The Thesis Committee for Chloe Craig
Certifies that this is the approved version of the following Thesis:

Criminal Legal Contact and County-Level Health Outcomes

APPROVED BY

SUPERVISING COMMITTE
Elizabeth (Becky) Pettit, Supervisor

Abigail Weitzman

Criminal Legal Contact and County-Level Health Outcomes

by

Chloe Craig

Thesis

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

Master of Arts

The University of Texas at Austin

December 2021

Abstract

Criminal Legal Contact and County-Level Health Outcomes

Chloe Craig, M.A.

The University of Texas at Austin, 2021

Supervisor: Elizabeth (Becky) Pettit

Abstract: This paper investigates broader health outcomes to show how the criminal legal system, from prison incarceration to misdemeanors, contributes to health inequalities. Specifically, it seeks to understand how different forms of criminal legal contact, namely misdemeanors, jail incarceration, and prison incarceration, affect tuberculosis, chlamydia, and gonorrhea transmission rates. In order to investigate this, I used administrative data from Texas on county misdemeanors, jail, and prison incarceration and CDC data on county-level tuberculosis, chlamydia, and gonorrhea rates in the years 2012 and 2013. Results show a significant relationship between criminal legal contact and disease transmission. Findings also indicate mediating relationships with financial and demographic factors. Future research should investigate the ways in which systematic access or avoidance plays a role in the relationship between criminal legal contact, specifically low-level forms of it, and aggregate health outcomes. Overall, though, this paper demonstrates that we should be thinking about all forms of criminal legal contact as a factor when discussing public health matters, especially at a community level. Finally, when people have unequal exposure to institutions that fundamentally increase or decrease health, this has implications for policies that should protect the most vulnerable and resource-deprived. If systematic criminal legal contact is an indicator of healthcare vulnerability,

policy changes should address the ways in which these institutions are tethered and functioning

together within communities.

Table of Contents

List of Tables

Introduction

Recent public health considerations have renewed attention to whether and how the criminal legal system impacts health inequalities. So far, the links between increased infectious disease and incarceration have been shown, but little scholarship discusses the relationship between health outcomes and lower levels of criminal legal contact. For this reason, this paper explores the ways that forms of criminal legal contact outside of incarceration, such as misdemeanors, contribute to this relationship. And, if there is a relationship, how misdemeanors inform community health similarly or differently compared to incarceration. This will ultimately contribute further to our understanding of how compounded inequality is perpetuated by the criminal legal system.

Prior evidence has shown a mixed relationship between incarceration and health outcomes. In some research, there seems to be a strong correlation between incarceration and health (Wildeman and Wang 2017; Schnittker and John 2007; Nowotny et al. 2020) while for others less so (Anderson and Burris 2017). There is less clear evidence about whether and how different types of criminal legal contact, from arrest to incarceration, impact outcomes related to health. Some scholarship offers individual explanations related to behavioral decisions that could explain both decreased health and increased criminal legal contact (Pouget et al. 2010). Other scholarship discusses how the criminal legal system might affect networks that mediates health outcomes (Morris and Kretzschmar 1997; Granovetter 1973). Finally, scholarship related to the collateral consequences of crime give some evidence as to why individuals tethered to the criminal legal system might have decreased health and decreased connections with other institutions such as healthcare (Brayne 2014; Lageson 2020; Phelps 2020).

This paper will look more deeply into how criminal legal contact contributes to county-level sexually transmitted infection (STI) and tuberculosis rates. I leverage a unique compilation of administrative data to more carefully examine how different measures of criminal legal contact, from low-level misdemeanors to incarceration, impact different indicators of community health. Additionally, the three outcomes in this study allow exploration into the mechanisms through which the growth of the criminal legal system may impact health and health inequalities.

This article advances scholarship on the collateral consequences of crime, especially in the context of health, specifically how county-level health might be affected by and through the criminal legal system. Additionally, because health and the criminal legal system are most commonly analyzed through jail and prison incarceration rates as an outcome, this paper will explore the unique ways low-level contact affects health as well.

Background

Criminal Legal Contact and Inequality

This research is building on past scholarship that starts to think about different forms of criminal legal contact as unique and influential. There are several reasons why one might expect jail incarceration, prison incarceration, and misdemeanors to influence community health differently. As mentioned, jail and prison incarceration are both controlled environments with unique characteristics that affect individuals. Jail sentences tend to be shorter, usually less than one year, and are reserved for individuals who are serving minor sentences, are awaiting trial, or are waiting on a prison placement. Alternatively, prison sentences are usually well beyond one year. Misdemeanor citations are a different form of criminal legal contact where an individual may be served a citation or a fine/fee, but it is unlikely to result in incarceration of any kind. Understanding the differences in constraints that follow each form of criminal legal contact, specifically in the length of contact, the constraint type, and the different environmental factors that apply, there are reasons why all forms of criminal legal contact might have direct relationships with disease transmission. This paper explores these relationships further and suggests several mechanisms that might contribute to criminal legal contact and county-level health outcomes.

Generally, research has shown the various ways that the criminal legal system causes and perpetuates inequality in ways that are both gendered and racialized (Hinton and Cook 2021). That is, marginalized communities are treated more punitively by the criminal legal system, which has implications for the ways we think about aggregate-level effects of contact and health. Scholars have outlined how experiences, such as incarceration, can have negative impacts on aspects such as social life (Comfort 2007), employment (Pager 2003), and health/healthcare

(Wildeman and Wang 2017; Brayne 2014). They highlight how individuals with criminal records are often barred from participating in society which, in turn, widens inequality and often leads to recidivism. It should also be noted that collateral consequences are not just for an individual in direct contact with the criminal legal system, but also their loved ones. This means that the effects of a criminal record will permeate beyond an individual and can be crippling to a partner. In this case, an individual or a community may have several layers of vulnerability which could systematically explain how we understand the relationship between institutions from a lens of inequality and access. Thus, poverty and resource deprivation are likely to be confounding the relationship between criminal legal contact and disease transmission. That is, the relationship between these two criminal legal contacts and health likely can be explained by reduced access to resources in the form of social and financial capital within a county.

Prison Incarceration

Prison incarceration is one form of a closed network and through its confinement and restricted interactions, we might expect high levels of disease transmission that will influence the overall county-level transmission rate. As mentioned above, prison sentences are usually beyond one year in length. According to a 2020 report from the Texas Department of Criminal Justice, the average sentence length for the 140,000 individuals serving a prison sentence in Texas is 19.2 years. This population is 93% male, 36.4% Black, 32% Hispanic, and 30% white. Because a prison sentence is usually several years in length, the population could be considered what Morris and Kretzschmar (1997) describe as a "closed network" that can increase disease transmission across the group. A closed network is more likely to have few, strong connections with one another; in a prison, not only is physical contact outside of other residents extremely

limited but verbal contact is restricted as well. According to Morris and Kretzschmar (1997), members in a closed network might have increased amounts of overlapping partner concurrency, or multiple overlapping sexual partners, which would increase disease transmission across the network. Scholarship by Nowotny et al. (2020) shows a significant and positive relationship between prison and jail incarceration and STI transmission rates at the county level, which may be highlighting how individual factors such as partner concurrency can be seen at an aggregate when environments such as incarceration heavily influence patterns. Baillargeon et al. (2000) also show how much higher prevalence rates of diseases are within prisons compared to the general population.

While most scholarship highlights the ways in which prison incarceration is associated with negative health outcomes, Gutierrez (2020) finds that prison can serve as a health-promoting institution for subsets of the population that would not otherwise have healthcare. In this case, an individual may benefit from incarceration from a health perspective in the short term. So, we may not only see spikes in STI outbreaks because of tighter networks and concurrent partnerships but also because individuals might have access to testing that they would otherwise not receive on the outside. This protective factor is only a short-term effect, as Wildeman and Wang (2017) emphasize that incarcerated individuals are more likely to suffer from serious physical and mental health diagnoses after serving sentences and that because incarceration is more prevalent in Black and poor communities, this contributes to widening health inequalities at a community/county level. Overall, prior research highlights the environmental factors that contribute to the relationship between prison incarceration and health outcomes, which leads to the first assumption in this paper: counties with increased prison incarceration will have higher disease transmission rates.

Jail Incarceration

Jail incarceration has several similarities and distinctions from prison incarceration which may influence disease transmission. Although individuals stay in jail for a shorter period, they are still subjected to confined space and restricted contact that may facilitate disease transmission within a unit. However, *because* of the shortened stay, the disease may travel more easily *outside* of the jail and spread more widely throughout the community. Additionally, because this population is larger than the prison population, health outcomes in jails may drive county-level outcomes. Finally, jail incarceration may serve as a unique representation of the criminal legal system as it represents a larger portion of a population serving time for low-level crimes while also controlling their environment. Prior research has also found that an increase in within county jail incarceration rates was linked to an increase in mortality rates by 2.5% and (Kajeepeta et al. 2020) and was associated with higher rates of STIs (Nowotny et al. 2020). Overall, it is expected that increased jail admission rates will similarly increase county-level health outcomes.

Misdemeanors

The last form of criminal legal contact is misdemeanor contact, which although it does not lead to incarceration, affects a larger population overall. In turn, misdemeanors tend to constrict individuals financially rather than physically through citations, fines, and fees. The repercussions of misdemeanors can vary and can be debilitating for low-income individuals who cannot pay the fine or take off work to show up in court. Individuals who are not incarcerated, but tethered to the criminal legal system, may also be more likely to have closed networks. Scholarship by Lageson (2020) and Schnittker and John (2007) show how stigma and criminal

labeling can lead to high amounts of stress and often make people less likely to participate in their community. This means that surveillance mechanisms outside of incarceration, such as probation or parole, may continue to restrict an individual's network.

This has implications for what Brayne (2014) terms "system avoidance," or the ways in which individuals fear future punitive measures through data collection and surveillance in other formal institutions. This theory helps show how individuals might systematically avoid spaces as a direct response to criminal legal contact, especially spaces such as hospitals and doctor's offices for fear that their information will be shared with actors within the criminal legal system. This matters because so many people fall into this category of having a criminal record, or having an incarcerated loved one. If a person feels unable to get tested, seek treatment, or consult a medical professional about their health, they are more likely to suffer from even treatable illnesses. And, if groups of people are systematically avoiding formal institutions such as healthcare, counties with higher misdemeanor rates may have lower disease transmission rates because of reduced testing.

Building on the effects of social capital and the stigma of criminal legal contact, research also shows how neighborhood policing patterns matter for psychological health (Sewell, Jefferson, and Lee 2016). In areas where policing (frisks and use of force) is higher, men are more likely to be nervous and feel worthless. Sewell and Jefferson (2016) have found that higher counts of police stops and encounters are associated with negative individual-level health outcomes such as diabetes, high blood pressure, asthma episodes, and increased weight gain. This is especially important to note because it highlights the fact that that incarceration is not necessary for an individual to receive negative health outcomes from criminal justice interactions. Stigmatized populations are especially vulnerable to negative health outcomes such

as HIV and mental illness (Hatzenbuehler, Phelan, and Link 2013). This is salient for both public

health and criminal justice scholars because individuals connected to the criminal legal system

are particularly stigmatized, and where there are systematically increased levels of policing, we

are likely to see a social ripple effect within a community's health. Overall, misdemeanors are

likely influencing county-level health outcomes, but due to system avoidance transmission rates

may not reflect this.

Data, Measures, and Analytical Strategy

Data

In order to investigate how different forms of criminal legal contact impact county-level health outcomes, I draw on a unique compilation of administrative data from 254 Texas counties. Texas is extremely diverse and the characteristics of counties within Texas vary widely. Because of this, the results in this study are even stronger as they persist across counties. Texas also consists of almost 10 percent of the nation's population and is known for its high incarceration rates and rates of criminal legal contact. By investigating the relationship between the carceral system and health in Texas, it may be easier to understand the differences between incarceration rates between other states or counties across the nation.

The main independent variables in this study are three different forms of criminal legal contact: prison incarceration, jail incarceration, and misdemeanors. Because I want to understand the association criminal legal contact has on county-level health, all independent variables are lagged 1 year. Jail and prison incarceration variables were collected by the Vera Institute of Justice "In Our Own Backyard" Incarceration Trends (IOB); these variables consisted of annual admission rates, demographic characteristics of each jail and prison in Texas, and total county size. Misdemeanor rates were gathered through the Texas Office of Court Administration (OCA) through the municipal and judicial court data in 2012. Finally, I also collected demographic variables such as poverty rate, unemployment rate, percent uninsured, urbanicity, percent Black, percent Latinx, and male/female ratio for each county in Texas. These demographic variables were necessary to include in my models, as prior research has shown the impacts that inequality has on both the carceral and the healthcare system. My three dependent variables represent two forms of disease transmission, airborne, tuberculosis, and sexually transmitted, chlamydia and

9

gonorrhea. These variables were collected through the CDC's AtlasPlus data (NCHHSTP

AtlasPlus) and are midyear rates of positive cases within each county of Texas in 2013 per

100,000 persons.

Independent Variables

My main independent variables are three forms of criminal legal contact: prison

incarceration, jail incarceration, and misdemeanor rates. The prison incarceration rate is the

number of prison admissions in each county per 100,000 persons in 2013. The jail incarceration

rate is the number of jail admissions in each county per 100,000 persons in 2013. Individuals can

serve jail time for several reasons, but it is most often for under 1 year, so the same individual

can account for more than 1 admission. Class C misdemeanors are fine only criminal

infractions/violations that do not lead to arrest. These can be traffic violations, public

intoxication, theft of below $100 value, disorderly conduct, violations of city ordinances,

etc. This variable accurately reflects a different population from those serving jail or prison

sentences. It also guarantees contact with the criminal legal system in a different way from jail

and prison. That is, an individual will likely have contact with one or more police officers and

will also have to appear in front of a court, but likely the disruptions of a class C misdemeanor

more accurately reflect the lowest form of criminal legal contact.

The rest of my independent variables represent different financial and demographic

characteristics. The first four variables are used to indicate a county's wealth and resource

allocation: mean income, poverty rate, percent uninsured, and unemployment rate. The second

set of variables show the demographic makeup of a county: urbanicity, male/female ratio,

percentage Black, and percentage Latinx. I chose to include a male/female ratio because it could

be the case that having a county that is disproportionately male or female will skew disease transmission, specifically for sexually transmitted infections like chlamydia or gonorrhea. Racial demographics for a county also have been shown to be indicators of higher policing and fewer resources.

Dependent Variables

Dependent variables include the county rates of tuberculosis, chlamydia, and gonorrhea for all Texas counties in 2013. To broaden my argument about disease transmission rates and health outcomes, I added tuberculosis along with the STIs chlamydia and gonorrhea (Jones et al. 1999). This is important because tuberculosis is especially prevalent within prisons and areas with poor air quality and is an airborne disease rather than my other two outcomes which are sexually transmitted. This outcome thus serves as both an indicator of poverty and disadvantage as well as broadens my findings to be about general disease transmission (rather than just STIs). So, by investigating all three outcomes, I can further show how different types of disease transmission are associated with county-level criminal legal contact. Additionally, because high rates of TB show up where the main/only explanatory mechanism is circulation through the criminal justice system, this serves as a unique comparative outcome. There were 31 counties with non-zero rates of tuberculosis, the remaining counties contained missing rates of tuberculosis, as there were zero cases of tuberculosis within that given year; in these cases, zeroes were added to replace the missing observation.

Analytical Strategy

In order to analyze these data, I used regression analyses. First, regression analyses are run on all independent and control variables for each health outcome (tuberculosis, gonorrhea, and chlamydia). Models were run with standardized and log-transformed variables after closer inspection of the data and each variable independently. Next, regression models were created using small subsets of independent variables to check that mediating variables within the models. Variables were grouped as either an indicator of a county's financial constraints or their demographic makeup. I also used stepwise methods to investigate the variables that were contributing the most to my model. Finally, robustness checks in the regression analyses were used to ensure that regression analysis was the proper method for this study.

After inspecting my data for outliers, I looked into my regression models to see if any counties that were outliers were also influential. I used tests such as cook's d and q-q plots to test my regression models for influential cases. Loving county and Kenedy county were the 2 most influential cases. Most other cases were within the normal ranges of cooks d. This tells me that although there is wide variation in the size and urbanicity of counties in Texas, most are not influencing my models. However, it does seem to be the case that the most influential models are both extremely small in size and rural. Because of the number of counties that are influential due to size, I included the variable "Urbanicity" which is a categorical variable that sorts counties into four groups: urban, suburban, rural, and small/mid-sized towns. By including this variable in the full model, it will show county type might play a role in the relationship between criminal legal contact and health outcomes. Urbanicity is not only related to population size, but it also helps highlight the reasons why characteristics of a rural town versus an urban city might affect outcomes in disease transmission. For example, rural towns might have fewer clinics per capita,

less variation across racial and economic factors, and a smaller budget for other community

resources.

Results

Table 1 shows the descriptive statistics of all dependent, independent, and control variables across 254 Texas counties. Across all counties, tuberculosis remained the least transmitted in 2013 with about 4 cases per 100,000 persons. However, there was one county, Garza, with a reported rate of about 110 cases per 100,000 persons. Both chlamydia and gonorrhea have higher average transmission rates of about 483 cases and 125 cases per 100,000 persons respectively. Within all dependent variables, however, the range between counties is wide highlighting the variation in health outcomes across counties.

Table 1. Descriptive Statistics

Variables	N	Mean	SD	Min	Max
Dependent Variables					
Tuberculosis Rate	254.00	4.12	3.79	0.00	109.50
Chlamydia Rate	254.00	482.64	168.35	0.00	1,068.60
Gonorrhea Rate	254.00	125.48	68.31	0.00	416.00
Independent Variables					
Total Jail Admission Rate	254.00	6,348.26	8,222.02	0.00	205,827.05
Total Prison Admission Rate	254.00	462.24	180.13	0.00	1,360.54
Total Misdemeanor Rate	254.00	13,258.85	4,646.58	3,311.92	297,537.62
Control Variables					
Total Population	254.00	1,448,527.38	1,506,025.96	106.00	4,355,158.00
Females Per 100 Males	254.00	100.03	6.66	30.63	113.80
Percentage Black Residents	254.00	11.94	7.63	0.00	34.11
Percentage Latinx Residents	254.00	37.46	21.34	2.79	95.29
Mean Income	254.00	27,673.12	5,678.86	12,484.50	46,804.10
Poverty Rate	254.00	17.53	5.99	0.00	41.28
Unemployment Rate	254.00	8.20	1.66	0.00	20.61
Percent Uninsured	254.00	0.26	0.07	0.12	0.50

Table 1 also shows how each form of criminal legal contact varies across counties; as expected, misdemeanors have the highest rate across counties in 2012, followed by the jail admission rate and then the prison admission rate. There is on average about 13,259 misdemeanors in 2012 across Texas counties per 100,000 persons. It should be noted, however,

that an individual can receive more than one misdemeanor in a given year. The average number

of jail admissions across Texas counties was about 6,348 persons per 100,000 and the average

prison admission rate was about 462 persons per 100,000. Upon further inspection, several small

counties seem to have extraordinarily punitive practices which drive jail admission rates. For

example, Loving County, a county with a population of 64 adults between the ages of 15 and 64,

reported a jail admission rate of 25,276 admissions per 100,000 persons. King County, a county

with 180 adults, reported a jail admission rate of 205,827 per 100,000 persons. Although their

population sizes are extremely small, their jail admission rates amount to much higher than the

average admission rate across Texas counties. Because of this, urbanicity will be investigated in

future regression analyses.

Table 2. Regression of County Level Tuberculosis Rates

Variables	Model 1	Model 2	Model 3	Model 4
Total Jail Admission Rate	-0.00			0.00*
Total Prison Admission Rate	-0.00*			-0.00*
Total Misdemeanor Rate	0.00***			0.00
Unemployment Rate		-0.18		-0.43***
Poverty Rate		0.09		0.08
Mean Income		0.00***		-0.00
Percent Uninsured		36.53***		25.05***
Female Per 100 Males			-0.03	-0.05*
Percentage Black Residents			0.18***	0.11***
Percentage Latinx Residents			0.10***	0.02
Urbanicity = 2, Suburban			-1.19**	-1.39**
Urbanicity = 3, Small/Midsize			-1.05**	-2.28***
Urbanicity = 4, Rural			-2.02***	-3.79***
Constant	3.42***	-11.64***	1.70	6.34
Observations	254	254	253	253
R-squared	0.04	0.37	0.41	0.50

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2 highlights that all forms of criminal legal contact have some significance with tuberculosis transmission rates across Texas counties in 2013. Model 1 only contains the three forms of criminal legal contact and here both the prison admission rate and the total misdemeanor rate are significant predictors of the county tuberculosis rate. This significance remains for the prison admission rate in the full model, however, it disappears for misdemeanors when all control variables are added. The final model also shows small, but positive significance, with the total jail admission rate and tuberculosis transmission, which was not in Model 1. In model 2, both mean income and percent uninsured were significant with the county-level tuberculosis rates. In model 3, both race and urbanicity were significant, with percentage of Black and Latinx residence positively associated with tuberculosis rates and suburban, small/midsized counties, and rural counties negatively associated with tuberculosis rates compared to urban counties. Overall, criminal legal contact is significant with county-level tuberculosis rates. Specifically, the total prison admission rate is negatively associated with transmission, which is surprising given previous research on the effects of prison and tuberculosis transmission (Valway et al. 1994; Nyangulu et al. 1997). However, in the full model, the jail admission rate was significant and positively associated with tuberculosis transmission. So, increases in jail incarceration could lead to an increase in tuberculosis across the county.

Table 3. Regression of County Level Chlamydia Rates

Variables	Model 1	Model 2	Model 3	Model 4
Total Jail Admission Rate	-0.00*			-0.00
Total Prison Admission Rate	0.20***			0.21***
Total Misdemeanor Rate	0.00**			0.00
Unemployment Rate		4.94		6.52
Poverty Rate		11.41***		1.58
Mean Income		0.00		0.00
Percent Uninsured		-231.02		-1,533.77***
Female Per 100 Males			-4.28***	-2.23*
Percentage Black Residents			5.26***	8.99***
Percentage Latinx Residents			2.54***	6.88***
Urbanicity = 2, Suburban			-152.71***	-123.02***
Urbanicity = 3, Small/Midsize			6.13	20.00
Urbanicity = 4, Rural			-142.18***	-96.84**
Constant	343.57***	256.27**	795.45***	554.10***
Observations	254	254	253	253
R-squared	0.08	0.10	0.41	0.53

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3 describes how criminal legal contact is associated with county-level chlamydia transmission rates. As shown in the first model, all levels of criminal legal contact are associated with the transmission of chlamydia. However, once all the control variables are added, prison incarceration is the only variable that remains significant. So, economic and demographic factors may moderate the relationship between jail incarceration and misdemeanor rates and chlamydia transmission. The poverty rate, sex ratio, race, and urbanicity are all significantly associated with county-level chlamydia transmission, however, the poverty rate loses significance in the full model. Overall, criminal legal contact is associated with criminal legal contact, and even when controlling for economic and demographic variables, prison incarceration still remains significant. Thus, jail incarceration and misdemeanors may play a role in disease transmission by

restricting an individual in ways similar to economic, racialized, and specialized discrimination does.

Table 4. Regression of County Level Gonorrhea Rates

Variables	Model 1	Model 2	Model 3	Model 4
Total Jail Admission Rate	-0.00*			-0.00
Total Prison Admission Rate	0.14***			0.11***
Total Misdemeanor Rate	0.00			0.00
Unemployment Rate		5.88**		2.47
Poverty Rate		4.09***		1.40
Mean Income		0.00		0.00
Percent Uninsured		-217.57*		-579.52***
Female Per 100 Males			-1.69***	-0.98*
Percentage Black Residents			3.80***	5.14***
Percentage Latinx Residents			0.18	1.88***
Urbanicity = 2, Suburban			-60.21***	-42.11***
Urbanicity = 3, Small/Midsize			15.68*	19.42
Urbanicity = 4, Rural			-50.69***	-33.05**
Constant	55.10***	23.10	255.38***	123.89*
Observations	254	254	253	253
R-squared	0.15	0.05	0.44	0.56

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Finally, Table 4 describes the relationship between criminal legal contact and the county-level gonorrhea rate. In the first model, which only includes criminal legal contact, both jail incarceration and prison incarceration are significantly associated with the county-level gonorrhea rate. However, jail incarceration loses significance in the full model. Thus, similar to chlamydia, when including variables that represent economic instability, racial minorities, and urbanicity, jail, and misdemeanor rates are not significant predictors of chlamydia or gonorrhea. However, in the full model of all three diseases, economic variables such as the unemployment rate or the poverty rate and demographic variables such as the sex ratio and percentage of Black or Latinx remain significant for county-level health outcomes. Thus, results highlight the ways in

which criminal legal contact facilitate or are facilitated by inequality which has serious health

implications at the aggregate level.

Discussion

The findings in this paper have theoretical, substantive, and policy implications. Theoretically, this paper helps to expose how layers of vulnerability shape groups and communities. Through the vast levels of inequality in America, we know that our environment is predictive of the level of criminal legal contact one might have. Additionally, our environment can affect our exposure to violence and can shape the informal rules one uses to respond to our environment. For example, Elijah Anderson's book, *Code of the Street (2000)*, demonstrates how informal rules shift depending on location. He argues that "simply living in such an environment [one that lacks jobs with living wages, poor public services, rampant drug use, and drug trafficking] places young people at special risk of falling victim to aggressive behavior." Not only does Anderson show *how* we might expect norms and informal rules to shift depending on location, but he also explains *why*. Additionally, *Code of the Street* is an example of how structure can often trump individual behavior, which is the basis for this study.

Not only should we think of the criminal legal system as an institution that informs individual health outcomes, but we should think of it as an institution that functions in conjunction with other institutions, such as healthcare, to perpetuate health inequalities. Through research on the collateral consequences of crime, it is evident that the effects of incarceration move well beyond the individual or confinement. Rather, criminal legal contact has effects on an individual's social life (Comfort 2007; Lageson 2020), their employment (Pager 2003; Pettit & Western 2004; Lageson 2020), and their health (Nowotny et al. 2020; Kajeepeta et al. 2020). Because of this, it is reasonable to assume that even low-level forms of criminal legal contact will have lasting effects on an individual. Additionally, prior research has shown the ways in which the criminal legal system informs health outcomes related to chronic stress (Sewell and

Jefferson 2016) and physical confinement (Gutierrez & Pettit 2020; Nowotny et al. 2020; Kajeepeta et al. 2020). This paper investigates broader health outcomes to show how the criminal legal system, from prison incarceration to misdemeanors, contributes to broader health inequalities.

This paper contributes to the growing scholarship that shifts its attention to the *institutional* determinants of health that have large upstream influences. Although transmission rates are used, this paper operationalizes this measure to be understood as populations who have access to clinics and healthcare generally, and lower transmission rates may not equate to lower disease transmission. This number is likely to be just as much a reflection of county vulnerability as it is a measurement of infection quantity. Additionally, scholars have reported that people with any sort of record under the criminal legal system are likely to avoid other formal institutions, such as the health care system, for fear of further surveillance. This means that system avoidance could be a mechanism through which criminal legal contact affects aggregate health outcomes.

Finally, when people have unequal exposure to institutions that fundamentally increase or decrease health, this has implications for policies that should protect the most vulnerable and resource-deprived. If systematic criminal legal contact is an indicator of healthcare vulnerability, policy changes should address the ways in which these institutions are tethered and functioning together within communities.

Conclusion

This paper explores the relationship between criminal legal contact and disease transmission at the county level. Specifically, it seeks to understand how different forms of criminal legal contact, namely misdemeanors, jail incarceration, and prison incarceration, affect tuberculosis, chlamydia, and gonorrhea transmission rates. In order to investigate this, I used administrative data from Texas on county misdemeanors, jail, and prison incarceration and CDC data on county-level tuberculosis, chlamydia, and gonorrhea rates in the years 2012 and 2013. In addition to the main independent variables, financial and demographic variables are included to further understand how county-level inequality might mediate or confound the relationship between criminal legal contact and disease transmission.

Results show a significant relationship between criminal legal contact and disease transmission. Specifically, all three forms of criminal legal contact were significant for two of the three health outcomes. The prison admission rate remained significant across all transmission rates after adding in economic and demographic control variables. Findings indicate possible mediating relationships with financial factors such as the unemployment and poverty rates and demographic factors such as male/female ratio and percent Black in the county. Future research should look into the ways in which systematic access or avoidance plays a role in the relationship between criminal legal contact, specifically low-level forms of it, and aggregate health outcomes. Overall, though, this paper demonstrates that we should be thinking about all forms of criminal legal contact as a factor when discussing public health matters, especially at a community level.

References

Anderson, E. 2000. *Code of the street: Decency, violence, and the moral life of the inner city*. WW Norton & Company.

Anderson, Evan, and Scott Burris. 2017. "Policing and Public Health: Not Quite the Right Analogy." *Policing and Society* 27(3). doi: 10.1080/10439463.2016.1231188.

Baillargeon, J., Black, S. A., Pulvino, J., & Dunn, K. 2000. The disease profile of Texas prison inmates. *Annals of epidemiology*, *10*(2), 74-80.

Bannon, Alicia, Mitali Nagrecha, and Rebekah Diller. 2010. *Criminal Justice Debt: A Barrier to Reentry*. New York: Brennan Center for Justice at New York University School of Law.

Brayne, Sarah. 2014. "Surveillance and System Avoidance: Criminal Justice Contact and Institutional Attachment." *American Sociological Review* 79.3:367–91.

Comfort, M. 2008. Doing Time Together: Love and Family in the Shadow of the Prison. Chicago University Press.

Finer, Lawrence B. 2010. "Unintended Pregnancy Among U.S. Adolescents: Accounting for Sexual Activity." 47(3):1.

Fredericksen, Allyson, and Linnea Lassiter. 2016. "Disenfranchised by Debt: Millions Impoverished By Prison, Blocked from Voting." *Alliance for a Just Society*.

Granovetter, Mark S. 1973. "The Strength of Weak Ties." *American Journal of Sociology* 78(6). doi: 10.1086/225469.

Gutierrez, C. M., & Pettit, B. (2020). Employment and Health Among Recently Incarcerated Men Before and After the Affordable Care Act (2009–2017). *American journal of public health*, *110*(S1), S123-S129.

Harris, Alexes. 2016. *A Pound of Flesh: Monetary Sanctions as Punishment for the Poor.* Russel Sage Foundation.

Hatzenbuehler, M. L., Phelan, J. C., & Link, B. G. 2013. Stigma as a fundamental cause of population health inequalities. *American journal of public health*, *103*(5), 813-821.

Hinton, E., & Cook, D. 2021. The mass criminalization of Black Americans: A historical overview. *Annual Review of Criminology*, *4*, 261-286.

Jones, T. F., Craig, A. S., Valway, S. E., Woodley, C. L., & Schaffner, W. (1999). Transmission of tuberculosis in a jail. *Annals of internal medicine*, *131*(8), 557-563.

Kaeble, Danielle, Laura M. Maruschak, and Thomas P. Bonczar. 2015. "Probation and Parole in the United States, 2014." *U.S. Department of Justice*.

Kajeepeta, S., Rutherford, C. G., Keyes, K. M., El-Sayed, A. M., & Prins, S. J. 2020. County jail incarceration rates and county mortality rates in the United States, 1987–2016. *American journal of public health*, *110*(S1), S109-S115.

Lageson, Sarah. 2020. *Digital Punishment: Privacy, Stigma, and the Harms of Data-Driven Criminal Justice*. Oxford University Press.

Morris, Martina, and Mirjam Kretzschmar. 1997. "Concurrent Partnerships and the Spread of HIV." *AIDS* 11(5). doi: 10.1097/00002030-199705000-00012.

Nowotny, Kathryn M., Marisa Omori, Melanie McKenna, and Joshua Kleinman. 2020. "Incarceration Rates and Incidence of Sexually Transmitted Infections in US Counties, 2011–2016." *American Journal of Public Health* 110(S1):S130–36.

O'Connell, Daniel J., Christy A. Visher, and Patricia Becker. 2020. "Linking Individuals

on Probation to Health Care: A Pilot Randomized Trial." *Health and Justice* 8:1–
7.

Nyangulu, D. S., Harries, A. D., Kang'Ombe, C., Yadidi, A. E., Chokani, K., Cullinan,
T., & Salaniponi, F. M. 1997. Tuberculosis in a prison population in Malawi. *The
Lancet*, *350*(9087), 1284-1287.

Pager, D. 2003. The mark of a criminal record. *American journal of sociology*, *108*(5),
937-975.

Pettit, B., & Western, B. 2004. Mass imprisonment and the life course: Race and class
inequality in US incarceration. *American sociological review*, *69*(2), 151-169.

Phelps, Michelle S. 2020. "Mass Probation from Micro to Macro: Tracing the Expansion
and Consequences of Community Supervision." *Annual Review of Criminology*
3:261–79.

Pouget, Enrique R., Trace S. Kershaw, Linda M. Niccolai, Jeannette R. Ickovics, and
Kim M. Blankenship. 2010. "Associations of Sex Ratios and Male Incarceration
with Multiple Opposite-Sex Partners: Potential Determinants of HIV/STI
Transmission." *Public Health Reports* 125(4):70–80.

Schnittker, Jason, and Andrea John. 2007. "Enduring Stigma: The Long-Term Effects of
Incarceration on Health." *Journal of Health and Social Behavior* 48(2). doi:
10.1177/002214650704800202.

Sewell, A. A., & Jefferson, K. A. 2016. Collateral damage: the health effects of invasive
police encounters in New York City. *Journal of Urban Health*, *93*(1), 42-67.

Sewell, A. A., Jefferson, K. A., & Lee, H. 2016. Living under surveillance: Gender,
psychological distress, and stop-question-and-frisk policing in New York

City. *Social science & medicine*, *159*, 1-13.

Valway, S. E., Greifinger, R. B., Papania, M., Kilburn, J. O., Woodley, C., DiFerdinando,

 G. T., & Dooley, S. W. 1994. Multidrug-resistant tuberculosis in the New York

 State prison system, 1990–1991. *Journal of Infectious Diseases*, *170*(1), 151-156.

Wildeman, Christopher, and Emily A. Wang. 2017. "Mass Incarceration, Public Health,

 and Widening Inequality in the USA." *The Lancet* 389(10077). doi:

 10.1016/S0140-6736(17)30259-3.