Network Interventions and Policy Implications

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When Interventions Harm: Peer Groups and Problem Behavior

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Overview

Tested the hypothesis that high-risk adolescents potentially escalate their problem behavior in the context of interventions delivered in peer groups.

Question: Why is there a behavior escalation?

Reviewed two controlled intervention studies involving peer aggregation that produce negative short-term and long-term effects on high-risk youth.

Oregon Youth Study: Video interaction of what was deemed normative or rule-breaking.

Results: positively reinforced for deviant discussions.

“Deviancy Training”- Process of contingent positive reactions to rule-breaking discussions.

The Adolescent Transitions Program Society

12-week intervention: parent and peer influence.

Four intervention conditions: parent focus only, teen focus only, both focuses, and a placebo group

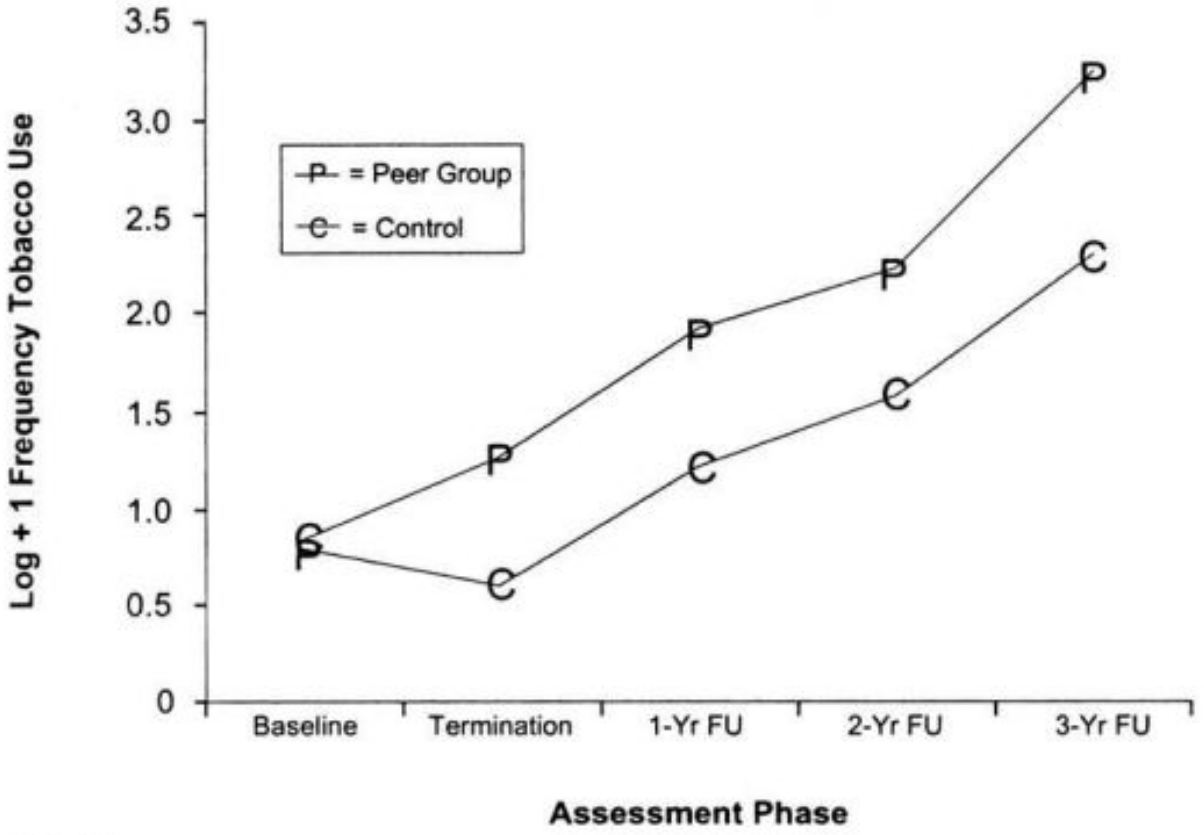
Hypothesis: The intervention with both focuses will be the best intervention

Short-term results: Hypothesis is correct

Long-term results: Negative effects with teen focus. Increase in tobacco use, more problems reported by teachers compared to control group.

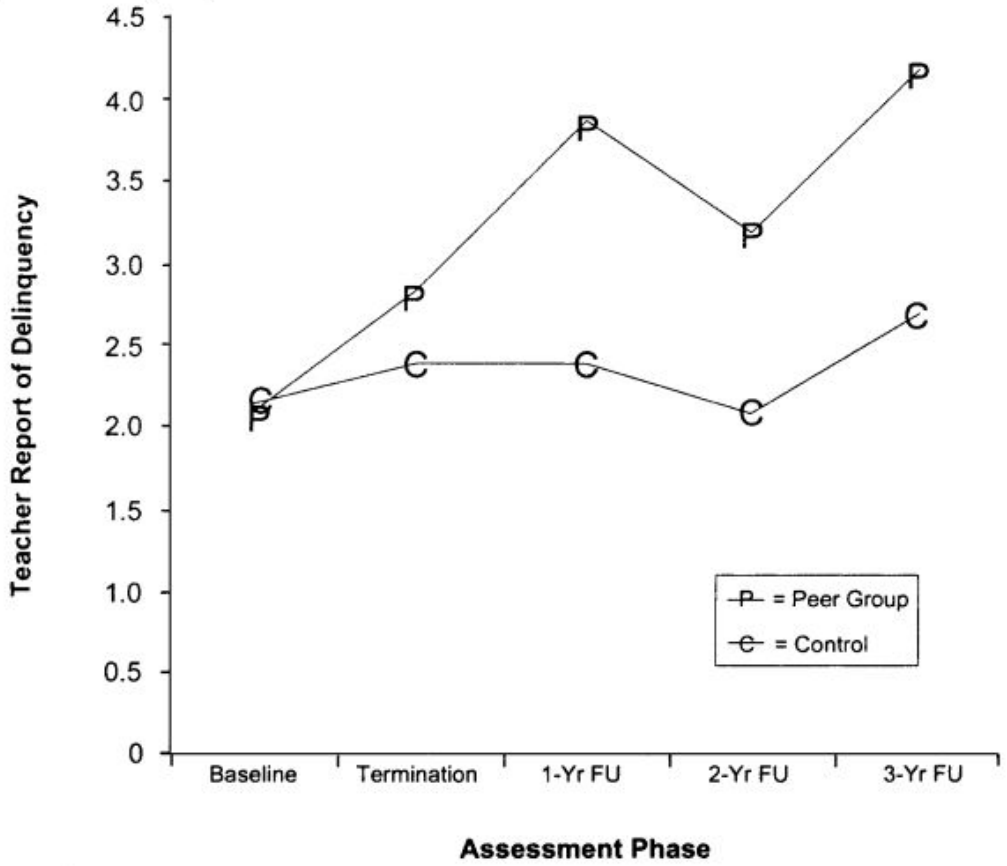
“Iatrogenic effects”- Effects from the intervention

Figure 2
Frequency of Self-Reported Tobacco Use as a Function of the Teen Focus Intervention



Note. Yr = year; FU = follow-up.

Figure 3
Teacher Report of Delinquency as a Function of the Teen Focus Intervention



Note. Yr = year; FU = follow-up.

The Cambridge-Somerville Youth Study Evaluation

Equivalent between intervention and control boys for matching purposes.

Study goes on for 5.5 years. Some would receive services (academic, tutoring, medical) and others would not. Two home visits a month.

Results after the program ended: No differences

Long term effects: No strong differences for the intervention group

Conclusion: Iatrogenic effects

- Most attention over longest period = iatrogenic
- Those in treatment longer and more intense treatment = turned out worse
- Iatrogenic results occurred only in the cooperative families
- No effect from encouragement to participate in activities
- Summer camp placement was an early prediction of delinquency

Takeaways

- Aggregating peers can produce short- and long-term iatrogenic effects on problematic behavior.

- Random assignment to deviant peer environments can contribute to problem behavior.

- Older, more deviant children were the most vulnerable to iatrogenic effects from peer aggression.

- More reinforcement of deviant behavior □ increases chances of deviant behavior.

- Proceed with caution with high-risk into intervention groups.

- Form groups accordingly .

Significance

Valentae: See the impact word of mouth interventions have on youth behavior, as it increase their chances of engaging in deviant behavior.

Gest and Colleagues: Behavioral dynamics at play and raises the concern of whether interventions should give discretion of selecting friends in the experiment (Diffusion).

See the significance of iatrogenic effects.

Important as researchers to recognize that interventions can have unintended consequences.

Intervention studies have mixed results.

Discussion Questions

1) One of the most popular intervention programs being employed are gun violence intervention programs. If we were to conduct a study on this program, what are some strategies that could be used to reduce negative iatrogenic effects?

2) One of the pieces of evidence the authors provide for intervention and developmental research is that “youth being actively reinforced through laughter, social attention, and interest for deviant behavior are likely to increase such behavior.” How might the role in the evolution of technology change this (e.g., reading text messages, social media, video games)?

3) The authors tell us that deviancy training is associated with increases of delinquent behavior. What are the best network strategies to combat this deviancy either through network theory or the creation of policy?

Reducing gunshot victimization in high-risk social networks through direct and spillover effects.

George Wood and Andrew V. Papachristos (2019)

Background

In 2016, **14,000** people were shot and killed; **70,000** wounded by gun assaults.

Victimization reduction interventions with **direct** and **spillover (outreach workers and mediators; participant diffusion)** effects.

Problem: **(a)** programs have only focused on aggregate levels of victimization pre and post intervention, and **(b)** difficulty in measuring spillover effects because of unease in identifying peers and modeling causal frameworks.

Purpose of Study

Estimate direct and spillover effects of a gun violence field intervention in Chicago.

Description of intervention

Induction intervention programme that utilize **peer-to-peer diffusion** of a desistance message by **encouraging participants to spread** information.

Group composition: Law enforcement officers, community members, social service agencies.

Target population: Individuals at high risk of involvement in group involved gun violence were invited for a one-hour in-person meeting.

Methods

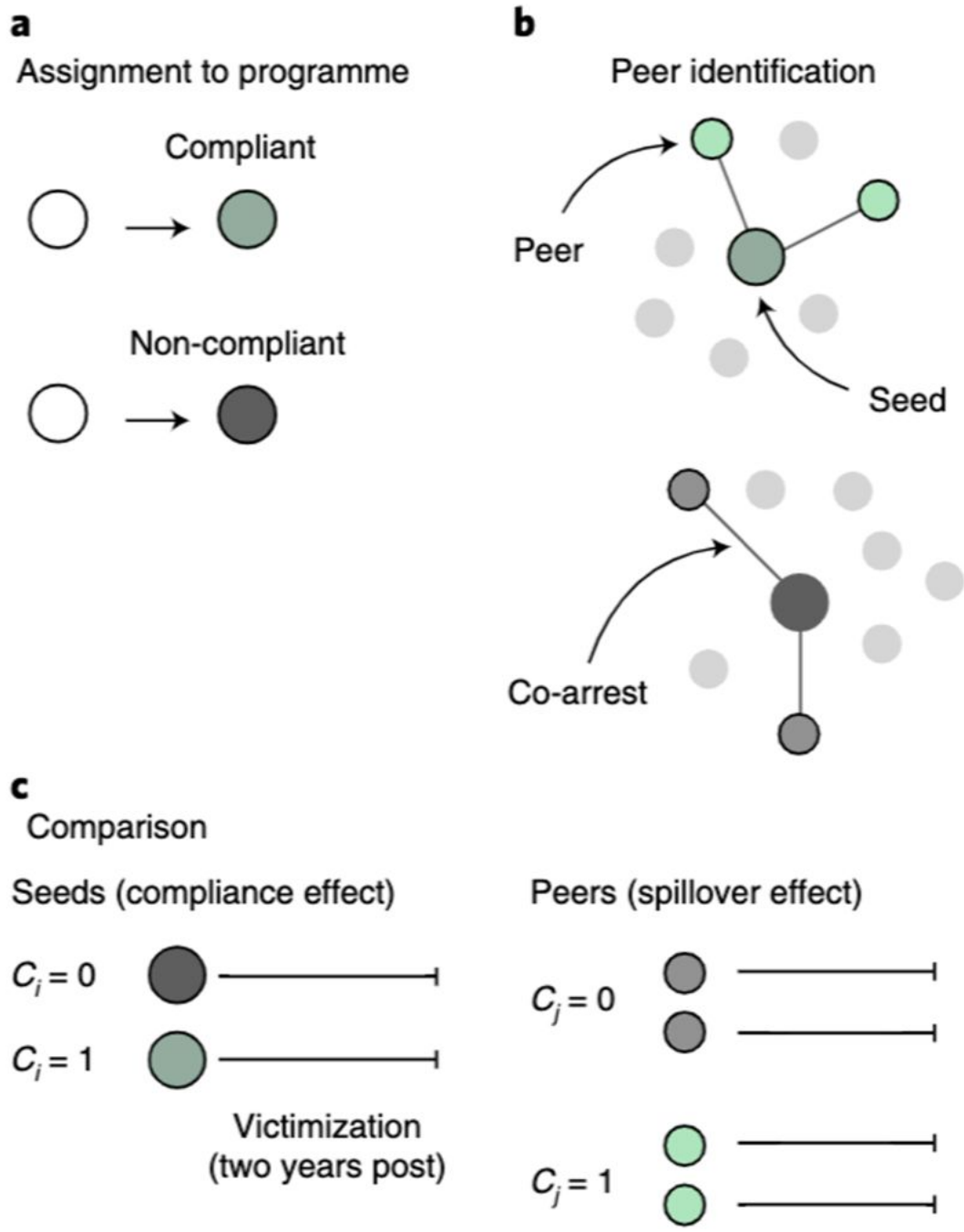
Data: 868,607 arrest data between 2007 and 2017 as recorded by the Chicago Police Department.

Sample frame for direct effect test: 2,349 participants **(**1,642 invitees and attendees - **compliant seeds** & 707 invitees and non-attendees - **non-compliant seeds)**. Post intervention *(2 years)* comparison between compliant seeds and non-compliant seeds.

Sample frame for spillover effect test (network exposure mapping): 6,132 non-participants who have ties with the seeds and were arrested together with them three years prior to the program. Created co-arrest (network structure) data based on this condition. (a) non-participant connected to compliant seed ***(n=3034)* -** compliant peer(s); non-participant connected to non-compliant seed ***(n=3098)*-** non-compliant peer. (b)compare victimization outcomes 2 years after exposure between compliant and non-compliant peers.

Design of

Intervention Evaluation.



Modeling Techniques

Bayesian Additive Regression Trees (**BART**) - Accurate for assessing treatment effect under confounding; It naturally allows to test for possible interactions effects and nonlinearities in relationships; heterogeneity of the compliance effect.

Difference-in-means (**DIM**) - finding the difference between pre-and-post treatment effect means.

These two techniques allow authors to compute the proportion of observed difference in victimization outcomes attributed to the compliance and spillover effects after adjusting for confounding variables due to selection to compliance.

Results

Compliance caused a median reduction in the chance of victimization of 3.2 percentage points. 42.6% of the difference in victimization outcome was attributable to compliance - BART estimate.

Compliance spillover caused a median reduction in the probability of victimization of 1.5 percentage points. 69% of the difference in victimization outcomes was attributable to the effects of intervention spillover.

Covariates profile of compliant seeds or peers do not moderate the primary compliance and spillover effects.

In sum, the program contributed significantly to 98 fewer gunshot victimizations.

Beyond the article

Within the framework of social learning theory, behaviors can be unlearned. Based on this theory and the spillover theory Wood & Papachristos (2019) present here, I think we can study the network structures of high-risk populations like teens, particularly target the influential ones **(nodes)** as agents of prosocial behaviors.

Discussion Question

Two years post intervention saw a reduction in victimization of about 98. Given that the intervention is primarily “word by mouth,” what do you think about the longevity of initiatives like this? What are some suggestions you can make to strengthen this intervention? **[Hint]:** 60, 000 gun victims each year in the US.

Crime diffusion across spaces is a popular observation in criminology. Participants may reduce gun assaults, but may engage in other assaults of equal or higher magnitude. How might we account for this possibility with the idea of spillover effects?

Network Exposure and Excessive Use of Force

Ouellet et al.

Bad Apples

Some Police Officers may have attributes that cause them to have more misconduct and complaints

Has been applied in research to identify common traits among high misconduct officers

Also the basis for identifying officers in a department that could be problematic through an Early Intervention System

Bad Barrels

Alternatively, some police departments may have administrative policies or cultures that are conducive for officer misconduct

Certain cities/jurisdictions have much higher incidence of misconduct, use of force and complaints

When a department has misconduct issues at large, it creates distrust in the community

Social Learning of Deviance

Ouellet et al. conceptualize officer misconduct as a form of deviance. The types of behaviors that lead to complaints, particularly excessive force, are not part of good policing.

Other criminological theories posit that deviance is a learned behavior, passed on through social interaction with deviant peers

In this context, it is likely that officers learn misconduct behaviors from deviant peers in the department. In particular, veteran officers' actions in the field are observed and replicated if they achieve a desired result (i.e. using excessive force to successfully subdue a suspect)

Contagion & Exposure

The authors utilize the network idea of contagion. Using a social contagion model, they argue exposure leads to subsequent behavior.

Exposure to deviant peers at time *t* affects officer behavior at time *t+1*. The degree of the exposure is dependent on the behavior of network alters

Primary Hypothesis: Officers who have a network of colleagues with a history of misconduct are more likely to receive a complaint

Data

The data comes from Chicago PD, and includes all complaints from 2007-2015

Officers complaint network is created from co-involvement in a complaint. Officers enter the risk set after first complaint and remain indefinitely

Exposure is measured as the proportion of co-complainants that had previously been accused of excessive use of force

Other predictors included in the analysis are tenure (years of service/mentorship effect), heterogeneity (race/gender) and officer rank and specialty unit (differential exposure)

Results

In regards to the individual officer, being male is a risk factor, longer tenure is a protective factor as most use of force incidents occur early in career, and race was non-significant

Each prior solo complaint increases the odds of a future use of force complaint by 7%

In regards to officer pairings, having a co-complainant is a risk factor, having a female partner is a protective factor, and the tenure of the partner was not significant

Exposure is positively associated with force complaints, with a hazard ratio of 1.66

Compared to officers with 0 complaints in their network, the average officer (39% of network has a prior complaint) is 26% more likely to receive a future use of force complaint

Policy Questions

1. Should police departments actively seek to increase the proportion of female officers? How can departments improve recruitment and retention of women?

2. What are some strategies for police departments to reduce exposure among officers, particularly new recruits coming in from the academy?

3. Are there any interventions departments can make with training officers to ensure young, higher risk officers are learning the job as ethically as possible?

Back to the core: A network approach to bolster harm reduction among persons who inject drugs

Bouchard et al. (2017)

Background

Supervised injection facilities reduce harm and risk behavior among persons who inject drugs (PWIDs). For instance, InSite - North America's first sanctioned supervised injection facility in Vancouver's Downtown Eastside (DTES).

Number of drug users have increased and facilities have been unable to meet the growing numbers.

Purpose of Study

To map the social structure of harm reduction.

(a) Identify the core **(direct access to harm reduction peers or mentors)** and periphery **(those isolated).**

By identification, the authors suggest that policymakers should:

(a) use the core individuals as conduits to bring the isolated ones close to the center.

(b) use peer-educators to reach those far from the center because of personal factors.

Significance of this suggestion

Cost-effective.

In terms of magnitude, more PWIDs will be reached. Importantly, in their spaces they are comfortable.

Indirectly, facilities are sustained in the long-term.

Description of facilities

InSite

Sanctioned peer-based harm reduction models opened in 2003.

Vancouver Area Network of Drug Users (VANDU)

Unsanctioned peer-based harm reduction initiatives opened in 1998; injections supervised by members of community with experience in safe injecting practices.

Data was collected from respondents who have used this facility and their network.

Methods

Sample technique and frame: Snowball sampling; 199 respondents.

Systematic survey:

First, self-reported characteristics on 199 respondents; Questions on criminal, medical and drug use history.

Second, mapping each respondent's network; Name nominations of closest contacts whom they engaged in or received harm reduction.

Third, identification and verification of network ties among network members: cross-network matching. Systematic accuracy tests yielded **1135** network members.

Analytic strategy

Generate core-periphery algorithm.

Articulation points.

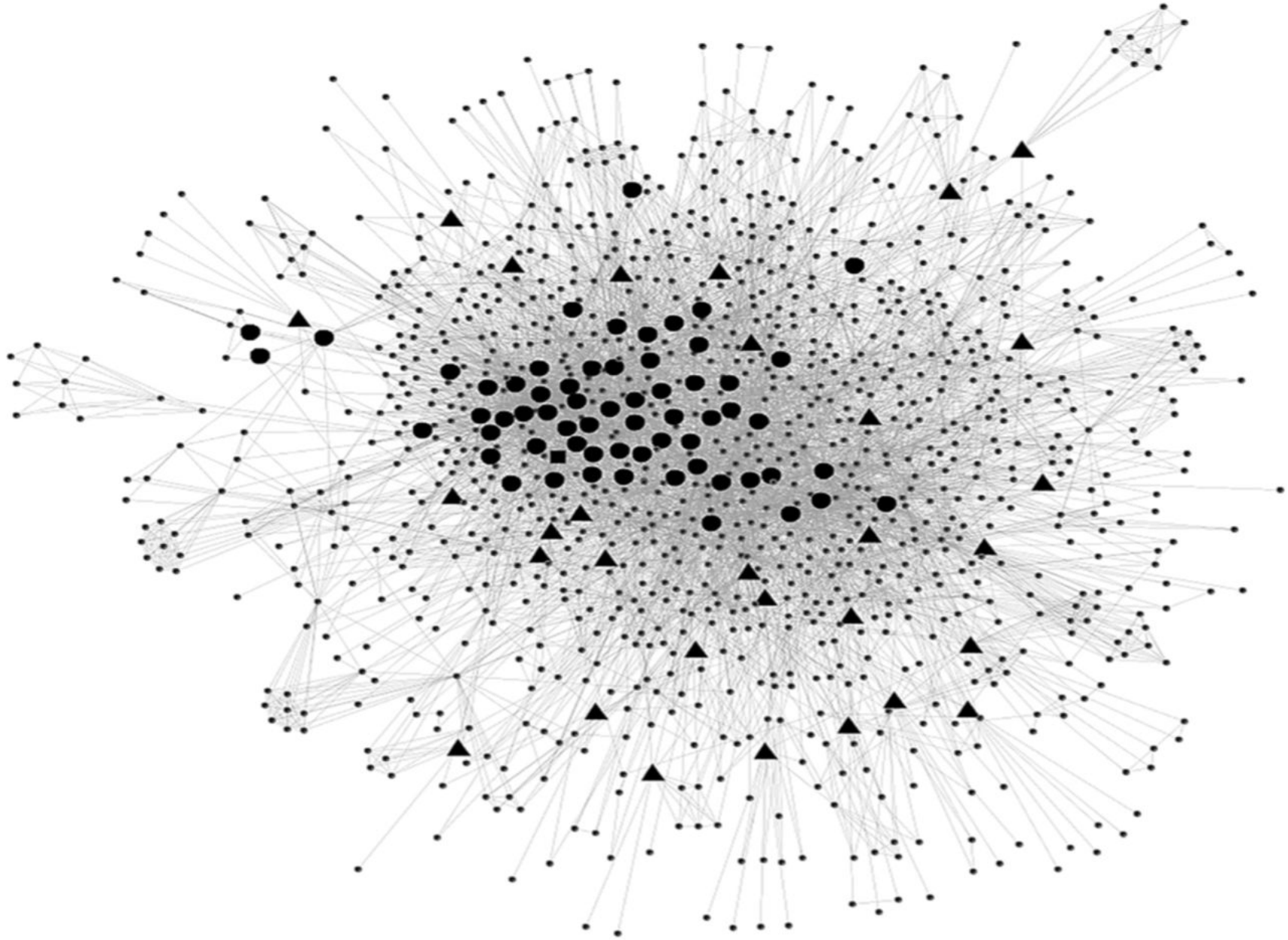


Fig. 1. Main component of the Downtown Eastside harm reduction network (n = 1131).
Notes. Main component shown (n = 1131), a small isolated component of four nodes removed. Circles: Core members (n = 62); Triangles: Articulation Points (n = 30); Square:

Key Findings

Core: 63 nodes; minority but highly connected- (5.6% & 6x that of periphery); high density; more connected to the periphery than the periphery to itself; network redundancy. Removing Core nodes = 29.2% loss of ties.

Periphery: 1068 nodes; low density; low connection to itself.

40 core nodes were not respondents or peers but were mentioned as contacts. Thus, policy makers can recruit non-users who are contacts in spreading harm reduction practices.

31 Articulation points reached 36.8% of other networks.

Access vulnerable actors (isolated in terms of location and level of incoming resources) more directly than others. They are like bridges. Removing APs = 7.7% lose of ties i.e 39 isolates.

Discussion Questions

Is the idea of Articulation Points (APs) similar or different from Granovetter's (1973) idea of the strength of weak ties? If yes/no, how or why?

How might the network structure look like (hierarchical or decentralized) if peripheral nodes become part of the core? What are some of the implications of your idea of the network structure to harm reduction interventions?