangel et al.</td>
<td>2006</td>
<td>Tijuana, Mexico</td>
<td>Cross-sectional</td>
<td>Mexican migrants and immigrants</td>
<td>Total, 1,429</td>
<td>The population estimated prevalence of having engaged in non-consensual sex, sex with an IDU, transactional sex, or sex with a transvestite man in the past six-months was highest among deportees (6.1%) compared to migrants returning from the US voluntarily (2.2%) and migrants from other Mexican border regions (2.7%).</td>
</tr>
</tbody>
</table>
Table 2.2. Qualitative/ethnographic studies describing social and structural conditions of deportation and HIV risk among Mexican deportees, 2009-2013.

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<tr>
<td>“Right here is the gateway”: mobility, sex work entry and HIV risk along the Mexico-US border</td>
<td>Goldenberg et al.</td>
<td>2013</td>
<td>Tijuana, Mexico</td>
<td>Qualitative study</td>
<td>Formerly trafficked sex workers who currently engage in sex work</td>
<td>Total: 31 Deportee: 3 (10%)</td>
<td>Women described their deportation as abrupt and traumatic, arriving to Tijuana with no plans, money, or social ties. Many engaged in sex work for economic survival and drugs. The process of deportation fostered circumstances that increased vulnerability to being coerced into sex work.</td>
</tr>
<tr>
<td>Deportation experiences of women who inject drugs in Tijuana, Mexico</td>
<td>Robertson et al.</td>
<td>2012</td>
<td>Tijuana, Mexico</td>
<td>Qualitative study</td>
<td>Deported injection drug users (female)</td>
<td>Deporte: 12 (100%)</td>
<td>Women reported arriving to the US as children (median 6 years) and experienced a median of 2.5 lifetime deportations. Heavy drug use after deportation was common. Post-deportation, women experienced heightened economic vulnerability and physical insecurity, increasing drug dependence, emotional distress, and lack of access to drug treatment and other health services. Economic insecurity facilitated engagement into sex work.</td>
</tr>
<tr>
<td>A qualitative view of drug use behaviors of Mexican male injection drug users deported from the United States</td>
<td>Ojeda et al.</td>
<td>2011</td>
<td>Tijuana, Mexico</td>
<td>Qualitative study</td>
<td>Deported injection drug users (male)</td>
<td>Deporte: 24 (100%)</td>
<td>Post-deportation, deportees experienced shame and loss of familial, social and economic support that exacerbated drug use and led to a sense of hopelessness and despair. Deportees perceived the social, drug, and economic climates of their new environments as facilitating their drug use behaviors, including relapse, transition into injection drug use, and injecting new drugs.</td>
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Table 2.2. Qualitative/ethnographic studies describing social and structural conditions of deportation and HIV risk among Mexican deportees, 2009-2013, continued.

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<tr>
<td>“Over here, it’s just drugs, women and all the madness”: The HIV risk environment of clients of female sex workers in Tijuana, Mexico [40]</td>
<td>Goldenberg et al.</td>
<td>2011</td>
<td>Tijuana, Mexico</td>
<td>Qualitative</td>
<td>Male clients of female sex workers</td>
<td>Total: 30</td>
<td>Deportation severed important social support networks, including being separated from family and intimate partners. Deportees report searching for intimacy to buffer feelings of social isolation, which resulted in paying for sex with FSWs and drug use simultaneously. The economic strategies employed by deportees in response to social and structural barriers, such as working as middlemen who recruit clients for FSWs, facilitated engagement in high-risk behaviors.</td>
</tr>
<tr>
<td>“People here are alone, using drugs, selling their body”: Deportation and HIV vulnerability among clients of female sex workers in Tijuana [38]</td>
<td>Goldenberg et al.</td>
<td>2010</td>
<td>Tijuana, Mexico</td>
<td>Qualitative</td>
<td>Deported male clients of female sex workers</td>
<td>Deportee: 20 (100%)</td>
<td>Migrants report intense social isolation and economic vulnerability after being deported, which was linked to substance use and unprotected sex with FSWs. Reasons for visiting FSWs included loneliness, lack of a regular partner, being high or drunk, and having a job that results in close contact with FSWs. Paying for sex with FSWs was perceived as being more socially acceptable in Tijuana than in their US communities.</td>
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Table 2.2. Qualitative/ethnographic studies describing social and structural conditions of deportation and HIV risk among Mexican deportees, 2009-2013, continued.

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<tr>
<td>Labor migration, drug trafficking organizations, and drug use: Major challenges for transnational communities in Mexico [44]</td>
<td>Garcia &amp; Gonzalez</td>
<td>2009</td>
<td>Guanajuato, Mexico</td>
<td>Ethnographic</td>
<td>Mexican</td>
<td>Not specified</td>
<td>Deportees experience social stigma and discrimination after returning to their home communities. Physical (e.g., tattoos, clothing) and cultural (e.g., mannerisms, Spanish language deficiencies) differences associated with being ‘Americanized’ quickly differentiates deportees from ‘locals.’ Deportees are associated with delinquency, gang activity, and drug use and perceived as the cause of social existing problems including increase drug use and crime.</td>
</tr>
</tbody>
</table>
REFERENCES


39. Goldenberg S, Strathdee SA, Gallardo M, Patterson TL. “People Here Are Alone, Using Drugs, Selling their Body”: Deportation and HIV Vulnerability among Clients of Female Sex Workers in Tijuana. Field Actions Science Reports. The journal of field actions. 2010(Special Issue 2).


CHAPTER 3: Police victimization and deportation along the US-Mexican Border

Title: Police victimization among persons who inject drugs along the US-Mexico border

Authors: Pinedo, Miguel;¹,² Burgos, Jose Luis;² Zuñiga, Maria Luisa;³ Perez, Ramona;⁴ Macera Caroline A;⁵ Ojeda, Victoria D²

¹Joint Doctoral Program in Public Health, San Diego State University and University of California San Diego (SDSU/UCSD), San Diego, CA, USA
²Division of Global Public Health, Department of Medicine, University of California, San Diego
³School of Social Work, San Diego State University
⁴Department of Anthropology, San Diego State University
⁵School of Public Health, San Diego State University

Abstract

Objective

Adverse policing practices are an important driver of HIV risk among persons who inject drugs (PWID). The objectives of this study were to: (1) determine whether deported PWID are more vulnerable to police victimization than non-deported PWID; and (2) identify factors associated with recent police victimization.

Methods

From September 201 to January 2013, 733 PWID were recruited in Tijuana and completed structured questionnaires. Eligible participants were adults aged 18 years or older; injected illicit drugs within the past month; and spoke Spanish or English. Univariate and multivariate logistic regression analyses identified correlates of recent
experiences of police victimization (e.g., bribes, unlawful confiscation, physical and sexual violence).

**Results**

Overall, 56% of PWID reported a recent police victimization experience in Tijuana; 41% of participants were deported migrants. Deportees were more likely than non-deportees to report recent police victimization (44% vs. 37%; p=0.047). In multivariate logistic regression analyses, factors independently associated with recent police victimization included: recent injection of methamphetamine (Adjusted Odds Ratio (AOR): 1.62; 95% Confidence Interval (CI): 1.18-2.21) and recent use of a ‘hit doctor’ (AOR: 1.56; 95% CI: 1.03-2.36). Increased years lived in Tijuana (AOR: 0.98 per year; 95% CI: 0.97-0.99), and initiating drug use at a later age (AOR: 0.96 per year; 95% CI: 0.92-0.99) were inversely associated with recent police victimization.

**Conclusions**

Interventions aimed at reducing police victimization events should consider PWID’s migration status, drug-using behaviors, and economic status. Reducing abusive policing practices and may be a critical public health strategy to reduce HIV risk among PWID.

**Keywords:** police, injection drug use, deportees, migrant, HIV risk, Mexico
Introduction

In diverse settings, people who inject drugs (PWID) are common police targets given their engagement in drug-related activities.\(^1\)\(^-\)\(^6\) This population is also highly marginalized, stigmatized, and faces significant discrimination.\(^5\)\(^,\)\(^7\) Negative associations with being a drug user may influence how police perceive everyday behavior, resulting in increased police profiling and targeting.\(^8\)\(^,\)\(^9\) Studies in the United States have shown that problematic policing practices may also have broader social and health impacts, such as causing increased fear and diminished trust of law enforcement officials, resulting in reduced crime reporting.\(^10\)\(^-\)\(^12\) Fear of police may influence the health behaviors of structurally vulnerable populations who engage in drug use.\(^13\)\(^-\)\(^15\) Police victimization (e.g., extortion, violence, unjust arrests) is a critical factor that shapes the health of PWID, including their risk to HIV acquisition.\(^4\)\(^,\)\(^5\)\(^,\)\(^13\)\(^,\)\(^15\)\(^,\)\(^16\)

PWID in the US-Mexico border are exceedingly vulnerable to police victimization. Earlier studies conducted in the US-border city of Tijuana have documented that police officers can adversely impact the adoption of preventive behaviors of PWID and increase their odds of acquiring HIV through problematic policing practices.\(^2\)\(^,\)\(^4\)\(^,\)\(^15\)\(^,\)\(^17\)\(^-\)\(^23\) PWID who have experienced police victimization are increasingly more likely to engage in health damaging behaviors. They may take additional risks to decrease their exposure to police, including engaging in receptive needle sharing, injecting in high-risk environments (i.e., shooting galleries), seeking injection assistance (i.e., use of a ‘hit doctor’), and rushing injections.\(^2\)\(^,\)\(^17\)\(^-\)\(^19\)\(^,\)\(^21\)\(^-\)\(^24\) HIV disproportionally affects PWID in Tijuana. An estimated 4% of male PWID, 10% of female PWID, and 12% of female sex workers (FSWs) who are PWID are HIV positive.\(^25\)\(^,\)\(^26\)

Tijuana accounts for a high proportion of Mexican migrants being deported from
the US. About 40% of all Mexican migrants deported from the U.S. are returned to Tijuana. Deportees are a structurally vulnerable population who are at increased risk for HIV infection given the multiple social and structural barriers (e.g., homelessness, economic vulnerability, stigma, barriers to access to healthcare) they face upon being deported, especially if they engage in injection drug use. Deported PWID commonly present a higher HIV risk profile compared to PWID without a deportation history, including injecting drugs and sharing needles more frequently than non-deportees. Deportees also more likely than non-deportees to try and inject new drugs or combinations of drugs, and less likely to perceive being at risk for HIV or seek HIV testing following their forceful return. The local community negatively perceives migrants and deportees, contributing to stigma and discrimination. Socio-cultural and visual markers associated with being ‘Americanized’ (e.g., tattoos, clothing, poor ability to communicate in Spanish) quickly differentiate deportees from ‘locals’. Deportees in Tijuana may also be more susceptible to police targeting and abuse, as visual markers may increase vulnerability to police profiling. Empirical evidence surrounding the relationship between deportation and police victimization among PWID in the border region is needed to inform policies surrounding policing behavior.

To guide our study we drew from sociological and criminology research. Labeling theory provides a useful framework for examining how law enforcement officials respond to structurally vulnerable populations. This perspective posits that labels (i.e., drug user, injection drug user, migrant, deportee) are attached to individuals or groups who share specific characteristics or engage in behaviors that are associated with that label. This in turn evokes stereotypes and beliefs associated with that label and influences how others react to and interpret their behaviors. Non-deviant behaviors may be perceived as deviant as a result of adverse labels. Utilizing this framework we
conceptualized four domains of factors that may be related to characteristics that may serve as physical markets that may result in being labeled a deportee or drug user and influence victimization experiences by police: (1) socio-demographic factors; (2) structural/environmental factors; (3) drug-using behaviors; and (4) economic factors. The objectives of this study were to: (1) determine whether deported PWID are more vulnerable to police victimization than non-deported PWID; and (2) identify factors associated with recent police victimization. We hypothesized that deportees would be more vulnerable to police victimization, compared to non-deportees. We also hypothesized that visual identifiers and characteristics that may facilitate police profiling within each of our domains will be associated with recent police victimization.

Methods

Study Design and Participants

Between 2011 to 2013, we recruited 733 PWID to participate in Proyecto El Cuete IV, a prospective observational cohort study examining the impact of the 2010 Mexican drug reform law on the drug use behaviors and HIV risk of PWID in Tijuana, Mexico. Briefly, eligible participants were adults aged 18 years or older; having evidence of injecting illicit drugs within the past month (confirmed via visual inspection of track marks or other physical markers of drug injection use); not planning to permanently move from the city over the next 24 months; and ability to speak Spanish or English. Participants were recruited through targeted sampling using street-based outreach. Trained outreach workers approached, engaged, and screened potential participants in a private setting. Eligible participants provided written informed consent before being enrolled into the study and were invited to complete the baseline interview immediately or rescheduled to return at a later date. Baseline questionnaires were administered in
Spanish or English by a trained interviewer using computer-assisted personal interviewing (CAPI) in a private setting. Participants received $20 USD for completing the baseline questionnaire. The Institutional Review Board of the University of California, San Diego and the Ethics Board of the Colegio de la Frontera Norte, Tijuana approved all study protocols.

Measures

Surveys elicited data on socio-demographics, migration history, lifetime and recent HIV risk behaviors, and experiences with police encounters, among other domains. We included all measures that fit within our theoretical framework. Socio-demographic measures included gender, age, marital status, born in Tijuana (yes vs. no), completed secondary school or higher, ability to speak English (ok/very well/fluently vs. not very well/not at all) and unable to speak Spanish (okay/very well/fluently vs. not at all/not very well). Structural/environmental factors included having lived in Tijuana one’s whole life (yes vs. no), years lived in Tijuana, homelessness in past 6 months, hours spent on the street on a typical day, ever traveled to the US (yes vs. no), ever lived in the US (yes vs. no), and number of deportations (lifetime).

Measures of drug-using behaviors included age of first injection drug use, first injection drug use was in Tijuana (yes vs. no), first injection drug use was in the US (yes vs. no), and ever used a hit doctor’s assistance to inject in the past 6 months (yes vs. no). Participants specified which drugs or combinations of drugs they injected in the past 6 months (i.e., heroin, cocaine, heroin and cocaine together, methamphetamine, methamphetamine and heroin together). Participants reported on the frequency of past 6 month receptive (i.e., ‘how often did you use a syringe that you knew or suspected that it had been used before by someone else’) and distributive (i.e., ‘how often did you give, rent, or lend a syringe that you already used to someone else’) needle sharing behaviors.
in Tijuana. Regarding economic factors, participants were asked whether their main source of income in the past year was from informal work or odd jobs (yes vs. no) and monthly annual income (dichotomized as ≥3500 pesos; ~$269 USD).

Our bivariate dependent variable ‘recent (i.e., past 6 month) police victimization’ was constructed by combining responses to the following eight variables related to problematic policing practices in the past 6 months: 1) asked for a bribe, 2) had money or valuables confiscated, 3) had legal identification documents confiscated, 4) had syringes confiscated, 5) been physically beaten (hit, punched, kicked), 6) had belongings burned or destroyed, 7) been forced to leave place of residency, and 8) asked for a sexual favor to avoid arrest. These variables were chosen based on previous findings on policing practices and HIV risk in Tijuana and international settings 2,5,15,19,22,24,41.

Analysis

We first conducted descriptive statistics to examine the relationship between recent police victimization and variables within the four domains of our theoretical framework. We then generated descriptive statistics for measures of types of police victimization experienced by participants that reported recent police victimization, stratifying by deportation status to test our hypothesis. Variables were tested for association using the Pearson Chi square (binary variables) and Wilcoxon Rank Sum (continuous variables) tests. Univariate logistic regressions models were generated to identify factors associated with recent police victimization. In building our final multivariate logistic regression model to identify factors independently associated with recent police victimization we considered all variables that attained a statistical significance at the p ≤0.10 level in univariate analyses and variables that were theoretically significant. We conducted sensitivity analyses for highly correlated variables.
by running each variable separately in our final model; no substantive differences were observed. All variables in our final model were tested for collinearity and interaction; collinearity and interaction between variables was not found.

**Results**

**Sample characteristics**

Among 733 participants, 414 (56%) reported experiencing recent police victimization in Tijuana (see Table 1). The majority of participants were male (62%) with an average age of 37.4 years (standard deviation (SD): 8.9). More than half (64%) of participants were non-Tijuana natives and had lived in the city for an average of 23 years (SD: 14). The majority (70%) had previously traveled to the US and more than half (59%) had previously lived in the US. Deportees made up a significant proportion of our sample: ~41% (n=299) of participants had been deported from the US.

**Factors associated with recent police victimization**

Univariate analyses identified factors associated with recent police victimization. Within our structural/environmental factors domain, participants who reported having lived in Tijuana their whole life (47% vs. 31%; p<0.001) and those with increasing years lived in Tijuana (25 vs. 21 mean years; p<0.001) were less vulnerable to police victimization. Participants who were homeless in the past 6 months (48% vs. 34%; p<0.001), spent increasing hours on the street (13.8 vs. 12.5 mean hours; p=0.008), and had been deported from the US (44% vs. 37%; p=0.047) were more likely to report experiencing recent police victimization. In terms of drug-using behaviors, PWID who initiated injection drug use at an earlier age (14.1 vs. 15.6 mean years; p<0.001) and were assisted by a ‘hit doctor’ when injecting drugs in the past 6 months (23% vs. 16%;
were also more likely to report prior 6-month experiences of police victimization. Persons who recently injected cocaine, cocaine and heroin together, methamphetamine, and methamphetamine and heroine together were also significantly more vulnerable to police victimization. Within the economic domain, PWID who earned a monthly income of ≥3500 pesos (~$269 USD) were more likely to be victimized by police in Tijuana in the past 6 months.

**Police targeting and victimization characteristics associated with deportation**

Table 2 displays characteristics of types of police victimization experiences among participants indicating recent police victimization, stratified by deportation status. Of the 414 PWID who reported recent police victimization, 44% (n=182) were deportees. On average, deported PWID were more likely to have been arrested a greater number of times (6.67 vs. 6.22 arrests; p=0.046) in the prior 6 months compared to non-deported PWID. We also found that in the past 6 months prior to being interviewed, deported PWID were less likely to have had their syringes confiscated (15% vs. 24%; p=0.028) and more likely to be forced to leave their place of residency (19% vs. 11%; p=0.003) by a law enforcement officer than their non-deported counterparts.

**Factors independently associated with recent experiences of police victimization**

In our final multivariate logistic regression model we identified factors independently associated with recent police victimization in Tijuana (Table 3). Within the socio-demographics domain, males were significantly more vulnerable than females to recent police victimization (Adjusted Odds Ratio (AOR): 1.86; 95% Confidence Interval (CI): 1.30-2.67). Within the structural/environmental domain, those with increasing years lived in Tijuana (AOR: 0.98 per year; 95% CI: 0.97-0.99) were less likely to be victimized
by police. Within the drug-using behaviors domain, PWID who initiated injection drug use at an earlier age (AOR: 0.96 per year; 95% CI: 0.92-0.99), had injected methamphetamine in the past 6 months (AOR: 1.62; 95% CI: 1.18-2.21), and had recently visited a ‘hit doctor’ to inject drugs (AOR: 1.56; 95% CI: 1.03-2.36) had increasingly greater odds of experiencing recent victimization by police in Tijuana. Economic environmental factors independently associated with increased odds of police victimization included having an average monthly income of ≥$3500 pesos (AOR: 2.21; 95% CI: 1.52-3.22).

**Discussion**

To our knowledge this is the first study to empirically examine the relationship between deportation and police victimization among PWID in the US-Mexico border region. We found that more than half of PWID in our sample (n=414, 56%) experienced police victimization in the past 6 months; among these 44% (n=182) were deportees. Contrary to our hypothesis, we did not find an independent association between deportation status and recent police victimization after controlling for other socio-demographic and contextual factors. However, when we examined measures of types of police victimization experienced by participants reporting recent police victimization by deportation status our analyses provide evidence of differential experiences among deported and non-deported PWID with police. These differential experiences may have important HIV implications. Notably, PWID with a history of deportation were more likely to be arrested a greater number of times in the past 6 months than their non-deported counterparts. Independent associations between greater number of arrests and HIV infection among PWID in Tijuana have been previously documented, and may contribute to deported PWID’s HIV risk. Our findings add an important contribution to the
limited evidence-base regarding the health vulnerabilities, including HIV risk, of deportees and deported PWID. Further, in line with our second hypothesis we also identified various structural/environmental, drug-using behaviors, and economic factors that may serve of physical markers that may result in an adverse label and increase PWID’s odds of experiencing police victimization in Tijuana. Following we examine the relevance of these factors in the context of our study framework.

Within the structural/environmental domain, PWID with fewer years lived in Tijuana, an indicator of being a recent migrant, were significantly more likely to experience recent victimization by police. Tijuana is a large urban city with more than 1.6 million residents. The city’s close proximity to the United States and economic opportunities have attracted internal migrants from poorer regions of Mexico; more than half (~52%) of Tijuana’s residents are migrants (i.e., born outside the state of Baja California). Tijuana also has a prominent re-settled population of migrants who have been deported from the US: ~135,000 Mexican migrants are deported to Tijuana annually. The majority of PWID in our study were non-Tijuana natives (62%), more than half (59%) had previously lived in the US, and 41% had ever been deported. Tijuana natives commonly perceive migrants as the cause of prevailing social problems including increasing rates of crime, drug use, and HIV/STIs. Independent associations between US deportation and migration and incarceration among male PWID in Tijuana have been previously documented. Socio-cultural and visual differences (e.g., clothing, speech) may quickly distinguish migrants. Recent migrants and deportees who are PWID in Tijuana may be less acclimated to the local culture and environment, thus quickly identifiable and vulnerable to police abuse.

We identified three factors related to drug-using behaviors that were positively associated with experiencing recent police victimization: younger age of first injection
drug use, recent (i.e., past 6 month) injection of methamphetamine, and recent use of a hit doctor. Having injected drugs at an earlier age suggests a longer history of drug injection use and greater risk exposure to infections. On average, participants in our study began injecting drugs at age 14 and had been injecting drugs for >20 years. Repeated injection of drugs can cause the skin to scar, become discolored, and produce lesions (‘track marks’) along the length of the vein. These physical markers of drug injection use may serve as visual aids for police and contribute to increased susceptibility to profiling and maltreatment. Past studies have linked ‘track marks’ with increased arrests and adverse experiences with local police. Recent injection of methamphetamine significantly increased PWID’ odds of experiencing police victimization. Injection of methamphetamine among PWID in our study was high: in the past 6 months prior to being interviewed, ~56% (n=408) of participants injected methamphetamine only and 70% (n=510) injected it in combination with heroin. Rates of methamphetamine use have been increasing along the US-border region, and use of this drug is especially pervasive in Tijuana compared to other border cities. Use of methamphetamine can negatively impact one’s physical health resulting in extreme weight loss, tooth decay (i.e., ‘meth mouth’), and skin sores/lesions; mental (i.e., paranoia, anxiety, hallucinations) and behavioral (i.e., aggressiveness, violence) symptoms are also common. Such physical characteristics can serve as visual indicators for police to rapidly identify and target drug users.

We found that recently seeking injection assistance from a hit doctor was positively associated with police victimization. Hit doctors are commonly sought out by PWID for their injection skills and operate out of shooting galleries (i.e., abandoned buildings, alleyways, hidden rooms). More than 200 shooting galleries are estimated to be operating in Tijuana. Our finding that PWID who had experienced
recent police victimization were more likely to use a hit doctor is supported by prior research documenting independent associations between previous arrests for carrying unused needles/syringes and seeking injection assistance (i.e., hit doctor) among PWID in Tijuana.  

This finding can be interpreted in two ways. PWID with adverse experiences with police may decide to inject in shooting galleries and seek hit doctors as a strategy to avoid police encounters. Alternatively, new research shows that police in Tijuana routinely target local public spaces known to be areas where drug users live or congregate. Drugs users in Tijuana are highly vulnerable and easy targets for local police seeking to meet arrest quotas. Law enforcement officers make frequent visits to the Tijuana River, the Red Light District, and needle exchange programs where drug users can easily be found. Close monitoring of shooting galleries throughout the city by police may also be occurring. PWID seeking hit doctors for assistance with injections may increase their likelihood of coming in contact with local law enforcement and ensuing victimization. Our cross-sectional data does not allow us to determine the causality of this relationship, which warrants future research to better understand this relationship.

Within the economic factors domain, PWID who earned an average monthly income of ≥3500 pesos (~$271 USD) had more than twice the odds of having experienced a police victimization encounter in the past 6 months. According to the Mexican National Survey on Occupation and Employment, approximately half of all employed persons in Baja California work in the informal sector. In Tijuana, as in other cities throughout the world, structurally vulnerable populations (e.g., migrants, deportees, drug users) are commonly excluded from formal employment as a result of various structural and social conditions (e.g., stigma, homelessness, lacking legal identification documents). Thus, many structurally vulnerable persons resort to
working in the informal economy (e.g., street vendors and odd jobs), which may also include high-risk activities such as trading sex and selling drugs. More than half (61%, n=446) of our study participants’ main source of annual income came from informal work or odd jobs. Our findings suggest that police may particularly target spaces where PWID work. Employment in the informal sector may ultimately increase PWID’ visibility in the streets and increase their chances of encountering police.

Some limitations should be considered when evaluating our findings. Participants were recruited via nonrandom sampling strategies; findings may not be generalizable to all PWID in Tijuana or elsewhere. The cross-sectional data does not allow us to infer causal inferences between findings (e.g., recent use of a hit doctor and police victimization). Given the sensitive information regarding experiences with police and drug use behaviors, experiences and some activities may have been under-reported. Important efforts to reduce such bias were utilized, such as using highly trained interviewers who are comfortable interacting with participants in a nonjudgmental manner to increase rapport. Lastly, we lacked contextual data on police victimization events and PWID’s participation in crime-related activities, which would have enhanced our understanding of police victimization in Tijuana.

This study yields new information regarding factors associated with increased vulnerability to police victimization among a high-risk population of PWID in Tijuana, Mexico. Problematic policing practices are an important environmental driver that may significantly increase the risk of acquiring HIV among PWID in Tijuana. In Tijuana, independent associations between frequent arrests for having track marks have been linked to HIV infection among PWID. Qualitative research indicates that migrants and deportees, including PWID, in Tijuana and Ciudad Juarez commonly report past adverse experiences with police. US migrants or deported PWID in Tijuana are
significantly more likely to have been incarcerated than non-migrants. PWID who have been deported have four times the odds of being HIV positive than non-deported PWID. Police targeting and abuse may be contributing to these populations’ elevated HIV risk.

Understanding factors that increase susceptibility to police victimization is imperative in designing effective interventions aimed at mitigating HIV risk in this region. Monitoring and reduction of abusive law enforcement policing practices may help reduce future HIV incidence among PWID. Such interventions should consider PWID’s migration status, drug-using behaviors (including types of drugs), and economic status. Increased partnerships and collaboration between public health agencies and law enforcement may facilitate the adoption of preventive behaviors among PWID, as documented elsewhere. Police education programs that incorporate topics of harm reduction and HIV prevention are currently underway in Tijuana. Additional evaluation of Mexican/Tijuana’s police training programs is needed to determine whether this is an effective strategy to mitigate HIV risk among PWID in Tijuana.

Acknowledgments

Research reported in this publication was supported by the Fogarty International Centre of the National Institutes of Health under Award Number D43TW008633 and R25TW009343; the National Institutes of Health - National Institute on Drug Abuse grants K01DA025504, R37DA019829, and R37DA019829-S1; the National Institute on Mental Health grant K01MH095680; and the University of California Global Health Institute. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

Chapter 3, in part, has been submitted for publication of the material as it may appear in the Journal of Studies on Alcohol and Drugs: Pinedo M, Burgos JL, Zuñiga ML,
Perez R, Macera CM, Ojeda VD: Police victimization among persons who inject drugs along the US-Mexico border. Miguel Pinedo was the primary investigator and author of this paper.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Total (n=733)</th>
<th>No (n=319, 44%)</th>
<th>Yes (n=414, 56%)</th>
<th>P-value</th>
<th>Odds Ratio</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Socio-demographics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Gender (male)</td>
<td>456 (62%)</td>
<td>178 (56%)</td>
<td>278 (67%)</td>
<td>0.002</td>
<td>1.62</td>
<td>1.20 - 2.19</td>
</tr>
<tr>
<td>Mean age (SD)</td>
<td>37.4 (8.9)</td>
<td>38.1 (9.1)</td>
<td>36.9 (8.7)</td>
<td>0.166</td>
<td>0.98</td>
<td>0.96 - 1.00</td>
</tr>
<tr>
<td>Not born in Tijuana</td>
<td>467 (64%)</td>
<td>198 (62%)</td>
<td>269 (65%)</td>
<td>0.417</td>
<td>1.14</td>
<td>0.84 - 1.54</td>
</tr>
<tr>
<td>Married/Common law</td>
<td>333 (45%)</td>
<td>141 (44%)</td>
<td>192 (46%)</td>
<td>0.557</td>
<td>1.09</td>
<td>0.81 - 1.46</td>
</tr>
<tr>
<td>Completed secondary school or higher</td>
<td>292 (49%)</td>
<td>118 (37%)</td>
<td>174 (42%)</td>
<td>0.167</td>
<td>1.23</td>
<td>0.91 - 1.67</td>
</tr>
<tr>
<td>Speaks English (okay/very well/fluently)</td>
<td>288 (39%)</td>
<td>109 (34%)</td>
<td>179 (43%)</td>
<td>0.013</td>
<td>1.47</td>
<td>1.08 - 1.98</td>
</tr>
<tr>
<td>Does not speak Spanish (not very well/not at all)</td>
<td>102 (14%)</td>
<td>46 (14%)</td>
<td>56 (14%)</td>
<td>0.729</td>
<td>0.93</td>
<td>0.61 - 1.43</td>
</tr>
<tr>
<td><strong>Structural/Environmental Factors</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Lived in Tijuana whole life</td>
<td>276 (38%)</td>
<td>149 (47%)</td>
<td>127 (31%)</td>
<td>&lt;0.001</td>
<td>0.50</td>
<td>0.37 - 0.68</td>
</tr>
<tr>
<td>Years lived in Tijuana (SD)</td>
<td>23 (14)</td>
<td>25 (15)</td>
<td>21 (13)</td>
<td>&lt;0.001</td>
<td>0.98</td>
<td>0.96 - 0.98</td>
</tr>
<tr>
<td>Homeless in past 6 months</td>
<td>307 (42%)</td>
<td>107 (34%)</td>
<td>200 (48%)</td>
<td>&lt;0.001</td>
<td>1.85</td>
<td>1.37 - 2.50</td>
</tr>
<tr>
<td>Mean hours spent on the street on a typical day (SD)</td>
<td>13.3 (6.8)</td>
<td>12.5 (7.1)</td>
<td>13.8 (6.6)</td>
<td>0.008</td>
<td>1.02</td>
<td>1.01 - 1.05</td>
</tr>
<tr>
<td>Ever traveled to the US</td>
<td>513 (70%)</td>
<td>214 (67%)</td>
<td>299 (72%)</td>
<td>0.132</td>
<td>1.28</td>
<td>0.92 - 1.75</td>
</tr>
<tr>
<td>Ever lived in the US</td>
<td>434 (59%)</td>
<td>177 (55%)</td>
<td>257 (62%)</td>
<td>0.072</td>
<td>1.31</td>
<td>0.98 - 1.76</td>
</tr>
<tr>
<td>Ever deported from the US</td>
<td>299 (41%)</td>
<td>117 (37%)</td>
<td>182 (44%)</td>
<td>0.047</td>
<td>1.35</td>
<td>1.01 - 1.82</td>
</tr>
<tr>
<td>Mean number of deportations from the US</td>
<td>1.3 (3.6)</td>
<td>1.0 (2.1)</td>
<td>1.6 (4.3)</td>
<td>0.034</td>
<td>1.05</td>
<td>0.99 - 1.12</td>
</tr>
<tr>
<td><strong>Drug-using Behaviors</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Mean age of first injection drug use (SD)</td>
<td>14.7 (4.4)</td>
<td>16.5 (4.7)</td>
<td>14.1 (4.1)</td>
<td>&lt;0.001</td>
<td>0.92</td>
<td>0.88 - 0.95</td>
</tr>
<tr>
<td>First injection drug use was in Tijuana</td>
<td>476 (65%)</td>
<td>213 (67%)</td>
<td>263 (64%)</td>
<td>0.361</td>
<td>0.97</td>
<td>0.87 - 1.18</td>
</tr>
<tr>
<td>First injection drug use was in the US</td>
<td>197 (27%)</td>
<td>79 (25%)</td>
<td>118 (29%)</td>
<td>0.258</td>
<td>1.21</td>
<td>0.87 - 1.69</td>
</tr>
<tr>
<td>Past 6 month injection drug use</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Heroin</td>
<td>697 (95%)</td>
<td>305 (96%)</td>
<td>392 (94%)</td>
<td>0.565</td>
<td>0.81</td>
<td>0.41 - 1.62</td>
</tr>
<tr>
<td>Cocaine</td>
<td>334 (46%)</td>
<td>102 (32%)</td>
<td>232 (56%)</td>
<td>&lt;0.001</td>
<td>2.71</td>
<td>1.99 - 3.67</td>
</tr>
<tr>
<td>Heroin &amp; cocaine together</td>
<td>390 (53%)</td>
<td>123 (39%)</td>
<td>267 (64%)</td>
<td>&lt;0.001</td>
<td>2.89</td>
<td>2.13 - 3.91</td>
</tr>
<tr>
<td>Methamphetamine</td>
<td>408 (56%)</td>
<td>150 (47%)</td>
<td>258 (62%)</td>
<td>&lt;0.001</td>
<td>1.86</td>
<td>1.38 - 2.51</td>
</tr>
<tr>
<td>Methamphetamine &amp; heroin together</td>
<td>510 (70%)</td>
<td>181 (57%)</td>
<td>329 (79%)</td>
<td>&lt;0.001</td>
<td>2.95</td>
<td>2.13 - 4.08</td>
</tr>
<tr>
<td>Past 6 month needle sharing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receptive needle sharing</td>
<td>523 (71%)</td>
<td>193 (61%)</td>
<td>329 (80%)</td>
<td>&lt;0.001</td>
<td>2.56</td>
<td>1.84 - 3.56</td>
</tr>
<tr>
<td>Distributive needle sharing</td>
<td>529 (72%)</td>
<td>198 (62%)</td>
<td>331 (80%)</td>
<td>&lt;0.001</td>
<td>2.44</td>
<td>1.75 - 3.39</td>
</tr>
<tr>
<td>Injects more than once a day</td>
<td>670 (91%)</td>
<td>289 (91%)</td>
<td>381 (92%)</td>
<td>0.492</td>
<td>1.20</td>
<td>0.71 - 1.80</td>
</tr>
<tr>
<td>Has used a hit doctor to inject in the past 6 months</td>
<td>149 (20%)</td>
<td>52 (16%)</td>
<td>97 (23%)</td>
<td>0.017</td>
<td>1.57</td>
<td>1.08 - 2.28</td>
</tr>
<tr>
<td><strong>Economic Factors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main source of annual income is from informal work/odd jobs</td>
<td>446 (61%)</td>
<td>182 (57%)</td>
<td>264 (64%)</td>
<td>0.065</td>
<td>1.32</td>
<td>0.98 - 1.78</td>
</tr>
<tr>
<td>Average monthly income ≥3500 pesos</td>
<td>200 (27%)</td>
<td>58 (18%)</td>
<td>142 (34%)</td>
<td>&lt;0.001</td>
<td>2.34</td>
<td>1.66 - 3.33</td>
</tr>
</tbody>
</table>
Table 3.2. Characteristics of participants who have experienced police victimization in the past 6 months by deportation status, N=414, Tijuana, Mexico, 2013.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total (n=414)</th>
<th>Non-deportee (n=232, 56%)</th>
<th>Deportee (n=182, 44%)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Past 6 month police contact</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stopped by a law enforcement officer</td>
<td>406 (98%)</td>
<td>227 (98%)</td>
<td>179 (98%)</td>
<td>0.710</td>
</tr>
<tr>
<td>Arrested in the past 6 months</td>
<td>304 (73%)</td>
<td>165 (71%)</td>
<td>139 (76%)</td>
<td>0.230</td>
</tr>
<tr>
<td>Mean number of times arrested in past 6 months (SD)</td>
<td>6.42 (14.5)</td>
<td>6.22 (16.6)</td>
<td>6.67 (11.4)</td>
<td>0.046</td>
</tr>
<tr>
<td><strong>Past 6 month police victimization experiences</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asked for a bribe</td>
<td>296 (72%)</td>
<td>158 (68%)</td>
<td>138 (76%)</td>
<td>0.084</td>
</tr>
<tr>
<td>Had money or valuables confiscated</td>
<td>242 (58%)</td>
<td>137 (59%)</td>
<td>105 (58%)</td>
<td>0.781</td>
</tr>
<tr>
<td>Had ID confiscated</td>
<td>105 (25%)</td>
<td>65 (28%)</td>
<td>40 (22%)</td>
<td>0.161</td>
</tr>
<tr>
<td>Had syringes confiscated</td>
<td>84 (20%)</td>
<td>56 (24%)</td>
<td>28 (15%)</td>
<td>0.028</td>
</tr>
<tr>
<td>Been physically beaten (hit, punched, kicked)</td>
<td>148 (36%)</td>
<td>86 (38%)</td>
<td>62 (35%)</td>
<td>0.543</td>
</tr>
<tr>
<td>Had belongings burned or destroyed</td>
<td>70 (17%)</td>
<td>37 (16%)</td>
<td>33 (18%)</td>
<td>0.545</td>
</tr>
<tr>
<td>Been forced to leave the place where you live</td>
<td>60 (15%)</td>
<td>26 (11%)</td>
<td>34 (19%)</td>
<td>0.003</td>
</tr>
<tr>
<td>Asked to have sex with police officer to avoid arrest</td>
<td>11 (3%)</td>
<td>8 (3%)</td>
<td>3 (2%)</td>
<td>0.258</td>
</tr>
</tbody>
</table>
Table 3.3. Factors independently associated with police victimization in the past 6 months among persons who inject drugs in Tijuana, Mexico, N=733, 2013.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Adjusted Odds Ratio</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Socio-demographics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender (male)</td>
<td>1.86</td>
<td>1.30 - 2.67</td>
</tr>
<tr>
<td><strong>Structural/Environmental Factors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years lived in Tijuana</td>
<td>0.98</td>
<td>0.97 - 0.99</td>
</tr>
<tr>
<td>Hours spent on the street</td>
<td>1.02</td>
<td>1.00 - 1.05</td>
</tr>
<tr>
<td>Ever deported from the US</td>
<td>1.02</td>
<td>0.73 - 1.42</td>
</tr>
<tr>
<td><strong>Drug-using Behaviors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age of first injection drug use</td>
<td>0.96</td>
<td>0.92 - 0.99</td>
</tr>
<tr>
<td>Past 6 month injection drug use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methamphetamine</td>
<td>1.62</td>
<td>1.18 - 2.21</td>
</tr>
<tr>
<td>Has used a hit doctor to inject in the past 6 months</td>
<td>1.56</td>
<td>1.03 - 2.36</td>
</tr>
<tr>
<td><strong>Economic Factors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average monthly income ≥3500 pesos</td>
<td>2.21</td>
<td>1.52 - 3.22</td>
</tr>
</tbody>
</table>
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CHAPTER 4: Depressive symptoms among deported PWID in Mexico

Title: Correlates of depressive symptoms among deportees who inject drugs in the US-Mexico border region

Authors: Pinedo, Miguel; Burgos, Jose Luis; Zúñiga, María Luisa; Perez, Ramona; Macera Caroline A; Ojeda, Victoria D

1 Joint Doctoral Program in Public Health, San Diego State University and University of California San Diego (SDSU/UCSD), San Diego, CA, USA
2 Division of Global Public Health, Department of Medicine, University of California, San Diego
3 School of Social Work, San Diego State University
4 Department of Anthropology, San Diego State University
5 School of Public Health, San Diego State University

Abstract

Objective

Persons who inject drugs (PWID) in Tijuana, a city on the US-Mexico border, are at increased risk for HIV, especially deported PWID. Poor mental health is a predisposing factor to HIV. The relationship between deportation and mental health is poorly understood. This study describes the prevalence and factors of depressive symptoms among a sample of deported PWID in Tijuana, Mexico.

Methods

In 2014-2015, 132 deported PWID participating in a longitudinal observational study responded to a questionnaire specific to deportation, post-deportation experiences, HIV risk, and mental health. Depressive symptoms were measured using the Center for
Epidemiologic Studies Short Depression Scale (CESD-10) screening instrument. Eligible participants were ≥18 years old, injected drugs in the past month, spoke English or Spanish, and resided in Tijuana. Multivariate analyses identified factors associated with depressive symptoms.

**Results**

Almost half (45%, n = 60) of deported PWID reported current symptoms of depression. Deported PWID who were initially detained in the U.S. for a crime-related reason before being deported (Adjusted Odds Ratio (AOR): 5.27; 95% Confidence Interval (CI): 1.79-15.52) and who perceived needing help with their drug use (AOR: 2.15; 95% CI: 1.01-4.61) had significantly higher odds of reporting depressive symptoms.

**Conclusions**

We found an elevated prevalence of depressive symptoms among deported PWID than what is commonly found among the general Mexican population. Access to mental health services for deported PWID’s may be an important HIV prevention effort. Our findings highlight the need for effective strategies to treat mental health and drug abuse in tandem in Tijuana.
Introduction

The mental health status of deportees is poorly understood. Mexican migrants comprise the largest deportation population and represent 64-75% of all United States (US) deported migrants annually.\textsuperscript{1,2} Studies suggest that returned migrants (i.e., migrants with US-migration experience) in Mexico are vulnerable to mental health problems compared to non-migrants, including higher rates of depression, anxiety, and substance abuse and dependence.\textsuperscript{3-6} However, little is known about the mental health vulnerabilities of deported Mexican migrants in Mexico. One study conducted among a representative, probability sample of deportees in the US-Mexico border region of Baja California found that deported migrants had a higher prevalence of mental health problems compared to the general population in Mexico.\textsuperscript{7} This study was limited in that mental health was measured at the time of deportation and could not account for the period following deportation. Limited data suggest that deportees experience multiple difficulties as they re-incorporate into Mexican society, including barriers to employment, housing, and access to care.\textsuperscript{1,8} Such conditions may have important mental health consequences for deportees.

Deportees' social and physical experiences with their new environments may impact their mental and emotional health. They are often unfamiliar with the environments in which they are forcefully inserted and may lack familial, social, and cultural ties to their native country.\textsuperscript{1,8,9} Lengthy US residencies ranging from 9-13 years are commonly reported by deportees; some were brought to the US as minors by their migrant parents.\textsuperscript{1,10,11} Consequently, many deportees identify the US as their home.\textsuperscript{10-12} Mexican migrants are frequently deported to Mexican cities along the US-Mexico border, where stigma and discrimination against migrants and deportees is significant.\textsuperscript{1,13} Local
communities are aware of US immigration policies that target migrants with criminal backgrounds and commonly associate deportees with crime, drug use, and violence.\textsuperscript{1} Deportees are socially rejected from their new environments and may experience sentiments of displacement leading to feelings of not being ‘at home’ or ‘belonging’ in their native country.\textsuperscript{1,14} Deportees’ emotional health is also interconnected with the social conditions of their new surroundings.

Physical environments may shape deportees’ mental health. The primary deportee receiving community is the US-bordering city of Tijuana. Between 2010 and 2013, Tijuana received over 316,000 Mexican deportees.\textsuperscript{15-18} Tijuana is a city where drug use, injection drug use, sex work, and violence are prevalent.\textsuperscript{19,20} Persons who inject drugs (PWID) in this region are at increased risk for HIV, tuberculosis, and other blood-borne infections.\textsuperscript{20-26} Deported PWID in Tijuana consistently display higher engagement in HIV risk behaviors (e.g., sharing needles, injecting at higher frequencies) as compared to non-deported PWID.\textsuperscript{1} Deported PWID have four times the independent odds of being HIV positive compared to their non-deported counterparts.\textsuperscript{25} In qualitative studies in Tijuana, deportees have attributed their poor emotional state as the reason for their participation in high-risk activities, including drug relapse, experimenting with new drugs, transitioning to injection drug use, and paying for sex.\textsuperscript{1,27-30} Deportees also perceive these high-risk behaviors as more socially acceptable and available in Tijuana compared to the US.\textsuperscript{27-30} Poor mental health is a predisposing factor to HIV for PWID.\textsuperscript{31-33} The mental health of deported PWID has not been empirically assessed.

To guide our study of mental health among deported PWID in Tijuana we drew from an ecological model of health that considers the interaction between individuals and their social and physical environments to effect health status.\textsuperscript{34,35} Individual health is largely shaped by the complex interaction between interconnected relationships and
experiences occurring at various environmental levels: individual, interpersonal, social, structural, and policy. Using this model we conceptualized four domains that may influence the mental health of deported PWID in Tijuana, including: socio-demographics, individual risk behaviors, social factors, and structural factors. Given the paucity of empirical data examining the relationship between deportation and mental health, our study objective was to describe the prevalence and factors of depressive symptoms among a sample of Mexican deported PWID residing in Tijuana, Mexico. We also report on the deportation and post-deportation characteristics of our sample. We hypothesized that: (1) deported PWID who report depressive symptoms will be more likely to engage in high-risk injection practices (e.g., sharing syringes, use a hit doctor) than PWID who do not report depressive symptoms; and (2) social and structural factors that may act as barriers to re-incorporate into Mexican society will be associated with depressive symptoms.

**Methods**

**Study Design and Participants**

Between 2012 and 2014, a cohort of PWID residing in Tijuana were enrolled into a longitudinal prospective observational study (parent study) investigating the impact of the 2010 Mexican drug reform law on the drug use behaviors and HIV risk of PWID in Tijuana.\textsuperscript{36} Study design and methodological procedures have been previously described in great detail.\textsuperscript{36} PWID were recruited via targeted sampling using street-based outreach. To be eligible participants had to be ≥18 years old, report injection drug use in the past month (confirmed through visual inspection of physical markers of injection drug use), speak English or Spanish, and reside in Tijuana with no intentions of moving within the next 2 years. Those who met eligibility criteria provided written informed consent before
being enrolled. Enrolled participants completed a structured questionnaire in a private setting administered by a trained interviewer using computer-assisted personal interviewing (CAPI) at baseline and at 6-month follow up visits. All participants received a $20 USD incentive as compensation for their time per visit. The present analysis is limited to data collected during follow up visit 7 (n = 369), collected in 2014-2015. At follow up visit 7, participants who reported ever being deported from the US responded to a supplemental questionnaire specific to deportation and post-deportation experiences. This study excludes participants who reported never being deported from the US (n = 237), resulting in a final sample of 132 deported PWID. All study protocols were approved by the Institutional Review Board of the University of California, San Diego (UCSD) and the Ethics Board of the Colegio de la Frontera Norte, Tijuana approved all study protocols.

**Measures**

Participants completed a structured questionnaire assessing socio-demographics, drug use behaviors, sexual risk behaviors, migration and deportation experiences, and post-deportation experiences, among other domains. PWID with more than one US deportation were asked to reflect on their most recent deportation experience. Socio-demographic characteristics included gender, age, marital status, educational attainment (dichotomized as having completed secondary school or higher vs. not), ability to speak English (dichotomized as fluently/very well/ vs. okay/not at all), and ability to speak Spanish (dichotomized as fluently/very well vs. okay/not at all).

Participants were asked to report on contextual characteristics of their most recent deportation, including total number of US deportations, years since their last US deportation, what state they were living in immediately before being deported
(dichotomized as California vs. another State), who initially detained them (e.g., border patrol/immigration officer, local police, highway patrol, other), and the main reason for their most recent detainment (e.g., already in prison, immigration raid, apprehended while crossing the border, caught committing a drug-related crime, caught committing a non-drug related crime such as robbery or assault, traffic violation). Participants were also asked what Mexican city they were deported to and the main reason for moving or remaining in Tijuana post-deportation. Additionally, participants were asked about their post-deportation needs, including places slept in the first month of being deported (e.g., family/friend’s house, rented room or apartment, Tijuana River Canal, a hotel, on the street), and which service would have been most useful following their most recent deportation (e.g., help communicating with family members in the US and/or Mexico, assistance with finding employment, occupational training programs, health services and access to care, or assistance with obtaining legal Mexican identification documents).

Measures of individual risk behaviors included age of first injection drug use, receptive/distributive needle sharing in the past 6 months (yes vs. no), frequency of drug injection per day (dichotomized as more than twice a day vs. once or less), having used a hit doctor to inject drugs in the past 6 months (yes vs. no), traded sex in the past 6 months in exchange for anything such as money, drugs, alcohol, shelter, food transportation or protection (yes vs. no), and had sex while drunk (or within 2 hours of being drunk) or has had sex while on drugs (or within 2 hours of being on drugs) in the past 6 months (dichotomized as yes vs. no). Social factors included hours spent on the street on a typical day, whether family members had shown contempt/rejection because of their drug use (yes vs. no), feelings of concern about personal safety in Tijuana in past 6 months (yes vs. no), and currently perceives needing help with drug use (dichotomized as no need vs. urgent/great/some). We created a variable to account for
deportation stemming from a crime-related activity. Participants were characterized as being deported for a crime-related activity if they reported being initially detained for a drug-related reason (e.g., using drugs, selling drugs) or a non-drug related crime (e.g., robbery, assault) before being deported versus other reasons (e.g., apprehended at the border, immigration raid). A variable to account for past 6-month police victimization experiences was also created by combining affirmative responses to the following police encounters in the prior 6 months: asked for a bribe, had money or valuables confiscated, had legal identification documents confiscated, had syringes confiscated (carrying a syringe is legal in Mexico), was physically beaten (hit, punched, kicked), had belongings burned or destroyed, was forced to leave place of residency, and asked for a sexual favor to avoid arrest. These variables were chosen based on previous findings on problematic policing practices among vulnerable populations in Tijuana that have been linked with HIV risk.\textsuperscript{24,26,37-41} Variables related to structural factors included Tijuana native (yes vs. no), having an official Mexican identification document (e.g., Mexican birth certificate or Electoral Voter Card; yes vs. no), homelessness in the past 6 months (yes vs. no), having been arrested in the past 6 months (yes vs. no), and having been in jail in the past six months (yes vs. no).

Our dependent variable was determined by the Center for Epidemiologic Studies Short Depression Scale (CESD-10).\textsuperscript{42} This is a 10-item screening instrument that has demonstrated high reliability and validity for identifying current (past week) depressive symptomatology related to major or clinical depression in adults, including Latino populations, Mexican/Latino migrants, and PWID and deportees in Mexico.\textsuperscript{43-45} Question items refer to past week feelings of depressive mood and behaviors, including feelings of guilt, worthlessness and helplessness, depressive mood, psychomotor impairment, and loss of appetite and sleep difficulties. A summary score ranging from 0 to 30 points is
calculated with a cut off score of 10 points or higher indicating the presence of depressive symptoms. Cronbach's alpha for the CESD-10 items used in this study was 0.79. We dichotomized our dependent variable 'depressive symptoms' (yes vs. no); participants who scored ≥10 points on the CESD-10 were characterized as having depressive symptoms.

**Analysis**

We generated descriptive statistics for independent variables within our four domains (socio-demographics, individual risk behaviors, social factors, and structural factors) stratified by depressive symptoms. Associations between independent variables and our dependent variable were explored using Pearson Chi-square and Wilcoxon Rank Sum tests for dichotomous and continuous variables, respectively. We conducted exact logistic regression models in univariate analyses to compare participants with depressive symptoms to participants with no depressive symptoms. In building our final multivariate logistic regression model we considered independent variables that were associated with our dependent variable at p<0.05 in univariate logistic regression models. Variables being considered tested for collinearity and interaction; no evidence of collinearity or interaction was found. The final model was built using a manual selection process, retaining statistically significantly associated variables. We controlled for gender as a possible confounder. Lastly, descriptive frequencies were generated to describe the deportation and post-deportation characteristics of PWID in our study.

**Results**

*Sample characteristics*
Deported PWID were primarily male (80%) with a median age of 41 years, 42% were married or had a common law partner (Table 4.1). Education attainment was low; only 46% completed secondary education or higher, 31% spoke English and 13% did not speak Spanish. The majority were non-Tijuana natives (67%) and had lived in the US a median total of 13 years (Inter-Quartile Range (IQR): 0-50 years). Half had been homeless in the past 6 months and 57% currently had consistent work to cover their basic daily needs. Deported PWID in our study reported initiating injection drug use at a median age of 14 years (IQR: 5-36 years). A high proportion of deportees reported past 6-month risk behaviors including receptive/distributive needle sharing (63%), injecting drugs more than twice a day (62%), and having sex while drunk or on drugs (52%). PWID spent a median of 10 hours (IQR: 0-24 hours) on the street on a typical day and 39% had experienced police victimization in the past 6 months.

*Univariate associations with depressive symptoms among deported PWID*

Almost half (45%, n =60) of deported PWID reported current depressive symptoms as based on the CES-D thresholds (Table 4.1). Univariate analyses identified factors associated with depressive symptoms. Within our *individual risk* behaviors domain, deported PWID who engaged in receptive/distributive needle sharing had increased odds (Odds Ratio (OR): 2.68; 95% Confidence Interval (CI): 1.27-5.65) of currently experiencing symptoms of depression. *Social factors* positively associated with depressive symptoms included being initially detained for a crime-related reason before being deported (OR: 2.97; 95% CI: 1.45-6.06) and currently perceived needing help with their drug use (OR: 6.21; 95% CI: 2.21-17.49). In the context of social factors, deportees had higher odds of reporting depressive symptoms if they were homeless within the past 6 months (OR: 2.39; 95% CI: 1.18-4.81).
Factors independently associated with depressive symptoms among deported PWID

In multivariate logistic regression analyses (Table 4.2), two variables within our social factors domain were independently associated with experiencing current symptoms of depression: Being initially detained for a crime-related reason before being deported (Adjusted odds ratio (AOR): 5.27; 95% CI: 1.79-15.52) and currently perceiving needing help with drug use (AOR: 2.15; 95% 1.01-4.61).

Deportation and post-deportation characteristics of deported PWID

Table 4.2 displays deportation and post-deportation characteristics of deported PWID in our sample. Participants experienced a median of 1 deportation (IQR: 1-20) with a median 10 years since their last deportation (IQR: 1-34). The majority lived in California (94%) prior to deportation. Before being deported, most common reasons for initially being detained included drug (38%) or crime-related offenses (16%); 12% were apprehended at the border. Deportees were most frequently returned to Mexican cities on the US-Mexico border; Tijuana (64%) was the primary deportee receiving community.

Regarding the post-deportation context, within the 30 days of having been deported, deportees most commonly slept in a family/friend’s house (48%) or rented room or apartment (27%) in the first month post-deportation. A small minority reported sleeping in the Tijuana River Canal (9%), a hotel (7%), or on the street (5%). Most frequently reported reasons for staying in Tijuana included: originally from Tijuana (31%), not having family or friends in other areas of Mexico (21%), and intentions to cross the border to the US (18%). Deported PWID identified services that would have been useful following deportation; common responses included: help communicating with family members in the US and/or Mexico (69%), assistance with finding employment (29%),
occupational training programs (28%), health services and health access (e.g., Seguro Popular) (21%), and assistance with obtaining legal Mexican identification documents (17%).

Discussion

This study reports on the prevalence and correlates of depressive symptoms among Mexican PWID who have been deported from the United States. We found that among 132 deported PWID in our sample, 45% reported experiencing current depressive symptoms. To our knowledge this is the first study to explore the mental health of deported PWID in Mexico and provides an important contribution to the scant data regarding health vulnerabilities of deportees, including mental health and drivers of HIV. The prevalence of depressive symptoms we found coincides with a recent study of street-based migrants (n = 802) in Tijuana, Mexico that found that 59% of deported migrants met criteria for clinical depression using the same CESD-10 screening instrument as our study. In contrast, another study among recently deported migrants (n = 1,690) in the northern US-Mexico border found a significantly lower prevalence of common mental disorders among male deportees (12%). However, our study population of deportees differs from this study in that all participants were PWID and not recent deportees—participants had been deported a median of 10 years prior. Significant differences in relation to mental health between recent and established deportees may exist. However, this has not been studied systematically, resulting in a pivotal scientific gap in understanding how the mental health of deportees evolves following deportation. Importantly, our high prevalence of depressive symptoms significantly exceeds the national prevalence of depression among the general Mexican population 18 to 65 years of age, which ranges from 12% to 20%.
Our study identified two social factors associated with experiencing current symptoms of depression. Deported PWID who were initially detained for a crime-related activity before their most recent deportation and those who currently perceived needing help with their drug use had significantly higher odds of reporting current depressive symptoms. US deportation policies increasingly target migrants with drug and criminal histories. A 2010 study that recruited a convenience sample of 3,457 male deportees in Tijuana found that deportation for alcohol- and drug-related activities was common. Similarly, deportation stemming from criminal and drug use offenses was high in our study. Persons suffering from mental disorders and minorities, including Latinos, are overrepresented in the US criminal justice system. Deportees with criminal backgrounds represent a vulnerable segment of the Latino population in the US who are at increased risk for poor mental health outcomes even before deportation. Further research is warranted to better understand the relationship between pre-deportation contexts and mental health in post-deportation settings.

We found that deportees who perceive needing help with their drug use were more likely to report depressive symptoms; this stage of interest in drug treatment services represents a critical point of intervention. Substance abuse and mental health disorders often co-occur; persons with drug use histories are at increased risk for depression and other mental health disorders. Individuals with a sense of concern over their own health may be more apt and open to receiving mental health treatment. In such cases, treatment may be more successful. However, it is important to note that deportees commonly lack access to mental health and drug treatment services in Tijuana. Among PWID in Tijuana, past experiences of mistreatment (e.g., verbal abuse, physical violence) by drug treatment program personnel may further discourage service utilization. Addressing the mental health needs of deported PWID may be a
viable HIV prevention strategy to reduce associated risks with HIV and other health
damaging behaviors. Past research suggests that mental health treatment and having
an overall improved mental health status may be linked with a decrease in high-risk
behaviors (e.g., sharing needles) among PWID.\textsuperscript{31,60-62}

Some limitations should be considered when interpreting our findings. The cross-
sectional study design does not allow for causal inferences among variables associated
with depressive symptoms. Our small sample size of deported PWID may not have
given us enough power to identify other factors that may have been independently
associated with depressive symptoms. Further, our findings may be biased towards
established deportees and may not be generalizable to recent deportees. Increased
efforts to engage recent deportees in health related research is warranted to better
understand the evolving health of deported migrants. A study with a larger and diverse
sample of deportees (i.e., recent, established, non-drug using, drug using) should be
explored, to better understand the evolving mental health of migrants post-deportation.
Non-random sampling techniques were employed to recruit participants; findings may
not be generalizable to all deported PWID in Tijuana or other deportee receiving
communities.

\textbf{Conclusion}

Our study provides new data regarding the relationship between migration and
mental health and indicates that deported PWID in Tijuana may be at high risk for poor
mental health. Our study highlights the need for effective and collaborative models to
address the mental health of deportees who use drugs. Providing mental health and
substance abuse treatment may be a challenge given the lack of services available and
barriers to health care access among this population in Tijuana.\textsuperscript{1,8,30,59,63} The
collaborative approach model, which integrates mental health services into primary care settings, has been successful approach to increase access and utilization of mental health services that can be applied in this setting.\textsuperscript{64,65} In 2011, a bi-national student-run free clinic known as ‘Health Frontiers in Tijuana’ (HFiT) was established near the US-Mexico border as a partnership between the University of California, San Diego School of Medicine and Tijuana’s Autonomous University of Baja California School of Medicine. This clinic provides free medical care to a large proportion of structurally vulnerable persons every Saturday, including deportees and PWID.\textsuperscript{66,67} This clinic model has been positively received by the community and represents an imperative first contact with healthcare services for many patients. Currently, the clinic is piloting the integration of mental health services to patients. This collaborative approach in a setting where many deportees and drug users access primary care may be a successful strategy to address the mental health needs of deportees in Tijuana. Future evaluation of mental health services on the mental well being of deportees, including PWID, at this clinic are needed to determine the efficacy of these services.

Acknowledgments

Research reported in this publication was supported by the Fogarty International Centre of the National Institutes of Health under Award Number D43TW008633 and R25TW009343; the National Institutes of Health - National Institute on Drug Abuse grants K01DA025504, R37DA019829, and R37DA019829-S1; the National Institute on Mental Health grant K01MH095680; and the University of California Global Health Institute. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.
Chapter 4, in part, has been submitted for publication of the material as it may appear in the *Journal of Immigrant and Minority Health*: Pinedo M, Burgos JL, Zuñiga ML, Perez R, Macera CM, Ojeda VD. Correlates of depressive symptoms among deported Mexican migrants who inject drugs in the US-Mexico border region. Miguel Pinedo was the primary investigator and author of this paper.
Table 4.1. Factors and characteristics associated with depressive symptoms among deportees who inject drugs in Tijuana, Mexico, N=132, 2014-2015.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total (n=132)</th>
<th>No (70, 55%)</th>
<th>Yes (60, 45%)</th>
<th>P-value</th>
<th>Odds Ratio</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Socio-demographics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender (male)</td>
<td>105 (80%)</td>
<td>56 (78%)</td>
<td>59 (82%)</td>
<td>0.581</td>
<td>1.27</td>
<td>0.53-3.00</td>
</tr>
<tr>
<td>Median age (IQR)</td>
<td>41 (21-63)</td>
<td>41 (21-63)</td>
<td>41 (27-59)</td>
<td>0.555</td>
<td>1.01</td>
<td>0.97-1.05</td>
</tr>
<tr>
<td>Married/Common law</td>
<td>55 (42%)</td>
<td>34 (47%)</td>
<td>21 (35%)</td>
<td>0.156</td>
<td>0.60</td>
<td>0.29-1.21</td>
</tr>
<tr>
<td>Completed secondary school or higher</td>
<td>60 (45%)</td>
<td>37 (51%)</td>
<td>23 (38%)</td>
<td>0.134</td>
<td>0.58</td>
<td>0.29-1.18</td>
</tr>
<tr>
<td>Speaks English</td>
<td>41 (31%)</td>
<td>27 (38%)</td>
<td>14 (23%)</td>
<td>0.080</td>
<td>0.50</td>
<td>0.46-3.34</td>
</tr>
<tr>
<td>Speaks Spanish</td>
<td>112 (84%)</td>
<td>62 (86%)</td>
<td>50 (83%)</td>
<td>0.658</td>
<td>0.81</td>
<td>0.311-2.09</td>
</tr>
<tr>
<td><strong>Individual Risk Behaviors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median age of first injection drug use (IQR)</td>
<td>14 (5-36)</td>
<td>14 (9-32)</td>
<td>14 (5-36)</td>
<td>0.665</td>
<td>1.00</td>
<td>0.92-1.08</td>
</tr>
<tr>
<td>Receptive/distributive needle sharing*</td>
<td>83 (63%)</td>
<td>38 (53%)</td>
<td>45 (75%)</td>
<td>0.009</td>
<td>2.68</td>
<td>1.27-5.65</td>
</tr>
<tr>
<td>Injects drugs more than twice a day*</td>
<td>82 (62%)</td>
<td>40 (56%)</td>
<td>42 (70%)</td>
<td>0.088</td>
<td>1.86</td>
<td>0.91-3.84</td>
</tr>
<tr>
<td>Has used a hit doctor to inject drugs*</td>
<td>34 (26%)</td>
<td>14 (19%)</td>
<td>20 (33%)</td>
<td>0.069</td>
<td>2.07</td>
<td>0.94-4.58</td>
</tr>
<tr>
<td>Has traded sex*</td>
<td>21 (16%)</td>
<td>11 (15%)</td>
<td>10 (17%)</td>
<td>0.828</td>
<td>1.10</td>
<td>0.44-2.82</td>
</tr>
<tr>
<td>Has had sex while drunk or on drugs*</td>
<td>69 (52%)</td>
<td>41 (57%)</td>
<td>28 (47%)</td>
<td>0.239</td>
<td>0.66</td>
<td>0.33-1.32</td>
</tr>
<tr>
<td><strong>Social Factors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial detainment for most recent deportation was crime related</td>
<td>69 (52%)</td>
<td>29 (40%)</td>
<td>40 (67%)</td>
<td>0.003</td>
<td>2.97</td>
<td>1.45-6.06</td>
</tr>
<tr>
<td>Median hours spent on the street on a typical day (IQR)</td>
<td>10 (0-24)</td>
<td>9 (0-24)</td>
<td>10 (1-24)</td>
<td>0.404</td>
<td>1.03</td>
<td>0.96-1.10</td>
</tr>
<tr>
<td>Has experienced police victimization*</td>
<td>51 (39%)</td>
<td>23 (32%)</td>
<td>28 (47%)</td>
<td>0.084</td>
<td>1.86</td>
<td>0.92-3.79</td>
</tr>
<tr>
<td>Family has shown contempt/rejection because of drug use</td>
<td>31 (23%)</td>
<td>19 (26%)</td>
<td>12 (20%)</td>
<td>0.389</td>
<td>0.70</td>
<td>0.31-1.59</td>
</tr>
<tr>
<td>Concerned about personal safety in Tijuana*</td>
<td>99 (75%)</td>
<td>52 (72%)</td>
<td>47 (78%)</td>
<td>0.419</td>
<td>1.39</td>
<td>0.62-3.10</td>
</tr>
<tr>
<td>Currently perceives needing help with drug use</td>
<td>101 (77%)</td>
<td>46 (64%)</td>
<td>55 (92%)</td>
<td>&lt;0.001</td>
<td>6.21</td>
<td>2.21-17.49</td>
</tr>
<tr>
<td><strong>Structural Factors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Tijuana native</td>
<td>86 (65%)</td>
<td>42 (58%)</td>
<td>44 (73%)</td>
<td>0.072</td>
<td>1.96</td>
<td>0.93-4.12</td>
</tr>
<tr>
<td>Median total years lived in the US (IQR)</td>
<td>13 (0-50)</td>
<td>12 (0-50)</td>
<td>15 (0-48)</td>
<td>0.812</td>
<td>0.99</td>
<td>0.91-1.02</td>
</tr>
<tr>
<td>Median number of US deportations (IQR)</td>
<td>1 (1-20)</td>
<td>2 (1-20)</td>
<td>1 (1-20)</td>
<td>0.467</td>
<td>1.00</td>
<td>0.90-1.11</td>
</tr>
<tr>
<td>Median years since last US deportation* (IQR)</td>
<td>10 (1-34)</td>
<td>10 (1-31)</td>
<td>10 (2-34)</td>
<td>0.663</td>
<td>0.99</td>
<td>0.95-1.04</td>
</tr>
<tr>
<td>Deported to Tijuana**</td>
<td>85 (64%)</td>
<td>47 (65%)</td>
<td>38 (63%)</td>
<td>0.816</td>
<td>0.92</td>
<td>0.45-1.88</td>
</tr>
<tr>
<td>Has a Mexican official identification document</td>
<td>73 (55%)</td>
<td>44 (61%)</td>
<td>29 (48%)</td>
<td>0.141</td>
<td>0.60</td>
<td>0.30-1.20</td>
</tr>
<tr>
<td>Homeless*</td>
<td>66 (50%)</td>
<td>29 (40%)</td>
<td>37 (62%)</td>
<td>0.014</td>
<td>2.39</td>
<td>1.18-4.81</td>
</tr>
<tr>
<td>Has been arrested*</td>
<td>48 (36%)</td>
<td>25 (35%)</td>
<td>23 (38%)</td>
<td>0.668</td>
<td>1.17</td>
<td>0.57-2.38</td>
</tr>
<tr>
<td>Has been in jail*</td>
<td>25 (19%)</td>
<td>16 (22%)</td>
<td>9 (15%)</td>
<td>0.292</td>
<td>0.61</td>
<td>0.25-1.52</td>
</tr>
<tr>
<td>Currently has consistent work to cover basic daily needs</td>
<td>75 (57%)</td>
<td>42 (58%)</td>
<td>33 (55%)</td>
<td>0.700</td>
<td>0.87</td>
<td>0.44-1.74</td>
</tr>
</tbody>
</table>

*Refers to past 6 months; **Refers to most recent deportation
Table 4.2. Deportation and post-deportation characteristics among Mexican deportees who inject drugs in Tijuana, Mexico, N=132, 2014-2015.

<table>
<thead>
<tr>
<th>Deportation Characteristics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Median total years lived in the US</td>
<td>16 (0-50)</td>
</tr>
<tr>
<td>Median number of US deportations (IQR)</td>
<td>1 (1-20)</td>
</tr>
<tr>
<td>Median years since last deportation** (IQR)</td>
<td>10 (1-34)</td>
</tr>
<tr>
<td>Lived in California before being deported</td>
<td>124 (94%)</td>
</tr>
<tr>
<td>Enforcement agency of initial detainment</td>
<td></td>
</tr>
<tr>
<td>Local law enforcement</td>
<td>96 (73%)</td>
</tr>
<tr>
<td>Border patrol/immigration officer</td>
<td>32 (24%)</td>
</tr>
<tr>
<td>Main reason for initial detainment</td>
<td></td>
</tr>
<tr>
<td>Drug related (e.g., using, selling)</td>
<td>49 (38%)</td>
</tr>
<tr>
<td>Crime, non-drug related (e.g., robbery, assault)</td>
<td>20 (16%)</td>
</tr>
<tr>
<td>Apprehended at the border</td>
<td>16 (12%)</td>
</tr>
<tr>
<td>Immigration raid</td>
<td>9 (7%)</td>
</tr>
<tr>
<td>Traffic violation (e.g., speeding, running a red light)</td>
<td>9 (7%)</td>
</tr>
<tr>
<td>Mexican city of deportation</td>
<td></td>
</tr>
<tr>
<td>Tijuana, Baja California</td>
<td>85 (64%)</td>
</tr>
<tr>
<td>Mexicali, Baja California</td>
<td>15 (11%)</td>
</tr>
<tr>
<td>Nogales, Sonora</td>
<td>10 (8%)</td>
</tr>
<tr>
<td>Nuevo Laredo, Tamaulipas</td>
<td>7 (5%)</td>
</tr>
<tr>
<td>Ciudad Juarez, Chihuahua</td>
<td>4 (3%)</td>
</tr>
<tr>
<td>Post-deportation Characteristics*</td>
<td></td>
</tr>
<tr>
<td>Places slept during the first month of being deported*</td>
<td></td>
</tr>
<tr>
<td>Family/friend’s house</td>
<td>64 (48%)</td>
</tr>
<tr>
<td>Rented room or apartment</td>
<td>36 (27%)</td>
</tr>
<tr>
<td>Tijuana River Canal</td>
<td>12 (9%)</td>
</tr>
<tr>
<td>A hotel</td>
<td>9 (7%)</td>
</tr>
<tr>
<td>On the street</td>
<td>6 (5%)</td>
</tr>
<tr>
<td>Main reason for staying in Tijuana post-deportation</td>
<td></td>
</tr>
<tr>
<td>Originally from Tijuana</td>
<td>41 (31%)</td>
</tr>
<tr>
<td>Does not have family or friends in other areas of Mexico</td>
<td>28 (21%)</td>
</tr>
<tr>
<td>Intentions to cross the border to the US</td>
<td>24 (18%)</td>
</tr>
<tr>
<td>Does not have money to return to home community</td>
<td>10 (8%)</td>
</tr>
<tr>
<td>For work/economic opportunities</td>
<td>10 (8%)</td>
</tr>
<tr>
<td>For access to drugs</td>
<td>7 (5%)</td>
</tr>
<tr>
<td>Services that would have been useful following deportation**</td>
<td></td>
</tr>
<tr>
<td>Help communicating with family members in the US and/or Mexico</td>
<td>52 (69%)</td>
</tr>
<tr>
<td>Assistance with finding employment</td>
<td>22 (29%)</td>
</tr>
<tr>
<td>Occupational training programs</td>
<td>21 (28%)</td>
</tr>
<tr>
<td>Health services and health care access (e.g., Seguro Popular)</td>
<td>16 (21%)</td>
</tr>
<tr>
<td>Assistance with obtaining legal Mexican identification documents</td>
<td>13 (17%)</td>
</tr>
</tbody>
</table>

*Participants could indicate multiple responses; **N=75
Table 4.3. Factors independently associated with depressive symptoms among deportees who inject drugs in Tijuana, Mexico, N=132, 2014-2015.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Adjusted Odds Ratio</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Socio-demographics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender (male)</td>
<td>1.72</td>
<td>0.68-4.29</td>
</tr>
<tr>
<td><strong>Social Factors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial detention for most recent deportation was crime related*</td>
<td>5.27</td>
<td>1.79-15.52</td>
</tr>
<tr>
<td>Perceives needing help with drug use*</td>
<td>2.15</td>
<td>1.01-4.61</td>
</tr>
</tbody>
</table>

*p<0.05 for all variables
REFERENCES


27. Goldenberg S, Strathdee SA, Gallardo M, Patterson TL. “People Here Are Alone, Using Drugs, Selling their Body”: Deportation and HIV Vulnerability among Clients of Female Sex Workers in Tijuana. *Field Actions Science Reports. The journal of field actions*. 2010(Special Issue 2).


CHAPTER 5: DISCUSSION

This dissertation found that deportation is linked to HIV vulnerability in Tijuana, Mexico where multiple environmental conditions pose risk to infection among Mexican deportees, including deportees who inject drugs. In Chapter 2, the critical review of evidence linking deportation and HIV risk, epidemiological studies suggest that deportees display a higher prevalence of HIV risk behaviors and HIV infection as compared to non-migrants and non-deported migrants, especially among deported males and PWID. Stressors directly linked to the deportation experience may also have an effect on the drug using behaviors of drug-using migrants in terms of trying new drugs or combinations of drugs, drug relapse, and initiating or transitioning into injection drug use.\textsuperscript{1-4} Qualitative and ethnographic studies provided critical contextual information regarding the post-deportation and re-settlement experiences of deportees following their return to Mexico.

Utilizing an ecological model of health perspective, qualitative and ethnographic data from studies included in the review were used to characterize the post-deportation HIV risk environment. We describe various environmental influences that migrants experience following deportation that may elevate their risk for acquiring HIV infection. At the physical level of environmental influence, deportees experience social disruption as a result of being abruptly displaced to unfamiliar settings with scarce resources, deportees also encounter increased opportunities to engage in high-risk behaviors by being inserted into environments with established drug and sex cultures, and face multiple barriers that impede access to secure and long-term housing, and as a result homelessness is pervasive.\textsuperscript{1,3,5,6} The social environmental experiences (e.g., stigma, police targeting, police victimization) of deportees were also linked to harmful drug use
and sexual behaviors.\textsuperscript{1,3,7,8} In regards to the post-deportation economic environment, deportees are economically marginalized and face barriers to employment, such as lacking Mexican legal identification documents. In response, deportees may employ high-risk economic strategies (e.g., trading sex, work as middlemen in the Red Light District) that place them in circumstances that increase their HIV risk.\textsuperscript{1,3,9} Post-deportation policy environmental factors of influence included lacking legal Mexican identification documents which excludes migrants from accessing Mexico’s universal health insurance (i.e., \textit{Seguro Popular}) and may also contribute to deportee’s underutilization of drug treatment, mental health services, and HIV testing.\textsuperscript{1,10,11}

The review concluded that Mexican deportees face multiple social and structural barriers that impede incorporation back into Mexican society (e.g., barriers to employment, housing, employment, health care access, stigma), which in turn influences their risk of acquiring HIV by placing them in circumstance and spaces that increase vulnerability to HIV. Interventions addressing the social re-integration of deportees, such as programs that facilitate deportees’ return to Mexico may aid in mitigating risks associated with HIV infection. Due to the paucity of research on the health vulnerabilities of deportees, more deportee-focused research which takes into account: the incorporation of longitudinal studies to address issues of temporality of HIV infection and risk behaviors, increased efforts to include female deportees in research, and research with diverse samples of deportees (e.g., drug and non-drug using, in border and non-border contexts, and from other countries) is recommended. This review identified critical factors specifically related to the HIV risk of deported Mexican migrants that were explored with original data in the subsequent studies of this dissertation (Chapter 3 & 4).

Chapter 3 of this dissertation examined an important environmental HIV risk factor operating at the social environment level of influence post-deportation. To better
understand factors that may increase vulnerability to police targeting and ensuing victimization we employed constructs of labeling theory. Using labeling theory as our analytical framework, we explored factors that may be related with physical markers or characteristics that may result in being labeled a ‘deportee’ or ‘drug user’—two stigmatized groups that are perceived as deviant by the local community\textsuperscript{1,12}—and hence, influence police victimization. Our analyses provided evidence that deported PWID’s experiences with law enforcement in Tijuana may differ from that of non-deported PWID. More than half (56\%) of PWID had experienced police victimization in the past 6 months, of these 44\% (n = 182) were deportees. When characteristics of participants who had experienced police victimization in the past 6 months (n = 414) were analyzed separately by deportation status, deported PWID were more likely to have been arrested a greater number of times in the past 6 months than non-deported PWID. PWID with a history of deportation were also less likely to have had their syringes confiscated and more likely to be forced to leave their place of residency by a law enforcement officer in the past 6 months than their non-deported counterparts. Past research conducted with PWID in Tijuana has found an independent association between increased arrests, particularly for having track marks, and HIV infection.\textsuperscript{12,13} These differential experiences may be contributing to deported PWID’s elevated HIV risk.\textsuperscript{13}

After controlling for socio-demographic and other contextual factors, deportation status was not statistically and independently associated with recent police victimization experiences among PWID in our sample. Factors that were independently associated with increased odds of experiencing recent victimization by police included injecting methamphetamine in the past 6 months, using a ‘hit doctor’ for injection assistance in the past 6 months, and having a monthly income of ≥3500 pesos. Increased years lived
in Tijuana and initiating drug use at a later age were inversely and independently associated with recent police victimization.

This paper illustrated that physical markers may play an important role in increasing vulnerability to experiences of victimization by police among PWID in Tijuana. Markers related to being a migrant or a drug user might especially facilitate police targeting and subsequent victimization. Less years lived in Tijuana—an indicator of being a recent migrant—was associated with increased odds to experiencing police victimization. Recent migrants may be less acclimated with the local environment and rendered easily identifiable given cultural differences, in additional to visual markers of injection drug use (e.g., track marks, disheveled image). Previous independent associations between incarceration and migration to the US have been documented in Tijuana. Drug use behaviors such as having a longer history of injection drug use and injecting methamphetamine are indicative of having visual markers associated with drug use (e.g., ‘track marks,’ ‘meth mouth,’ extreme weight loss) that may render PWID as easy targets for police. Spaces where PWID inject drugs (i.e., ‘hit doctors’ operating from shooting galleries) and work (i.e., street vendors, odd jobs) may increase their visibility in the street and increase likelihood to encountering police and subsequent victimization. This finding is supported by novel findings in Tijuana that suggests that police may target specific areas where PWID congregate. A better comprehension of factors that may increase PWID’s susceptibility to police victimization in this region is imperative to designing effective interventions aimed at mitigating HIV risk. Monitoring and reduction of problematic policing practices may help reduce future HIV incidence and transmission among PWIDs.

Chapter 4 of this dissertation found an elevated prevalence of depressive symptoms among deported PWID than what is commonly found among the general
Mexican population and non-drug using deportees in the US-Mexico border region.\textsuperscript{22-26} Almost half (46\%, n = 57) of deported PWID reported experiencing current symptoms of depression. However, this elevated prevalence of depressive symptoms is similar to what is commonly found among PWID in Mexico and other settings.\textsuperscript{27-30} Utilizing an ecological model of health framework, and informed by findings from Aim 1 (Chapter 2) we explored critical post-deportation environmental influences on the mental health status of deportees. This research study found that social factors were strong determinants of mental health status for deported PWID. After controlling for other contextual factors, being initially detained in the US for a crime-related reason before being deported and perceiving needing help with current drug use were independently associated with experiencing current depressive symptoms. Mentally ill persons and minorities, including Latinos, are overrepresented in the US criminal justice system; incarceration for drug related activities is common.\textsuperscript{31-34} Migrants with criminal histories are most at risk for deportation.\textsuperscript{35} Taken together, it can be inferred that a large proportion of migrants who are expelled from the US may likely have a risk profile that is indicative of mental health disorders, including substance abuse.\textsuperscript{36,37}

This paper also highlights the need for systems of care that provide both mental health and drug treatment services in Tijuana, Mexico—which are limited.\textsuperscript{27,36} Findings indicate that deported PWID may suffer exceedingly from dual diagnosis of mental health disorders and substance dependence. The independent association between perceiving needing help with current drug use and depressive symptoms indicates an interest in drug treatment services that calls for the capacity to treat both drug-related and mental health co-morbidities in tandem. In Mexico, like other settings, mental health care are typically segmented from primary care services. This is often attributed to missed opportunities and underutilization and mental health services.\textsuperscript{39,40} The
collaborative care model of health, which is an evidence-based approach that integrates mental health care services into primary care settings, has shown to be clinically effective and cost-effective in providing mental health treatment that can be adapted in Tijuana.\textsuperscript{41,42}

Effective mental health strategies to address the mental health needs of deported PWID are needed and may carry important HIV implications. Diverse studies suggest that poor mental health may be a predisposing factor to HIV.\textsuperscript{43-45} Mental health treatment and improved mental health has been linked to a reduction in risk behaviors (e.g., needle sharing) that facilitate HIV transmission among PWID.\textsuperscript{28,44,46} Addressing the mental health needs of deported PWID may help to reduce risks associated with HIV acquisition and mitigate HIV transmission in Tijuana, a region with a brewing HIV epidemic.\textsuperscript{47}

**STRENGTHS & LIMITATIONS**

**Generalizability**

This dissertation (Chapter 3 & 4) uses data from the same cohort of PWID residing in Tijuana, collected at two different time points. Chapter 3 uses baseline data collected from 2011 to 2013 from 733 PWID. Chapter 4 uses data collected at follow up visit number 7 in 2014 and excludes PWID without a history of deportation. Recruitment and sampling strategies to engage hidden and high-risk populations in health research is a challenge.\textsuperscript{48,49} Both PWID and deportees are two populations that are hard to reach; deportees are a highly mobile population.\textsuperscript{50} Increased efforts to recruit a representative sample of PWID were employed. Using a target sampling approach, street-based outreach in ten diverse regions of Tijuana known to be areas where PWID congregate was conducted.\textsuperscript{49,51} Trained and bilingual outreach workers approached and engaged
potential participants to determine eligibility; eligible participants were invited to participate in the study. Nonetheless, non-random sampling techniques were utilized to recruit PWID and therefore limit generalizability of the findings of this dissertation.

Chapter 4, which relies on data from deported PWID (n = 123), poses several factors that limit generalizability. Our sample was composed primarily of re-settled deportees: deported PWID’s most recent deportation occurred a median of 10 years prior to being interviewed. Findings may be biased towards settled deportees compared to recently deported migrants. We most likely missed deportees who migrated to other regions in Mexico following their deportation, such as those who returned to their communities of origin. The profile of these deportees may differ from those who remain in Tijuana post-deportation. Deportees who migrate post-deportation may have increased access to resources or familial/social ties that facilitate their return to Mexico. Some findings, especially HIV risk behaviors, may be over reported. Finally, loss to follow up may constraint the generalizability of findings. Our small sample size of 123 deported PWID represents 40% of the 299 deported PWID who were recruited at baseline. Nonetheless, given the paucity of data on the mental health status of deportees, especially deportees who inject drugs, our findings provide new critical information that carry important implications for future research and prevention interventions.

**Causality**

Findings from this dissertation are based on cross-sectional data, which prevents the ability to determine causality. Longitudinal studies among deported PWID would have provided temporality in the data needed to make causal inferences. In Chapter 3, it was found that PWID who used a hit doctor to inject drugs in the past 6 months had increased vulnerability to police victimization within the same time frame. It could be that
PWID may seek to inject with the help of a hit doctor, who commonly operate from hidden environments (e.g., alleys, abandon buildings) to evade police. However, it is possible that police in Tijuana may be specifically targeting spaces where PWID are known to gather, as supported by novel research in Tijuana. If police are targeting spaces where hit doctors operate from, PWID who use hit doctors to inject drugs may have increased likelihood of encountering police and subsequent victimization. However, we are unable to determine the direction of this relationship. Similarly, in Chapter 4, no causal inferences could be made to determine if perceiving needing help with current drug use, and being deported for a crime-related offense influenced depressive symptoms, or vice versa.

**Self-Report & Recall Bias**

Quantitative data used for this dissertation (Chapter 3 & 4) relied on self-reported measures that asked participants to recall past behaviors and experiences. As such, recall bias may be present in our analyses, which could have led to inaccurate responses and under/over reporting. However, in Chapter 3, our police victimization outcome was measured using responses that asked participants about their experiences and interactions with police in the past 6 months. Other factors, including drug use behaviors, also referred to a past 6-month timeframe. Shorter timeframes may produce more accurate and reliable results. In Chapter 4, our measure for depressive symptoms used the Center for Epidemiologic Studies Short Depression Scale (CESD-10), which is composed of 10 screening items based on current (past 7 day) symptoms of depressive mood and behaviors. This short recall period likely mitigated recall bias.

Given the sensitive nature of deportation, experiences of police victimization, and drug use, social desirability bias could have affected results from dissertation studies 2 and 3 (Chapter 3 & 4). Important efforts to reduce such bias were employed, for instance
using highly trained outreach workers who were part of the local community. Interviewers were also extensively trained in conducting interviews in a nonjudgmental and conversational manner to build rapport with participants. \textsuperscript{51} Data collection for Chapter 4 occurred in 2014 at follow visit 7, by this time participants were strongly familiar with study staff and a strong rapport had been established, further reducing social desirability bias.

**Measurement**

No standardized measure for police victimization exists (Chapter 2). Studies investigating the effects of problematic policing practices on the HIV risk of PWID have utilized diverse definitions or focused on one particular type of problematic policing practice.\textsuperscript{16,55-59} Problematic policing practices that have been linked to HIV infection or behaviors that increase susceptibility to infection among PWID and structurally vulnerable populations include arrests for having visual indicators of injection drugs use (i.e., ‘track marks’), syringe confiscation (even when the carrying of syringes is legal), extortion, violence, harassment, and sexual abuse.\textsuperscript{16,55-59} Based on these prior findings, and qualitative narratives from deportees and migrants describing their experiences with police in Tijuana,\textsuperscript{1,3,60} our measure for recent police victimization experiences was constructed by combining positive responses to the following eight measures of past 6 month experiences with police in Tijuana:

1) Asked for a bribe,

2) Had money or valuables confiscated,

3) Had legal identification documents confiscated,

4) Had syringes confiscated,

5) Been physically beaten (hit, punched, kicked),

6) Had money or valuables confiscated,

7) Had legal identification documents confiscated,

8) Had syringes confiscated,
6) Had belongings burned or destroyed,
7) Been forced to leave place of residency, and
8) Asked for a sexual favor to avoid arrest.

By operationalizing police victimization in this way, we are able to capture an array of problematic policing practices experienced by PWID in Tijuana, instead of focusing on simply one type of experience. Importantly, the majority of PWID reported experiencing more than one type of police victimization; our outcome provides a more comprehensive measure of police victimization than has been used in prior research.

The outcome variable for Chapter 4, current depressive symptoms, was measured by the Center for Epidemiologic Studies Short Depression Scale (CESD-10). This is a standardized measure that has been validated and proven to have strong predictive value for identifying current depressive symptoms related to clinical depression in adults, including Latino migrants, PWID, and other structurally vulnerable populations. Notably, the Spanish version of the scale has been validated in Mexico among the general population, rural populations, deported migrants, and PWID. As such, the CESD-10 was an appropriate screening instrument to measure depressive symptoms among deported PWID.

PUBLIC HEALTH SIGNIFICANCE

Despite these limitations, this dissertation generates innovative deportee-focused health research that sheds light on critical interactions between individual, social, and environmental factors that shape HIV risks for deportees. Chapter 2 utilizes extant quantitative and qualitative data to describe the post-deportation environmental risk factors that can inform researchers and policy makers about the importance of various environmental contexts (e.g., physical, social, economic, policy) that may contribute to
the elevated HIV prevalence that is commonly found among deportees, especially deportees who inject drugs, along the US-Mexico border region. Chapter 3 investigates an important environmental influence—police victimization—that has been linked to increased risk of acquiring HIV among PWID.\textsuperscript{16,55-59} Drawing from concepts of labeling theory, this study identifies visual factors that may contribute to increased vulnerability to police victimization and highlights differential experiences with police among deported and non-deported PWID. Chapter 3 identifies social-level environmental factors using an ecological model of health perspective that may contribute to poor mental health status among deported PWID, which may increase vulnerability to HIV infection. Findings from all three studies provide a critical account of the post-deportation experiences of deported migrants who inject drugs that be utilized to inform the successful development of structural interventions to protect the health of drug using migrants who have been deported from the US in Mexico. Findings also provide a vital contribution to the paucity of research focused on the health vulnerabilities of deported migrants, especially in the US-Mexico context.

RECOMMENDED INTERVENTIONS

This dissertation delineates how social and structural conditions in post-deportation contexts impact deported Mexican migrant’s HIV risk in Tijuana. Findings from this dissertation draw attention to the strong need for structural interventions aimed at facilitating deportees’ transition into their new environments and re-integrating back into Mexican society. Deportees in Tijuana are socially excluded from their new environments. Characteristics of the risk environment impact their physical and mental health, including vulnerability to HIV. Interventions targeting deported migrants should focus on addressing various social and structural factors of the risk environment,
occurring at the physical (e.g., homelessness), social (e.g., stigma, police victimization), economic (e.g., employment), and policy (e.g., access to care, drug treatment) level that limit social integration and subsequently increases deportees’ likelihood to HIV.

Poor access to housing is a critical social determinant of health and HIV infection. Interventions addressing housing instability and homelessness are critical HIV prevention strategies. A significant body of research has linked housing assistance with a reduction in HIV risk behaviors. Homelessness is ubiquitously associated with deportation and injection drug use. Deportees, including deported PWID, are economically marginalized and struggle to secure long-term housing. The riverbed of the Tijuana River Canal has become a place of shelter for deportees and PWID in the city; up to ~30,000 homeless persons reside in the river canal and an overwhelming majority have history of deportation from the US. Residents of the canal live in substandard conditions in ditches, shacks, and are vulnerable to violence by police and others. Prevention and harm reduction efforts that focus on changing individual risk behaviors are likely to be unsuccessful if individuals lack a secure place to live. The ‘Housing First Model’ which focuses on moving homeless individuals from the streets or shelters to their own apartment first, then addressing other social and health concerns, has shown to be a successful model for reducing HIV risk and can be adapted to the Mexican context to increase deportees’ access to safe and affordable housing.

Structural interventions addressing the economic vulnerability of deportees are needed. Economic opportunities in Tijuana are scarce for deportees given multiple social and structural barriers that preclude access to formal employment. Deportees’ negative perception in receiving communities discourages businesses from hiring them. Employment readiness and occupational/vocational training programs are necessary to
increase deportees’ social integration and reduce their economic vulnerability; this strategy has been successful among other high-risk populations (i.e., ex-prisoners) and can be modified to the specific needs and profile of deported migrants.\textsuperscript{74-76} Chapter 4 of this dissertation provides evidence that such programs are of interest to deported PWID. Community partnerships with economic centers that cater to American markets, such as call centers in Tijuana, where deportees’ knowledge of American customs and ability to speak English are favorably perceived by employers may be a feasible route to address unemployment.\textsuperscript{77,78} Access to employment may also have broader social positive consequences such as increased ability to secure long-term housing.

Notably, deportees frequently lack an official Mexican identification document. The most common forms of identification in Mexico—a Mexican birth certificate or the Federal Electoral Institute (IFE) identification card—are commonly lost or confiscated during deportee’s migration trajectories or the deportation process.\textsuperscript{1,4,37} Not having these documents represents a significant structural barrier to social integration and deportees’ livelihood. Unable to prove Mexican citizenship automatically bars deported migrants from accessing formal employment, \textit{Seguro Popular} (Mexico’s universal health insurance), and other resources. To replace these documents, deportees must travel to their birth communities.\textsuperscript{37} This is a burdensome act for deportees and deported PWID with no ties to their birthplace or means to travel, as is common.\textsuperscript{37} Increased efforts to facilitate the replacement of legal identification documents may aid in facilitating deportees’ transition into their new environments and allow them to become part of society. Such efforts would require substantial coordination and collaboration with government officials from both the US and Mexico, but not unrealistic. Recently in 2015, the Municipal Government of the Mexican states of Guerrero and Nayarit signed agreements with the city of Tijuana to provide all deported migrants from those states
with a copy of their Mexican birth certificate to guarantee deported migrants with “their right to identity” and increase access to resources (i.e., health, employment, education). Similarly, in the US, as a result of California’s recent policy change that allows undocumented migrants to apply for a California driver’s license—which requires a proof of California residency and a legal government issued identification—Mexican Consulates in California have began issuing copies of Mexican birth certificates to Mexican migrants by accessing digital archives to facilitate this process. Expanding such efforts can potentially increasing the social inclusion of deportees and reduce post-deportation social and structural vulnerabilities that impact their well-being.

Police victimization is an important environmental characteristic of the risk environment. The removal of this environmental risk can help reduce HIV risk and transmission among deportees, PWID, and especially deported PWID. Collaborative partnerships between public health agencies and police to promote an environment that aligns law enforcement and HIV prevention are key. Police sensitivity training to reduce the stigma that affects drug users and deportees in Tijuana may have a positive influence on how police react to these populations and contribute to an environment of respect, dignity, and human rights among vulnerable persons. Informed by findings of this dissertation, these interventions should also consider migration status, drug-using behaviors (including types of drugs), and economic status of PWID and structurally vulnerable populations. A police education and training program aimed at increasing law enforcement official’s knowledge on HIV prevention, topics of harm reduction, and shifting behaviors and attitudes towards drug users, PWID, and other criminalized populations (i.e., deportees, migrants) is currently in the process of being piloted in Tijuana. Assessment of this police education program is forthcoming to determine its efficacy in reducing accounts of police victimization and HIV risk in Tijuana among
structurally vulnerable populations.

Services addressing the mental health concerns of deportees, and particularly deported PWID are lacking in Tijuana. Post-deportation physical and social contexts, coupled with the vulnerable state in which deportees arrive, may foster distressful circumstances that negatively impact their emotional and mental health.\(^{1,9}\) PWID commonly suffer from high rates of depressive symptoms, including deported PWID in Tijuana as evident by findings of this dissertation (Chapter 4). Mental health and substance abuse services are segmented from primary care in Tijuana, which may contribute to missed opportunities to treatment and overall underutilization of services.\(^{39,40}\) Given the high proportion of deported PWID with a mental health co-morbidity highlights the need for effective and collaborative models to address physical and mental health. The collaborative approach model, which integrates mental health services into primary care settings, has been successful approach to increase access and utilization of mental health services and can be applied in Tijuana.\(^{41,42}\) The Health Frontiers of Tijuana (HFiT), a student-run free binational clinic located in the Zona Norte, a few miles from the US-border, provides primary care to a high proportion of drug using deportees, including PWID.\(^{70,84}\) This clinic has been positively regarded in the community, and perceived as a safe space to receive medical and social services and be treated with dignity and respect. Currently, the clinic is piloting the integration of mental health services to patients. This collaborative approach in a setting where many deportees and drug users access primary care services may be a successful strategy to address the mental health needs of deportees in Tijuana. Future evaluation of mental health services on the physical and mental well being of deportees, including PWID, is warranted.

Given the overwhelming number of Mexican deportees being displaced to
Tijuana and other border cities, receiving communities lack the capacity to meet the needs of deported migrants. Nonetheless, attempts to confront the specific social and health needs of deportees have been applied in Mexico. In 2007, the Mexican Federal Government piloted the Humane Repatriation Program in Tijuana, Mexico to ensure that deported Mexican nationals arrive safely and in a dignified and humane way. The program provides short-term integration services free of charge at the time of deportation (i.e., when deportees are dropped off to immigration offices in Mexico), including information and orientation regarding local resources, help communicating with family members, medical and psychological services, assistance in attaining temporary housing via migrant shelters, and transportation to migrant shelters or transit centers. This program is currently operating in 9 deportee-receiving Mexican cities along the US-Mexico border, with plans to expand to a total of 26 cities. Such a program is encouraging and represents a critical first step in protecting the health and wellbeing of recently deported Mexican migrants. Addressing structural influences (i.e., housing, health access, employment) at the time of deportation may reduce deportees’ future susceptibility to high-risk activities, including initiating drug use or injection drug use, drug relapse, among other health damaging behaviors. Evaluation of this program is needed to determine its impact on the health and HIV risk of deportees.

It is also important to note that not all deportees in Tijuana have been recently deported. A large proportion of deported migrants in Tijuana have re-settled and have been living in city for an extended number of years. As evident in Chapter 4 of this dissertation, the majority of deported PWID have been living in Mexico for at least a decade. Deportees who have been in Mexico for various years would not benefit from the Humane Repatriation Program. Social integration and health interventions targeting re-settled deportees are crucial. Expanding the eligibility of services of the Humane
Repatriation Program to all deportees regardless of when a migrant was deported may be beneficial to the health and integration of deportees in Mexico.

RECOMMENDED FUTURE RESEARCH

Findings from this dissertation suggest the need for future deportee-focused health related research. As Chapter 2 highlights, deportee focused research has primarily been conducted with high-risk populations (i.e., PWID, FSWs, clients of FWS) along the US-Mexico border, especially Tijuana. The US-Mexico border is a region that poses unique social and environmental contexts that carry important health implications in terms of substance use and related harms. Less is known about the experiences of deportees who are repatriated to other cities of Mexico, especially non-border settings, and those who return to their communities of origin post-deportation. The risk profile of deportees who re-settle in their deportee-receiving communities may differ from those with the resources and social ties to return to their home communities, this has not been empirically examined. The inclusion of deported females in research is severely lacking; sources of vulnerability and mechanisms for HIV acquisition may differ from males and female deportees. Additional research with larger and diverse samples of deportees, including women, is needed to better understand the comparative experiences of deported migrants and the health consequences of deportation. Lastly, there is a great need for longitudinal studies with deportees to address issues of temporality and the causal relationship between deportation and HIV infection. Given deportees’ extensive migration trajectories, determining if HIV infection precedes deportation is undetermined resulting in an important scientific limitation.

Additional research is also needed to better understand sources of vulnerability to police targeting and victimization among deported PWID in Tijuana. PWID and
deportees share a similar socio-demographic and risk profile. Vulnerabilities such as homelessness, stigma, discrimination, and poverty are highly prevalent among both deportees and PWID.\textsuperscript{1,8,12,13} The similar profile between both groups may explain why an independent association between deportation and police victimization was not found. A study designed specifically to study police victimization and deportation would have allowed for a deeper exploration of factors unique to deported PWID. Further, the context under which police victimization events take place among deportees is poorly understood. The incorporation qualitative methods and mixed-methods studies with deportees and deported PWID in Tijuana can contribute to a more complete account and understanding of the circumstances under which victimization by police occurs. These recommendations for future research can help ‘unmask’ the relationship between deportation and police victimization.

A study with a larger sample of PWID and non-drug using deportees is needed to assess the mental health consequences of deportation and mental health status of this population. Empirical evidence on the sources of poor mental health status among deportees is lacking. As informed by our findings, such studies should also consider the pre-deportation conditions of migrants, as experiences in the US may have a long-term effect that may persist upon returning to Mexico. These studies should take into account that recently deported migrants may differ from deportees who were deported a significant amount of time ago, as vulnerabilities between both groups may differ. Recently deported migrants may be more vulnerable to the short-term impacts of deportation and may be more disconnected from their environments (e.g., displacement to an unfamiliar environment, lack of social ties).\textsuperscript{10,26} Deportees with increased time spent in Mexico (i.e., re-settled deportees) may be more accustomed and ‘acculturated’ to their new settings. However, this has not been previously studied, resulting in a pivotal
scientific gap in understanding how the mental health of deportees evolves with time passed in Mexico.

CONCLUSION

Limited data has linked deportation and HIV infection, however drivers of HIV among deportees are poorly understood. This dissertation provides an important examination of the health vulnerabilities and mechanisms that facilitate the acquisition of HIV among deported migrants, including those who inject drugs, in Mexico that has been lacking from the migration and health literature. Across all three studies, findings underscore the important role that social and physical contexts of deportees’ post-deportation environments play in fostering situations that render them vulnerable poor health outcomes, including susceptibility to high-risk behaviors (i.e., unsafe drug use, risky sexual practices), police victimization, and poor mental health. Addressing environmental influences by adapting and designing interventions that facilitate the return of deportees to Mexico and mitigate social and structural risk conditions may have positive health impacts and decrease risk to HIV.

The health of deportees along the US-Mexico border is of critical importance for the public health of both countries. PWID’s social networks, especially among deportees, transcend international borders. Cross-border relations on both sides of the US-Mexico border are highly prevalent, which results in cross-border drug and injection drug use. This situation can facilitate the transmission of HIV and other infectious diseases across both nations. Their insertion into a high-risk environment with increased opportunities for high-risk activities has adverse social implications for communities (e.g., increase crime, drug trafficking,). On the US side, deportation may have traumatic effects on family members that impact their mental and physical health, especially
among US-born children and adolescents.\textsuperscript{92,93} Protecting the health of deportees can have positive health and social impacts for the individual and community. The increasing number of deportations by the US highlights the need to better understand the link between deportation and HIV to identify critical factors that may highlight new modes of interventions and policies aimed at reducing the vulnerability of deported populations.
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