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BJS Student Research Expo

October 29, 1:00pm-2:30pm EST

U.S. DEPARTMENT OF JUSTICE
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Agenda

Welcome and Opening Remarks	Kevin M. Scott, Acting Director, Bureau of Justice Statistics Natasha Frost, Northeastern University, Vice President, American Society of Criminology (ASC)
Student Presentations	
Closing Remarks	Min Xie, ASC Executive Counselor, University of Maryland, College Park

Thank you to our mentors!

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Welcome and Opening Remarks

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Investigation of Forensic Crime Lab Characteristics and their Impact on Competency Testing Results

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Investigation of Forensic Crime Lab Characteristics and their Impact on Competency Testing Results

Calvin H.L. Cho (Duke University) | Mentors: Matt Hickman (American Society of Criminology) and Matt Durose (Bureau of Justice Statistics)

Introduction

- The Census of Publicly Funded Forensic Crime Laboratories, 2020 (ICPSR 38901) provides data on forensic crime laboratories from four jurisdictions: federal, state, county, and municipal.
- In a 2023 study, Connor Brooks utilized this dataset and showcased a trend where a lab's competency testing results (the evaluation of a person's knowledge and abilities before performing independent forensic case work) differed significantly depending on the jurisdiction it was under: 93.9% of labs under federal jurisdiction performed competency testing of their analysts, while state, county, and municipal (city) labs were at 91.3%, 85.5%, and 77.4%, respectively.

What are Forensic Crime Laboratories?

- A specialized facility that processes physical evidence from criminal investigations, providing critical data for solving crimes through scientific analysis.
- They often rely on third-party groups to conduct competency / proficiency testing.

- To better assess what factors could be contributing to these differing percentages, the first step was to evaluate budget allocation, number of labs, and the workload in terms of cases handled by each agency type to understand the relationship between resources and operational efficiency.

Budget Allocation and Case Load Across Forensic Crime Labs by Agency Type

Agency Type	# of Labs	Average Budget per lab (USD)	Total Budget of Agency Type (USD)	# of Cases	Budget per case (USD)
Federal	41	5.5 M	225.5 M	0.25 M	920.4
State	112	10.9 M	1,220.8 M	2 M	610.49
County	102	4.4 M	448.8 M	0.65 M	685.19
Municipal	71	5.0 M	355.0 M	0.46 M	760.17

Table 1. Summary table showing agency type, number of centers, average budget, total budget, number of cases, and budget per case. **Federal agencies** operate 41 centers with an average budget per case of **$920.40**, the highest among all agency types. **State agencies**, with 112 centers, have the largest total budget but the lowest budget per case at **$610.49**. **County and City agencies** have intermediate budgets per case, with **$685.19** and **$760.17**, respectively. The table highlights the differences in resource allocation across different agency types, particularly in terms of budget per case.

Methodology

(1) Data Preparation
The dataset was cleaned by filtering for relevant variables, ensuring consistency in data types, and removing missing or invalid entries.

(2) Exploratory Data Analysis
Initial visualizations, such as bar plots and stacked charts, were created to examine the distribution of requests and structural factors across agency types.

(3) Charting
Graphs were used to depict relationships between variables, including budget allocation, oversight, and structural scores, allowing for clear comparisons between agency types.

(4) Linear Regression Fitting
Multiple linear regression models were applied to test the impact of variables like agency type, oversight, and budget per employee on competency test outcomes.

Results

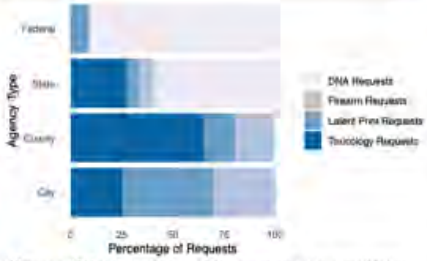

Figure 1. Distribution of requests by agency type, showing a higher proportion of DNA requests for Federal agencies, and a mix of Firearm and Latent Print requests.

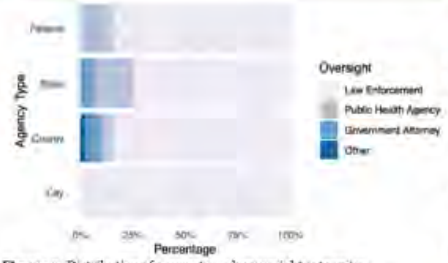

Figure 2. Distribution of agency types by oversight categories, showing Federal primarily under Law Enforcement, while State and County with varied distribution.

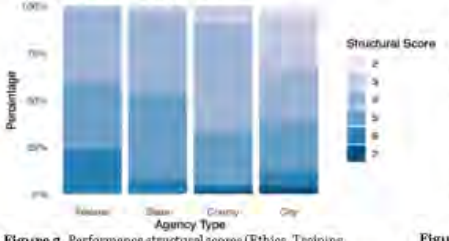

Figure 3. Performance structural scores (Ethics, Training, Verification Checks, Management System, Accreditation, Research Resources, and Random Case Reanalysis) by agency type, showing high scores are more common in Federal and County agencies, while lower scores are more prevalent in City and State agencies.

Figure 4. Relative average budget per employee by agency type, comparing full-time and part-time employees. Federal and State agencies allocate relatively higher budgets per full-time employee, while County and City agencies have lower relative budgets for both.

Select Model Performance and Significance Metrics

Variable	p-value	R-Squared	RMSE
Latent Print Requests	0.02	0.05	0.27
Structural Score	0.03	0.17	0.20
Average Budget per Full-Time Employee	0.03	0.03	0.24

Table 2. All three variables are statistically significant (p-values < 0.05), yet the **models have varying levels of explanatory power**. The Structural Score variable explains 17% of the variance ($R^2 = 0.17$), making it the most predictive factor, while the Latent Print Requests and Average Budget per Full-Time Employee explain 5% and 3% of the variance, respectively. The RMSE values, ranging from 0.24 to 0.29, indicate moderate levels of prediction error across the models.

Discussion / Conclusion

Agency type and Oversight do not Significantly Impact Competency Testing Ratings

- For **agency type**, regression models indicated that there were no statistically significant differences in competency test results based on the type of agency (Federal, State, County, or City) as shown by the high p-values for these variables.
- Similarly, the **type of oversight** (Law Enforcement, Public Health Agency, Government Attorney, or Other) did not have a significant impact on competency test outcomes.

Structural Factors and Average Budget-per-Employee Significantly Impact Competency Testing Scores

- A higher **structural score**, which measures performance-supporting structures such as ethics, training, and verification processes, had a significant **negative** impact on competency test results ($p = 0.031$). This suggests that despite the presence of these structures, they may not be as effective in improving outcomes as expected.
- **The budget per full-time employee** was found to have a significant positive impact on competency test scores ($p = 0.003$), indicating that higher funding per full-time staff member correlates with better competency outcomes.

Rate of Latent Print Case Requests Significantly Impact Competency Testing Scores

- Regression analysis results show that the for **Latent Print Requests** (REQ_LTPR_NEW) has a relatively low p-value ($p = 0.019$), suggesting that latent print requests are more closely associated with variations in competency test scores comparatively.
- Interestingly, the chart shows that county-level labs and city-level labs have a higher percentage of the latent print request indicating that there could be a more complex relationship.

References

United States Department of Justice. Office of Justice Programs. Bureau of Justice Statistics. Census of Publicly Funded Forensic Crime Laboratories, 2002. Inter-university Consortium for Political and Social Research [distributor], 2005-09-02. https://doi.org/10.3886/ICPSR04287.v1

Brooks, Connor Publicly Funded Forensic Crime Laboratories, 2020. Bulletin. NCJ 306473. Washington, DC: Bureau of Justice Statistics.

Anderson, James M., Matthies, Carl, Greathouse, Sarah, Chari, Amalavoyal The unrealized promise of forensic science - A study of its production and use. Berkeley Journal of Criminal Law. 26, (1), 121-180.

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Rape Myths in Numbers: The Relationship Between Stereotypical Case Characteristics and Arrest Outcomes

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Rape Myths in Numbers: The Relationship Between Stereotypical Case Characteristics & Arrest Outcomes

By: Gemini A. Creason-Parker, Texas State University, glc101@txstate.edu

Introduction

What are rape myths?

- False beliefs and stereotypes about rape victims, offenders, and the crime (Brownmiller, 1975; Burt, 1980; Lonsway & Fitzgerald, 1994).
  - Ex: Men can't be raped; a woman can fight off a rape if she really tries; rapists are Black.

What are the implications of rape myths?

- Contribute to an overarching rape narrative.
- Become the criteria to determine a rape's legitimacy.
- Cases that embody myths are labeled as "real."
- Underreporting by victims.

Purpose of this project

- Use case characteristics to quantify rape myths to understand their (anticipated) effects on case outcomes.

Literature Review

Rape myth acceptance (RMA) affects multiple areas of the CJ system, including police and the courts.

- McDonald (2020): These "erroneous assumptions or stereotypical attitudes… illegitimately influence the way decision-makers approach cases of sexual assault" (p. 43).

Police:

- Police officers' level of victim-blaming → influences effort/motivation to pursue a case (Klement et al., 2018; Murphy & Hine, 2019; Spohn & Tellis, 2012).
  - *More RMA → more victim-blaming → less likely to believe victims*

Effect:

- Persistent "spiral" of silence, where victims don't report because they don't think the police will believe them or do anything (Coker et al., 2015).

Methods

Research Questions:

1. *Of rapes that are known to law enforcement, to what extent do they align with traditional rape myths?*
2. *To what extent are rapes that fit traditional rape myths more likely to result in arrest than those that do not?*

Data Source: National Incident-Based Reporting (NIBRS) data from 2020

Independent Variables (Myths) (5):

- Most rapists are strangers (ARVS).
- A person can't rape their spouse (AMMSA; Bumby).
- If the vic. doesn't have physical injuries, it probably wasn't rape (IRMA; IRMAS).
- Most rapists use weapons (IRMA; IRMAS).
- Most rapists are under the influence of alcohol or drugs (IRMA; IRMAS).

Dependent Variable (1): Arrest

Control Variables (6): Victim age, race, and sex; offender age, race, and sex

Data Analysis Method: Logistic regression (0-1 coding scheme)

- 1 = yes, matches myth
- 0 = no, does not match myth

Case Inclusionary Criteria:

- Rapes; 1 female victim and 1 male offender; both above 18yo → *N = 20,214*

Results

Supportive of myth:

- 48% MORE likely to be arrested when the victim DID have physical injury.
- 56% MORE likely to be arrested when the offender DID use a weapon during the commission of rape.
- 5% MORE likely to be arrested when the offender WAS suspected of being under the influence.

Contrary to myth:

- 59% MORE likely to be arrested when the offender WAS the spouse of the victim.

Not significant: Stranger relationship between victim and offender

Variable	Sig.	Exp(B)
Was the offender a stranger to the victim?	.576	1.052
Was the offender the spouse of the victim?	.000	.594
Did the victim present with apparent physical injuries?	.000	.479
Did the offender use a weapon?	.000	.560
Was the offender suspected of using drugs/ alcohol?	.048	.884

Conclusion

Discussion:

- Partial support (more than not) → when cases align with rape myths, they are more likely to result in arrest (element of justice).
- Implications:
  - Victims more likely to receive justice when cases align with rape myths. → *For victims whose cases do not, they may not.*
  - More training for police needed to combat RMA.

Limitations:

- Doesn't include cases with multiple offenders (e.g., gang rape) or cases where victims are male and offenders are female.
- Only accounts for *reported* rapes.

Future Research:

- Remove/adjust control variables and compare results.
  - Ex: *Are cases where the offender is a POC and the victim is White more likely to align with myths? And are they more likely to end in arrest?*
- Longitudinal data analysis, looking at multiple years of data.
- Consider additional data sets (e.g., NCVS).
  - Would enable comparison of cases that are and are not reported and their alignment with myths.
- Account for different sexes of victims and offenders, as well as cases involving multiple offenders.

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Predictors of Prisoner Access to Healthcare

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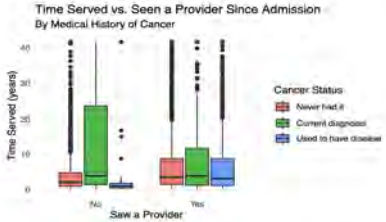
PREDICTING PROVIDER VISITS SINCE PRISON ADMISSION: THE ROLE OF MEDICAL HISTORY

Sonya Eason

How much insight can we actually get into the likelihood of inmates accessing providers from medical history? Is information about the less common medical conditions also informative?

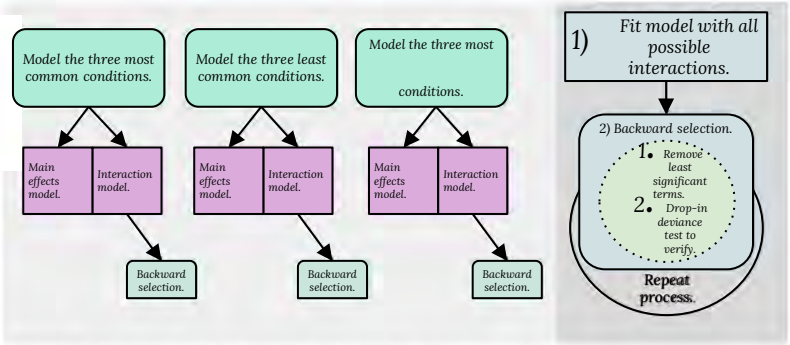
INTRODUCTION



METHODS

1. Split data into testing and training sets.
2. Fit models to training set.
   a. Three categories of models were built: those that incorporated the three most common medical conditions, those that incorporated the three least common medical history, and those that incorporated both.
3. Check model conditions.
4. Perform cross validation, collect AIC metric on assessment sets.
5. Evaluate testing set performance with ROC_AUC.

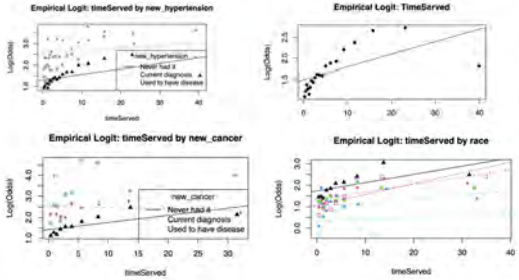
FIGURE 1: Model Building



The figure on the left displays how models were built. The figure on right elaborates on how the interaction models were built.

FIGURE 2: Model Conditions

- Linearity was checked for quantitative predictors and interactions and was satisfied.
- Randomness was also satisfied due to methodology of data collection.
- There was no evidence that independence was violated. The location or the specific prison could have influenced provider access as well, but that information was suppressed in public use data file.



RESULTS

model	AIC	ROC_AUC
Common	12420	0.685
Common with Sig Intx	12376	0.684
Less Common	12888	0.635
Less Common with Sig Intx	12867	0.636
All Conditions	12409	0.690
All Conditions with Sig Intx	12360	0.690

- AIC values were collected based on the assessments sets of the training set from cross validation.
- ROC_AUC was collected based on testing set.
- The ideal model minimizes AIC and maximizes ROC_AUC.
  - Based on this criteria, "All Conditions with Sig Intx" performed the best out of the six models.

R

CONCLUSIONS

$$\log\left(\frac{P(\text{provider}=1)}{1-P(\text{provider}=1)}\right) = \beta_0 + \beta_1(\text{race}_1) + \beta_2(\text{race}_2) + \beta_3(\text{race}_3) + \beta_4(\text{race}_4) + \beta_5(\text{race}_5) + \beta_6(\text{gender}) + \beta_7(\text{timeServed}) + \beta_8(\text{new\_musculoskeletal}_1) + \beta_9(\text{new\_musculoskeletal}_2) + \beta_{10}(\text{new\_hypertension}_1) + \beta_{11}(\text{new\_hypertension}_2) + \beta_{12}(\text{new\_asthma}_1) + \beta_{13}(\text{new\_asthma}_2) + \beta_{14}(\text{new\_cancer}_1) + \beta_{15}(\text{new\_cancer}_2) + \beta_{16}(\text{new\_hepB}_1) + \beta_{17}(\text{new\_hepB}_2) + \beta_{18}(\text{new\_cirrhosisLiver}_1) + \beta_{19}(\text{new\_cirrhosisLiver}_2) + \beta_{20}(\text{new\_hypertension} \times \text{timeServed}) + \beta_{21}(\text{new\_hypertension} \times \text{new\_musculoskeletal}) + \beta_{22}(\text{new\_cancer} \times \text{timeServed}) + \beta_{23}(\text{new\_cancer} \times \text{gender})$$

A model with more medical history data with interactions performed the best in predicting provider visits. With a goal of parsimony, a model with more medical history predictors still proved effective.

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Severity and Composition of Illicit Substance Use Among Juvenile Offenders

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Illicit Drug Use Among Adjudicated Offenders: An Intersectional Analysis of Sex- and Race-Related Differences

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BACKGROUND

Substance abuse is widely reported among justice-involved youth. Epidemiological data reveal a strong correlation between substance use and (re)offending, with distinct patterns of drug and alcohol use varying by race/ethnicity and sex.

There is a lack of nationally representative, generalizable data. As a result, current research has yet to offer a comprehensive overview of the substance use characteristics of juvenile offenders.

This study addresses the gap in the substance abuse-offending literature. Findings illustrate the need for a drug-specific, intersectional approach to substance use prevention.

Objectives: **(1)** To determine the composition of illicit drug use among juvenile offenders, **(2)** to identify patterns of drug use among demographic subgroups, and *(3) to estimate the prevalence of SUD and examine interaction effects between sex and race/ethnicity.*

DATA & METHODS

Data Set:
National Survey of Youth in Custody, 2018 (NSYC-3)

- Self-report data collected as part of NSYC-3.

Sample: all adjudicated youths who participated in the NSYC-3-core survey and completed the drug use and drug abuse/dependence survey items (n = 5,024).

Methods:

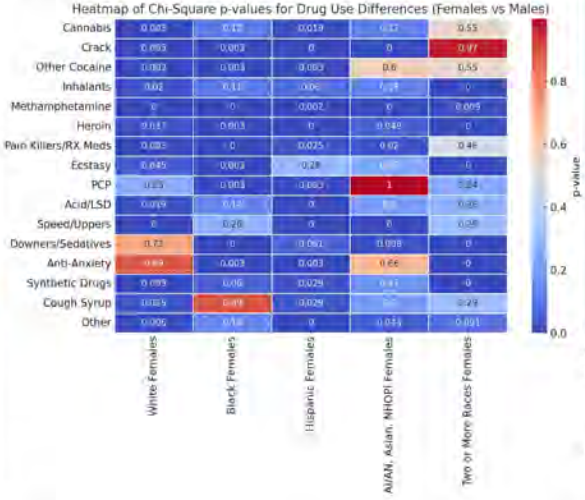
- Multivariate cross-tabulations, providing descriptive characteristics for 16 drug types. Chi-square tests were used to evaluate sex- and race-related differences
- *(3) We plan to fit a series of Poisson regression models to estimate the individual and conjoined effects of sex and race/ethnicity on SUD severity.*

FINDINGS

Drug Use Composition:
Cannabis, prescription painkillers, anti-anxiety medications, and *cough syrup* were the most frequently reported substances used across all groups.

FINDINGS

Drug Use Patterns:
Race differences: White and Hispanic youth reported higher levels of drug use compared to other racial groups.
Sex differences: Females reported higher levels of drug use than males.
Sex-Race/Ethnicity differences: Hispanic females had the highest levels of drug use among all subgroups, while Black males and females reported the lowest levels.



CONCLUSIONS

Substance use disparities between males and females within racial/ethnic groups show that both the types and levels of drug use vary across demographic lines. However, these patterns are not generalizable to either sex, race, or ethnicity. For example, White and Hispanic females report higher levels of hard drug use (e.g., crack, cocaine, methamphetamine) compared to all other subgroups.

Implications:
Substance use prevention
Research has demonstrated that reductions in substance use lower the likelihood of reoffending (Chassin et al. 2016). Reliable data on drug use is essential for identifying the most effective methods of intervention and treatment for youths in custody.

References

1. Chassin, Mansion, Nichter, and Pandika. 2016. "Substance Use and Substance Use Disorders as Risk Factors for Juvenile Offending." http://dx.doi.org/10.1037/14643-013
2. U.S. Department of Justice. Office of Justice Programs. Bureau of Justice Statistics. 2022. *National Survey of Youth in Custody, 2018*. Inter-University Consortium for Political and Social Research.

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The Role of Citizenship Status in Help-Seeking Behaviors and Reporting to Police Among Domestic Violence Survivors

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IMMIGRATION & REPORTING DOMESTIC VIOLENCE TO POLICE

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BACKGROUND

Domestic violence (DV) affects millions of individuals across the U.S., yet is a significantly underreported crime. Formal reporting to the police depends on several factors, including a victim's relationship to the offender (Felson & Pare, 2005), making DV reporting a unique situation that is imperative to study.

Immigrants who experience DV face unique paths to both formally reporting their victimization to the police (Reina & Lohman, 2015) and utilizing assistance from victim support agencies, which may include challenges that US-born citizens do not encounter. These two factors may be the fastest and most supportive steps toward a victim leaving their abuser (Shearson, 2021).

RESEARCH QUESTIONS

R1: Does immigration status impact the odds of victims of domestic violence reporting their victimization to the police?

R2: Does immigration status impact the odds of victims of domestic violence accessing support from victim service agencies?

METHODS

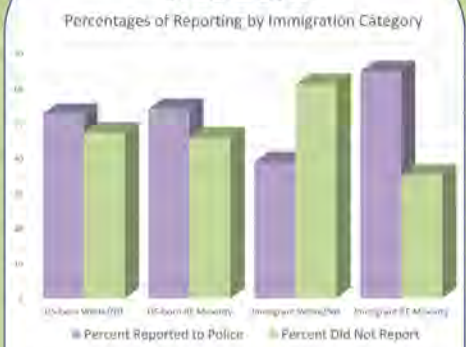
The current study utilized data from the National Crime Victimization Survey (NCVS) between the years of 2017 and 2023. I limited this study to adults who reported having experienced DV in the NCVS, with a final sample size of 2,746. Missing data within the final sample was minimal, with the variable with most missing values having less than 1% missingness.

Both descriptive statistics and binary logistic regression modeling was conducted using SPSS, with the main goal of testing whether immigration acts as a predictor for the outcome variables of interest. This method is most appropriate, as both dependent variables being tested are dichotomous.

The main independent variable of interest for both research questions is *immigration*, which was coded to include both citizenship status and racial/ethnic identity. Based on previous study and existing literature, up to 10 other control variables were also included in the regression models.

Pseudo R-squares were analyzed using both Cox & Snell and Nagelkerke statistics.

RESULTS



Regression of Immigration on Police Reporting

Results yielded 6 significant variables, including immigration. The odds ratio for this variable was 1.145, indicating that immigration status is significantly associated with a higher log odds of reporting to the police. Other significant variables included age (OR=1.011), no. of offenders (OR=.596), education (OR=.967), sexual orientation (OR=1.009), and weapon (OR=1.868).

Regression of Immigration on Help-Seeking

Results showed 4 significant variables, none of which included the independent variable of immigration. Significant variables included age (OR=1.015), education (OR=1.033), IPV (OR=1.641), and injury (OR=2.036).

CONCLUSIONS

These results support the idea that immigration and racial/ethnic identity are important concepts to consider in the context of reporting DV to the police. Particularly, immigration status is associated with a higher odds of reporting to the police. This may be because immigrants have more limited social networks and therefore see reporting as a necessary step toward receiving support for their victimization, as opposed to more informal help-seeking behaviors. As this study did not consider how naturalized citizens may differ as a stand-alone category, how third-party reporting may impact these results, or reasons provided by individuals who chose not to report, further study is needed to better understand the relationship between immigration and police reporting, as well as other help-seeking behaviors.

REFERENCES

Felson, R. B. & Pare, P.-P. (2005). The reporting of domestic violence and sexual assault by nonstrangers to the police. *Journal of Marriage and Family, 67*(3), 597-610.

Reina, A.S., & Lohman, B.J. (2015). Barriers preventing Latina immigrants from seeking advocacy services for domestic violence victims: A qualitative analysis. *Journal of Family Violence 30*, 479–488.

Shearson, K. M. (2021). Seeking help from police for intimate partner violence: Applying a relationship phase framework to the exploration of victims' evolving needs. *Journal of Interpersonal Violence, 36*(3-4), 1745-1771.

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Organized Crime and Challenges Faced by Tribal Law Enforcement Agencies

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Law Enforcement Challenges/Barriers in Indian Country: Assessing Impact on Drug Trafficking Arrests

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RESEARCH PURPOSE

The present study seeks to test the associations between specific tribal law enforcement agency (LEA) challenges/barriers and two outcomes: methamphetamine sales or distribution arrests during calendar year 2018 and opioid sales or distribution arrests during calendar year 2018 to address the following research question:

(1) Which of the barriers and challenges faced by tribal law enforcement in improving public safety in tribal communities results in higher odds of drug arrests?

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INTRODUCTION

- Native American reservations and tribal lands face heightened vulnerability to illicit drug trafficking (Revels & Cummings, 2014).
- The highest rates of drug overdose fatalities occur among American Indian populations (Bauer et al., 2024; Spencer et al., 2024).
- The use of meth in tribal communities is estimated to be 4x higher than the rest of the US population (Coughlin et al., 2021).
- Challenges associated with crime response and prevention are partly attributable to inadequate technology and infrastructure (e.g., broadband) and jurisdictional complexities (Richards et al., 2022).
- However, little is understood empirically about the challenges facing tribal LEA in addressing crimes within Indian Country.

METHODS

Data on Tribally-Operated Agencies (N=215)

- Census of Tribal Law Enforcement Agencies, 2018

Measures ("During calendar year 2018")

- **Authority:** 12-item variety index (KR-20 = 0.89)
  Examples: Indian offenders for victimless crimes (e.g., drug violations)
- **Funding:** 9-item variety index (KR-20 = 0.75)
  Examples: Federal grants, state grants, private funding, etc.
- **Equipment/Technology:** 14-item variety index (KR-20 = 0.64)
  GPS equipment, land-mobile radios, dashboard cameras, etc.
- **Methamphetamine Arrests:** dichotomous; sales or distribution arrests
- **Opioid Arrests:** dichotomous; sales or distribution arrests
- **Other Controls:** Agency office size; Natural log of population

Analytic Plan

- Examine bivariate correlations
- Estimate series of logistic regression models predicting (a) meth arrests and (b) opioid arrests

RESULTS

Table 1. Logistic Regression: 2018 Methamphetamine Arrests (N = 208)

	OR	RSE
Authority	1.14*	0.06
Natural Log of Population	1.03	0.09
Agency Office Size	2.31***	0.43
Constant	0.04***	0.04
Pseudo R^2	0.146	

Logistic Regression: 2018 Methamphetamine Arrests (N = 208)

	OR	RSE
Funding	1.36*	0.19
Natural Log of Population	1.01	0.08
Agency Office Size	2.03***	0.38
Constant	0.09**	0.06

Logistic Regression: 2018 Methamphetamine Arrests (N = 208)

	OR	RSE
Equipment/Technology	1.24**	0.08
Natural Log of Population	1.02	0.09
Agency Office Size	2.12***	0.40
Constant	0.03***	0.03
Pseudo R^2	0.160	

Table 2. Logistic Regression: 2018 Opioid Arrests (N = 208)

	OR	RSE
Authority	1.09	0.05
Natural Log of Population	0.96	0.08
Agency Office Size	2.06***	0.35
Constant	0.09**	0.08
Pseudo R^2	0.101	

Logistic Regression: 2018 Opioid Arrests (N = 208)

	OR	RSE
Funding	1.27*	0.15
Natural Log of Population	0.95	0.08
Agency Office Size	1.87***	0.33
Constant	0.14**	0.10
Pseudo R^2	0.108	

Logistic Regression: 2018 Opioid Arrests (N = 208)

	OR	RSE
Equipment/Technology	1.42*	0.07
Natural Log of Population	0.96	0.08
Agency Office Size	1.95***	0.34
Constant	0.09**	0.07
Pseudo R^2	0.107	

Notes: RSE = Robust standard error adjusted for clustering within tribes.
OR = Odds Ratio. * $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed).

DISCUSSION

- The magnitude of the effect was strongest in the association between equipment/technology and opioid arrests.
- Given the prevalence of meth use on tribal lands (Coughlin et al., 2021), it may be that funding is particularly useful in the detection and interdiction of meth trafficking.
- Findings point to significance of funding and access to technology to improve tribal public safety.

Limitations:

- Limited variability and indicators in sample
- Outcome variables do not capture arrest quality
- Lack of representation among federally recognized tribes in dataset

Future Directions:

- Combine multiple data sources (e.g., NIBRS, Census data)
- Include count for number of arrests instead of dichotomous variable
- Revise analytic strategy to consider mediators of the association between agency office size and outcome variables
- Analyze 2024 CTLEA for patterns, trends

An Examination of Key Factors that Correlate with Human Trafficking in the U.S.

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BJS Bureau of Justice Statistics

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Understanding Human Trafficking and Sexually Oriented Businesses

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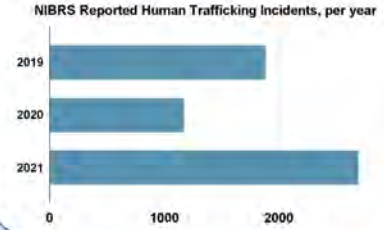
University of Tenn. Chattanooga and Boston College

RESEARCH QUESTION

Do SOB's, airports, highways, casinos, or demography geospatially correlate with higher rates of human trafficking incidents reported by law enforcement in the United States?

BACKGROUND

- Numerical human trafficking data is often "guesstimates" because **"accurate data on the extent of trafficking in human beings does not exist."**[3] The goal of the Human Trafficking Data Warehouse at SMU is to create a resource for law enforcement and researchers to better estimate and combat human trafficking.
- Human trafficking: **the use of force, fraud, or coercion to obtain some type of labor or commercial sex act.**[4]
- **Sexually oriented businesses (SOB's):** strip clubs, retail stores, and theaters providing adult content.
- Recent literature has suggested that there is geographic patterning to sex trafficking.[2]



METHODS

BJS NIBRS Data (2019-2021)

- Incidents were matched by reporting agency to nearest municipality, then grouped by county.
- States where over 90% of the population is covered by actively reporting agencies were included in analysis.

Yelp Application Programming Interface (API) for cities >100,000 people in states identified in NIBRS data

- Search terms:
  - 'Adult entertainment' and 'City, State'
  - 'Casinos' and 'City, State'

American Community Survey 5-Year

- Poverty level
- Population density

Data cleaning

- Number of airports and highways also included
- **n = 212 reporting agencies in 26 states**
- Attributed all data collected to counties
- Conducted:
  - Ordinary Least Squares (OLS) Regression Analysis
  - Pearson Correlation Matrix

RESULTS

- Correlation matrix and the regression analysis were statistically insignificant
- Loose positive Pearson correlation

Pearson Correlation Matrix

	Human Trafficking Incidents per capita
Population Density	- 0.085
Poverty Rate	0.047
SOB per capita	**0.108**
Airport Count	- 0.019
Highway Count	- 0.114
Casinos per capita	**0.145**

City of Dallas

1

1 City of Dallas. (n.d.). *Human Trafficking Awareness*. Tableau Software. Retrieved October 14, 2024, from https://dallascityhall.com/views/HumanTraffickingAwareness/Overview?%3Aembed=y&%3AisGuestRedirectFromVizportal=y&%3Arefresh=yes

2 de Vries, I. (2023). Examining the Geography of Illicit Massage Businesses Hosting Commercial Sex and Sex Trafficking in the United States: The Role of Census Tract and City-Level Factors. *Crime & Delinquency*, 69(11), 2218-2242. https://doi.org/10.1177/00111287221090952

3 Gaodey, I. (2008). Human trafficking: Sketchy data and policy responses. *Criminology & Criminal Justice*, 8(4), 421–442. https://doi.org/10.1177/1748895808096471

4 Text - H.R.3244 - 106th Congress (1999-2000): Victims of Trafficking and Violence Protection Act of 2000. (2000, October 28). https://www.congress.gov/bill/106th-congress/house-bill/3244/text

CONCLUSIONS

- **On limited but more geographically specific datasets (e.g. City of Dallas), correlations were higher**
- The lack of geographic specificity may have resulted in the weak correlations (agency level)
- Further research using more specificity (eg. highway on and off ramps) should be considered

LIMITATIONS

- **The locality of data on human trafficking** (reporting agency level) reduced the accuracy of the assessment of spatial relationships
- Used data from 2019-2021, so some crime reporting may be unreliable due to effects of the COVID-19 pandemic

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Examination of Parent Incarceration in Vermont

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U.S. DEPARTMENT OF JUSTICE
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Comparing Vermont State and National Data on Parental Incarceration

University of Vermont

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Introduction

Evidence has shown that parent-child communication during parental incarceration mitigates childhood trauma and grief while strengthening attachment security.[1] In response, Vermont policymakers have started a conversation aimed towards making these connections positive and accessible. Statisticians have an unique opportunity to contribute third-party data analyzes to inform future policies. The 2021-2024 Vermont Prison Research and Innovation Network study (PRIN) followed a community engaged approach to measure prison climate and culture, including parental incarceration within a local state prison.[2] However, to provide a complete understanding of parental incarceration, these local measurements must be contextualized further with national data. The aim of this project is to compare national parental incarceration data with state measures to understand the data availability and gaps of current parental incarceration measurement systems. This analysis hopes to provide insights for future survey collection and to aid future policymaking.

Methods

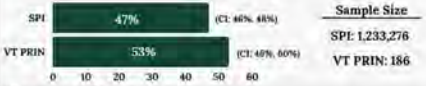
This analysis compared the Bureau of Justice Statistics' (BJS) 2016 Survey of Prison Inmates (SPI) and the 2021 Vermont PRIN survey data. The SPI contained the most comparable and comprehensive national list of questions related to parental incarceration. Both datasets were cleaned by removing missing values, creating new variables based on conditions, and re-coding factors for clarity, all using R.

Pre-specified jackknife weights were applied to the SPI data as recommended by the SPI user guide. The SPI contained binary and categorical variables whereas the VT PRIN survey used a 4-point Likert Scale.

Results

How many incarcerated individuals are fathers of minor children?

Figure 1



Comparison 1

SPI: Were you living with [your child /children] just before your arrest?

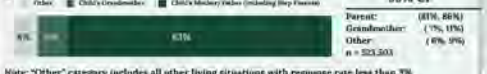
Results : 43% (CI: 42%, 45%) of fathers were living with their child before arrest.

Figure 2

VT PRIN: Before entering prison, I was an active part of my children's lives.

Comparison 2

SPI: Who [is] your [child/children] that you were living with just before your arrest [arrest date] living with now?



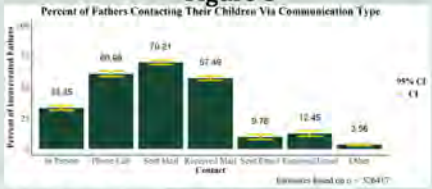
Note: "Other" category includes all other living situations with response rate less than 3%

VT PRIN: My children are well cared for while I am incarcerated.

Comparison 3

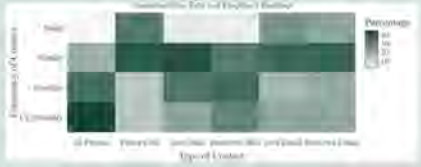
SPI: What type of contact have you had with [your child/children]?

Figure 3



SPI: About how often have you had in-person visits with [type of contact]?

Figure 4



VT PRIN: This facility makes it possible for me to play a meaningful role in my children's lives.

Discussion

Both surveys ask similar questions about the pre and post- arrest parent-child relationship and living situations, but the SPI survey emphasizes the quantity of interactions, while the VT PRIN focuses on quality. Comparison 3, which shows the types and frequency of parent-child contact, highlights which methods work best for families. These findings give context to the VT PRIN question on how parents feel about the quality of interactions in Vermont prisons. However, there are limitations: the surveys were conducted in different years, with varying methods, and assumptions about 'close' relationships were made in interpreting the SPI data. Still, this project is a starting point for understanding parental incarceration.

References

1. Bocknek, Erika London, Jessica Sanderson, and Preston A. Britner. 2009. "Ambiguous Loss and Posttraumatic Stress in School-Age Children of Prisoners." *Journal of Child and Family Studies* 18(3):323–33. doi: 10.1007/s10826-008-9233-y.

2. Crocker, A. M., & Fox, K. J. 2024. "Using a Community-Engaged Survey to Describe Prison Environments and Measure the Mental Health Status of Correctional Staff and Incarcerated Individuals." *Journal of Contemporary Criminal Justice*, 0(0). https://doiorg.ezproxy.uvm.edu/ 10.1177/10439862241272311

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Bullying, Safety and Fear in Schools: What Role do Adults, School Fairness, and Reporting Play?

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U.S. DEPARTMENT OF JUSTICE
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Bullying, Safety, and Fear in Schools: What Role Do Adults, School Fairness, and Reporting Play?

Bureau of Justice Statistics Student Research Expo
Lily A. Palmer, Kelly Lynn Mulvey, Ph.D. – North Carolina State University

Introduction

- School resource officers (SROs) are increasingly prevalent in schools throughout the U.S.[1] Despite this, the actualized role and effectiveness of SROs are unclear.
  - Some studies suggest that SROs perceive their role to be one of crime control, with students – particularly those of color – as potential offenders.[1,2]
  - Although having SROs is intended to increase school safety, students of color and victimized students often report feeling less safe given the presence of SRO(s).[3,4]
- Presently, there is a research gap concerning potential connections between SROs and bullying.
  - Other important factors to consider in bullying prevention may be adult supports, school rule fairness, and anonymous reporting options.[5–9]

Research Aims

- Investigate how:
  - bias-based vs. general bullying
  - solo vs. group bullying
  - frequency of bullying
  - locations of bullying
  - opportunity to anonymously report threats
  - reports of bullying to teachers/adults
  - feelings of safety and fear of harm
  - avoidance within school
  - perceptions of school fairness

relate to the presence of SROs in schools, with each other, and across student race, age, and sex.

Research

Data and Methodology

- Data analyzed from the 2022 School Crime Supplement (N = 12,335)
  - Age: 12-18 years (M = 14.99, SD = 1.98)
  - 52% male, 48% female; 77.5% White, 22.5% non-White
  - 18.6% of respondents reported experiencing general bullying in the last year (N = 878)
  - 34.1% of respondents reported experiencing bias-based bullying in the year (N = 300)
  - 86.6% of respondents reported having an anonymous way to report threats to safety (N = 3,434)
  - 79.7% of respondents reported having an SRO(s) in their school (N = 3,580)
  - 90.6% of respondents reported having other forms of adult supervision in their school (N = 4,113)
- Regressions and logistic regressions were employed to understand potential links between school safety measures, bullying factors, school supports, students' feelings of fear and safety, and student characteristics.

Results

- Students who were more likely to have reported experiencing generalized bullying than to have not:
  - White (25.2%*), female (30.2%**), and younger (17.1%***)
  - Did not have an anonymous reporting option for threats to safety (22%*)
  - Perceived the school rules as less fair (more than 5 times***)
  - Felt less teacher support (28%**)
  - Reported less adult supervision (51%**)
- Students who were more likely to have reported experiencing bias-based bullying than to have not:
  - Non-white (33.2%*) and female (47.1%*)
  - Perceived the school rules as less fair (55.4%*)
- Students who were more likely to perceive the school rules as fairer and reported lower fear of harm and higher feelings of safety:
  - Had an anonymous reporting option for threats to safety (β = -.127***, -.082*, -.117**)
  - Felt more teacher support (β = .311***, .082*, .284***)
- Students who reported less teacher support (β = .181*) and more days being bullied (β = .317***) reported avoiding more places/class in school.
- Students who were more likely to tell a teacher or adult about being bullied:
  - Felt more teacher support (38.3%*)
  - Were bullied in 'hidden' locations (50.2%*)
  - Bullied by group(s) (more than 2 times**)

Note. *p < .05; **p < .01, ***p < .001; (%) = % or times likelihood; β = standardized coefficients

Discussion

- Based on these findings, it appears that SRO presence in schools did not have a significant relationship with bullying and perceptions of safety and fear – rather, perceptions of fairness, adult supervision, reporting, and supportive teachers do play a significant role.
  - Thus, school efforts and resources may be better allocated for reassessing rule fairness, adopting anonymous reporting mechanisms, and fostering positive student-teacher/adult relationships.[5–9]

Limitations

- Although the SCS contains a large sample size, there is a high percentage of missing data related to bullying and school safety variables, which is further limited to 12- to 18-year-old students.
- The majority of reported schools did have SROs (nearly 80%), making it important to consider investigating these relationships in more schools without SROs.

Future Directions

- More information should be collected from students who have experienced both types of bullying within schools and students without SROs in their schools to potentially reinforce the relationship strength between variables.
- Because perception of rule fairness appears to be extremely important, future research should explore what types of rules foster climates in which kids are bullying less and are more comfortable reporting being bullied.

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References

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Gender Composition in Law Enforcement Agencies

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U.S. DEPARTMENT OF JUSTICE
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Gender Composition in Law Enforcement:

An Analysis using Law Enforcement Management and Administrative Statistics (LEMAS), 2020

Elizabeth Tranquil | North Carolina State University | Department of Statistics

NC STATE UNIVERSITY

Research Question

- Women bring value to law enforcement roles [1, 3].
- **Are there significant predictors for the proportion of FT sworn female officers at a law enforcement agency?**
- Sworn officers are those with general arrest powers.
- Employees regularly scheduled to work 35+ hours per week are considered full-time.

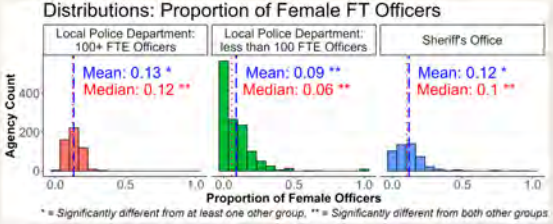
Data: LEMAS 2020

Sample: representative of law enforcement agencies in United States, includes all agencies (State, Sheriff, Local) with 100+ sworn officers and a sample of smaller agencies.

Over-all response rate: 78.1% [2].

Variables are both categorical and numeric, including:

- **Personnel**
- **Budget**
- **Service Area**
- **Community Policing**
- **Selection and Training**
- **Hiring and Retention**
- **Equipment and Operations**
- **Technology**
- **Policies and Procedures**



Methods

Clean and prepare data

(n = 3499 x p = 437)

- Drop noncontributory, low variance variables and state agencies; handle missing & out of range values

Create model matrix

- One-hot coding for categorical variables
- Scale and center predictors

Screen variables by fitting models

- binomial logistic regression with logit link:

log-odds(♀ FT sworn officer)

=

1st predictor + 2nd predictor

- **Response:** log-odds = log(success/failure), with success = PERS_FEMALE (Number of Female Full-time Sworn Officers/Deputies) and failure = (FTSWORN (Number of full-time sworn personnel) – PERS_FEMALE)
- **1st predictor:** control variable – included in every model, serves as control for agency size: TOTFTEMP (Total number of full-time paid agency employees)
- **2nd predictor:** another variable in the dataset (most were tested)

Filter results for significant 2nd predictors:

- VIFs < 5
- Bonferroni adjusted p-values < 0.05

Results and Conclusions

- There *are* predictors for the proportion of FT female sworn officers – these are significant ($p > 0.05$), but there are many of them in LEMAS 2020, with **each predictor contributing a very small effect individually.**
- Consistent with previous research [3], when it comes to inference, **there is not a single dominant factor in the data.** Gender balance appears to be influenced by a diffuse dimension, perhaps organizational culture or structural characteristics, which would be challenging to isolate in a study of establishment characteristics of law enforcement.
- Limitations include that this analysis serves as variable selection to identify variables for further study, and it focus on identifying associations – it can not make any causation claims.

References and Acknowledgements

[1] U.S. Department of Justice, National Institute of Justice. *Women in Policing: Breaking Barriers and Blazing a Path.* Washington, DC: U.S. Department of Justice, 2019. https://nij.ojp.gov/library/publications/women-policing-breaking-barriers-and-blazing-path.

[2] United States Department of Justice, Office of Justice Programs, Bureau of Justice Statistics. *Law Enforcement Management and Administrative Statistics (LEMAS), 2020.* Inter-university Consortium for Political and Social Research, 2023. https://doi.org/10.3886/ICPSR38651.v1.

[3] S. Kim, "The representation of women in policing and community policing implementation," thesis, Michigan State University, 2024.

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Closing Remarks

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