CRJ 523 Network Criminology: Contagion and Diffusion

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Delinquency, Social Skills, and the Structure of Peer Relations: Assessing Criminological Theories by Social Network Theory (Smangs, 2010)

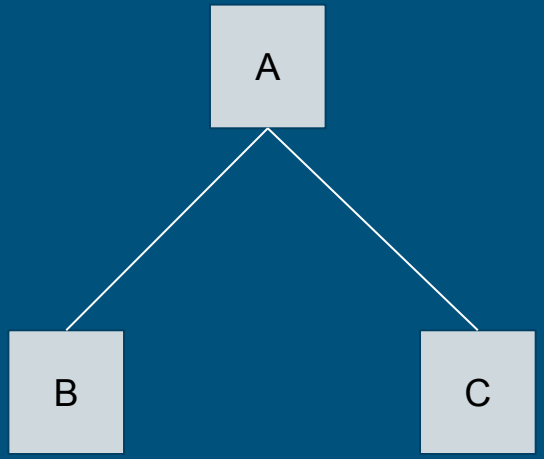
Smangs (2010) – Introduction

- Juvenile delinquency is a group phenomenon

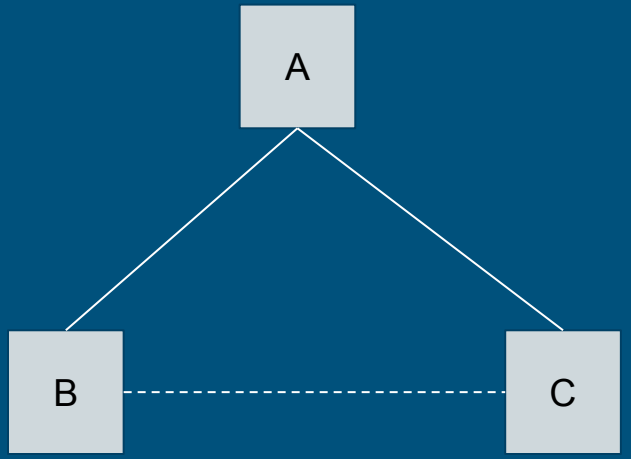
- Social ability model (DAT, SLT, subcultural theory)
  - Delinquency is learned; an outcome of normal processes

- Social disability model (social bond theory)
  - Dismissal of the learning process; delinquents lack social skills

Forbidden Triad and Granovetter-Transitivity



Forbidden Triad – unlikely



Granovetter-Transitivity

Smangs (2010) – Literature

- Social disability model would predict that Granovetter-Transitivity would not be present
  - Restoring or gaining the connection between B and C would not occur

- On the other hand, the social ability model would expect this
  - Strong and weak ties matter especially when trying to gain a triadic balance

Smangs (2010) – Present Study

- Cohort of 580 juveniles born between 1957-1968
- Suspected by the police of having committed at least one crime in a Swedish city between 1975 and 1977.
- Crime data was predominately crimes of violence, against property, and theft of motor vehicles
    - Crime data provided the connection between actors
    - These co-offending networks were then supplemented by asking key informants about actor connections (police officers, social workers, probation officers, staff at youth centers, and criminally active youths)

Smangs (2010) – Results

- Local bridge ties were not randomly distributed
  - Juveniles are making distinctions between strong and weak ties
- The stronger the tie, the more contacts in common
  - Forces are acting to close the the forbidden triad
- The stronger the tie strength, the more overlap in contact circles
  - No statistical significance test for this finding
- The probability of a tie forming between two actors based on the state of ties to the third actor increases (no contacts → weak ties to third actor → mixed ties to third actor → strong ties to third actor)

Smangs (2010) – Results

- Longitudinal analyses to supplement cross-sectional findings
- Actor-oriented statistical models
  - This framework creates a dynamic and continuous process where individual actors are making purposeful decisions
  - This allows the author to understand the tie formation and dissolution within the data above to assess both models (social ability and social disability) over time.
- Results from the longitudinal analyses reinforce the findings from the original analyses adding to the robustness of the findings.

Smangs (2010) – Implications & Limitations

- Social ability model is supported; Granovetter's-transitivity model is supported
  - Juveniles do distinguish between strong and weak ties; attempt to close the triad; strength of tie increases the probability of the third actor to form a tie
- Longitudinal analyses add robustness

- Police data
- Strength of tie being measured as contact frequency
- What if the networks were built around a foci?

Diffusion of Ideas and Technology: The Role of Networks in Influencing the Endorsement and Use of On-Officer Video Cameras (Young and Ready, 2014)

Young and Ready (2014) – Introduction

- BWC program success hinges, in part, on what factor?

- Social network analysis in the the context of BWCs
  - Social influence on the framing of BWCs

Young and Ready (2014) – Literature

- Police culture
  - Danger and authority
  - Monolithic culture within policing? Local variation?
- Legitimacy and compliance
  - “actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions” (Suchman, 1995)
  - Viewing BWCs as legitimate helps achieve desired outcomes
- Networks and diffusion
  - Dense hierarchical networks (*closure*) – reinforcement of information
  - Information spread between networks (*brokerage*)

Young and Ready (2014) – Present Study

- Data
  - 50 officers in treatment group (25 voluntary); 50 officers in control group
  - Control and treatment groups were matched on age, race, gender, patrol assignment
  - **Officer survey** – attitudes towards BWCs
  - **Field contact form** – create shared incident network
    - Incident-to-officer network; nodes = officers and incidents, connected by field contact form (two mode network)
    - officer-to-officer network; nodes = officers, connected by their shared incidents (one mode network)

Young and Ready (2014) – Results

- Officers who viewed BWCs as legitimate and were in the treatment group were more likely to activate camera (weak relationship)
- Network effect (social influence) is statistically significant throughout the models
  - Coefficient decreases when adding covariates
  - Strongest predictor of wave 2 legitimacy was the lagged legitimacy variable
- Weak relationship between # of shared incidents (degree) and changes in legitimacy
- Weak relationship between embeddedness (clustering) and changes in legitimacy

Young and Ready (2014) – Implications & Limitations

- Network effect was present but weak in model 3
  - Time frame between surveys may need to be extended
- Discretionary and mandatory activation policy
  - Mandatory activation policy may not allow for a *strong* network effect on legitimacy
- Program champions

Tragic, but not random: the social contagion of nonfatal gunshot injuries (Papachristos et al., 2015)

Overview (Papachristos et al., 2015)

- Purpose
  - Examine whether non-fatal gunshot injuries concentrate and cluster within networks of individuals involved in risky behaviors
  - Assess whether or not the distribution of gunshot injuries in co-offending networks is associated with processes of social contagion to the extent to which one's probability of victimization is related to direct and indirect exposure to gunshot victims in one's social network

Papachristos et al. (2015) continued

- Data
    - Chicago Police Department: records of non-fatal gunshot victims and incident-level arrest data.
- Methods (Quantitative)
    - Independent variables
        - Contagion
            - Exposure to gunshot victimization
            - Indirect exposure to gun violence
    - Dependent variables
        - Whether or not an individual is a gunshot victim (1=Yes)

Papachristos et al. (2015) continued

- Results
  - Nonfatal gunshot injuries are far more concentrated than previously thought
  - Small increases in exposure correlate with increases in victimization.
  - Indirect associations also contribute to victimization, meaning that not only one's criminal associates but also the associates of one's criminal associates shape one's risk of gunshot victimization.
  - These effects of network exposure vary significantly by race/ ethnicity and gang membership.
    - Black gang members have by far the highest probability of victimization across all levels of exposure;
      - Are the most susceptible to contagion of violence when compared to their hispanic and white counterparts

Benefits

- Includes victims in the analysis
  - Previous research largely focuses on offenders
- Includes a racially diverse sample
  - Previous research largely examined homogeneous samples
- Moves beyond the simplicity of peer influence as an explanation of violence
  - Instead the findings build upon social learning perspectives (primarily observational learning)
- Provides more individualized treatment/ prevention opportunities
  - Rejects the notion that gun violence/ victimization is random but is instead clustered

Limitations

- Data
  - Police data
    - Estimation of the real networks underlying these behaviors are quite conservative
  - Network ties represent specific behaviors and exclude other types of behaviors that might be conducive to or protective against gunshot injury
- Undervalues strong ties engaged in risky behavior

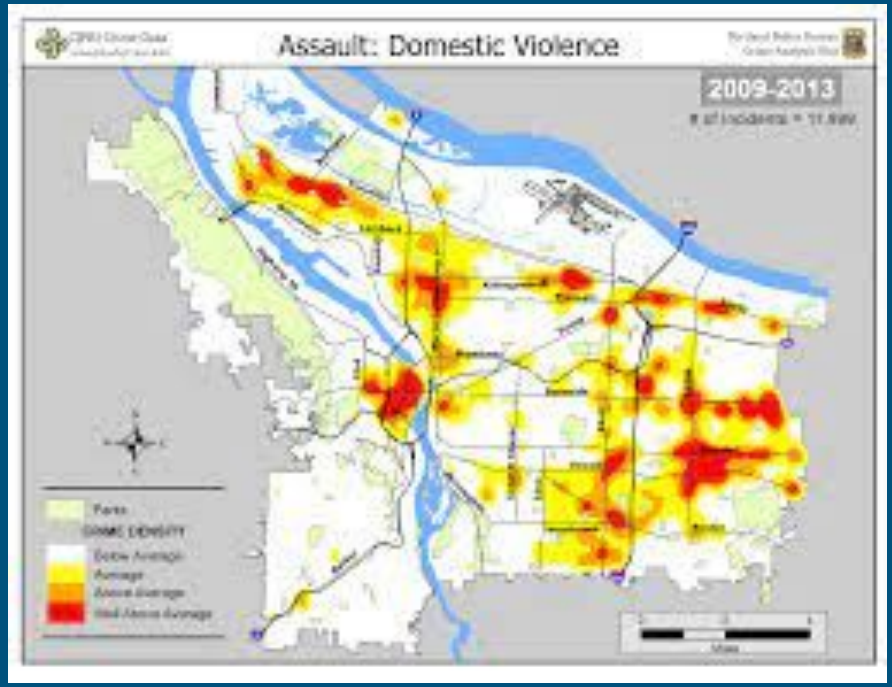
Connected in crime: the enduring effect of neighborhood networks on the spatial patterning of violence (Papachristos et al., 2018)

Spatial Distribution of Crime

It is a well established fact that a small amount of places account for the majority of crime

50% of violent crime occurs on 5% of street blocks

Evidence of spatiotemporal diffusion



Criminogenic Structure of Neighborhoods

Neighborhoods within cities vary widely in social norms, socioeconomic status of residents, and structural support from formal institutions and neighborhood collective efficacy

Places that are high in disadvantage are where crime typically occurs

Residents of these neighborhoods battle violence and stigma

Contagion by Exposure vs. Diffusion

Contagion by Exposure is the idea that being exposed to criminogenic features regularly will commit more crime. In this model, crime should spread like a virus to those geographically close to criminogenic conditions

However, there is this juxtaposition of high crime neighborhoods being located geographically close to low crime areas

Papachristos and Bastomski propose crime may spread via Contagion by Diffusion

This is the emphasis of the study, and requires social interaction. In modern cities, social proximity is not necessarily tied to geographic proximity. Crime diffuses both socially and spatially

Co-Arrest Networks

Using administrative arrest records, the authors identify approx 170,000 individuals (6% of population) in Chicago who were arrested with a co-offender

Those who are co-arrested but live in different places are theoretically diffusing crime attitudes across spatial boundaries

This co-offending social network, proxied by co-arrest data, can influence subsequent offending, development of crime skills and selection of co-offenders from other spatial locations

3 Primary Research Questions...

1. Do co-arrest events create a “network of neighborhoods?” If so, what is the structure?

2. What properties explain the formation and sustainment of co-arrest ties?

3. Are co-arrest networks a better predictor of crime than traditional spatial models?

Co-Arrest Network Structure

Neighborhoods are highly connected by co-arrest networks and the degree of connectivity is very stable over time (21-29% of all possible ties present) despite the fact that the offender pool changes

The safest and most dangerous places are only separated by a few degrees (1.89-4)

Network Connectivity is not consistently related to spatial proximity

Most paths are dyadic, not triadic. This suggests crime networks are not insulated. Based on what we learned from Granovetter, this allows crime ideas to spread quickly and not be confined geographically

Place Characteristics that Promote Ties

Things that increase the likelihood of co-arrest ties:

- Concentrated disadvantage
- Concentrated immigration
- Residential stability

Decrease:

- High collective efficacy within and between neighborhoods
- Social dissimilarity between neighborhoods
- Spatial distance

Spatial vs Social

Both processes happen jointly and are important in the spread of criminogenic behaviors and values

Model fit for the Social Diffusion model was stronger, suggesting that co-offender networks are a better predictor of crime rates in a neighborhood than traditional spatial models

My One Issue with Variable Creation

Concentrated Disadvantage includes percentage: Poverty, Government Assistance, Unemployment, Female Headed Households, and Black

Immigrant Concentration includes percentage: Hispanic, Foreign-Born

The authors theoretically argue that Blacks and Hispanics both experience disadvantage at significantly higher rates than Whites

Many Hispanics may not be foreign-born and possibly are multiple generations removed from immigration. As we learned in Dennis' mini-presentation, immigration as a protective factor diminishes with each generation

I hypothesize that if the authors had included Hispanic in the disadvantage variable instead of immigaration, concentrated disadvantage would be an even greater predictor of tie formation and immigrant concentration would no longer predict

Discussion Qs

- **Smangs (2010)**
  - Do you think tie strength should have been measured differently? How so? And Why?
  - How might the idea that these relationships were created due to a shared characteristic (i.e. foci; actors formed a bond via the neighborhood they grew up in) impact these findings?
- **Young and Ready (2014)**
  - How do you think the changes in legitimacy would have looked if the time frame between surveys was 6 months? Or longer?
  - Given there was a network effect on the legitimacy of BWCs, although small, how might this play out under a discretionary activation policy? A weaker effect? Stronger? Why?

Discussion Qs

- **Papachristos et al. (2015)**
  - Papachristos et al. (2015) primarily focuses on non-fatal gunshot injuries, however, there is further inquiry in other forms of violence as they may relate to the influence of contagious on deviant behavior. What other forms of violence are worth examining and why?
    - Papachristos et al. (2015) revealed hat victimization is inherently contagious. That being said, when thinking about violence from a gendered perspective, how might trauma fueled by sexual assault contribute to an increase in violence towards women?
  - How might the social relation of one's family contribute to the contagion of violence, gun usage, and victimization?

Discussion Qs

Papachristos and Bastomski (2018)

Papachristos raises an interesting point in his discussion of the data that arrests are largely driven by policing behavior. Law enforcement officers have been known to over-police disadvantaged, minority neighborhoods. Thus, the co-arrest network may be a proxy for how police behavior connects the city rather than criminals. How much of the co-arrest network do you think is due to policing and how much is due to offenders themselves? What other measures might you use to capture the social network of offenders?

Over the past few weeks, several of us have discussed police misconduct from a network perspective. After reading this article, what variables from a police organization do you think would be useful in determining if officer misconduct has an element of contagion by diffusion?

Do you believe some crimes may be more connected through the social network than others? What kinds of crimes would offenders be more likely to cross geographic lines to commit?