

NETWORK CRIMINOLOGY

MINI PRESENTATIONS

Can Street Networks Prevent Burglaries?

Gerald Eastwood
Network Criminology
March 16, 2022

Purpose of the Extended Literature Review

- ❖ The purpose of this presentation is to propose an extended literature review on how street networks and burglaries are connected.
- ❖ The goal is to synthesize the literature to gain a better understanding as to what characteristics of a street network leads to an increased and decreased risk of a burglary occurring.
- ❖ Synthesizing seven studies looking at the street network.
- ❖ Data: United Kingdom, Netherlands, Pennsylvania, Nigeria, China

Goal of the Extended Literature Review

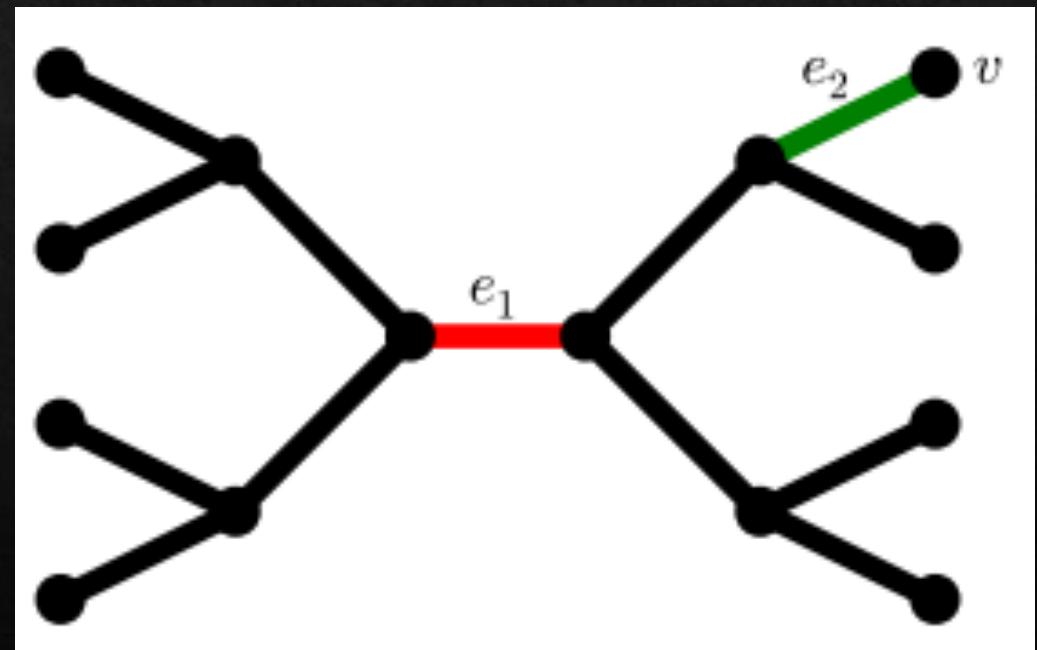
- ❖ This proposal looks to address the significance street networks and road designs play in determining the risk of a potential burglary occurring.
- ❖ Accomplishing this synthesis will provide developers, city planners, and policymakers a blueprint on creating street networks that can reduce the chances of burglary occurring.

Open Questions and Unresolved Problems

- ❖ Is there a difference between public and private roads?
- ❖ Does the length of a street decrease the chances of burglary?
- ❖ Does more connectivity or betweenness of a street lead to a greater burglary risk?
- ❖ Is there a difference between linear and non-linear street networks in terms of burglary risk?
- ❖ Are there similarities and differences of burglary risks in different countries based on their street network?

Points of Agreement

- ❖ Local pedestrian traffic on a street network led to a decrease in burglary risk.
- ❖ The more betweenness, the greater the burglary risk.
- ❖ The more commercial businesses on a street, the higher the risk for burglary.



Points of Disagreement

- ❖ Sinuous streets led to mixed results.
- ❖ Linear streets led to mixed results.
- ❖ The number of residential dwellings on a street led to mixed results.



Future Directions for Research

- ❖ Understanding burglar's selections. Does the street network play a role in their decision to burglarize?
- ❖ width of the roads in the street network. (one lane v. four)
- ❖ Does risk increase or decrease when the street network goes through different counties?
- ❖ What role does terrain play?

Final Takeaways

01

The Need
for
Replication

02

Expanding
to Other
Crimes

03

Expands the
Stakeholders
Involved

References

- ❖ Davies, T., & Johnson, S. D. (2015). Examining the relationship between road structure and burglary risk via quantitative network analysis. *Journal of Quantitative Criminology*, 31(3), 481-507.
- ❖ Frith, M. J., Johnson, S. D., & Fry, H. M. (2017). ROLE OF THE STREET NETWORK IN BURGLARS' SPATIAL DECISION-MAKING. *Criminology*, 55(2), 344-376
- ❖ Johnson, S. D., & Bowers, K. J. (2010). Permeability and burglary risk: Are cul-de-sacs safer?. *Journal of Quantitative Criminology*, 26(1), 89-111.
- ❖ Lantz, B., & Ruback, R. B. (2017). A networked boost: Burglary co-offending and repeat victimization using a network approach. *Crime & Delinquency*, 63(9), 1066-1090.
- ❖ Mahfoud, M., Bernasco, W., Bhulai, S., & van der Mei, R. (2021). Forecasting Spatio-Temporal Variation in Residential Burglary with the Integrated Laplace Approximation Framework: Effects of Crime Generators, Street Networks, and Prior Crimes. *Journal of Quantitative Criminology*, 37(4), 835-862.
- ❖ Musah, A., Umar, F., Yakubu, K. N., Ahmad, M., Babagana, A., Ahmed, A., ... & Cheshire, J. A. (2020). Assessing the impacts of various street-level characteristics on the burden of urban burglary in Kaduna, Nigeria. *Applied Geography*, 114, 102126.
- ❖ Yue, H., Zhu, X., Ye, X., Hu, T., & Kudva, S. (2018). Modelling the effects of street permeability on burglary in Wuhan, China. *Applied geography*, 98, 177-183.

Questions?

POLICE DISCRETION

By: Eric Alarcon

Main focus

- Conducting an in-depth literature review of police discretion.
- What factors contribute to an arrest vs letting someone off with a warning
- Three main areas I will be looking into are
 - *Officer demographics*
 - *Civilian demographics*
 - *Ecological context*
- I will also be looking at how these areas affect
 - *Traffic stops*
 - *Arrests*
 - *Use of force*

Literature that is currently available

- Many of the current literature focuses on the demographics of police officers and civilians
- The most common ones being
 - *Age, Gender, and race*
- Some more uncommon ones include:
 - *Police education and years on the job*
 - *Citizen demeanor and culpability*
- Ecological content has been a more recent development so data is quite new

Agreements between researchers

- Arrests are more likely to happen depending on the seriousness of the offense (Sobol, 2010 & Buvik, 2016).
- Citizens race has no effect on police officer decision to arrest (Terrill & Mastrofski, 2002; Riksheim & Chermak, 1993)
- Age and gender are some of the highest predictors of a traffic stop (Cochran & Warren, 2012; Tillyer and Engel, 2013)

Disagreement between researchers

- Some scholars argue that race plays a big role in traffic stops (Alpert et al, 2007; Withrow, 2007) While others state there is none (Farrell, 2015; Renauer, 2012)
- Some scholars argue that officers' gender plays a role in the use of force incidents, (Foster, 2006; La Rantz, 2008). While others show that police characteristics are not important factors (Riksheim & Chermak, 1993; Geller & Toch, 1995)

Shortcomings

- Much of the research that is out there on police and citizen demographics are separated.
 - *Police demographic research state that a shortcoming is that they did not include citizen race and vice versa*
- More research needs to be done on ecological context
 - *Studies focusing on rural vs urban areas as well as affluent areas vs impoverished areas*
- Traffic stop reports need to be more detailed when an arrest is involved
 - *Studies should include more details as the incident that escalated a traffic stop into an arrest. Combining race, demeanor, and situational context can go a long way*

Questions?

Extended Literature Review

Network Analysis of Police Misconduct

By: Noah Miller

Prior Literature

- **Cubitt, T. (2021)**
 - Identified the presence of “brokers”
 - Failed to determine the flow of misconduct (i.e., whether the misconduct is contagious from officers to the broker group, or the broker group to officers)
- **Ouellet, M., Hashimi, S., Gravel, J., & Papachristos, A. (2019)**
 - Those with officers with a history of misconduct in their immediate network are more likely to engage in misconduct
 - If the immediate network does not have officers with complaints, the officer is less likely to engage in misconduct
- **Simpson, C., & Kirk, D. (2022)**
 - Observed conflicting results that misconduct was not contagious
 - Misconduct was a reflection of an officer’s individual characteristics (i.e., age, experience, gender, etc.)

Prior Literature (Cont.)

- **Wood, G., RoithMayr, D., & Papachristos, A. V. (2019)**
 - The majority of officers are named in complaints (more than 50%)
 - White officers more likely to receive complaints
 - For co-complaints (more than one officer identified), black officers are more likely to be named with a fellow black officer
- **Zhao, C., & Papachristos, A. (2020)**
 - Found persons in the broker role to be more likely to discharge their firearm
 - Similarly, questions the flow of misconduct as Cubitt (2021)
 - Offers that an officer's mobility within the organization may establish them in the broker role

Purpose of Literature Review

- Police misconduct is both detrimental to the public and police departments themselves
 - From 2010-2020 Chicago PD has paid roughly 528 million dollars for legal fees and settlements of police misconduct (Alexander et al., 2022).

What am I trying to do?

- Receive a better understanding of social network in policing and if there is a correlation with police misconduct
 - Then, develop policies to eliminate such behavior to increase public safety, restore validity and trust to police organizations, and improve cost-efficiency of policing

Critiques of Current Literature

Unresolved problems:

- Foremost, collecting data on officer misconduct is difficult
 - Often rely on citizen complaints (meaning, there may be instances that go unreported and thus skew results)
- Lack of research on female officers

Open Questions:

- Difficulty discerning network influence from the ‘bad apples’ and ‘bad barrels’
 - How do all these factors coexist? Are they all critical to the production of misconduct (or can one be absent)? Does patrol environment matter?

Points of Agreement/Disagreement:

- The majority of researchers (Cubitt, 2021; Ouelett et al., 2019; Wood et al., 2019; Zhao & Papachristos, 2020) identified that misconduct is contagious
 - Simpson & Kirk (2022) disagreed on this

Future Directions

- Examine the influence of social capital in networks
 - What are the socio demographics of police networks
 - The presence of homophily?
 - Are social networks as influential to female officers who behave in misconduct
 - How do their social networks differ?
 - How do networks differ from officers committing general misconduct in comparison to those who use excessive use of force? Would solutions differ depending on the misconduct?
-

References

Alexander, K., Rich, S., & Thacker, H. (2022). *The Hidden Billion-Dollar Cost of Repeated Police Misconduct*. Washington Post. Retrieved from [Repeated police misconduct cost taxpayers \\$1.5 billion in settlements - Washington Post](#)

Cubitt, T. (2021). Using network analytics to improve targeted disruption of police misconduct. *Police Quarterly*, 0(0), 1-30. DOI: 10.1177/10986111211057212.

Ouellet, M., Hashimi, S., Gravel, J., & Papachristos, A. (2019). Network exposure and excessive use of force investigating the social transmission of police misconduct. *Criminology & Public Policy*, 18, 675-704, DOI: 10.1111/1745-9133.12459.

Simpson, C., & Kirk, D. (2022). Is police misconduct contagious? Non-trivial null findings from Dallas, Texas. *Journal of Quantitative Criminology*, <https://doi.org/10.1007/s10940-021-09532-7>.

Wood, G., RoithMayr, D., & Papachristos, A. V. (2019). The network structure of police misconduct. *Socius*, 5, 1–18. <http://doi.org/10.1177/2378023119879798>

Zhao, C., & Papachristos, A. (2020). Network position and police who shoot. *The Annals of the American Academy of Political and Social Science*, 687(1), 89–112. DOI: 10.1177/0002716219901171.



Trust Networks in Male Prisons

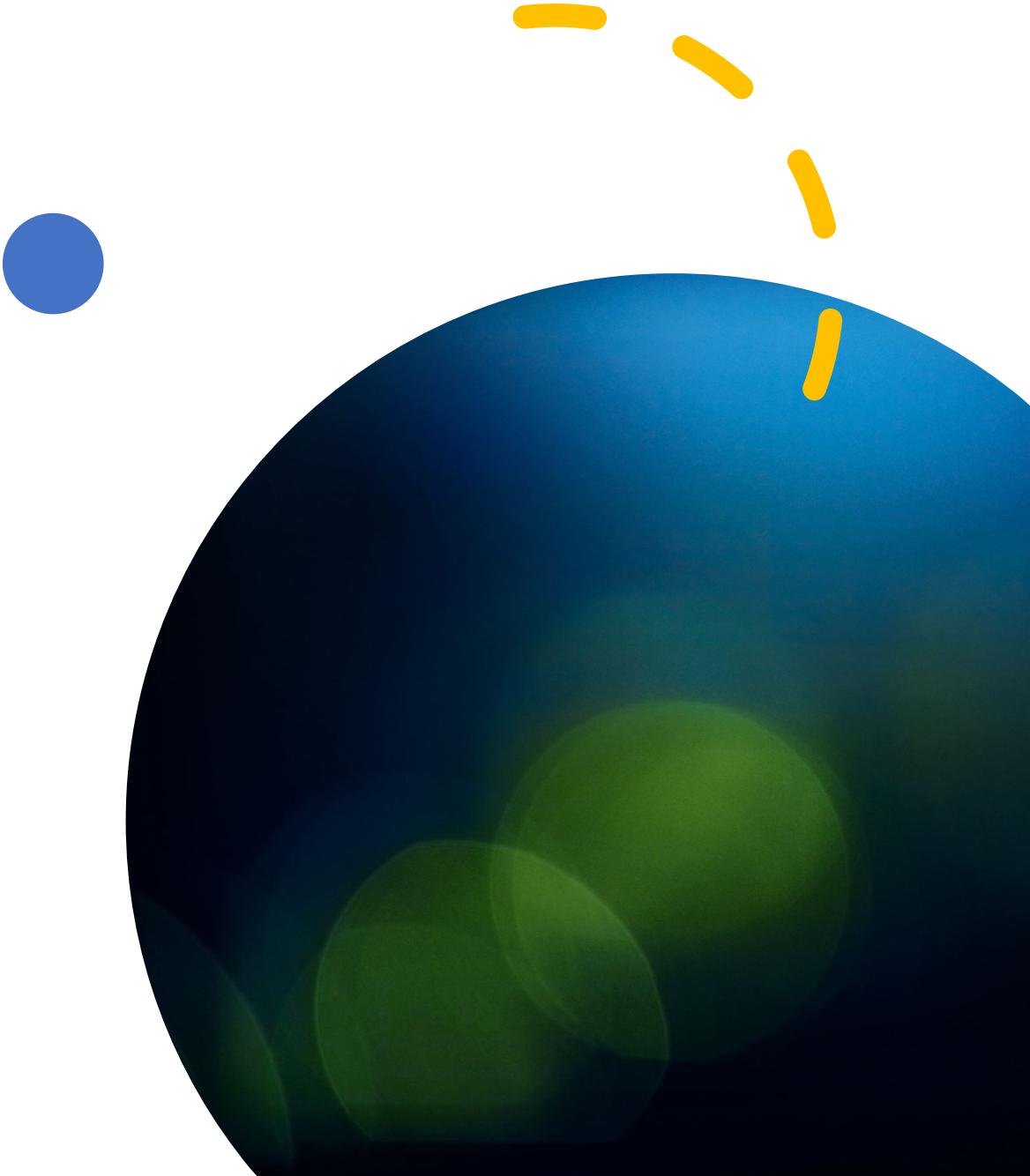
Arizona State University

CRJ 523 Network Criminology

Olivia Shaw, M.S.

AN OVERVIEW OF SOCIAL RELATIONSHIPS IN PRISON

Social relationships	Trust: Prisoner and Staff	Trust: Female Prisons
<p><i>Overall</i></p> <ul style="list-style-type: none">• Provide emotional support• Increase in institutional hostility and deviance• Increase in overall wellbeing• Men interrelationships<ul style="list-style-type: none">• characterized by gangs and violence, negative	<ul style="list-style-type: none">• Incarcerated individuals are more likely to be perceive prison staff as untrustworthy.• Power imbalance<ul style="list-style-type: none">• Creates conflict	<ul style="list-style-type: none">• Incarcerated females saw their peers as being untrustworthy<ul style="list-style-type: none">• Gossip and selfishness• More likely to trust those from the same religious group• Embeddedness played a role in perceiving someone as being trustworthy



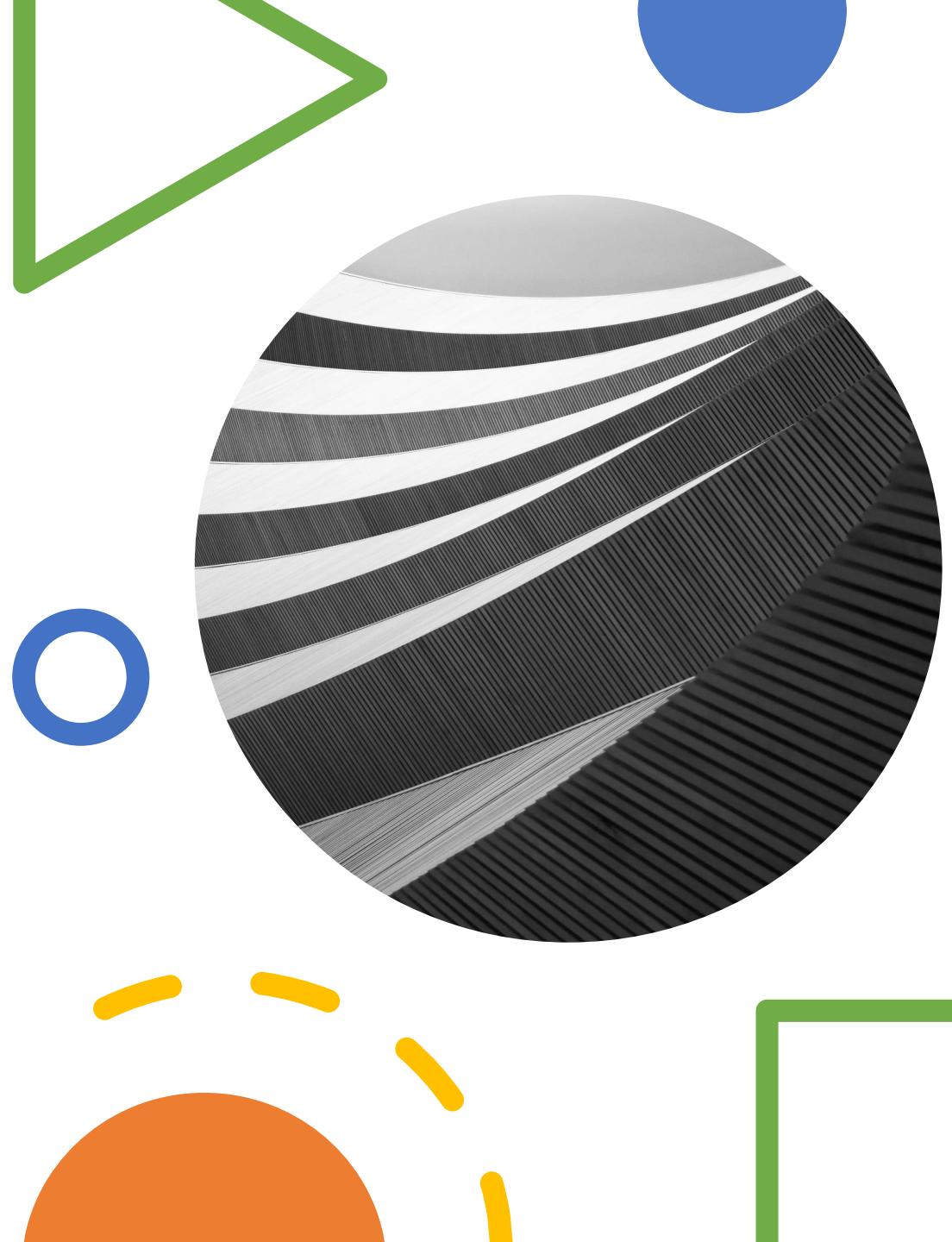
Problem

SOCIETAL

- Social Isolation & deprivation
- Reduce interpersonal aggression in male prisons
- Enhancing the opportunity to form positive relationships within correctional settings
- Improving correctional staff safety

RESEARCH

- Lack of research on the aspects of trust in the formation of interpersonal relationships in male prisons
- Lack of literature on how positive relationships can be aid in the desistence process both within correctional institutions and within society for incarcerated males



Purpose

Add

- Add to the gaps in the current literature on the underlying mechanisms of social relationships and trust networks in male prisons
 - Utilizing social network analysis

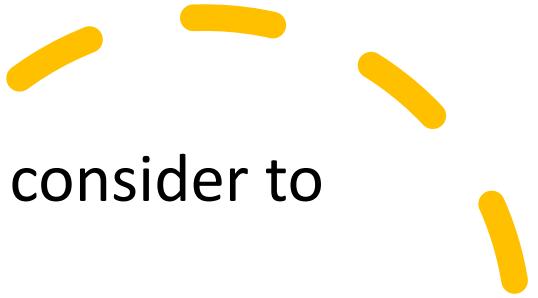
Create

- Create a better understanding of how trust networks are formed and how they differ from networks formed in female prisons
- How/if such positive trust networks are maintained and contribute to the desistence process in male prisons

Explorative Research Questions



- Who do incarcerated men consider to be trustworthy?
- How do factors such as trust, embeddedness and social capital play a role in forming trustworthy relationships?
- Finally, how can trustworthy relationships reduce deviant misconduct found within male correctional facilities and contribute to positive relationships?



Data

- Only dataset to exist on the topic of incarcerated male prison networks is the:
 - Prison Inmate Study (PINS)
 - For the purpose of this study:
 - Mixed methods:
 - In- person interviews
 - Graph models
 - Site:
 - Medium security prison in California



Prospective Interview Questions



To measure unit friendships, respondents could be asked something along the lines of “Who are your friends?”



To measure peer trust, respondents could be asked, “Who are the peers that you trust to give you advice here in this prison?”

“Who do you trust to be there when you are emotionally troubled?”
“How reliable is this person?”
“Does this person have your back?”



To measure future behavior, respondents could be asked, “Are there any friends you met in prison who have helped you become a better person?”



To measure embeddedness and resource capital, respondent may be asked, “How would you categorize the strength of your friendship?”

“Given the people you trust and have befriended, how have they helped you learn about opportunities on the unit?”
(Job, programming, etc.)

- Bronson, E. F. (2008). He ain't my brother... he's my friend' friendship in medium security prison. *Critical Issues in Justice and Politics*, 1(1), 63–74.
- Greer, K. R. (2000). The changing nature of interpersonal relationships in a women's prison. *The Prison Journal*, 80(4), 442–468. doi:10.1177/0032885500080004009
- Hart, C. (1995). Gender differences in social support among inmates. *Women & Criminal Justice*, 6(2), 67–88. doi:10.1300/J012v06n02_04
- Johnson, E. 1971. The homosexual in prison. *Social Theory and Practice*, 1: 83–95.
- Kerley, K. R. and Copes, H. 2009. 'Keepin' my mind right': identity maintenance and religious social support in the prison context. *The International Journal of Offender Therapy and Comparative Criminology*, 53(2): 228–244.

References

- Knoke, D., & Yang, S. (2008). Social network analysis (2nd ed.). Thousand Oaks, CA: Sage.
- Kreager, D. A., Schaefer, D. R., Bouchard, M., Haynie, D. L., Wakefield, S., Young, J., & Zajac, G. (2016). Toward a criminology of inmate networks. *Justice Quarterly*, 33(6), 1000-1028.
- Propper, A. M. 1982. Make-believe families and homosexuality among imprisoned girls. *Criminology*, 20(1): 127–138.
- Sykes, G. M. (1958). The society of captives: A study of a maximum security prison. Retrieved from <http://press.princeton.edu/titles/8390.html>
- Trammell, R. (2009). Values, rules and keeping the peace: How men describe order and the inmate code in California prisons. *Deviant Behavior*, 30(8), 746-350. <https://www.tandfonline.com/doi/full/10.1080/08974450903224246>

References

Ugelvik, T. (2021). The transformative power of trust: Exploring tertiary desistance in reinventive prisons.

Ugelvik, Thomas (2021): "The Transformative Power of Trust: Exploring Tertiary Desistance in Reinventive Prisons". The British Journal of Criminology.

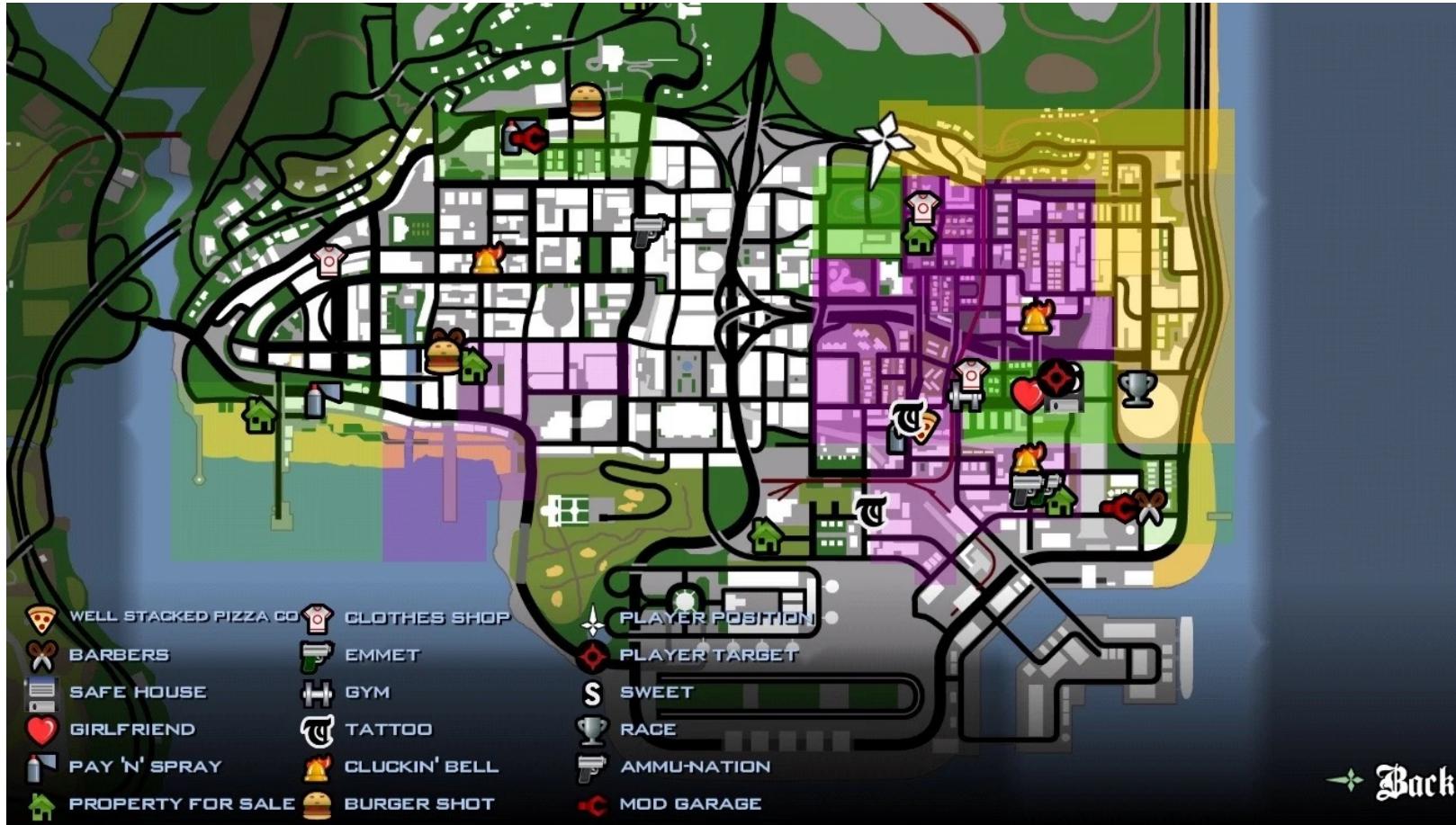
Wellman, B., & Berkowitz, S. D. (1988). Social structure: A network approach. Cambridge: Cambridge University Press.

Wulf-Ludden, T. (2013). Interpersonal relationships among inmates and prison violence. *Journal of Crime and Justice*, 36(1), 116-136.

Young, J. T., & Haynie, D. L. (2020). Trusting the Untrustworthy: The Social Organization of Trust Among Incarcerated Women. *Justice Quarterly*, 1-32.

References

Turf wars





Overview

- Extensive research into gangs has been ongoing since the 80's
- Sharp increase during WOD

Overview

- Homicide is 3rd leading cause of death 15-19 (CDC)
- Gangs contribute a significant amount of drug and violent crimes (National Youth Gang Survey Analysis, National Drug Intelligence Center 2008)

Overview

- Previous anti-gang initiatives have yielded mixed results
- Prevention techniques likewise show mixed results (restrictively target youth)
- Growing interest in gang-on-gang violence in combo with network science

Objectives

- Synthesize information on how networks of rivalries are constructed
- Understand changing internal dynamics of gang membership (most membership only 6 months-1 year)
- Identify and eliminate effectiveness of resource nodes (WIP)
- Mechanisms of hyperdyadic contagion
- Social gains of engaging in gang rivalries

Key findings

- Gang violence (and homicide) is sporadic, public and dominated by firearms
- Once blood is spilt – point of no return is reached
- Tit for tat (leaving attacks unpunished signals weakness)
- Escalation when faced with hostile gang members
- Geography is a mitigating factor (turf)
- Violent patterns are dyadic

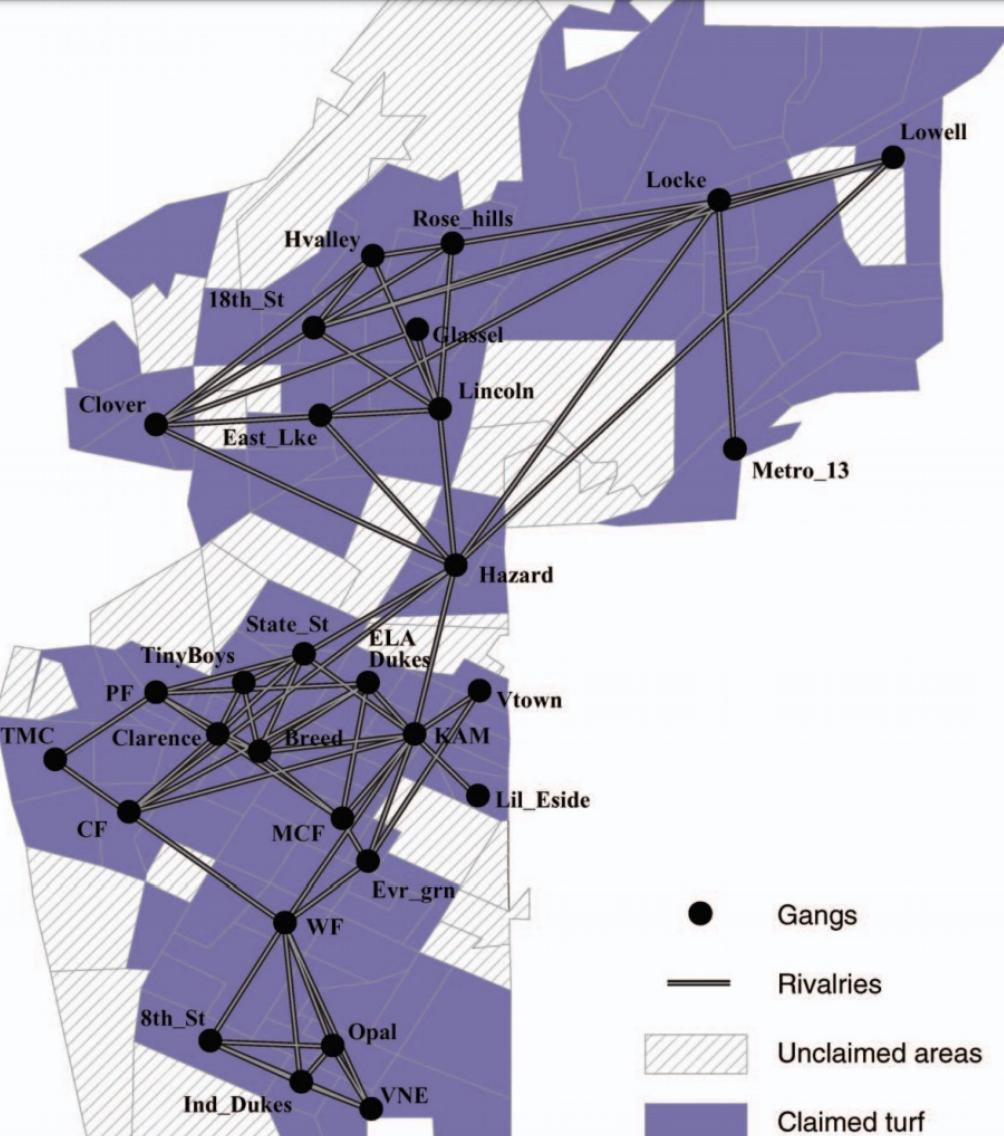


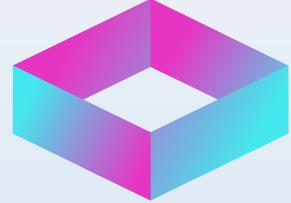
Figure 4. Placing the gang rivalry network (based on turf locations) into the geographic space of Hollenbeck shows both the complexity of the social relations and how some relations “stretch” long distances to link gangs, whereas others link only immediate neighbors.

Research problems

- Large number of gangs – Estimated 20,000+ W/ 1+ M. members
- Official sources only account for known members
- Membership may be very temporary or constantly shifting (6 MO-1 Yr)
- Reliant on self-report
- Only catch gambit of the group
- Overreliance on Hollenbeck/lack of more datasets

Open questions

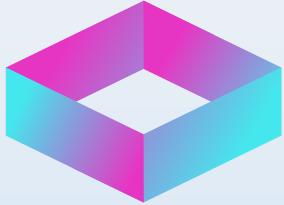
- Lack of ego-centric experimentation (properties of networks)
- Utilization of space (open and restricted)
- Precursors not well understood
- Internal workings of street cred not well understood
- What's more effective – viewing ties as events or as temperments



Immigrants and Crime

Dennis Sarpong





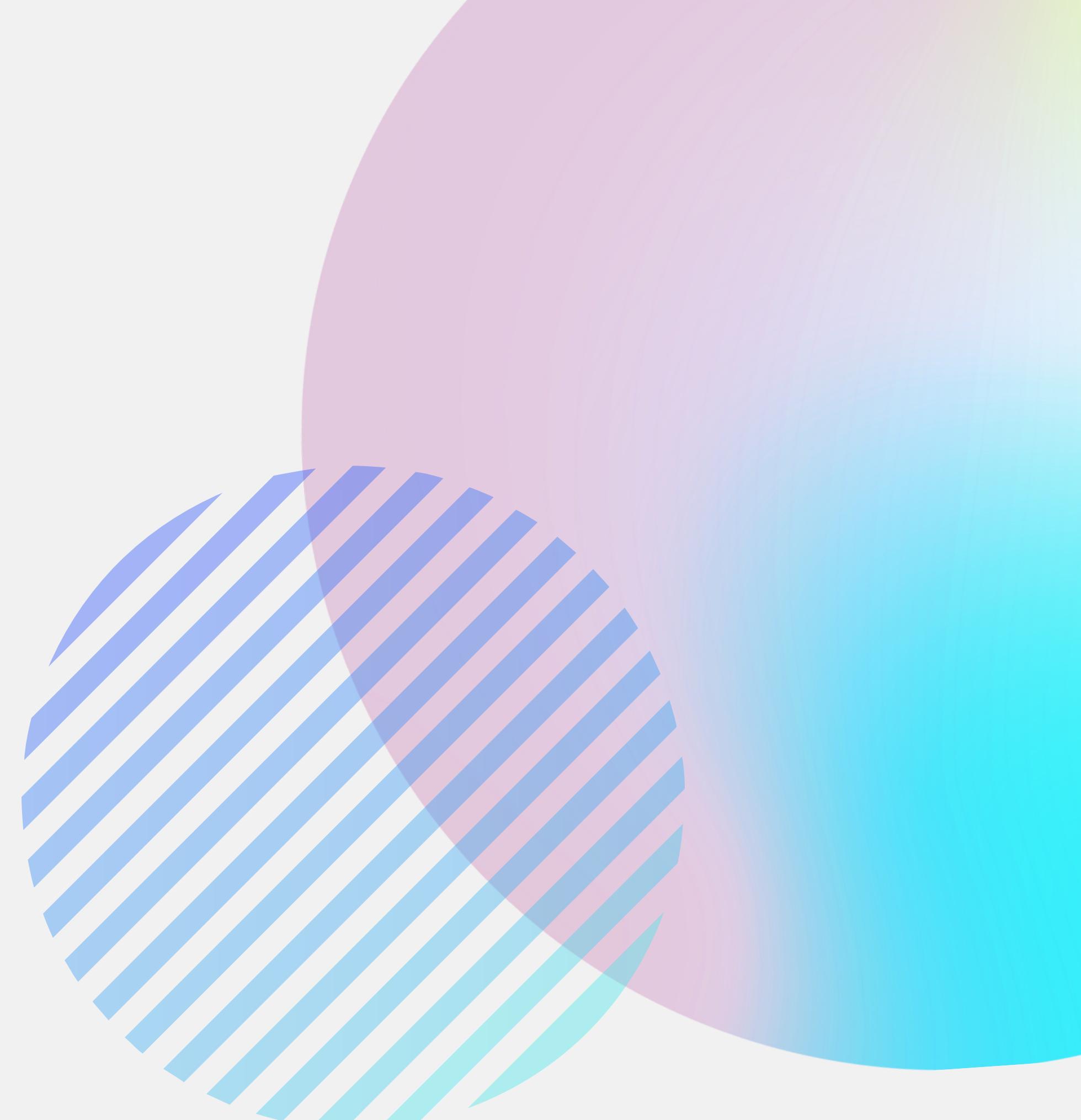
Theoretical perspectives

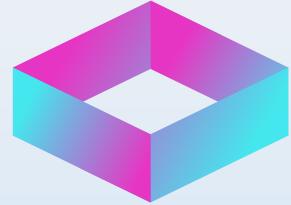
Life-course theory

Differential association theory

Social control

Strain theory



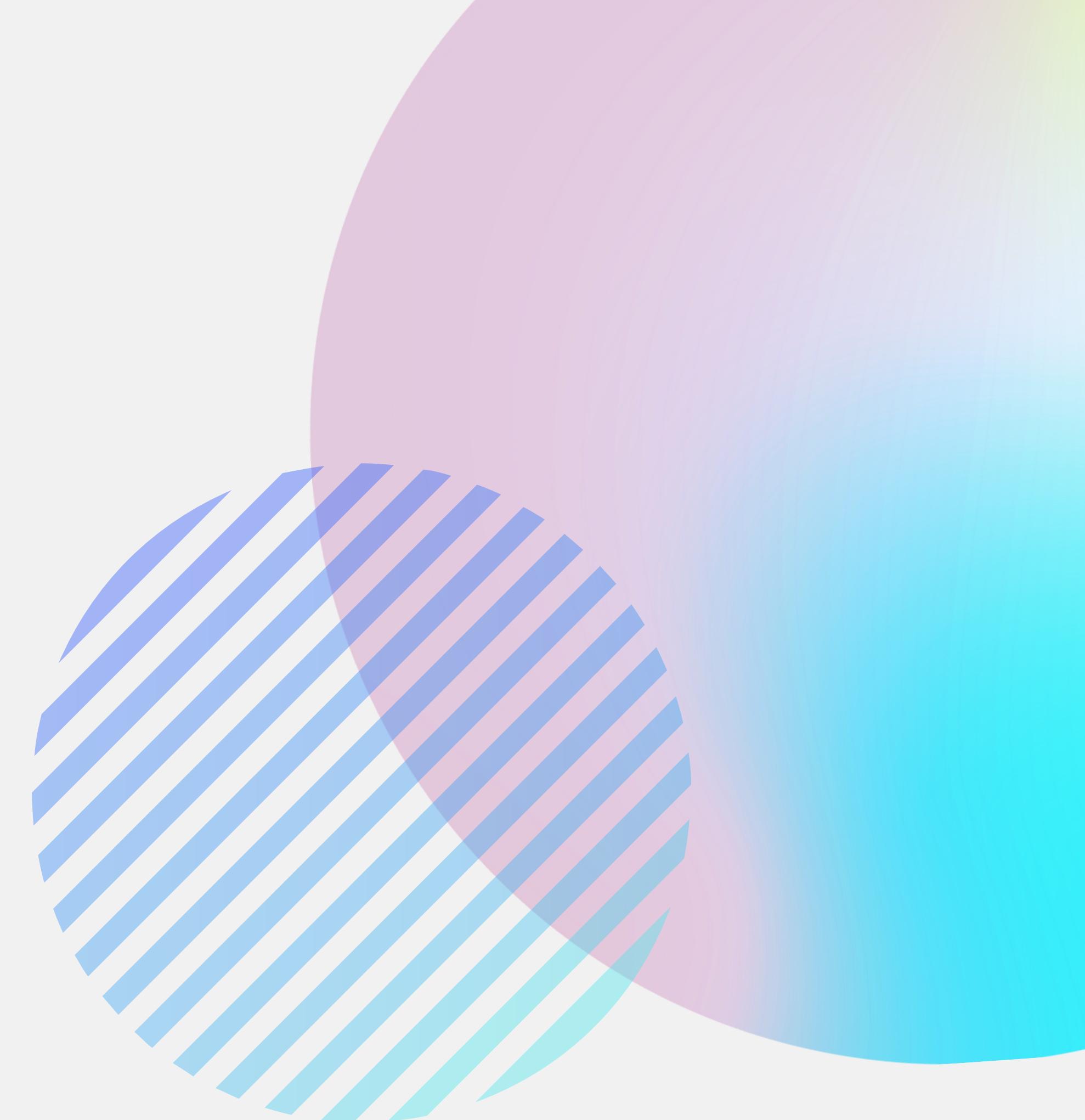


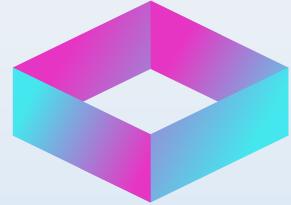
Why do immigrants conform?

Control perspective

Ethnic identity perspective

Status: immigration and generational status /
acculturation



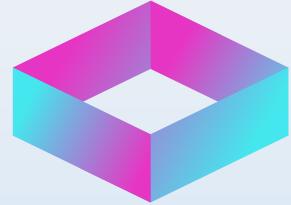


Why might they offend?

**Weak informal control -
intergenerational shifts & acculturation
levels.**

Peer exposure and influences.

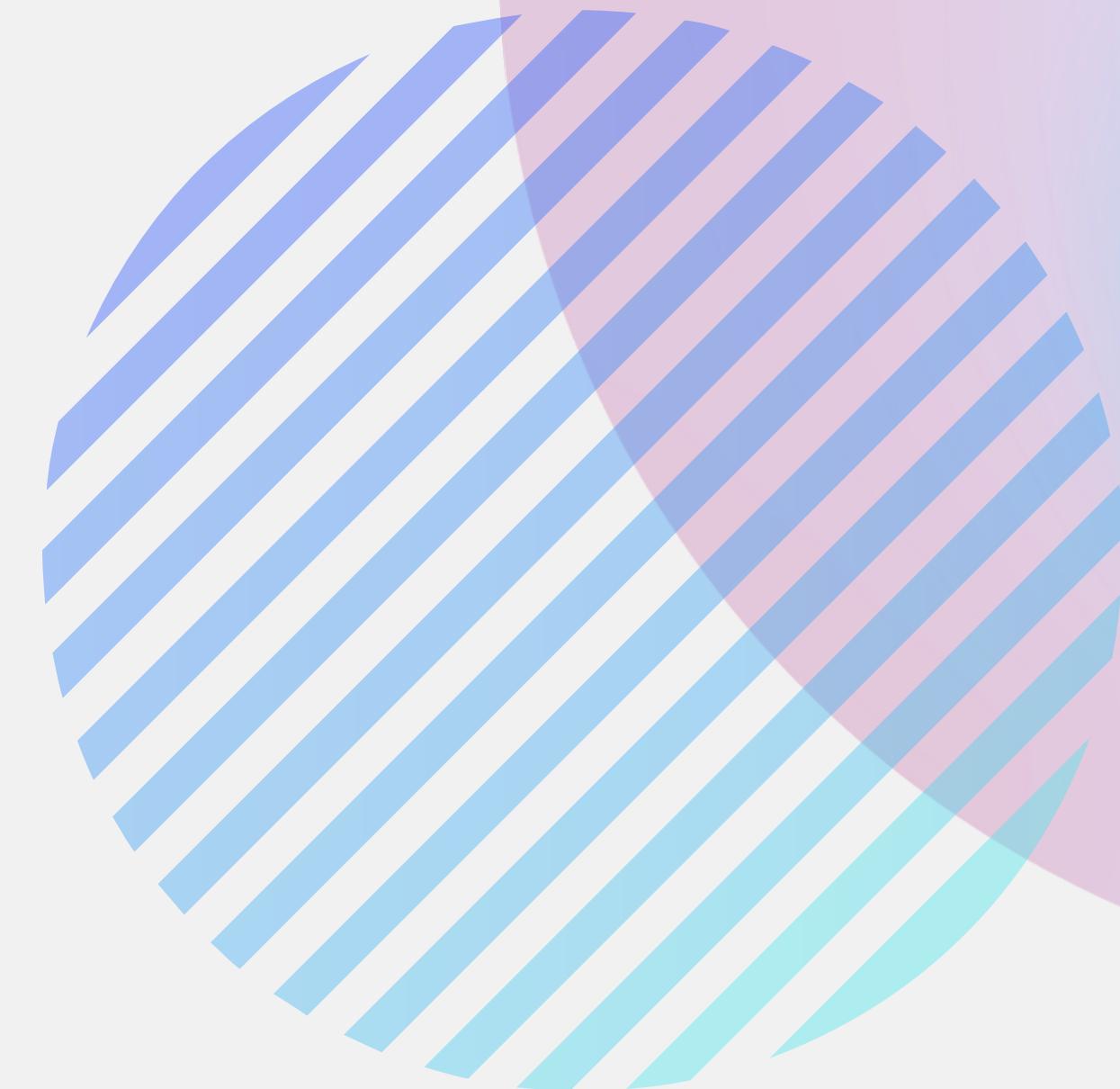


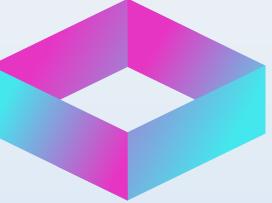


Major Issues in the Literature?

Measurement of acculturation & cross-sectional data concerns.

Population and geographical concentration.





Thank You



Enterprise Risk Management at Seattle Police Department

Mitchell Smith

Research Problem

Seattle PD wants to know if their officers are “shopping” reports around. They want to conduct a network analysis to identify officers engaging in this behavior.

Reports

- Filed for various police-citizen interactions (use of force, search and seizure)
- Must be signed off by a supervisor, not necessarily direct chain of command

Officers

- Some officers might be masking problem behavior by spreading reports to different supervisors. These would likely be in their friendship network
- Certain officers with specialized training often get assigned to calls outside of their chain of command and are not an issue

Review of Literature

Transmission of Police Misconduct

- Police are affected by the “bad apples” around them, leading to worse individual outcomes. Primarily studied through network concept of **contagion**.
- Applied to complaints, use of force, and officer involved shootings
(Cubitt, 2021; Oullet et al., 2019; Quispe-Torreblanca & Stewart, 2019; Zhao & Papachristos, 2020)

Leadership Styles in Police Departments

- Some police leaders may be regarded as better options to sign off on reports
- Likely a function of the friendship network
(Chang-Hyeon, 2008)

Network Theory

Embeddedness

- Officers with a high **degree** of connections to supervisors in their friendship could be more likely to shop
- Officers with a high **eigenvector** could be shielded from suspicion (Joseph & Smith)

Structural Holes

- Supervisors with many **bridging ties** could perpetuate shopping

Homophily

- Officers and supervisors that are **homophilous** could engage in this more frequently (friendship network, individual attributes)

Data

Chain of Command

- SPD has data records of the entire CoC each day for the past several years

Reports

- SPD has records of report type, who filed, and who signed each report

Friendship Network

- Would be most beneficial if data on friendship networks exists/can be gathered

Department Integration

Jupyter Code

- Code project using R w/ Jupyter
- SPD uses AWS Cloud
- Code can be converted w/ Jupyter to Python and integrated into SPD system

Early Intervention System

- SPD uses a machine learning based EIS for many departmental issues
- Code abstractions will be added to Cloud and identify officers and supervisors with over-connectedness in the report network

Complaint Networks

A future project with SPD that could come from this research

Theoretically, exposure to different officers and supervisors could alter one individual's behavior and attitudes

Is over-connectedness to those with higher complaints a risk factor for new officers?

Do officers with more complaints tend to be homophilous in the friendship network?

Similar Cloud integration

Harm Reduction Attitudes Among Police Officers: Is There Transmission?

Seth Watts

Arizona State University



Introduction

- Opioid crisis
- Police-led naloxone programs
 - Concerns
 - Buy-in
- Social network analysis and how it can be vital in this context

Literature of SNA in Police Departments

- Exposure to misconduct and use of force¹
 - Network exposure to misconduct is a predictor of use of force
- Similarly, misconduct networks begets misconduct²
 - Networks of officers who engage in misconduct foster misconduct
 - Police misconduct is at least partially a product of the network

Literature of SNA in Police Departments

- Officers' framing of BWCs³
 - Network effect
 - Reduces with the addition of variables
- Takeaways:
 - Networks matter in police departments
 - Both behavior and attitudes can be influenced by these networks

Proposed Study

- Investigate how officer attitudes change towards harm reduction policies
- Competence, confidence, and support for carrying Narcan increases over time⁴
- What drives this finding? Is it simply that Narcan works? Or is there a transmission of positive attitudes towards Narcan?

Data

- Affiliational data
 - BWC coding or field contact forms
 - Unique identifier for those on scene at an overdose
- Survey data
 - Officer attitudes towards Narcan and other harm reduction perspectives
 - Unique identifier to match with affiliational data

Potential Implications

- If the results show that there is a network effect:
 - Incorporate multiple “champions” of the program during implementation
 - Continuous presence of positive messaging of the program throughout the project

References

1. Ouellet, M., Hashimi, S., Gravel, J., & Papachristos, A. V. (2019). Network exposure and excessive use of force: Investigating the social transmission of police misconduct. *Criminology & Public Policy*, 18(3), 675-704.
2. Wood, G., Roithmayr, D., & Papachristos, A. V. (2019). The network structure of police misconduct. *Socius*, 5, 2378023119879798.
3. Young, J. T., & Ready, J. T. (2015). Diffusion of ideas and technology: The role of networks in influencing the endorsement and use of on-officer video cameras. *Journal of contemporary criminal justice*, 31(3), 243-261.
4. White, M. D., Perrone, D., Malm, A., & Watts, S. (2021). Narcan cops: Officer perceptions of opioid use and willingness to carry naloxone. *Journal of criminal justice*, 72, 101778.

QUESTIONS???

MINI PRESENTATIONS