

# The Role of Gender in the Health and Human Rights Practices of Police: The SHIELD Study in Tijuana, Mexico

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## Abstract

Globally, punitive drug law enforcement drives human rights violations. Drug control tactics, such as syringe confiscation and drug-related arrests, also cascade into health harms among people who use drugs. The role of police officer characteristics in shaping such enforcement and measures to reform police practices remains underexamined. We evaluated gender differences in syringe confiscation and

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syringe-related arrest behaviors among municipal police officers in Tijuana, Mexico, where syringe possession is legal. In the context of the SHIELD Study focusing on aligning policing with harm reduction measures, our baseline sample covered municipal police officers who reported having occupational contact with syringes. We used multivariable logistic regression with robust variance estimation via a generalized estimating equation to identify correlates of syringe-related policing behaviors. Among respondent officers ( $n=1,555$ ), 12% were female. After considering possible confounding variables, such as district of service and work experience, female officers were significantly less likely to report confiscating syringes or arresting individuals for syringe possession. Consideration of officer gender is important in the design of interventions to improve the health and human rights of people who inject drugs and other highly policed groups, as well as measures to safeguard officer occupational safety. The feminization of law enforcement deserves special consideration as an imperative in reducing the public health harms of policing.

## Introduction

In the context of the global “war on drugs,” the creation and enforcement of punitive criminal policies have become the central state response to addressing drug-related harms.<sup>1</sup> Driven by evidence that these interventions are a driver of human rights violations that cascade into health harms, governments across the globe have made efforts to reform drug laws and attendant policing practices.<sup>2</sup> However, policing practices associated with the violation of drug users’ human rights (such as arbitrary detention, extrajudicial arrests, and the use of force) in numerous settings, including those with progressive drug policies, persist.<sup>3</sup> As officers enforce drug policy on the streets, individual factors (such as officers’ gender, assignment, and age) may contribute to their behavior in ways that shape health among people who use drugs. To date, little is known about the role of gender in the design of interventions to harmonize drug policies and their enforcement with health and human rights goals.<sup>4</sup>

Policing—the main task of which is to ensure public safety—has historically been viewed as a largely male profession. Meanwhile, the provision

of other policing-related services, such as organizational and administrative tasks, has been perceived as a feminine responsibility.<sup>5</sup> Based on these gender-determined roles within the policing structure, women have been underrepresented as street-level police officers and have experienced discrimination from their male counterparts when performing these roles.<sup>6</sup> The feminization of law enforcement in the United States, along with the entrance of other underrepresented groups into policing, gained broader support in the 1970s.<sup>7</sup> Since then, gender has been a topic of interest in criminal justice research, while women’s role in law enforcement has changed and expanded.<sup>8</sup>

Some research has analyzed the differences between, on the one hand, attitudes toward law enforcement and the use of force and, on the other, attitudes related to community service.<sup>9</sup> Previous research has found that female law enforcement officers (LEOs) are less likely to use excessive force than their male counterparts.<sup>10</sup> These gender differences are notable, especially when considering global efforts to reduce aggressive police practices and to promote community-oriented policing.

Community policing movements have

prompted researchers to explore the specific contributions that female officers may make to policing culture and how those unique attitudes or behaviors may contribute to other practices (such as health-promotion practices).<sup>11</sup> However, there is limited research on the gender differences in policing behaviors related to occupational safety, harm reduction, public health, and human rights. Since police practices play a critical role in shaping community health, it is important to understand the differences in police behavior through a gender lens. This is especially true for policing practices related to drug law enforcement.

Injection drug use is a major public health concern and a significant risk factor for infection by blood-borne diseases, such as HIV and hepatitis C.<sup>12</sup> Drug law enforcement practices surrounding injection drug use constitute an important structural determinant of HIV risk for people who inject drugs (PWID).<sup>13</sup> Policing practices such as syringe confiscation and syringe-related arrests have been previously associated with HIV and hepatitis C infections, as well risky injection behaviors among PWID, including syringe sharing, rushed injections, and injecting in public places.<sup>14</sup>

Police interactions with PWID vary worldwide, as does the frequency with which PWID are arrested or have their syringes confiscated. For instance, Robin Pollini and colleagues conducted a study in Tijuana and Ciudad Juárez, Mexico, where they found that 57% of participants reported ever being arrested for syringe possession.<sup>15</sup> Confiscation of and arrests for syringe possession frequently occur even in settings where syringe possession is legal.<sup>16</sup>

Tijuana is a strategic locale for the study of drug law enforcement practices given its high burden of drug use, its location at the US-Mexico border, and its drug policy context. The Tijuana-San Diego border is one of the busiest international border crossings in the world, drawing extensive commercial activity, including the exchange of goods, arms, and drugs, as well as high levels of drug-related violence.<sup>17</sup> Responding to this context, Tijuana has invested in one of the largest municipal police departments in the country, with approximately 2,100

active-duty LEOs, of whom 80% are male and 20% are female.<sup>18</sup>

Despite the legality of syringe possession and purchase under Mexican law, LEOs in Tijuana often confiscate syringes from PWID or detain them for syringe possession.<sup>19</sup> Such extrajudicial arrests and confiscations represent human rights violations and pose a significant public health risk, as they limit syringe availability for PWID.<sup>20</sup> There are only a few syringe-exchange programs in Tijuana, and the availability of syringes for PWID at any given time is highly constrained and inconsistent.<sup>21</sup> This gap between PWID's ability to possess and purchase syringes and the actual practices of street-level policing has critical public health implications in the city, including an elevated risk of HIV and hepatitis C transmission through syringe sharing.<sup>22</sup>

Drug law enforcement occurs primarily in defined geographic points in the city, such as the Zona Norte, a section of downtown (Zona Centro) Tijuana where HIV cases, shooting galleries, and drug selling are concentrated.<sup>23</sup> The Zona Norte is also known as a sex trade "tolerance zone," meaning that sex work is quasi-regulated through public health measures.<sup>24</sup> Tijuana has one of Mexico's largest PWID populations and the country's highest prevalence of injection drug use (for example, heroin and methamphetamine).<sup>25</sup> HIV prevalence in Tijuana is triple the national average (0.9% compared to 0.3%), and transmission remains concentrated among high-risk populations.<sup>26</sup>

While much is known about the HIV risk environment and policing practices in this particular locale, even there the role of gender in drug law enforcement practices has been largely unexplored.<sup>27</sup> More globally, the effect of gender on job-related behaviors that affect public health and occupational safety is a neglected topic of inquiry.<sup>28</sup> Gender differences as they relate to drug law enforcement are important to understand, for they may shape the design of interventions to improve the health and human rights of criminalized groups, as well as officer occupational safety. Thus, the objective of this study was to understand gender differences in syringe-related policing behaviors (namely, syringe confiscation and arrest for syringe possession) and

occupational health knowledge among LEOs in the Tijuana police force, controlling for place of assignment and other factors.<sup>29</sup>

## Methods

This paper examines the baseline data for Proyecto Escudo (Spanish for “shield”) a binational, multi-institutional research collaboration between public health, local government, and municipal law enforcement entities. Designed according to the SHIELD (safety and health integration in the enforcement of laws on drugs) police training model, this intervention aims to modify policing behaviors that place PWID and LEOs at risk of HIV transmission. The program’s methodology has been described elsewhere.<sup>30</sup> In short, the SHIELD training was delivered by a combination of peer instructors and multimedia covering occupational safety, drug policy provisions, and harm reduction topics. The curriculum uniquely bundled occupational safety (for example, needlestick and sharp injury prevention) with public health themes related to injection drug use. We trained approximately 85% (N=1,806) of all active-duty LEOs in the Tijuana municipal force between February 2015 and May 2016.

A total of 1,771 LEOs provided written informed consent and self-administered pre- and post-training surveys. The present analysis was limited to those who reported contact with syringes or needles (n=1,555). Before administering the baseline survey, trained interviewers conducted a pilot survey with several Tijuana police officers. Female and male officers provided feedback on cultural appropriateness and the perceived validity of the type of questions, language, and scales included in our behaviors and knowledge questionnaire.<sup>31</sup> The final version of our questionnaire was based on this feedback, as well as on previous research.

Officers’ contact with syringes was assessed by the following question: “While working in law enforcement, how often did you typically come into contact with needles or syringes during the past six months?” This self-reported variable was administered using a three-point Likert scale. LEOs who responded “frequently” or “sometimes” were in-

cluded in our analysis, while those who responded “never” were excluded.

Dependent variables included syringe-related policing behavior in the past six months—namely, confiscating someone’s needles or syringes or arresting someone for needle or syringe possession. Participants were asked, “How often have you confiscated needles or syringes?” and “How often have you arrested someone for syringe possession?” These variables were treated as dichotomous: one category included the responses “all the time” and “sometimes,” and the other included the responses “rarely” and “never.”

Independent variables included the following:

- *Sociodemographic characteristics*: We recorded participants’ age, gender, assigned district (for example, Zona Centro vs. other districts), education level, years in law enforcement, current assignment (for example, patrol or administrative), and current rank (for example, officer, supervisor, deputy, or chief).
- *Needlestick injuries*: Participants were asked if they had ever been stuck by a needle or syringe.
- *Occupational knowledge*: Participants were asked to indicate their level of agreement with the following statements about avoiding needlestick injuries: “You should not throw syringes into the trash” and “You should ask suspects to list any sharp items in their possession before searching them.” Participants were also asked to agree or disagree with the statements “If I get a needlestick injury while on duty, I know what to do” and “I am confident that I can keep from getting a needlestick injury while on duty.” Responses were measured on a four-point Likert scale and dichotomized as yes (“completely agree” and “agree”) or no (“neither agree nor disagree,” “disagree,” and “strongly disagree”).
- *Syringe-related policing behaviors in the past six months*: Participants were asked how often they engaged in the following behaviors: “confiscate needles or syringes without making an arrest,” “transport needles to present them to proper authorities,” “break a needle or syringe,” “have

a physical altercation with a drug user,” “arrest someone for heroin possession,” and “refer drug users to a social or health program.” Variables were dichotomized as yes (“all the time” and “sometimes”) or no (“rarely” and “never”). Participants were also asked to indicate their level of agreement with the statement “What I do to prevent needlestick injuries is similar to what other police officers do.” Responses were measured on a four-point Likert scale and dichotomized as yes (“completely agree” and “agree”) or no (“neither agree nor disagree,” “disagree,” and “strongly disagree”).

This project obtained ethical approvals from the Human Research Protections Program of the University of California San Diego, USA, and from the Ethics Committee of the University of Xochicalco School of Medicine in Tijuana, Mexico.

## Data analysis

Female and male LEOs who reported having contact with needles or syringes in the past six months were compared based on baseline characteristics. We used Pearson’s chi-squared test for gender comparisons involving categorical variables and the Wilcoxon rank-sum test for comparisons involving continuous variables.

We used simple and multivariable logistic regression with robust variance estimation to assess the association between gender and the primary outcomes (syringe confiscation and arrest for syringe possession). We also used simple logistic regression to identify potential covariates to control for in the multivariable models. We calculated odds ratios (OR), 95% confidence intervals (CI), and p-values to evaluate the aforementioned associations. Variables that were significant ( $p < 0.10$ ) in the simple logistic regression models were considered for inclusion in the final multivariable logistic regression models.<sup>32</sup> In the multivariable models, multicollinearity was assessed and ruled out by appropriate values of tolerance, variance inflation factors, and condition indexes. To ensure the integrity of the models, we assessed and ruled

out all possible interactions between the predictors. We used SAS software (version 9.4) to conduct our statistical analyses.

## Results

Among the 1,555 LEOs who reported having come into contact with syringes during the previous six months, 12.2% ( $n=190$ ) were female and 87.8% ( $n=1,365$ ) were male, with a median age of 35 (interquartile range [IQR]: 30–40) and 38 (IQR: 33–44), respectively (Table 1). While 79.6% ( $n=1,133$ ) of the sample reported having at least a high school education, females (85%) reported this at a higher proportion than males (79%;  $p=0.057$ ). Most of the participants were assigned as officers (85.5%;  $n=1,328$ ) and most were assigned to street patrol by car or foot (86.5%;  $n=1,341$ ) at the time the pre-training survey was conducted. Compared to male LEOs, female LEOs had spent fewer years working in law enforcement (median of 9.3 vs. 12 years;  $p < 0.001$ ).

Female LEOs were significantly less likely to be assigned to patrol work compared to their male counterparts (78.4% vs. 87.6%;  $p < 0.001$ ). Further, a higher percentage of female LEOs (21.6%) reported doing administrative tasks compared to their male counterparts (12.4%). Compared to male LEOs, a higher proportion of female LEOs reported ever having a needlestick injury (16.4% vs. 12.6%); 3.8% of female LEOs compared to 1.2% of male LEOs reported experiencing such an injury in the previous six months ( $p=0.015$ ). These differences were not statistically significant.

Male and female LEOs were also found to differ significantly with respect to occupational knowledge and policing behaviors. For instance, female LEOs demonstrated higher proficiency in some—but not all—knowledge measures related to needlestick injury prevention. For example, a higher percentage of female LEOs (97.9%) responded correctly that “to avoid a needlestick injury, you should ask suspects to list any sharp items in their possession before searching them,” compared to 92.9% of male LEOs ( $p=0.007$ ). However, a higher percentage of female LEOs responded incorrectly to the following item: “To avoid a needlestick in-

jury, you should not throw syringes into the trash” (90.5% vs. 85.2%;  $p=0.028$ ). Also, female LEOs demonstrated lower levels of self-efficacy to prevent or manage such injuries compared to their male counterparts, as evidenced by males responding more positively than females to the following state-

TABLE 1. Descriptive statistics and sociodemographic and occupational and safety characteristics of Tijuana police officers who reported coming into occupational contact with needles (n=1,555)

Characteristic	Total (n=1,555) n (%)	Female (n=190) n (%)	Male (n=1,365) n (%)	P-value
<b>Sociodemographics</b>				
Age (median, IQR+ range)	38 (33–43)	35 (30–40)	38 (33–44)	<0.001
Education				
Less than high school	291 (20)	26 (15)	265 (21)	0.057
High school or more	1133 (80)	148 (85)	985 (79)	
<b>Occupational and safety characteristics</b>				
Total years in law enforcement <sup>^</sup> (median, IQR+ range)	11 (8–18)	9.3 (3–12)	12 (9–18)	<0.001
Current rank				
District chief	17 (1.1)	2 (1.1)	15 (1.1)	0.066
Deputy	66 (4.2)	3 (1.6)	63 (4.6)	
Supervisor	85 (5.5)	15 (7.9)	70 (5.1)	
Officer	1,328 (85.5)	167 (87.9)	1,161 (85.1)	
Other	58 (3.7)	3 (1.6)	55 (4.0)	
Current assignment				
Patrol	1,341 (86.5)	149 (78.4)	1,192 (87.6)	0.009
Administrative	209 (13.5)	41 (21.6)	168 (12.4)	
Assignment in Zona Centro	218 (14.2)	21 (11.3)	197 (14.6)	0.262
Ever accidentally stuck by a needle	202 (13.0)	31 (16.4)	171 (12.6)	0.165
Since the beginning of the training <sup>*</sup> accidentally stuck by a needle	23 (1.5)	7 (3.8)	16 (1.2)	0.015
<b>Occupational knowledge</b>				
To avoid a needlestick injury, you should not throw syringes into the trash	1,398 (89.9)	162 (85.2)	1,236 (90.5)	0.028
To avoid a needlestick injury, you should ask suspects to list any sharp items in their possession before searching them	1,453 (93.5)	185 (97.9)	1,268 (92.9)	0.007
If I get a needlestick injury while on duty, I know what to do	1,056 (68.2)	112 (59.3)	944 (69.5)	0.006
I am confident that I can keep from getting a needlestick injury while on duty	1,191 (76.8)	129 (68.3)	1,062 (78)	0.004
<b>Syringe-related policing behaviors in the past six months</b>				
What I do to prevent needlestick injuries is similar to what other police officers do	1,070 (69.0)	106 (56.1)	964 (70.8)	<0.001
I have confiscated needles or syringes	1,181 (76.1)	121 (64.0)	1,060 (77.8)	<0.001
I have confiscated needles or syringes without making an arrest <sup>^^</sup>	633 (48.6)	49 (33.3)	584 (50.6)	<0.001
I have transported syringes to present them to the proper authorities	773 (49.8)	82 (43.4)	691 (50.7)	0.063
I have broken a needle or syringe	732 (47.2)	63 (33.3)	669 (49.1)	<0.001
I have arrested someone for syringe possession	990 (63.8)	99 (52.4)	891 (65.4)	0.001
I have had a physical altercation with a drug user	1,067 (69.0)	115 (61.2)	952 (70.1)	0.015
I have arrested someone for heroin possession	1,047 (67.5)	99 (52.4)	948 (69.6)	<0.001
I have referred people who use drugs to social or health programs	901 (58.1)	94 (49.7)	807 (59.3)	0.015

+ Interquartile range

\* March 2015

<sup>^</sup> n=1,424

<sup>^^</sup> n=1,302

ments: “If I get a needlestick injury while on duty, I know what to do” (69.5% vs. 59.3%;  $p=0.006$ ), “I am confident that I can keep from getting a needlestick injury while on duty” (78% vs. 68.3%;  $p=0.004$ ), and “What I do to prevent needlestick injuries is similar to what other police officers do” (70.8% vs. 56.1%;  $p<0.001$ ) (Table 1). Almost 60% of the officers surveyed reported referring people who use drugs to a social or health program in the past six months (50% of female respondents and 60% of male respondents;  $p=0.015$ ).

Even though males appeared to be more confident in their ability to handle syringes, female LEOs demonstrated policing behaviors that are more consistent with public health and occupational safety imperatives (Tables 1 and 2). Compared to male LEOs, female LEOs were less likely to report having recently (past six months) confiscated

syringes (64% vs. 77.8%;  $p<0.001$ ), less likely to report having confiscated syringes without an arrest (33.3% vs. 50.6%;  $p<0.001$ ), less likely to report having arrested someone for syringe possession (52.4% vs. 65.4%;  $p<0.007$ ), and less likely to report having arrested someone for heroin possession (52.4% vs. 69.6%;  $p<0.001$ ). Additionally, compared to their male counterparts, female LEOs were less likely to break a needle or syringe (33.3% vs. 49.1%;  $p<0.001$ ) and less likely to have an altercation with a person who injects drugs (61.2% vs. 70.1%;  $p=0.015$ ).

Using multivariable modeling, we analyzed syringe confiscation and arrest for syringe possession as the main outcomes, with gender as the main predictor. In the final model, we included covariates such as assigned district (Zona Centro vs. others) and current assignment (patrol vs. other work), as well as a continuous variable for work experience

TABLE 2. Descriptive statistics and factors associated with confiscating needles and arresting someone for needles of Tijuana police officers who reported occupational contact with needles (n=1,555)

Characteristic	Confiscated needles or syringes					Arrested someone for needles or syringes				
	Always/sometimes (n=740)	Rarely/never (n=811)	Odds ratio	95% CI	P-value*	Always/sometimes (n=740)	Rarely/never (n=811)	Odds ratio	95% CI	P-value*
Gender: female (vs. male) n (%)	66 (8.9)	123 (15.2)	0.55	(0.40–0.75)	<0.001	60 (9.5)	129 (14.1)	0.64	(0.46–0.89)	0.007
Mean age (standard deviation)	37.7 (8.4)	39.0 (9.0)	0.98	(0.97–0.99)	0.004	37.6 (8.4)	38.8 (8.9)	0.98	(0.97–1.00)	0.007
Commissioned district: Zona Centro (vs. other) n (%)	157 (21.3)	61 (7.6)	3.28	(2.39–4.50)	<0.001	144 (22.9)	74 (8.2)	3.33	(2.64–4.50)	<0.001
Education: at least high school (vs. less) n (%)	560 (81.4)	572 (77.9)	1.24	(0.96–1.61)	0.105	461 (79.2)	670 (79.8)	0.97	(0.74–1.26)	0.799
Mean number of years in law enforcement <sup>^</sup> (standard deviation)	12.1 (7.5)	13.6 (8.4)	0.98	(0.97–0.99)	<0.001	12.3 (7.8)	13.3 (8.1)	0.98	(0.97–1.00)	0.023
Current assignment: patrol (vs. other) n (%)	693 (93.6)	645 (80.0)	3.70	(2.63–5.26)	<0.001	598 (94.5)	740 (81.1)	4.00	(2.70–5.88)	<0.001
Rank: officer (vs. other) n (%)	650 (87.8)	674 (83.2)	1.46	(1.09–1.94)	0.010	559 (88.3)	765 (83.4)	1.50	(1.11–2.02)	0.008

<sup>^</sup>Including work in Tijuana law enforcement and other agencies  
\*Yielded by univariate logistic regressions

(number of years in the police force). In the first multivariable model (Table 3), we found that female LEOs were half as likely to confiscate syringes compared to male LEOs (95% CI: 0.37–0.73;  $p < 0.002$ ). In the second multivariable model (Table 3), we found that female LEOs had marginally lower odds of arresting someone for syringe possession compared to their male counterparts (OR=0.71; 95% CI: 0.51–1.00;  $p = 0.049$ ).

## Discussion

In this large study of LEOs in Tijuana, Mexico, we found that occupational knowledge and behaviors that affect public health differed significantly between male and female LEOs. These findings align with previous studies' findings on gender differences in policing.<sup>33</sup> Some of these studies found that female LEOs reported higher rates of listening skills and community engagement, whereas male LEOs reported higher rates of physical force and strength and dealing with local issues using a more traditional approach (such as through the use of force). In view of the fact that the behaviors studied here (syringe confiscation and syringe-related arrests) are practices detrimental to both health and human rights, the more rights-aware behavior of female LEOs may represent positive contributions by female LEOs to occupational safety and public health in Tijuana.<sup>34</sup> These important differences in behavior between female and male LEOs persisted despite lower levels of female officers' occupational

safety self-efficacy (for example, "If I get a needlestick injury while on duty, I know what to do") and knowledge of some risky behaviors (for example, "To avoid a needlestick injury, you should not throw syringes into the trash"). These differences between female and male LEOs also persisted when we controlled for the geographical setting of deployment and other factors in the final models (Table 3). These differences in knowledge and behaviors between male and female LEOs may be partly a response to the gender-determined roles within the Mexican police force, where women have been underrepresented and undertrained and often face opposition and discrimination from their male counterparts.<sup>35</sup>

Gender differences in self-reported behaviors observed here may also be explained by organizational factors, such as male police partners choosing to take on more aggressive and risky tasks.<sup>36</sup> Additionally, a previous analysis conducted by Mario Morales and colleagues found that "LEOs may feel pressure from superiors or peers to meet arrest or other encounter quotas."<sup>37</sup> If this pressure is experienced differentially among males and females, it could account for some of these differences in behavior. Nevertheless, these findings provide a useful springboard for future research examining measures to improve public health, scale up harm reduction practices, and protect the human rights of people who use drugs.<sup>38</sup>

In this context, female LEOs may be more accepting and amenable to implement practices that are aligned with human rights and harm re-

TABLE 3. Multivariable analysis of confiscating needles or syringes and arresting someone for needle or syringe possession of Tijuana police officers who reported occupational contact with needles (n=1,551)

	Confiscating needles or syringes (previous six months)		
Effect	AOR	95% CI	P-value
Female vs. male	0.52	0.37–0.73	<0.002
Zona Centro vs. other district	3.04	2.18–4.23	<0.001
Patrol vs. other duty	3.11	2.15–4.50	<0.001
Less time in law enforcement (<5 years or less)	1.13	1.05–1.21	0.006
	Arresting someone for needle or syringe possession (previous six months)		
Effect	AOR	95% CI	P-value
Female vs. male	0.71	0.51–1.00	0.049
Zona Centro vs. other district	3.08	2.28–4.17	<0.001
Patrol vs. other duty	3.61	2.44–5.35	<0.001



duction principles.<sup>39</sup> By engaging in extrajudicial police practices with less frequency, female officers may help promote community trust, public health, and occupational health.<sup>40</sup> It is notable that a higher percentage of female LEOs reported ever having a needlestick injury (16.4% vs. 12.6%) or recently experiencing such an injury (that is, in the past six months) (3.8% vs. 1.2%) compared to male LEOs. Although these differences did not reach statistical significance, further analysis is needed to explore the possible sources of this vulnerability among female LEOs, as well as the possibility of reporting bias across a gender gradient.<sup>41</sup>

Lastly, it is important to mention that a high percentage of the overall sample (60%) reported referring people who use drugs to health and social programs. Female LEOs were significantly less likely to report referring such individuals compared to their male counterparts (50% vs. 60%;  $p < 0.015$ ). Previous studies have documented the scarcity of available drug treatment programs in Tijuana.<sup>42</sup> Furthermore, they have found that some available programs may include involuntary drug treatment, which has been found to violate the human rights of people who use drugs and to have direct detrimental outcomes for their health.<sup>43</sup> In this context, less frequent referrals may paradoxically signal better alignment with health and human rights principles among female officers. At a time when increased focus is placed on building “warm hand-off” and other referral schemes between police and substance use treatment providers, this question warrants further study.

## Limitations

This analysis is not without limitations. The data we collected were based on self-reporting, and thus social desirability and recall bias may have led to an underreporting of specific behaviors or events (such as syringe-related arrests) or to an over-reporting of other behaviors (such as referrals to health and social programs). However, the fact that the surveys were self-administered may have reduced the influence of social desirability. Additionally, the data analyzed for this study were collected prior to

the police education program, meaning that LEOs who were unaware that some of their behaviors were detrimental to public health might have been inclined to answer honestly. The Likert scale may have introduced subjectivity in officers’ responses to certain behaviors, considering that frequency in the past six months may have been interpreted differently among respondents. However, to limit this potential effect, we included an ordinal scale instead of a numeric one, as recommended by key stakeholders during our pilot survey. Furthermore, we used such a scale to account for the fact that officers rotate activities, and we expected that the frequency included could be generalized over a previous six-month period. We did not expect the interpretation of our survey questions to have differed between male and female respondents. However, this possibility should be considered when designing studies aiming to assess behavioral differences between female and male officers.

Because our analysis was limited to those LEOs who reported coming into contact with syringes during their policing activities, our findings may not be generalizable to LEOs with other duties within the police force or to other police forces in Mexico. Even though we controlled for current duties and assignment locations (for example, Zona Norte vs. other districts) in our final models, we were unable to assess officers’ exact rotation frequency (for example, days, weeks, or months). Thus, acute changes in officers’ duties may not be accounted for.

## Conclusion

After accounting for officers’ assignment locations and other factors, we found that female LEOs had significantly lower odds of confiscating syringes and arresting PWID for possessing needles or syringes compared to their male counterparts. These findings provide an important foundation for future research seeking to better understand and calibrate interventions that realign policing with health and human rights imperatives in drug law enforcement and other contexts.<sup>44</sup> Additionally, our study may provide guidance for broader policing

research that seeks to assess potential differences among female and male LEOs. Feminization of policing as a public health imperative deserves closer attention from researchers, policing managers, and policy makers.<sup>45</sup>

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