Developing and tailoring social network instruments and social network behavior change interventions for marginalized population

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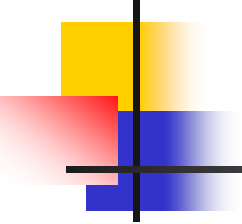# Pitfalls of ignoring social networks

- Ignoring network factors may attenuate group differences in RCT
  - Example, couple enrolls in a study, NIMH multisite
- Failure to use effective mechanism of behavior change
    - All organisms are influenced by their environments
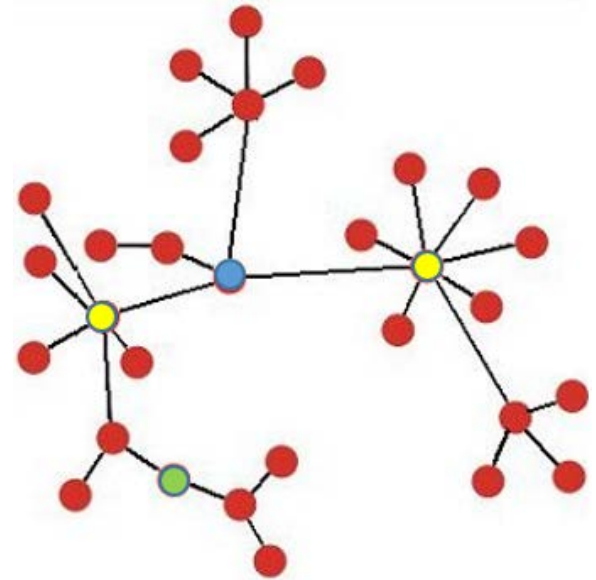- Network approaches can help quantify diffusion

Differential affiliation

- Cross-sectional data cannot always discern the difference between social influence and differential affiliation.

■ From a network perspective how would you conceptualize a bar?

What should be measured?

- a---b
    - personal network
- a---b---c
    - a---b---c (networks as channels), a---B---c (networks as entities)
- Proxy measures
    - Social norms, network size, frequency of interaction, density

How does network influence work?

- Social diffusion model as network as channels for information
- If you view social diffusion as due in part to behavior change how does this impact network structure?
  - (feedback loops, reward structures, acceptability of the discussion)
- Implementation of programs
  - Need more than an advocate, need a structure of to support, maintain and amplify advocates (social identity)

Approaches to name generators

- Do you develop a name generator based on theory or use a the data to develop theory?
- Focus network intervention
- Utilize for recruitment via chain referral
  - (e.g., for RDS rather than assume random selection target specific network members)
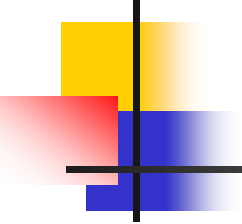- Understand social influence patterns and social dynamics

How to collected network data

- **Identify names of ties:**
- **No set rules.** The goal is to both delineate social environments and how people categorize them.
  - **Perceived vs. enactect**
- Emotional support
  - "Who can you talk to about something personal or private" versus "Who's in your corner"
- Instrumental support
  - Who would give or loan you $25 or something of value?
  - Who could take you to a doctor's appointment?
- Informational support
  - "Who could you talk to about HIV" versus "who have you talk to about PrEP" or "who is taking PrEP"
- Specific joint risk behaviors
  - Who do you do drugs with? (versus " who in you network uses hard drugs?"
 - Who do you have sex with?

- Specific joint risk behaviors
  - Who do you do drugs with? (versus " who in you network uses hard drugs?"
  - Who do you have sex with?
- Role relationships
  - Coworker, house roles,
- Social norms:
  - Which friends take PrEP, Which friends talk about PrEP
- **Elicit attributes of network members**
  - Demographics: age, gender, education, economic status, HIV status, type and frequency of drug use,
- **Implementation research**
  - Role, affect (friendship), leadership

What domains are important to you?
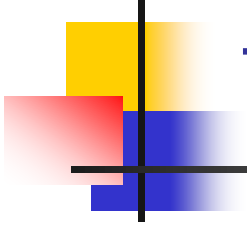
HIV seroincidence
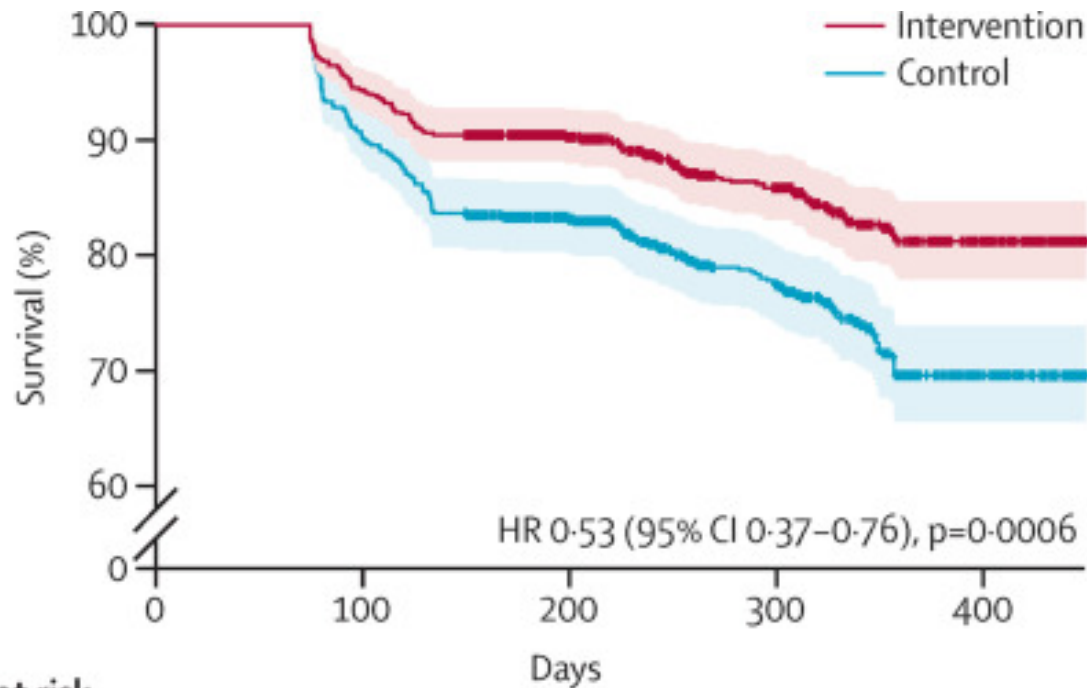
- Lancet HIV, The, 2016-10-01, Volume 3, Issue 10, Pages e482-e489

Implementation of evidence-informed practice through central network actors; a case study of three public health units in Canada Reza Yousefi Nooraie et al. *BMC Health Services Research (2017)*

Only the group of highly engaged central actors who were connected to each other, and the staff who were connected to highly engaged central actors significantly improved their, evidence-informed decision making (EIDM) behavior scores. Staff who were also friends with their information sources showed a larger improvement in EIDM behavior.

We learned that, if supported by the health unit leadership, highly engaged staff formed closely connected clusters through which they shared their concerns and progress stories. These clusters consisting of individuals with similar expertise, interests, and challenges who help each other through communication and feedback resembles communities of practice. Interactions in small groups and the influence that people have on each other assist in the formation of shared understanding and agreements, and subsequently evolving social norms.

Network intervention: change agent as social role

- Promoting health behaviors can be self-rewarding as they may enhance self-concept, provide meaningful social roles,

- The role may provide social status, **a sense of identity**, a social identity of belonging to a valued group.

- Promoting behavior change among network members may also enhance important social relationships.

- Social roles should be culturally consistent and believable.

- Roles need to be constructed so that they garner rewards and positive feedback from social network members.

How can they we capitalize on network for behavior change (and what are the goals)

- Have an identity associated with promoting the new behavior
- Obtain social rewards for promoting the new behavior
    - Within the context of meaningful and valued actions
- Establish new social norms

What types of ties to target?

- Do you target strong ties (frequent contact, emotionally close, high trust)

- Do you target similar others with similar experiences (validate experiences, emphatic understanding, role model, inspire hope)

- Similar others (SES, values [such as church members]), who occupy similar geographic spaces

Assessing & addressing contamination

- The best network intervention could lead to no differences between experimental and control group
- Measure contamination
    - Listed network members and assess overlap,
    - Ensure study includes identifiable items that are likely to diffuse and sham items to assess direct and indirect exposure

Assessing & addressing contamination

- **Analyze contamination**
  - Three group analyses,
  - Adjust for level of contamination

- **Prevention**
  - Focus intervention, geographic distance

Network Sampling

- Can social networks help with sampling issues with hidden population?
    - Assess the systematic biases in network chain referrals
- Potentially reduce bias with RDS
- Provide information on social network structure

Major impediments for network approaches

- Numerous factors may alter network composition
- Lack of resources, competing demands
- Some ties are fluid
- Individuals with high centrality or those who have influential roles may not be interested in programs.

Potential Adverse Consequences

- Role conflict between member of community and institutional representative
- Lack of control over the messages
- Negative reaction from network members
- What happens to participants after programs end

Questions for network approaches to reaching specific populations

- What are the important domains to generate social networks inventories?

- What should be the strength of ties or relationships?

- What are the necessary skills need to train network members?

- How do you providing key network members with the credibility to be effective?

Questions and caveats for social network approaches

Can you delineate important social network members?

- Can people recollect the names of their network members, are these reports reliable?
- Can they accurately report on the behaviors of network members (ingroup vs. outgroup)?

- Are the networks stable?
- Ethics
  - Is it ethical to inquire about people that you do not have informed consent?
  - What are the ethics of promoting behavior change among individuals who did not consent?

Implementation science & social networks

- Author & collaboration networks
  - Changes as outcomes of interventions, technical trainings
- Opinion leaders (CPOL) for promoting the adoption of new behaviors
  - Context dependent, may not be reliable or stable
  - May or may not influence specific behaviors
- Identify leaders and understand leadership
  - Leadership in and as social networks (relational, situated in a context, formal and informal, socially patterned)
- Informal or professional organizations often allow for reducing cost of information & increase trust, and frequency of communication.

Thank you

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