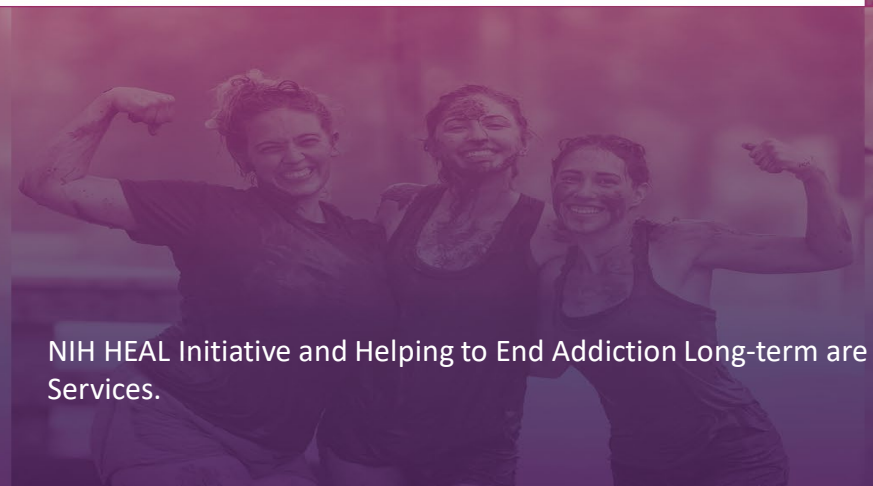


NIH HEAL INITIATIVE

HEAL Preventing Opioid Use Disorder Research Program: Social Network Webinar

Presented by David Kennedy, PhD; Jodi Ford, PhD; Rose Hardy, PhD; Jerreed Ivanich, PhD; Sazid Khan, PhD

May 22, 2023


NIH National Institutes of Health
HEAL Initiative

Statement of Support

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Webinar Breakdown

- WHAT IS THE NIH PREVENTING OPIOID USE DISORDER PROGRAM?
- BASICS ABOUT SOCIAL NETWORK RESEARCH
- PRESENTER INTRODUCTIONS
- DR. DAVID KENNEDY
- DR. JERREED IVANICH
- DR. JODI FORD AND DR. ROSE HARDY
- Q&A WITH THE AUDIENCE

The NIH HEAL Initiative

The NIH HEAL Initiative seeks scientific solutions to accelerate the development of prevention strategies and safe, nonaddictive, innovative treatments for opioid misuse, addiction, and pain.

- 30 research programs

HEAL Preventing OUD

Cross-cutting foci:

- Increase access to prevention services for underserved populations
- Community- & systems-engaged research
- Intervening during periods of vulnerability for opioid misuse

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HPC Aim

Develop and test 10 interventions to prevent opioid misuse and OUD among young people ages 15–30

Webinar Feature Topic

An Introduction to Social Network Analysis

What Is Social Network Analysis?

A research method developed primarily in sociology and communication science, focusing on patterns of relations among people and among groups such as organizations and states (Vaughan et al., 2005)

Studies the behavior of the individual at the micro level, the pattern of relationships (network structure) at the macro level, and the interactions between the two (Stokman et al., 2001)

Comparison: Social Network and Social Media

- Social Network
  - Creation and maintenance of personal and business relationships
  - Can use social media to maintain and build social networks
- Social Media
  - Forms of electronic communication (e.g., Web sites for social networking and microblogging)
  - Users create online communities to share information, ideas, personal messages, and other content

Webinar Presenters

Presenters:

David Kennedy, PhD, MA

- Senior social/behavioral scientist at the RAND Corporation
- Trained as a medical anthropologist
- Researches the intersection of culture, social networks, and health

Jerreed Ivanich, PhD, MS

- Assistant professor at the Colorado School of Public Health, Centers for American Indian and Alaska Native Health
- Adjunct assistant professor at the Johns Hopkins Bloomberg School of Public Health, Center for American Indian Health
- Member of Alaska's Metlakatla Indian Community (Tsimshian)
- Uses prevention science, social network analysis, and adolescent health to reduce substance use and suicide in tribal communities

Presenters:

Jodi Ford, PhD, RN, FAAN

- Professor, director of the Stress Science Lab, and assistant director of the Martha S. Pitzer Center for Women, Children and Youth in the College of Nursing at The Ohio State University
- Investigates the interplay between the social, spatial, and biological determinants of adolescent and young adult health and their contribution to social inequities in health

Rose Hardy, PhD, MPH

- Health services researcher and data scientist at Nationwide Children's Hospital
- Focuses on pediatric specialty care with an emphasis on the delivery in rural communities and how social determinants of health affect that care
- Assesses how relationships affect social needs and network outcomes

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TACUNA

Traditions and Connections for Urban Native Americans

The Social Networks of Non-Reservation American Indian / Alaska Native Emerging Adults

NIDA UH3DA050235

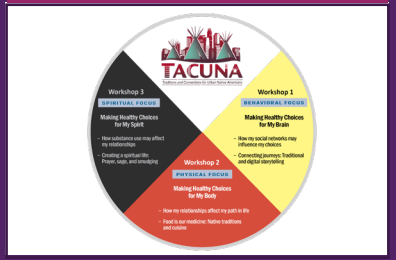
Presented by: David P. Kennedy

Principal Investigators: Elizabeth J. D'Amico
Daniel L. Dickerson

Traditions and Connections for Urban Native Americans (TACUNA): Workshops

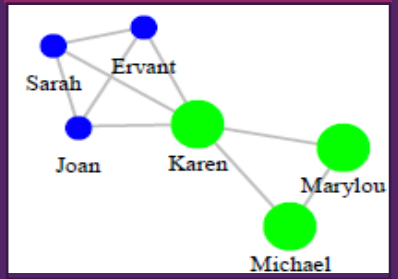
Address opioid initiation/escalation

Culturally centered programming + motivational interviewing



Focus on traditional practices

Social network influences



- Randomized controlled trial with American Indian / Alaska Native (AI/AN) emerging adults
  - Ages 18–25
  - Living in urban areas
- Administrative Supplement to analyze network data

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What Do We Know About the Social Networks of American Indian/Alaska Native Emerging Adults Living in Urban Areas?

Not much published on their social networks

- AI/AN adolescents or those living on reservations
- No evidence-based, culturally tailored prevention programs or social network interventions

We expect that social networks are very important

- Developmental stage with social changes
- Inter-generational historical trauma
- 70% AI/AN live outside reservation / tribal lands
  - Social and geographical fragmentation
  - Limited opportunities for cultural involvement

Social Network Supplement

Parent Project

- Prevent Alcohol and Other Drugs (AOD) Use
- Produce network pictures for TACUNA participants
- Test effects of intervention on changes in networks
- Control group (did not see their networks) compared to TACUNA group

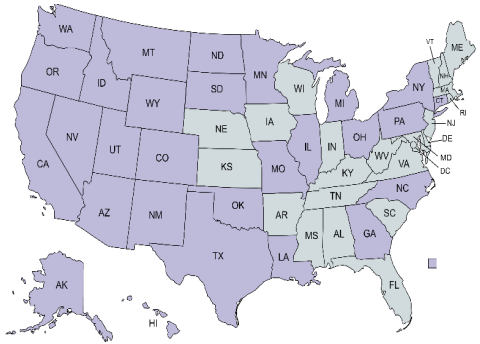
Supplement enables additional analysis of social network characteristics of participants at baseline

First 150 Participants

- Aim 1: Describe networks: composition and structure
- Aim 2: Explore associations between health outcomes and network composition
- Aim 3: Explore associations between health outcomes and network structure

Respondent Characteristics (N=150)

- 21.8 years old; 86% Female, 48% Sexual/Gender Minority
- 30% of mothers—high school education or less
- Lived in 28 states, averaged 81% life in urban areas, 22% in reservations/tribal lands;
- 14% born on reservation lands; 21% usually speak tribal language with family at home
- 64% traveled to reservation/tribal lands in past year; 16% > 31 or more days



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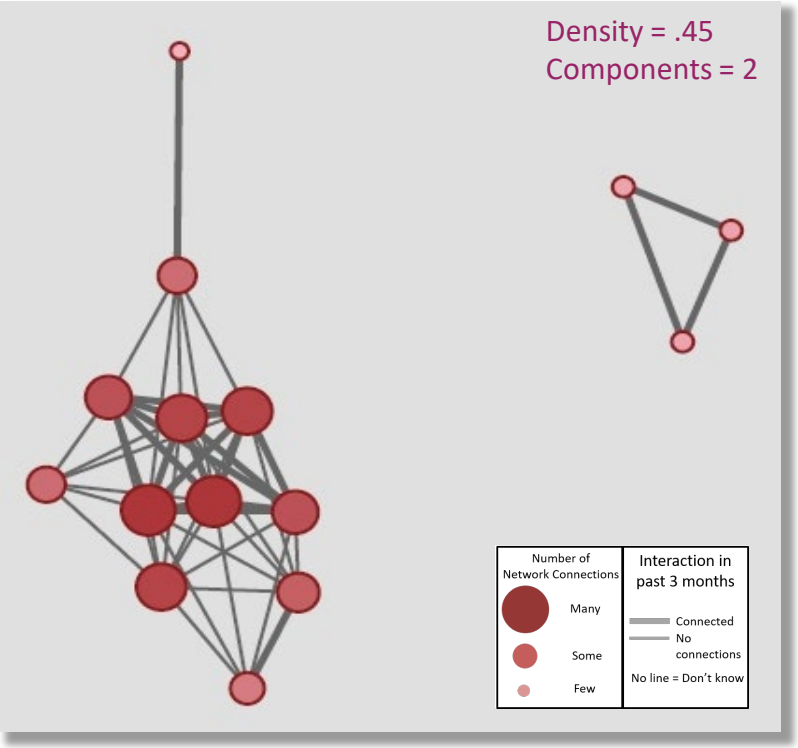
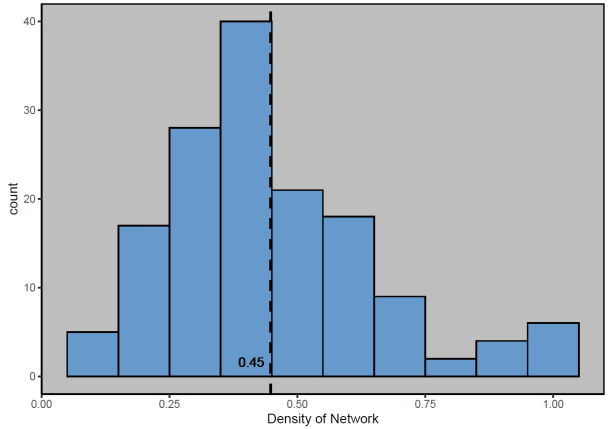
Egocentric Interviews



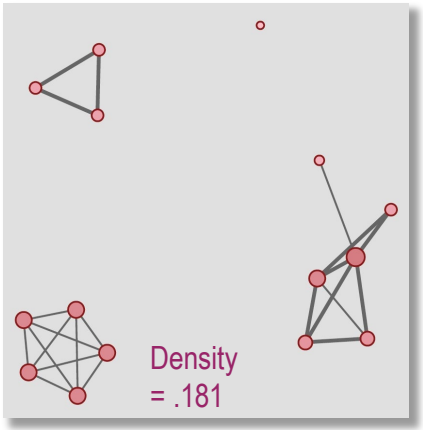
- **Questions about Respondents ("Egos")**
- **Name Generator: who is in the network ("alters)?**
  - "First, think about the people you have talked with the most over the past 3 months, either in person or over the phone, or by texting, emailing...things like that. Please type the names of 15 people who are at least 18 years old."
- **Name Interpreter: what are their characteristics?**
  - AI/AN identity, engagement in traditional practices, substance use, support, arguments
  - Counts or proportions
- **Alter ties: who knows who?**
  - Lines between "nodes"
  - Used to measure network structure

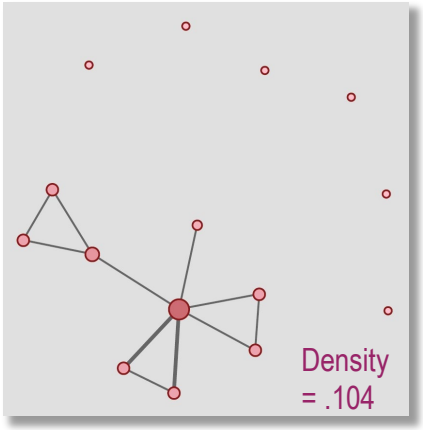
Network Structure

Density

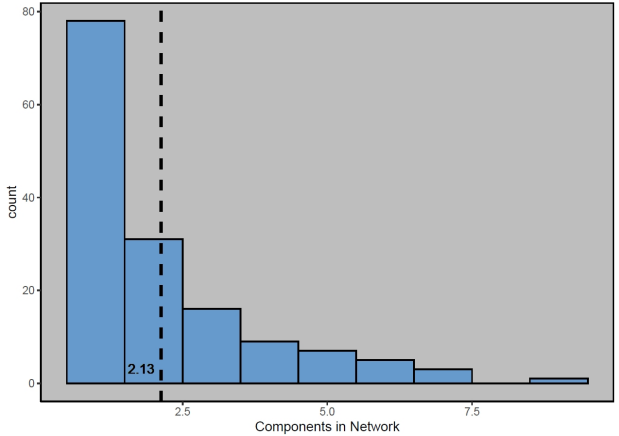


Low Density
Many Components

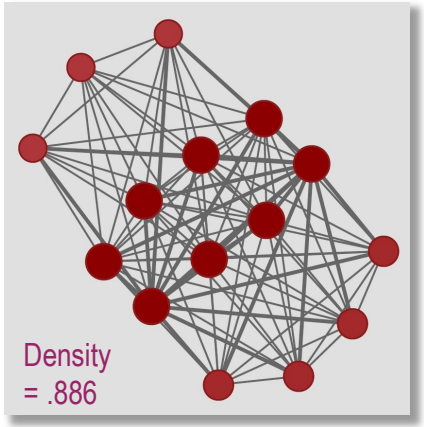


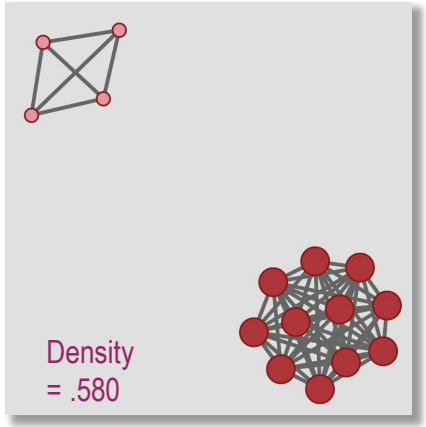


Components



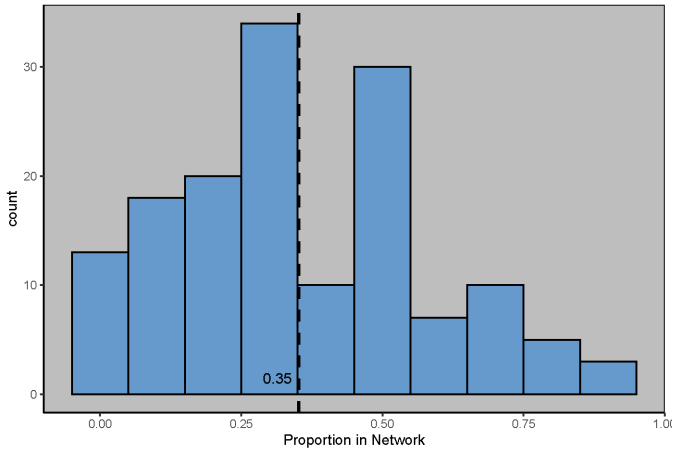
High Density
Few Components



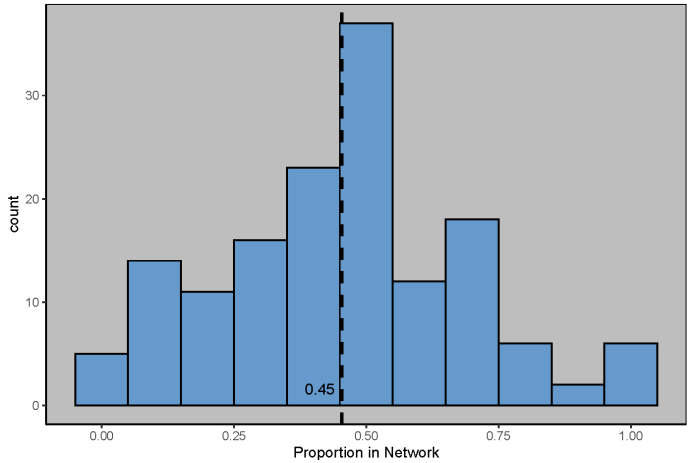


Network Composition

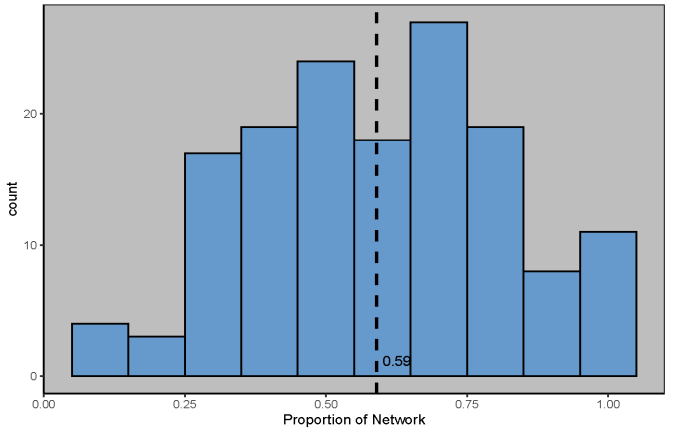
Family



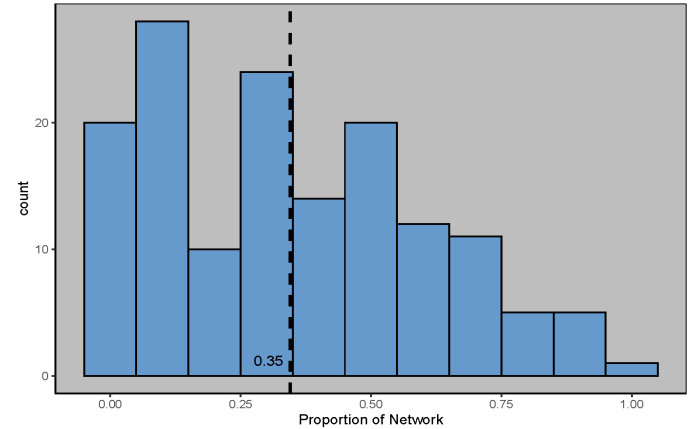
Friends



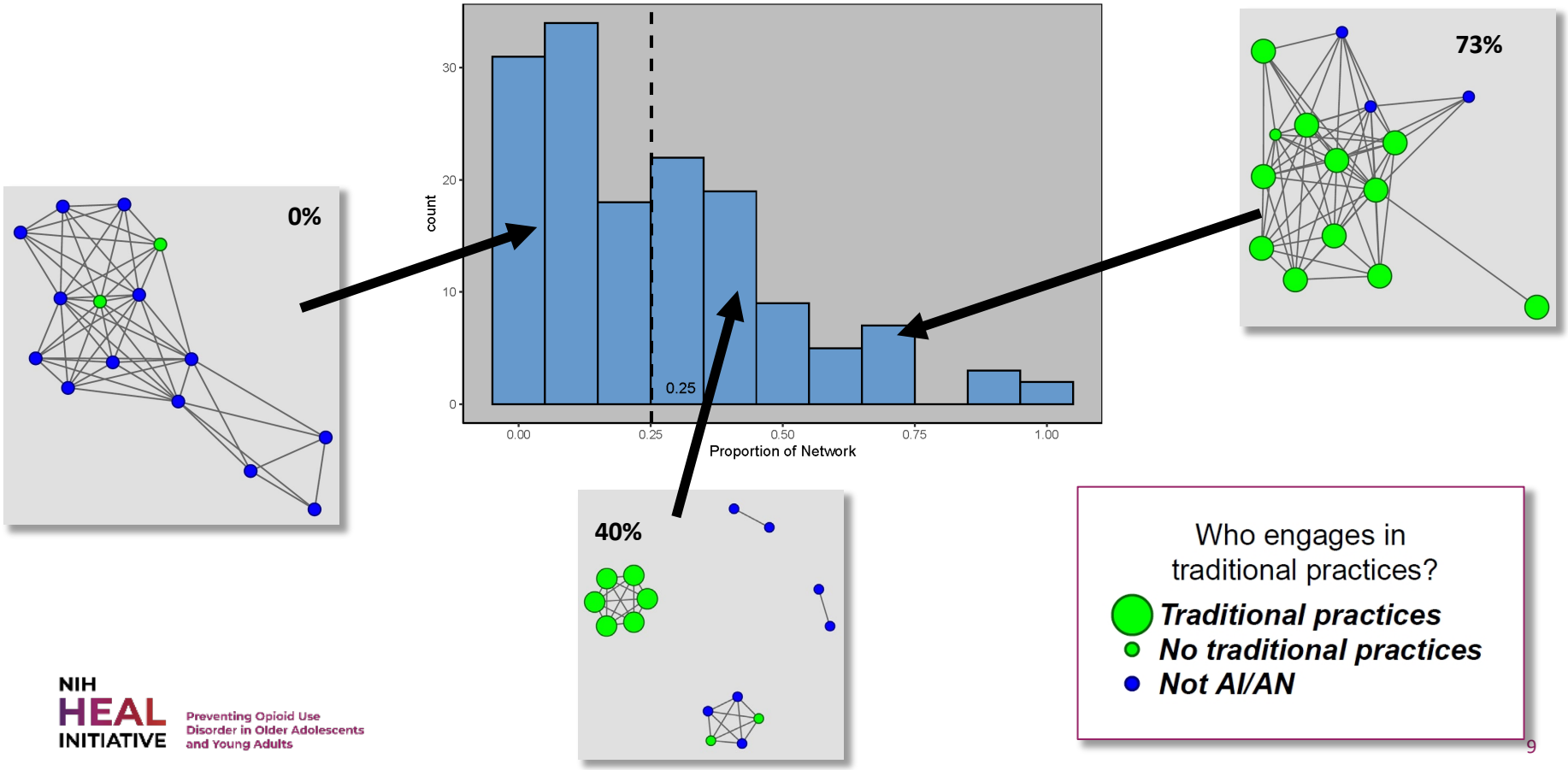
Similar Age



Live >50 Miles Away



AI/AN Identity and Engagement in Traditional Practices



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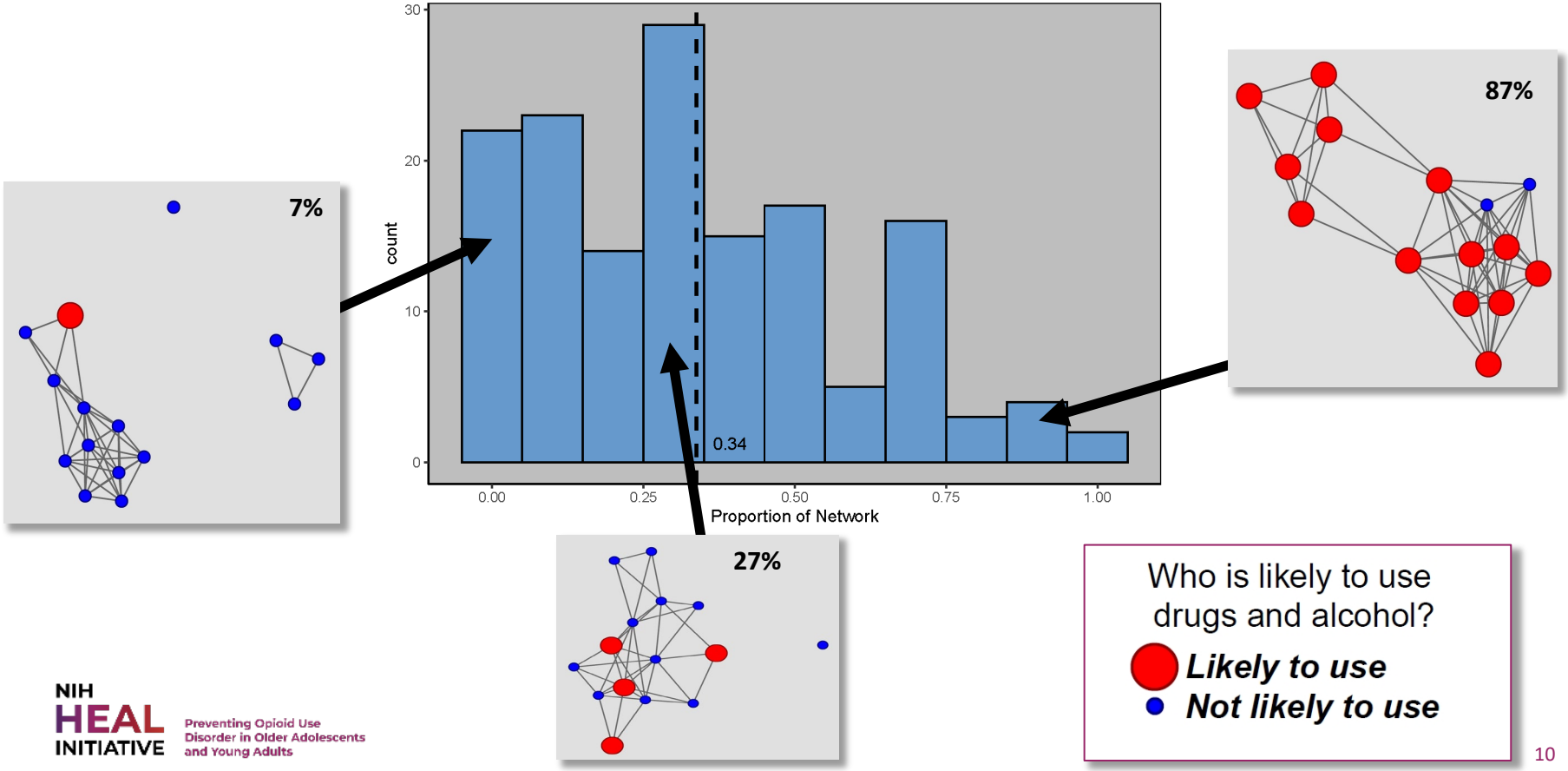
Heavy AOD Use

AOD = Alcohol and other drugs



Who is likely to use drugs and alcohol?

Likely to use

Not likely to use

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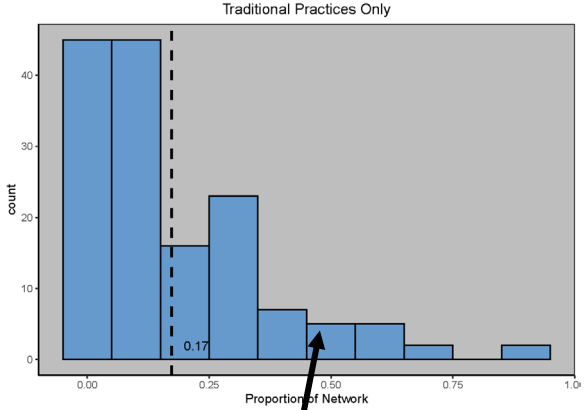
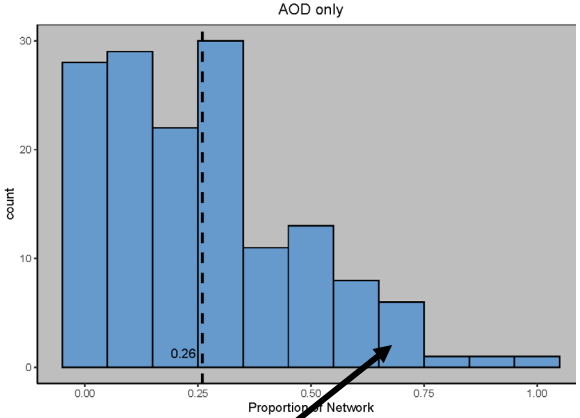
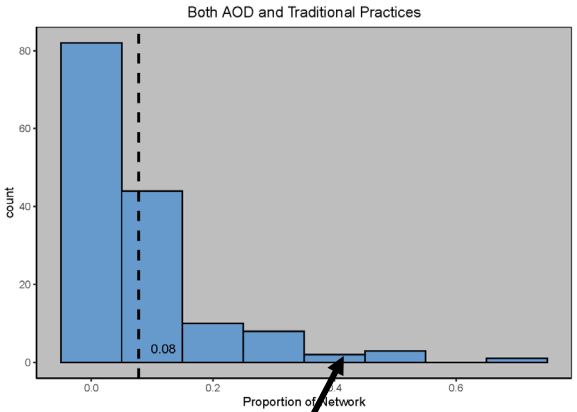
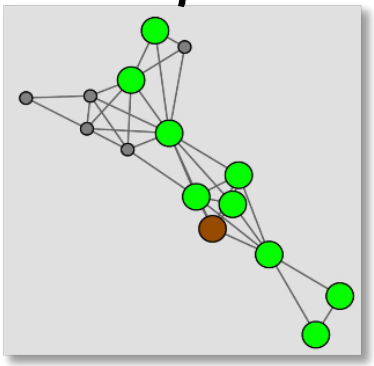
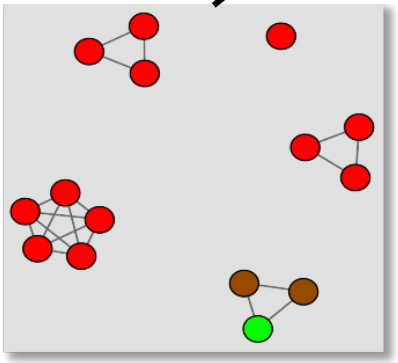
Multiplex Relationships: AOD Use and Traditional Practices

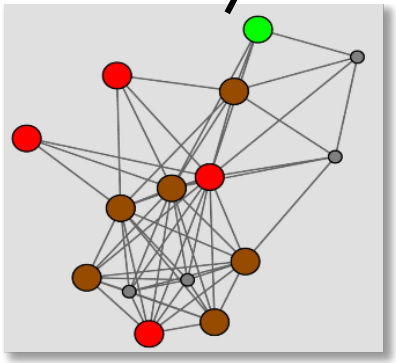












60%

80%

40%

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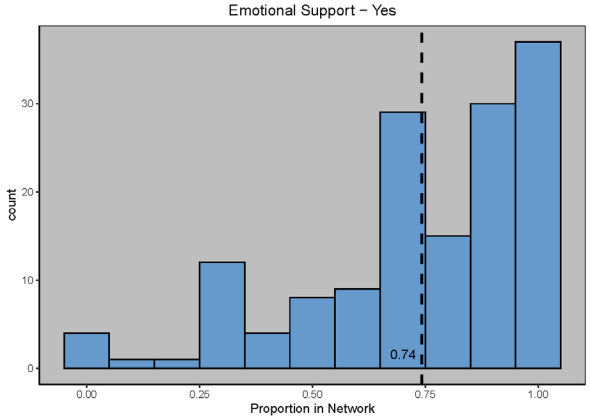
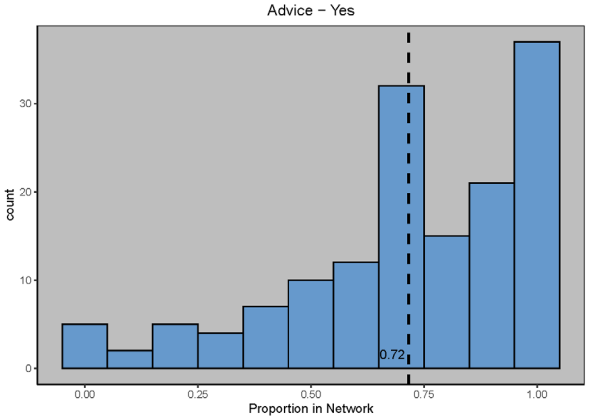
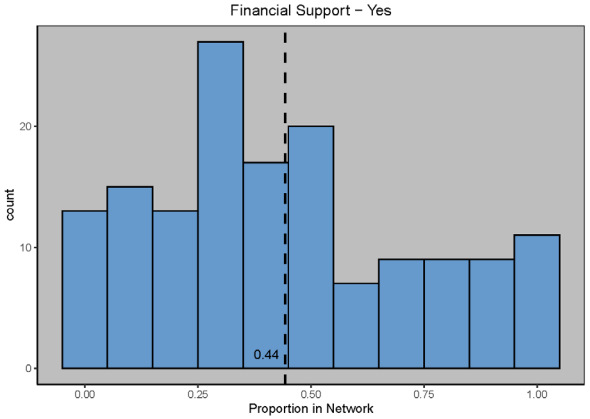
Who engages in Traditional Practices and drugs and alcohol?

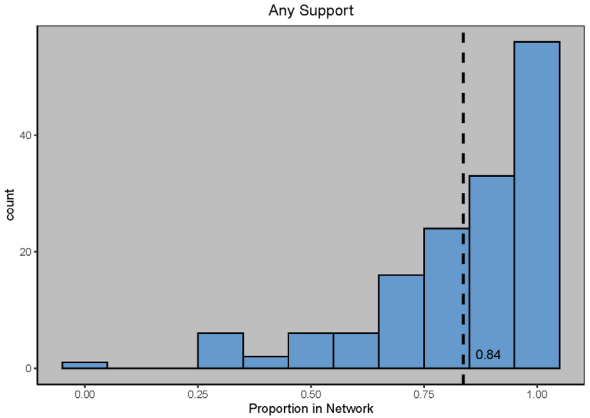
- *AOD only*
- *Traditional Practices only*
- *Engages in Both*
- *Engages in Neither*

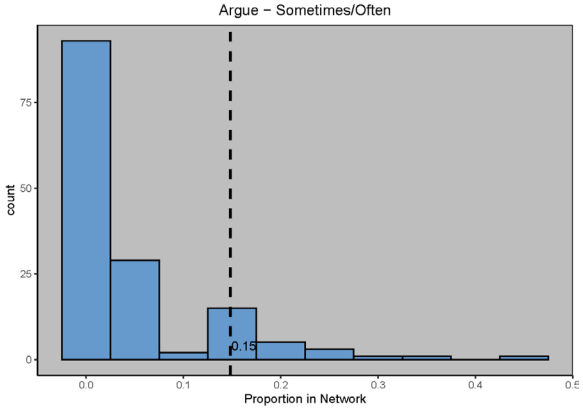
Support (Emotional, Advice, Financial) and Arguments











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Multivariate Association With Cultural Identity / Thoughts of Historical Loss

Cultural Identity (MEIM)

Demographics:

- Speaking Tribal Language

Networks:

- Traditional Practices
- Recent discussions of AI/AN identity (< 3 months)

- Discussions > 1 year

Historical Loss

Networks:

- Recent discussions of AI/AN identity (< 3 months)

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Network Association With Alcohol and Other Drug (AOD) Use

Cannabis Use

- Cannabis use
- ***No Traditional Practices + Heavy Substance Use**
- Traditional Practices + Heavy Substance Use

- Neither traditional practices nor substance use

Intentions to Use AOD

- Cannabis use -> cannabis intentions
- No Traditional Practices + Heavy Substance Use

- Traditional Practices + No Substance Use
- Neither traditional practices nor substance use

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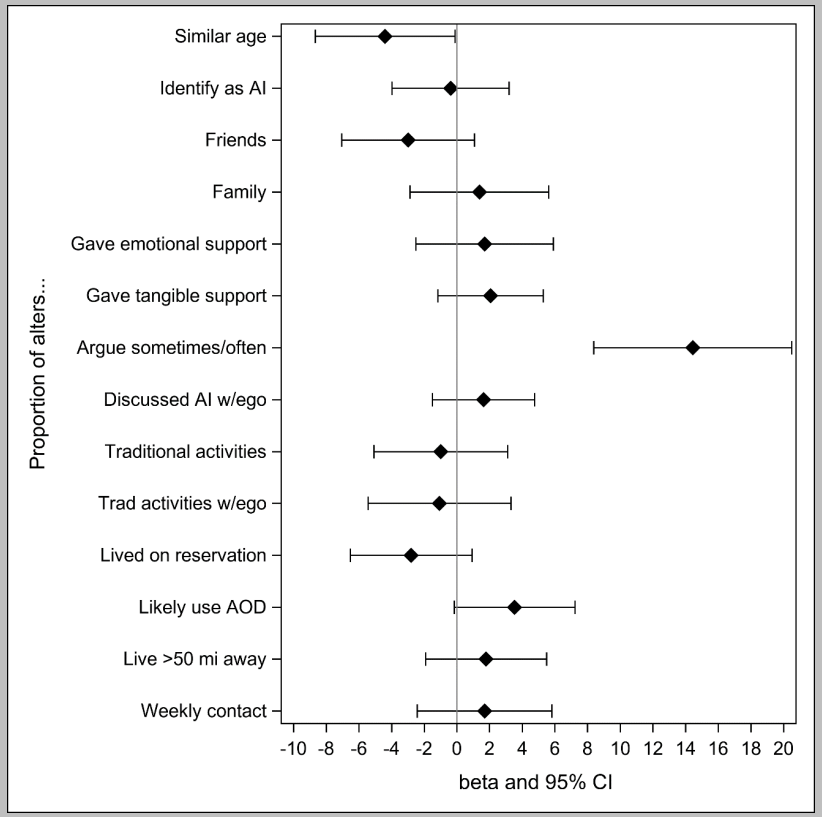
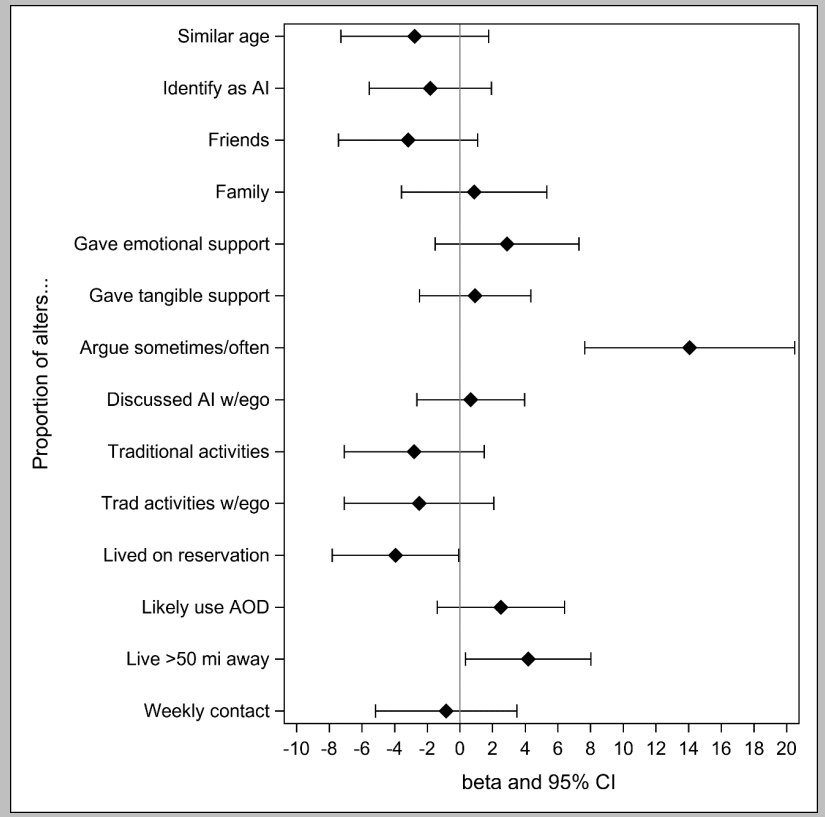
Network Associations with Mental Health (Anxiety and Depression)

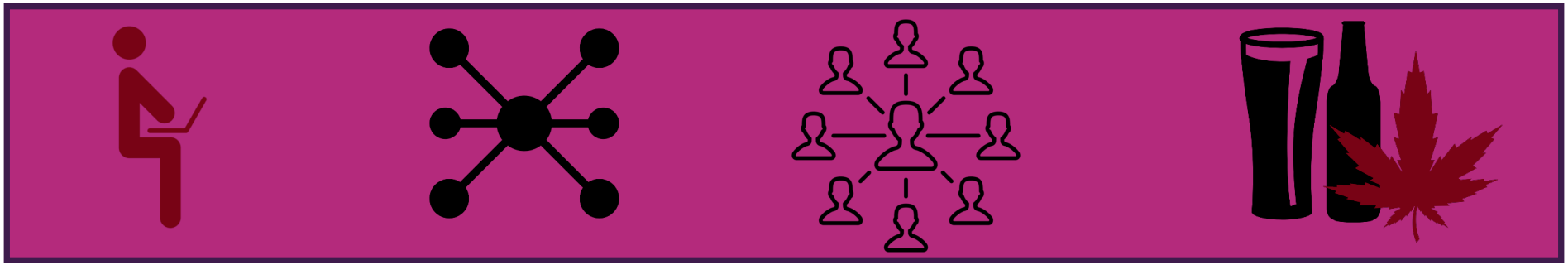
Anxiety (GAD)



Depression (PHQ)



Network Visualizations and Group Motivational Interviewing



Online Survey

Network Visualizations

Group Motivational Interview Workshops

Prevent Use of Alcohol and Other Drugs

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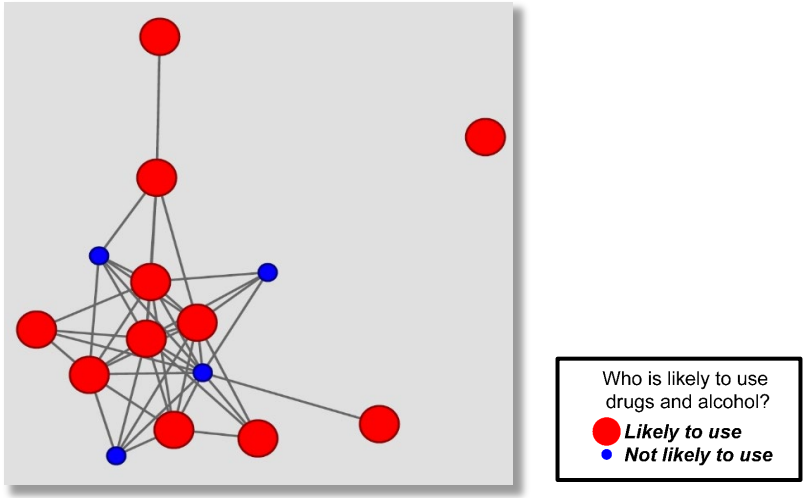
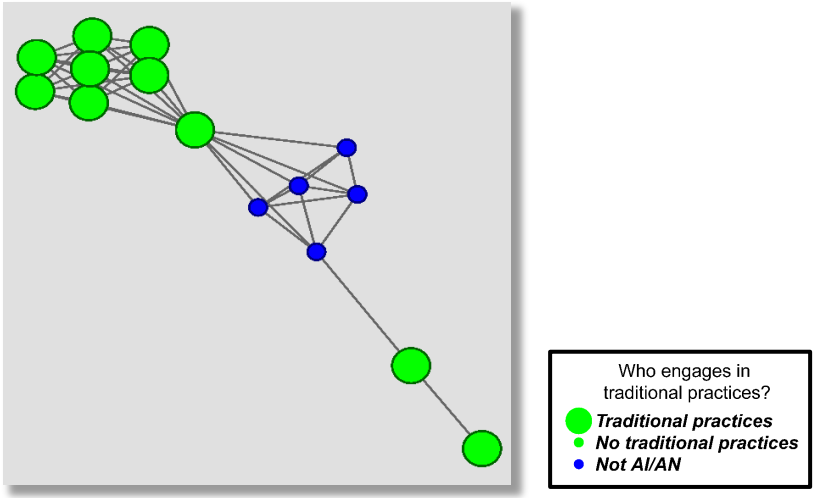
Network AOD Use and Traditional Practice Feedback

Substance Use



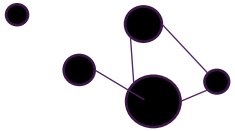
"I notice that the majority of my picture would be likely to use drugs and alcohol."

Traditional Practice Support



"All of my friends participate in traditional practices and most of them do so together."

Conclusions



Social networks of AI/AN emerging adults in urban areas are diverse.

Network characteristics have strong associations with cultural identity.

Multiplexity in relationships impacts association with drug and alcohol use intentions.

Providing visual feedback about characteristics of networks compliments behavior change interventions that include focus on traditional practices.

Special Thanks to our Elder Advisory Board

Gina Arvizu
(Tongva, Kumeyaay, Apache)

George Funmaker
(Ho-Chunk/Dakota)

Benjamin Hale
(Navajo)

Janet King
(Lumbee; *in memory*)

Anthony Lopez
(Am Pomo Indian)

Lynette Mike
(Paiute and Miwok)

Kurt Schweigman
(Lakota)

Special Thanks to Our Community Partners

Sacred Path
Indigenous Wellness Center

NATIVE AMERICAN
HEALTH CENTER

FAIHP
Fresno American Indian Health Project

SONOMA COUNTY
INDIAN HEALTH PROJECT

United American Indian Involvement, Inc.

AMERICAN INDIAN COUNSELING CENTER
NATIVE AMERICANS MOVING IN
RESILIENCE & TRADITION

NATIVE AMERICAN COMMUNITY CLINIC
HONORING HEALTH AND TRADITION

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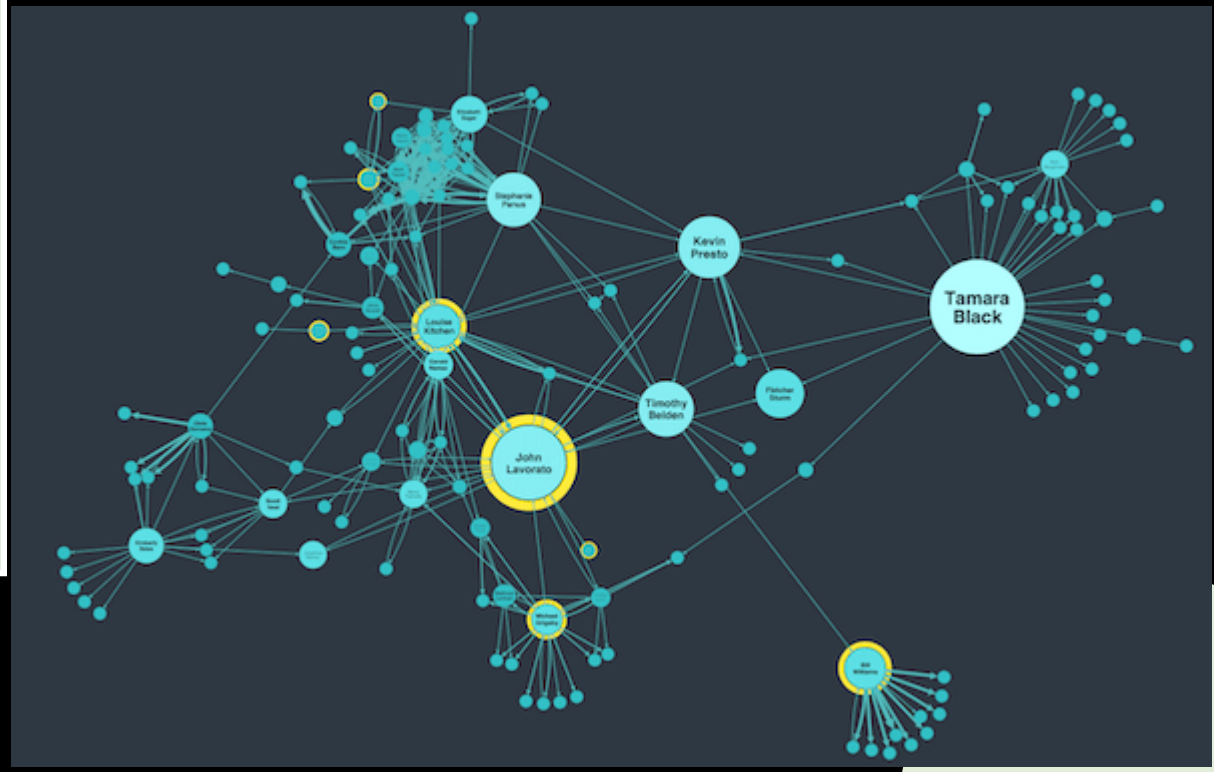
Social Networks in Public Health

Jerreed D. Ivanich, PhD

May 2023



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Agenda

Introduction

Social Networks for American Indian/Alaska Native Communities

Tribal Reservation Adolescent Connections Study

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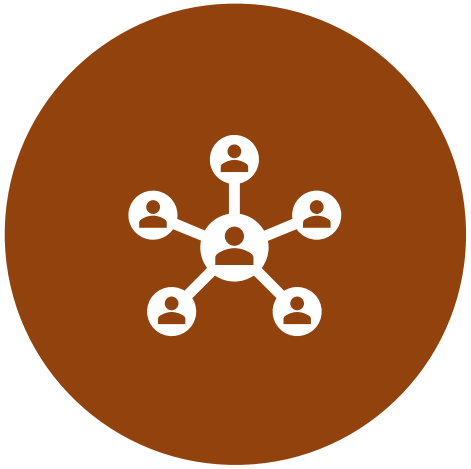
Metlakatla Indian Community (Tsimshian)

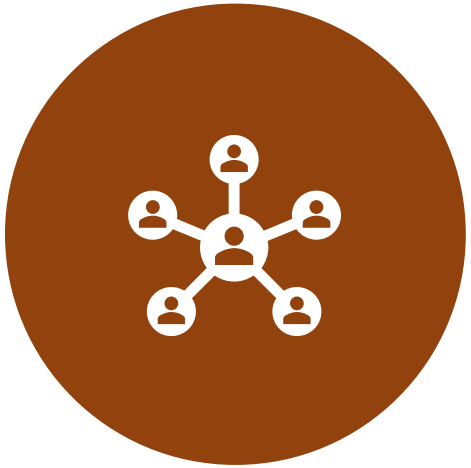
WHY SOCIAL NETWORK ANALYSIS (SNA) WITH AI/AN COMMUNITIES?

WHY SNA WITH AI/AN COMMUNITIES? (1 OF 4)

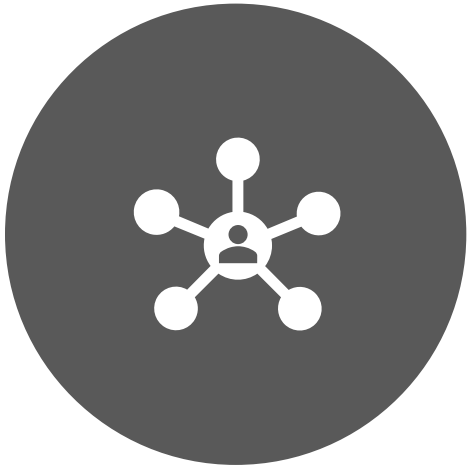


RELATIONSHIPS MATTER!

WHY SNA WITH AI/AN COMMUNITIES? (2 OF 4)

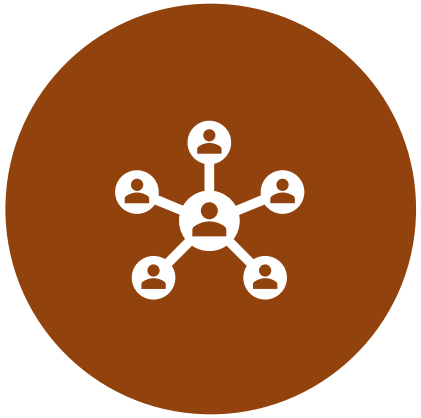


RELATIONSHIPS MATTER!

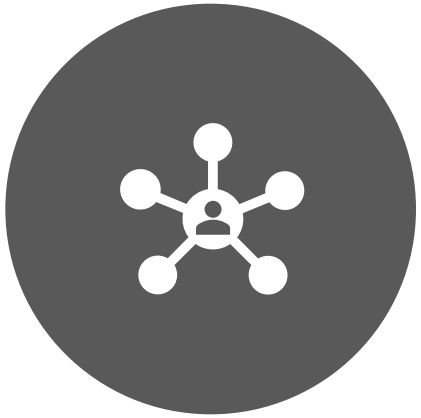


SOCIAL NETWORKS FOR AI/ANs MAY NOT BE THE SAME AS FOR OTHERS

WHY SNA WITH AI/AN COMMUNITIES? (3 OF 4)



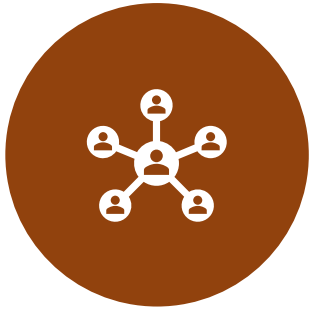
RELATIONSHIPS MATTER!



SOCIAL NETWORKS FOR AI/ANs MAY NOT BE THE SAME AS FOR OTHERS

SOCIAL NETWORKS MAY HELP US IMPROVE INTERVENTIONS AND POLICY

WHY SNA WITH AI/AN COMMUNITIES? (4 OF 4)



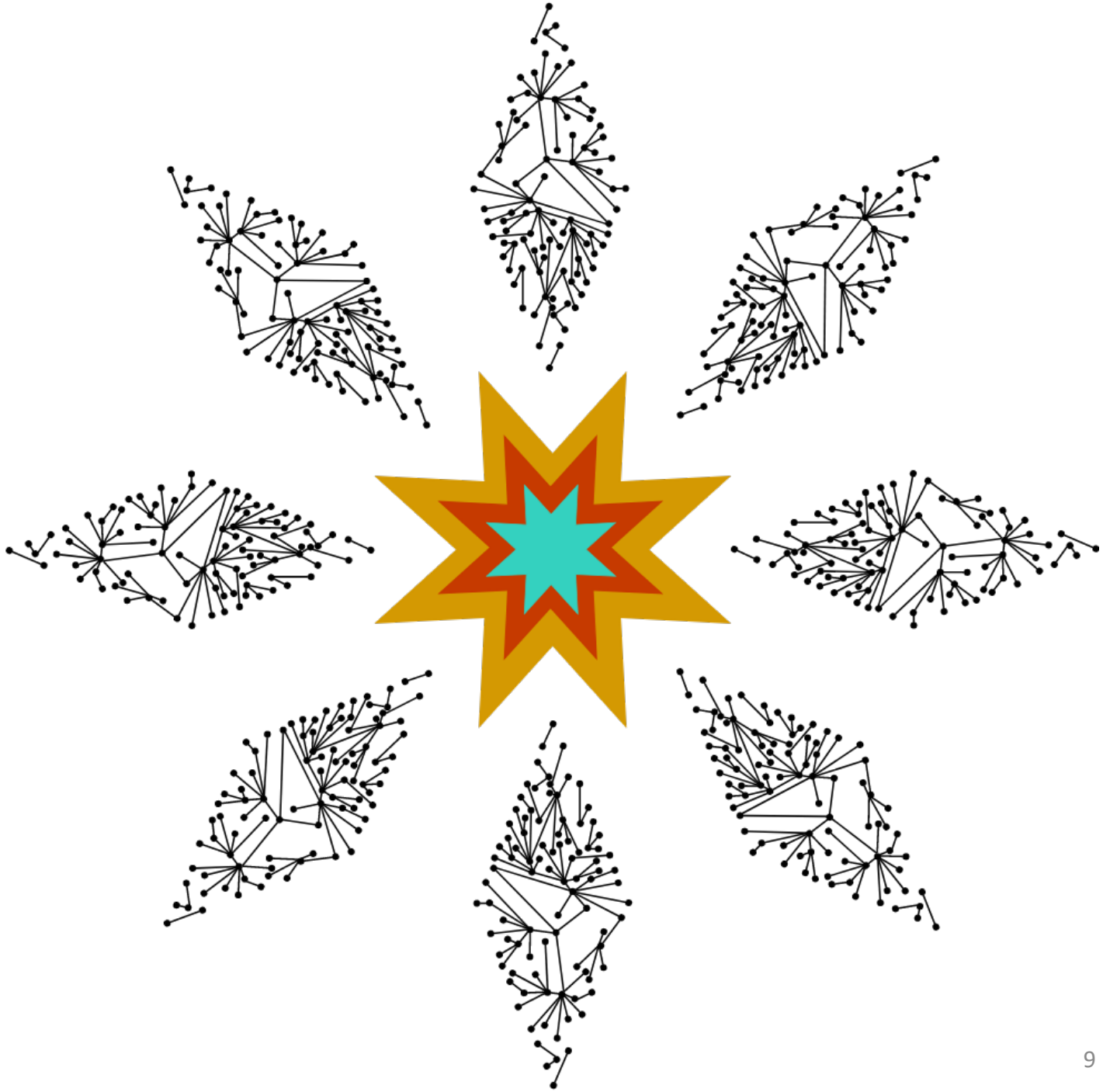
RELATIONSHIPS MATTER!

SOCIAL NETWORKS FOR AI/ANs MAY NOT BE THE SAME AS FOR OTHERS

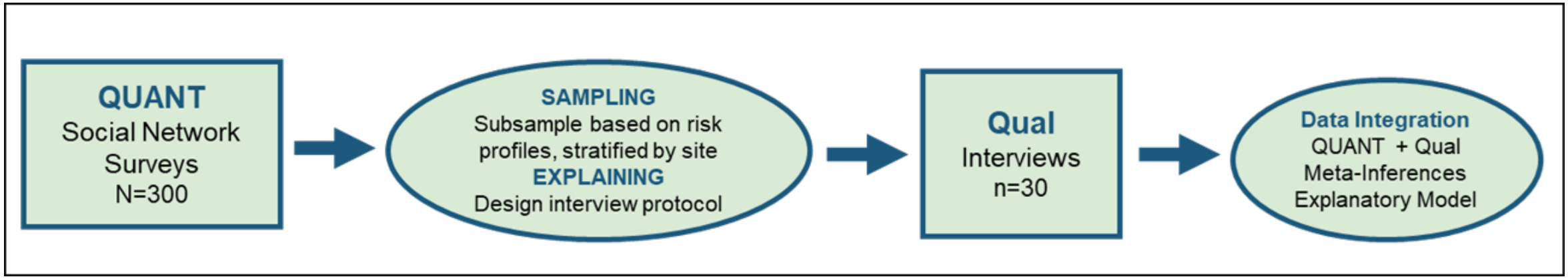
SOCIAL NETWORKS MAY HELP US IMPROVE INTERVENTIONS AND POLICY

SOCIAL NETWORKS MAY HELP US IDENTIFY DEEPER NEEDS/PRIORITIES

TRIBAL RESERVATION ADOLESCENT CONNECTIONS STUDY



NIH HEAL INITIATIVE Preventing Opioid Use Disorder in Older Adolescents and Young Adults

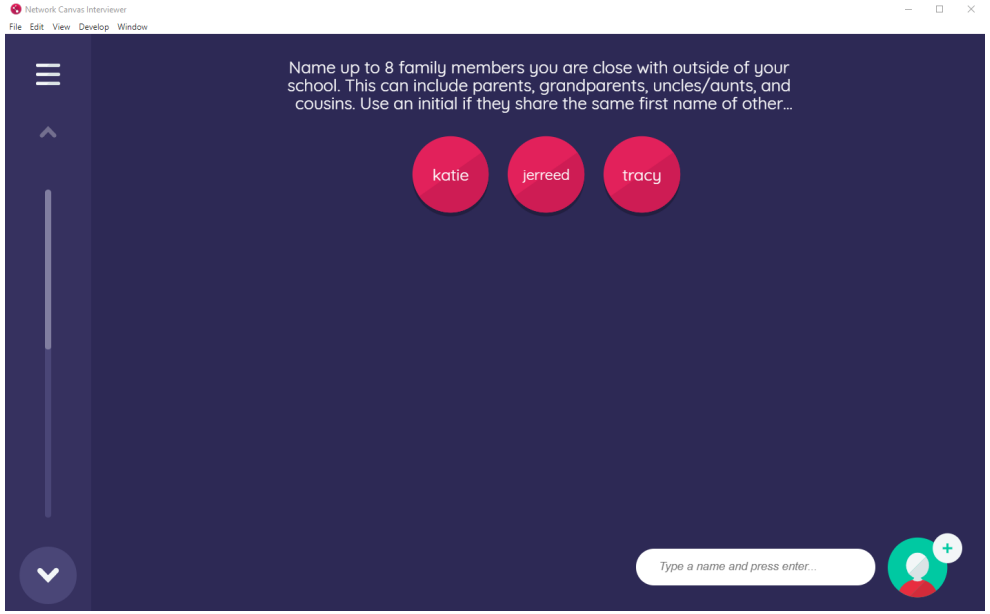


Aims & Design

- Aims of the study
  - Describe peer, kin, and community social networks & predict risk and protective factors for substance use, violence, and suicide
- Explanatory sequential mixed method design (QUAN → Qual)
- Goal: inform prevention interventions

Quantitative Data

- Sample (N = 263)
  Three schools (grades 9 and 10) on one reservation to assess differences within three community contexts
- Data Collection using Network Canvas
- Surveys administered on iPads at schools
  - Interactive
  - School-based rosters + family + other
- What do we ask?
  - Ego attributes & behaviors
  - Alter attributes & behaviors



Network Canvas

NIH HEAL INITIATIVE Preventing Opioid Use Disorder in Older Adolescents and Young Adults

Social Network Data Analysis

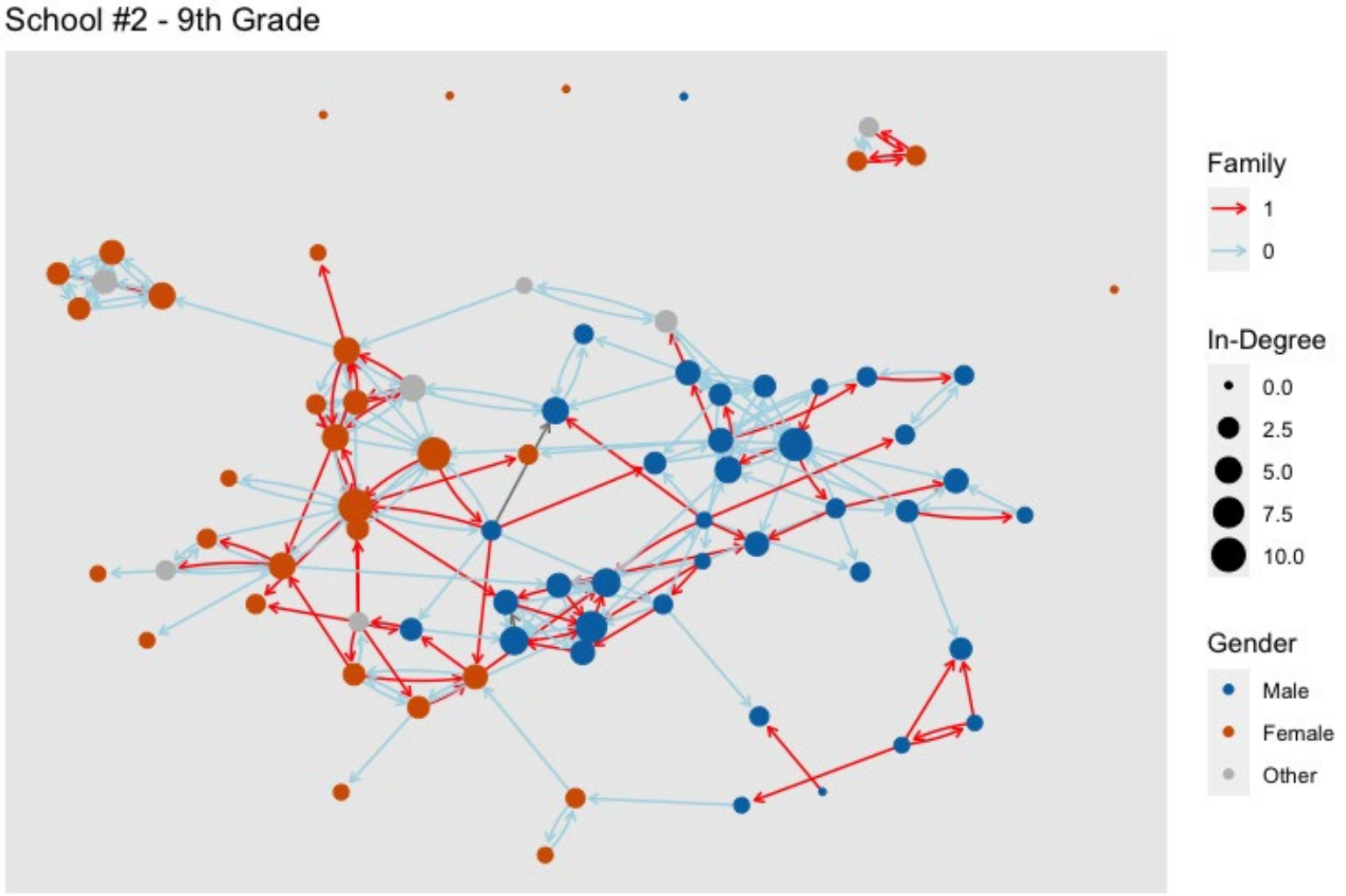
- Descriptive: Network structures (ego and whole – 1st)
  - What do individual and school networks look like and how do they compare (across and within populations)?
- Outcomes (ego)
  - What factors of their network are related to outcomes (risk or protection, typologies)?
- Dyadic
  - How are ties formed? What influences why people are friends/connected (e.g., gender, grade, related, behaviors)?

Descriptive Data

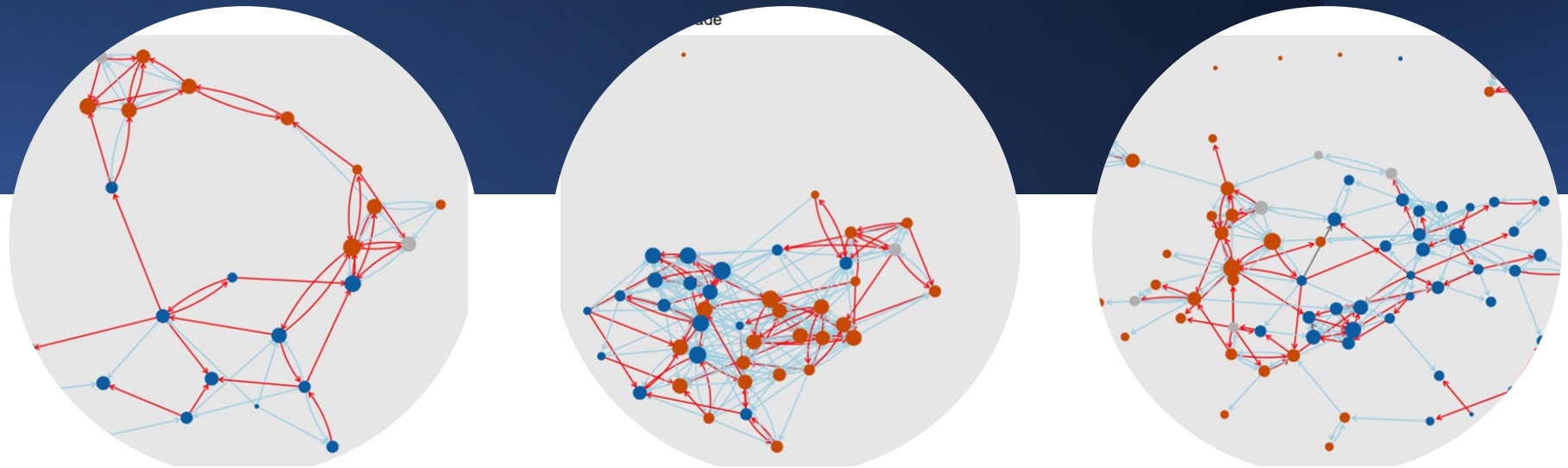
- Demographics:
  - 40% female, 50% male, 10% another gender
  - 94% Lakota (alone and in combination)

- Networks
  - Average size: 14 (range 1-26)
  - Native: 13 (range 0-26)
  - Same gender: 73%
  - Average number of nominated alters:
    - School = 6 (43%)
    - Family = 5 (36%)
    - Other = 3 (21%)

Grade Networks



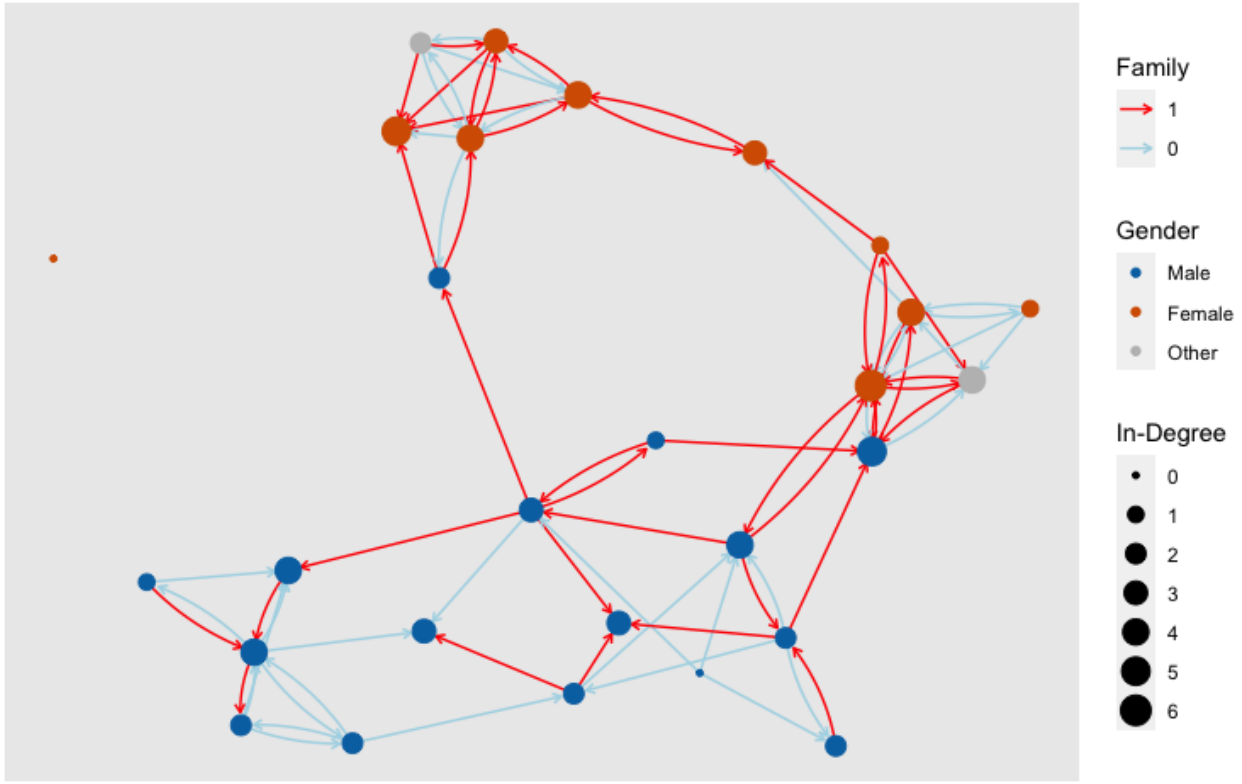
Varies by School



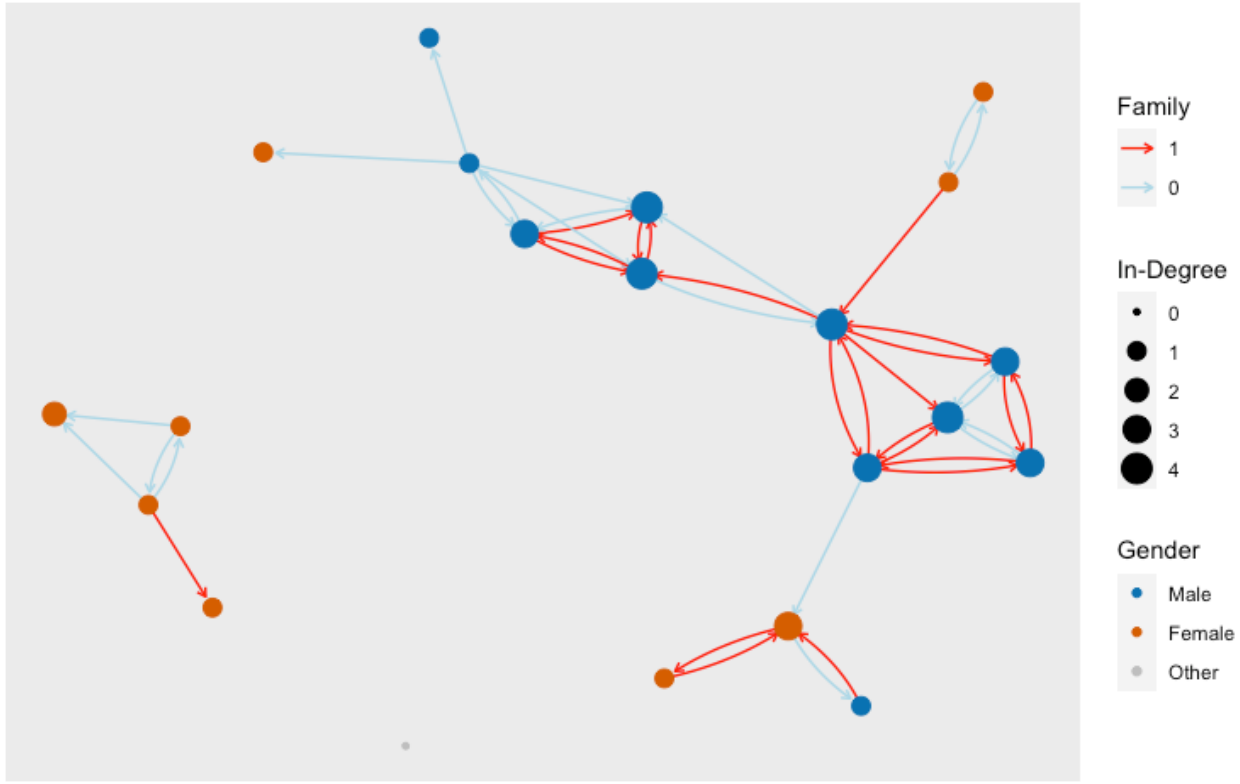
- School #1: college prep
- School #2: largest
- School #3: smallest, rural

Varies by Grade – Smallest School

School #1 - 9th Grade

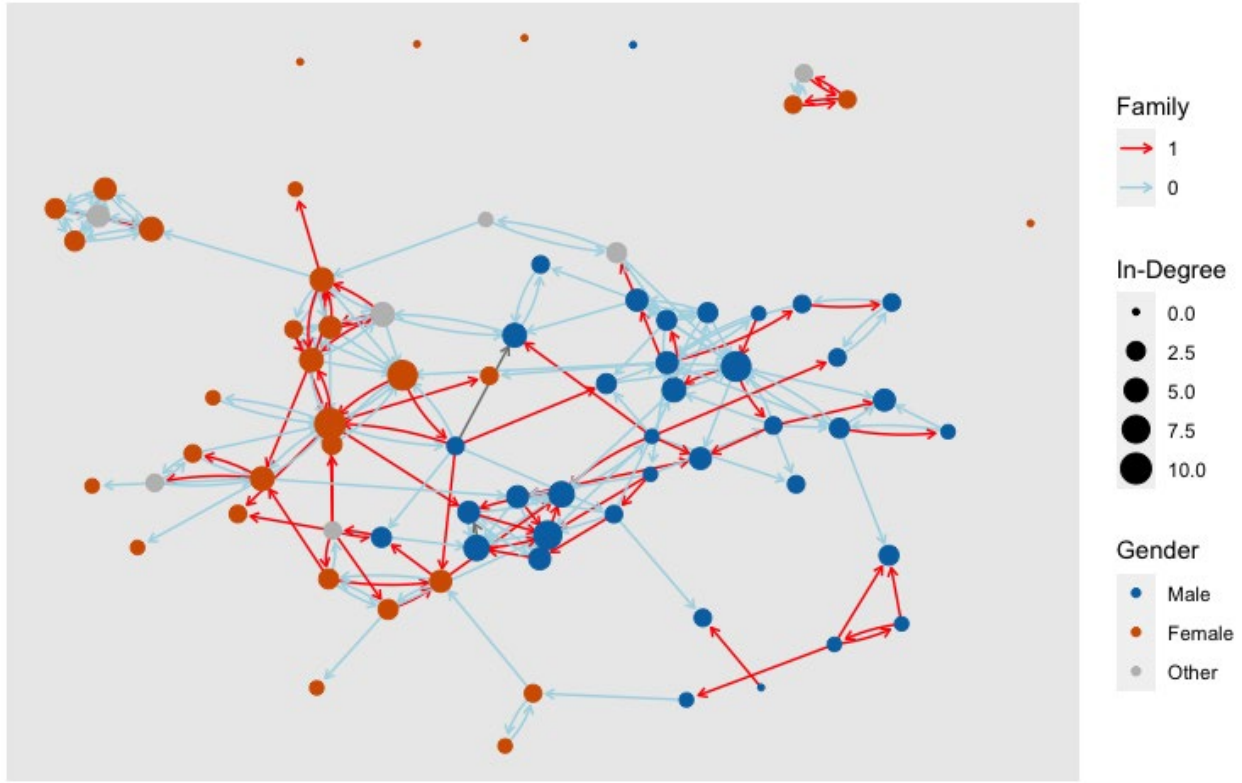


School #1 - 10th Grade

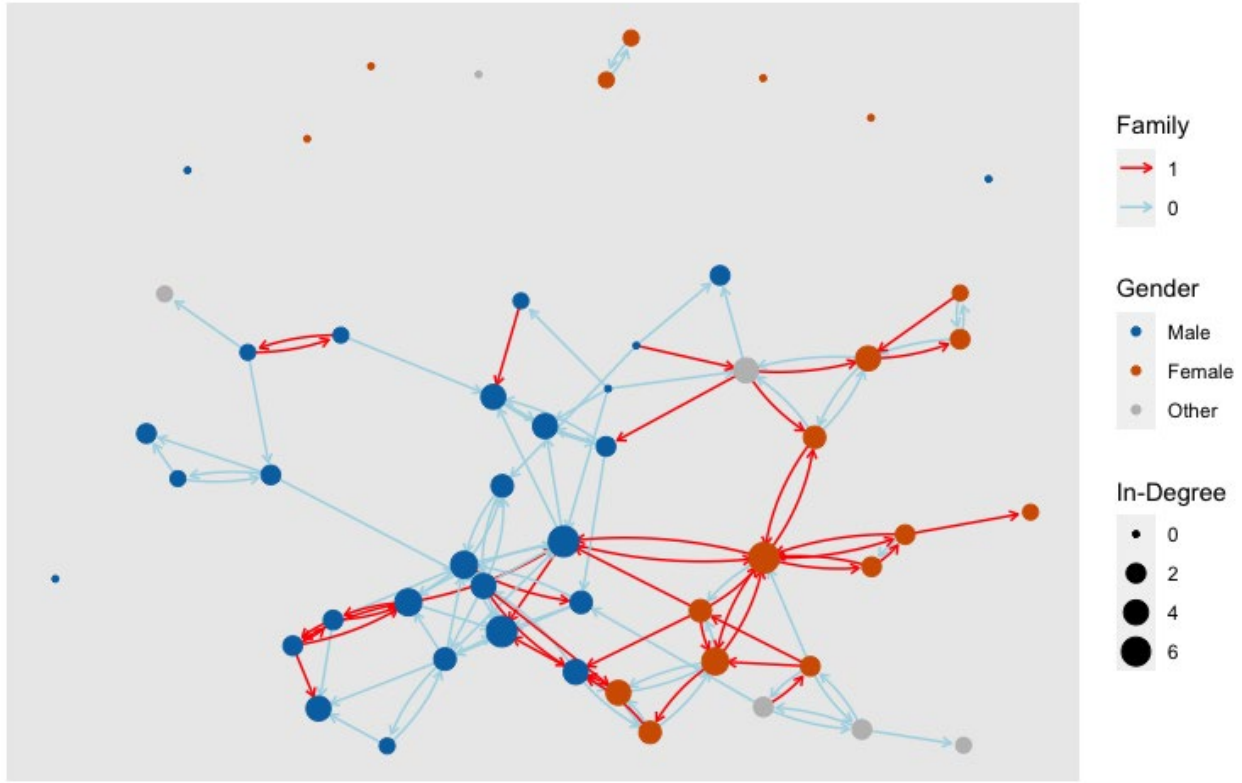


Largest School

School #2 - 9th Grade

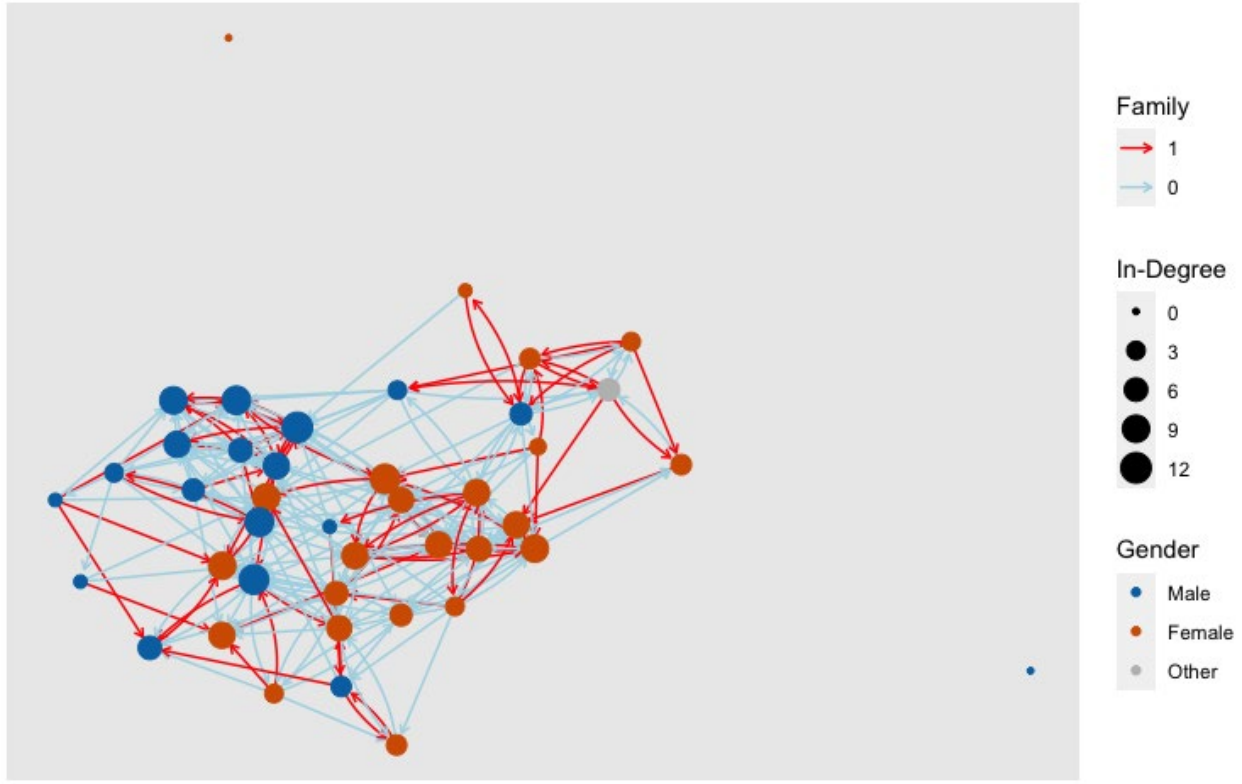


School #2 - 10th Grade

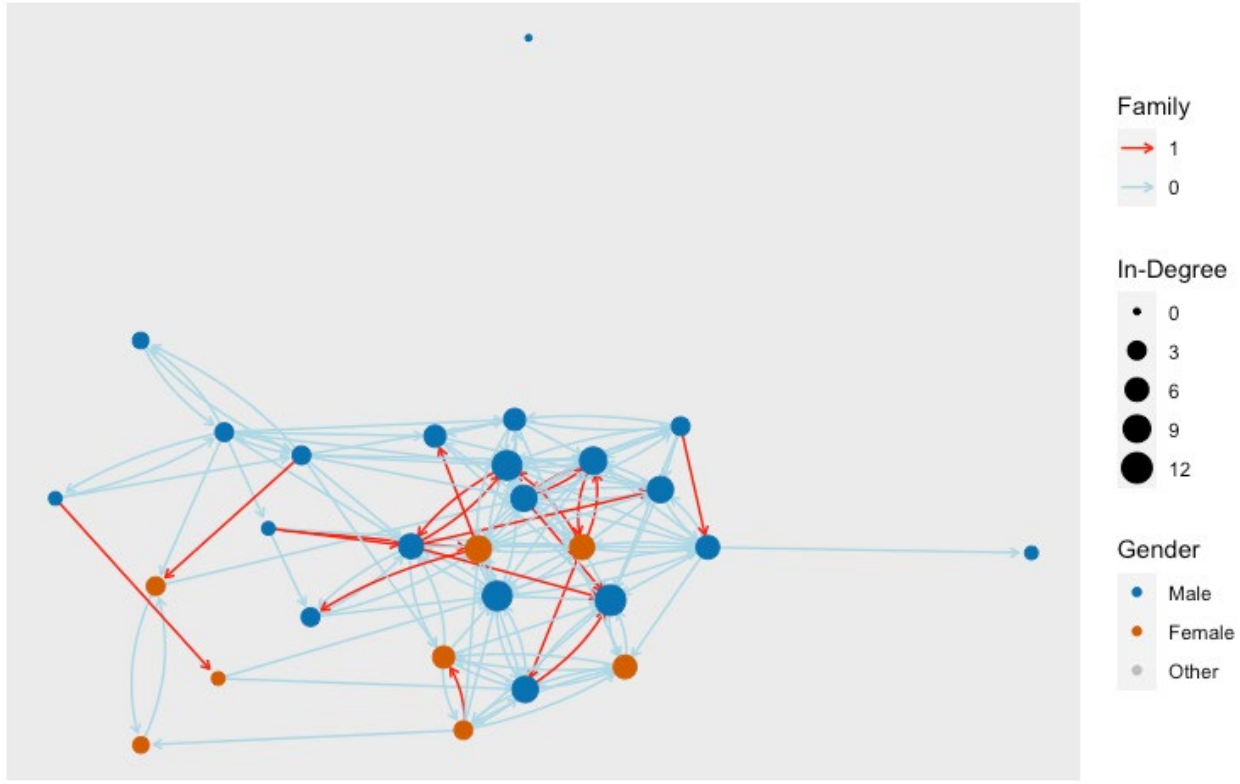


Private School

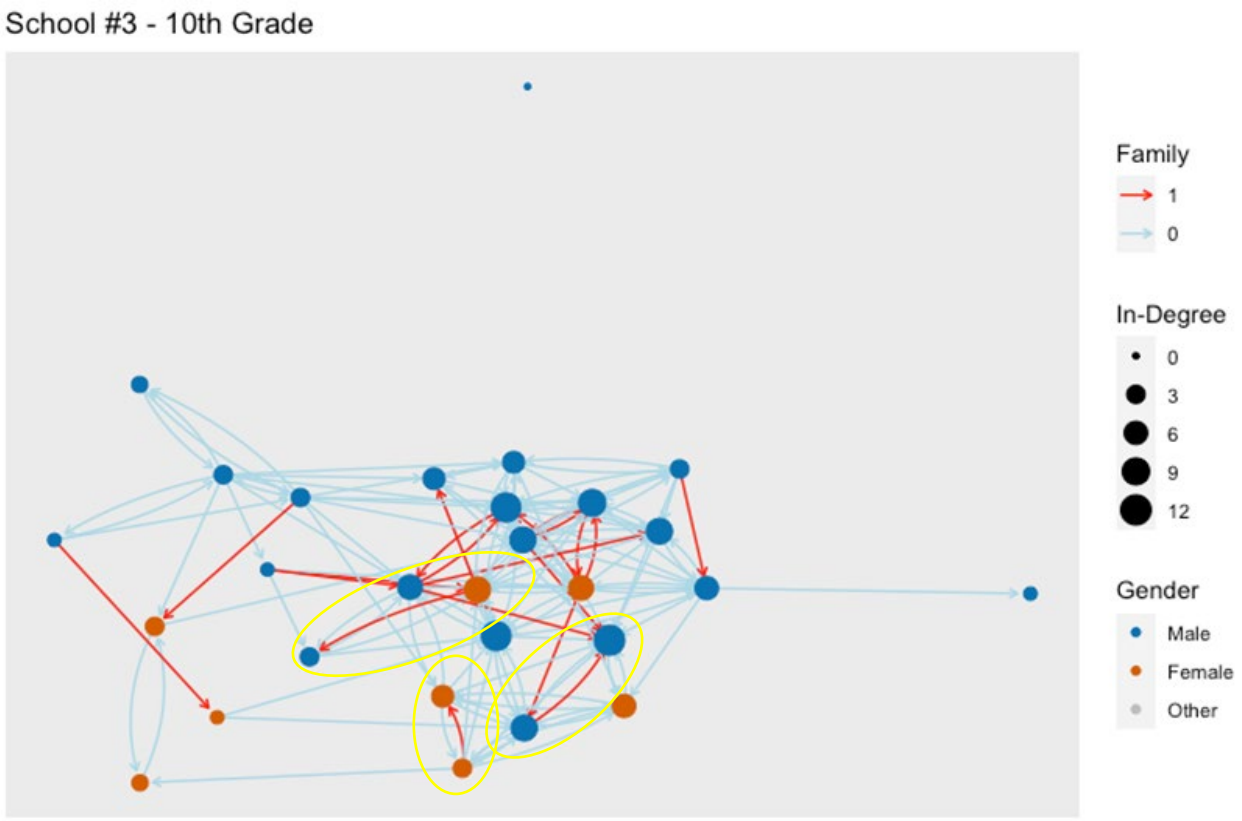
School #3 - 9th Grade



School #3 - 10th Grade



“Are we related?”



Takeaways & Implications

Variation in networks across schools – implications for prevention development and implementation	One size may not fit all
Notions/understanding of family	Measurement? Other conceptualizations? How do we capture?
Similar in-degree within networks	Proxy for popular kids Prevailing key opinion leader interventions may not work

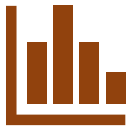
Sneak Peak: Outcomes

- Alcohol use likelihood (ever):
  - Increases:
    - Higher proportion of same gender in networks
    - Number of alters who drink
  - Decreases:
    - Having alters who encourage you not to drink

Sneak Peak: Outcomes
(continued)

- Marijuana
  - Discourages you from using: less
  - Alter uses: more
- Tobacco
  - Pressures you to use: more
  - Discourages you from using: less
  - Alter uses: more
- Any Substance
  - Discourage you from using weed: decreases
  - Alters use marijuana: increases

Next Steps



Continue Quantitative Data Analyses

Qualitative Interviews

Mixed Methods Integration

Data from Community to Inform Use of Findings

R01 Application for Longitudinal Study of Network Formation and Influence Over Time to Inform Intervention Development or Adaptation

(T'oyaxsut 'nuusm)
Thank you!

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NIH HEAL INITIATIVE

Preventing Opioid Use Disorder in Older Adolescents and Young Adults

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Preventing Opioid Use Disorder in Older Adolescents and Young Adults

Prevention of Opioid Use Disorder: The HOME (Housing, Opportunities, Motivation and Engagement) Randomized Trial

Social Networks of Youth Experiencing Homelessness

May 22, 2023

Presented by: Jodi Ford, PhD, RN, FAAN, and Rose Hardy, PhD, MPH

NIH HEAL INITIATIVE
Preventing Opioid Use Disorder in Older Adolescents and Young Adults

Youth Experiencing Homelessness

- Nearly 3.5 million young adults (ages 18–25) and 700,00 adolescents (ages 13–17) experience homelessness in the United States each year[1]
- Adversity exposures increase risk for PTSD, substance use, and suicide
  - History of child abuse: 80% of youth experiencing homelessness (YEH) experienced physical abuse, 89% emotional abuse, and 34% sexual abuse *prior* to becoming homeless[2]
  - Street victimization: 52% of YEH reported being physically assaulted, 25% robbed, 21% sexually assaulted, and 28% poly-victimized[2]
- YEH are[3-6]:
  - 2.5 times more likely to report at least one adverse childhood experience
  - 6 times more likely to have two or more diagnosed mental disorders, and
  - 10 times more likely to die than youth in the general youth population with alcohol and drug misuse and suicide as the leading causes of death

Social Networks of Youth Experiencing Homelessness

- Youth social networks often change as the result of homelessness.
- The social networks of YEH are less likely to include family, people from work, case managers, people who provide material or emotional support, and people who disapprove of substance use compared to youth formerly homeless and in supportive housing.[7]
- Can housing and supportive RPS connect YEH to supportive and “prosocial networks” and ultimately, prevent OUD?

HOME (Housing, Opportunities, Motivation & Engagement) Study

Overall goals: to prevent opioid use disorder (OUD) and promote positive change in secondary outcomes (e.g., other substance use, mental health, days housed, HIV risk) among homeless youth through a Housing First strategy combined with OUD and other risk prevention services (RPS).

1. **Specific aim 1:** Evaluate the relative efficacy of housing + RPS compared to RPS alone.

2. **Specific aim 2:** Test the effects of the primary and secondary mediators on the primary outcome (opioid use/time to OUD) and secondary outcomes.

3. **Specific aim 3:** Explore how moderators (age, sex, race, sexual orientation, service connection and substance use, and childhood abuse) affect individual's response to housing + RPS.

Prevention Program / Intervention Description

Housing:

- Using a housing first philosophy
- 6 months of rent
- Utility assistance

+ OUD and other RPS:

- 6 months strengths-based outreach and advocacy
- 2 motivational interviews and HIV prevention sessions
- 10 cognitive therapy for suicide prevention sessions

Key Study Features of RCT

Sample (N=240)

- Intervention group receives housing + RPS (n=120)
- Control group receives RPS only (n=120)

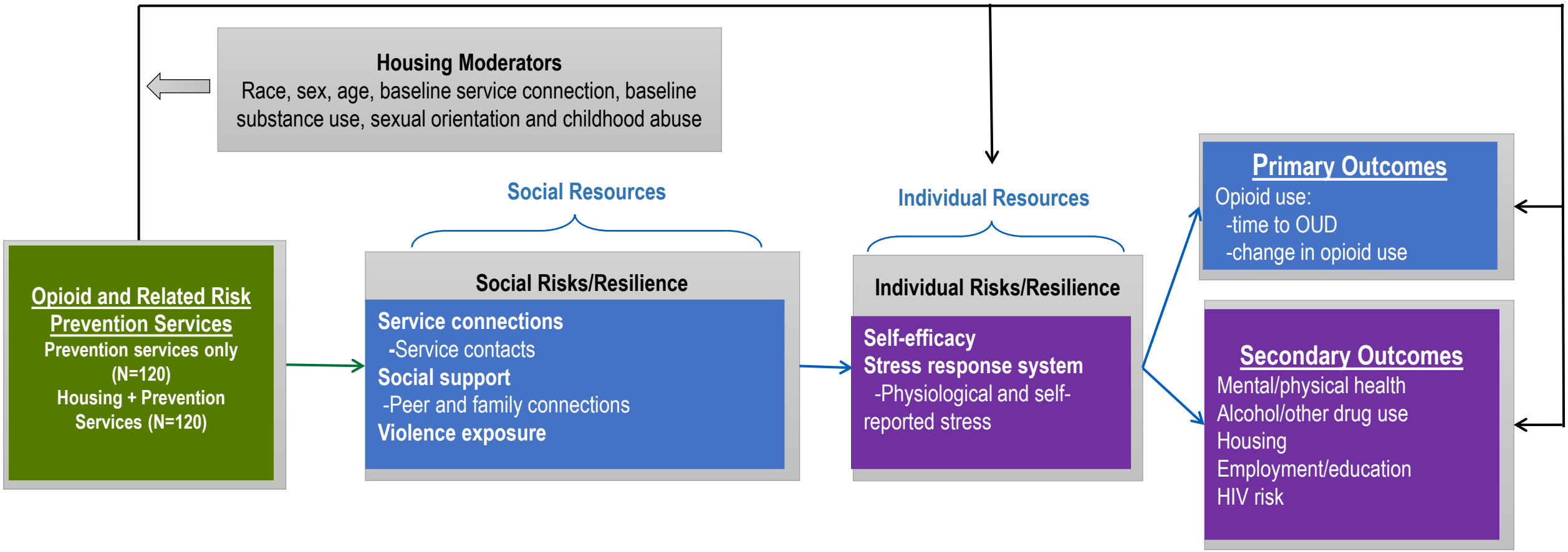
Eligibility:

- 18–24 years old
- Youth experiences homelessness
- Youth fails to meet DSM 5 criteria for OUD

Setting:

Drop-in center & community

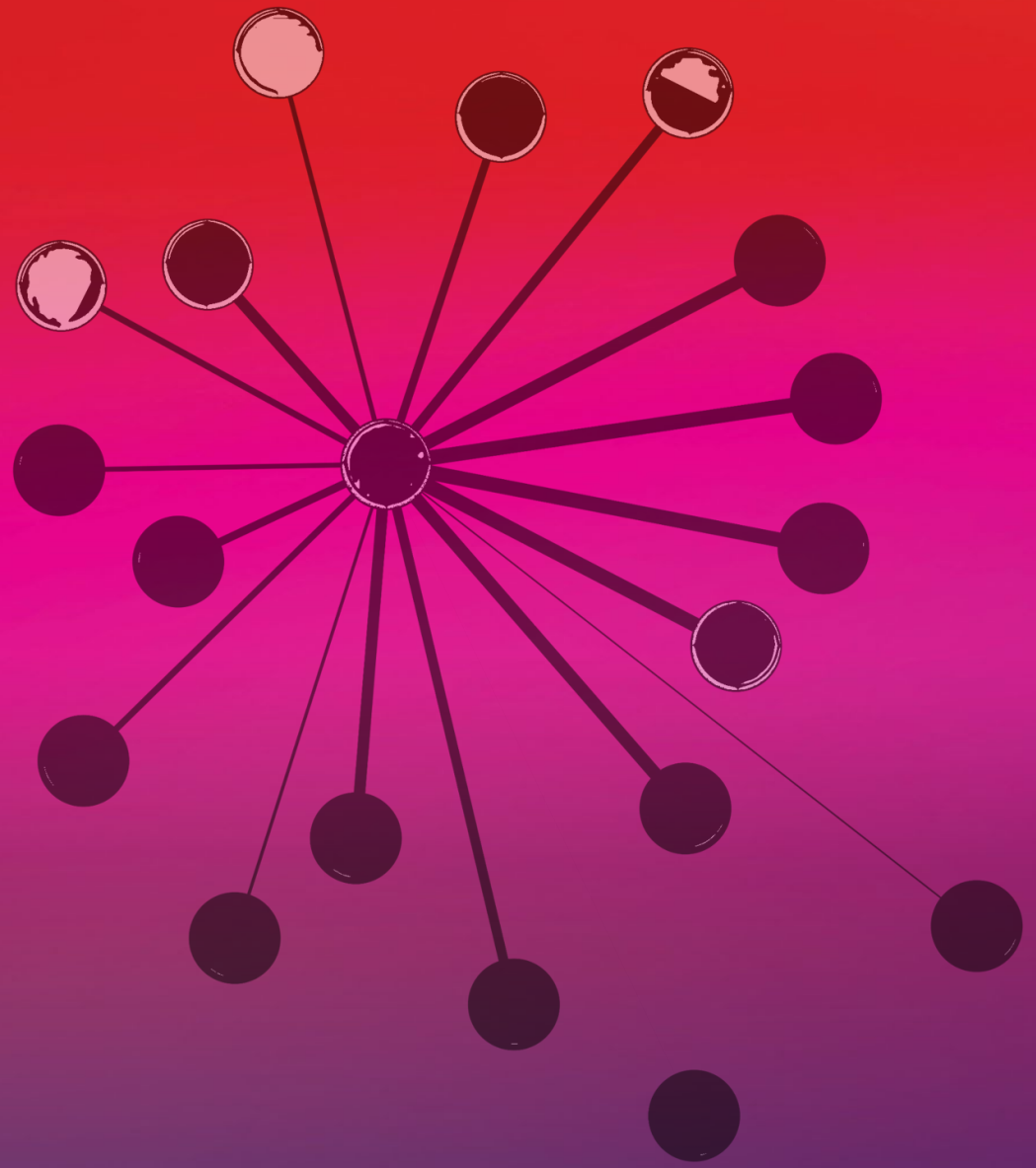
HOME Conceptual Model



Social Network Measures

- Social Network Interview: ego-network data
- Collected at baseline and 3, 6, 9, and 12 months
- Name generator: up to 10 family members, friends, others in contact within past 6 months (since last interview for follow-up visits)
  - For each relationship, youth asked…
    - Relationship role (parent, sibling, other family, child, friend, romantic partner, counselor)
    - Length of relationship
    - Frequency of contact
    - How relieved after going to person for emotional/material support
    - Engagement in risk behaviors (alcohol, drugs, crime)

HOME Pilot Study and Results



NIH HEAL INITIATIVE

Preventing Opioid Use Disorder in Older Adolescents and Young Adults

Pilot Study Features

- Goal: to assess the feasibility, acceptability, and initial efficacy of the Housing First model over a 6-month period in preparation for the larger randomized trial (N=21)

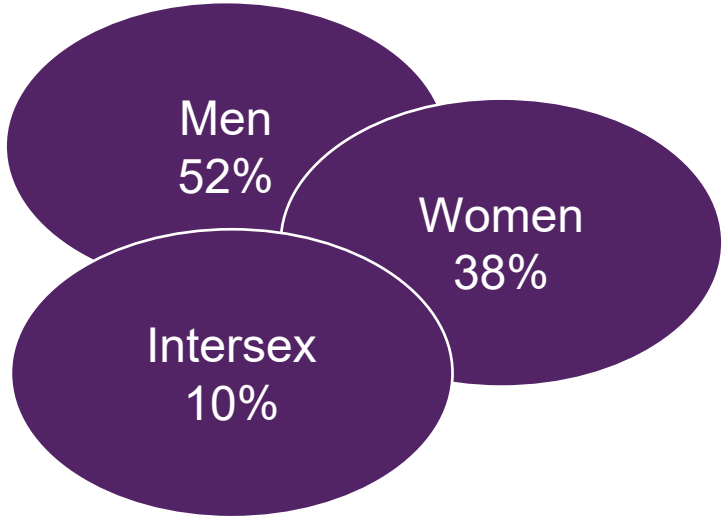
- Single arm study, otherwise similar features as the RCT

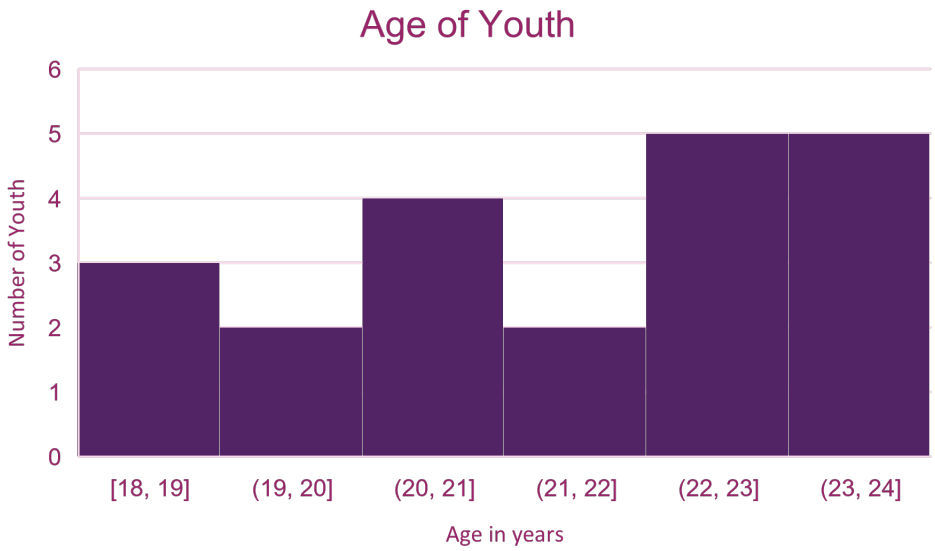
- Survey assessments at baseline, 3, and 6 months; in-depth interviews with landlords and youth at 6 months
  - 3-month follow-up N=19/21 (90.4%)
  - 6-month follow-up N=17/21 (80.9%)

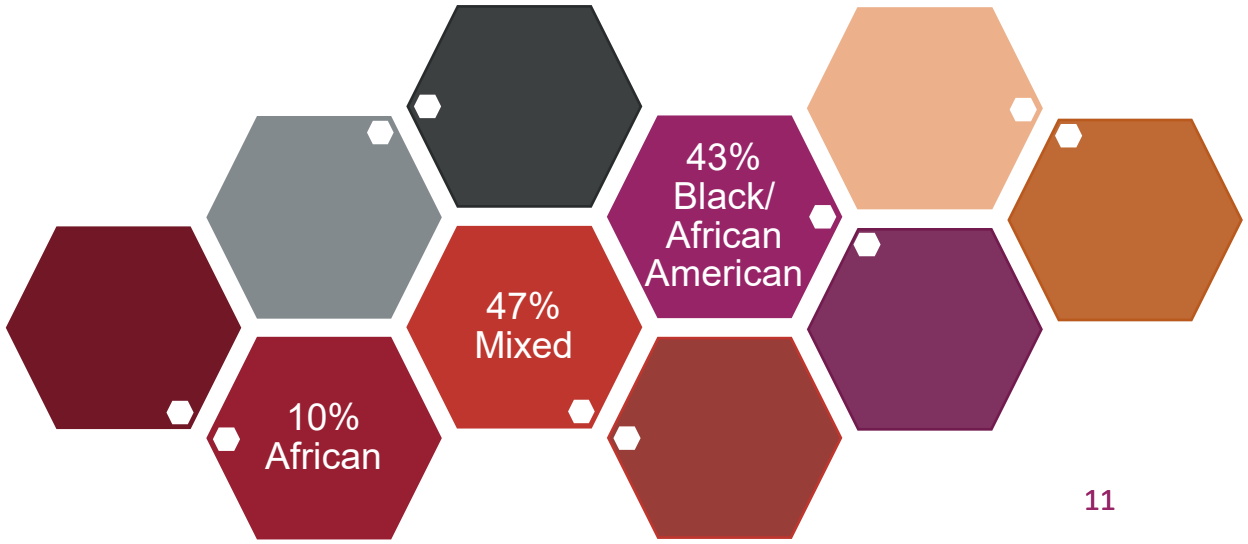
During the entirety of the previous year, 81% experienced homelessness. (1 of 3)

Contributing Factors to first leaving family of origin

- 24% thrown out by parents
- 19% removed by children's services
- 19% arguments with parents
- 19% verbal abuse
- 14% physical abuse
- 10% parent(s) died
- 5% own legal problems
- 5% sexual abuse
- 43% other factors not listed







During the entirety of the previous year, 81% experienced homelessness. (2 of 3)

Contributing Factors to first leaving family of origin

- 24% thrown out by parents
- 19% removed by children's services
- 19% arguments with parents
- 19% verbal abuse
- 14% physical abuse
- 10% parent(s) died
- 5% own legal problems
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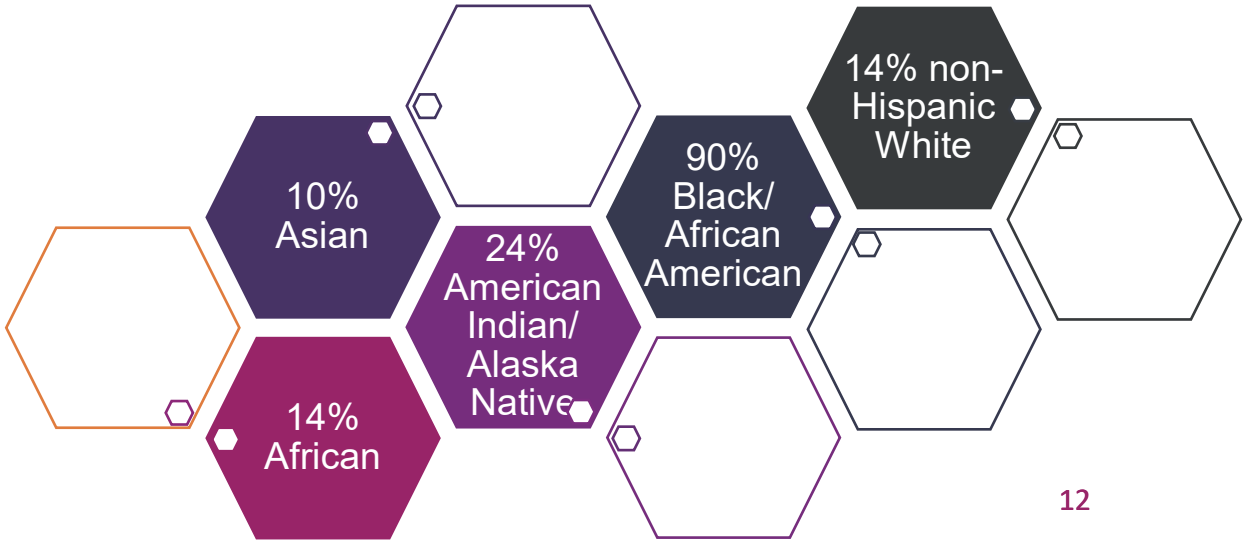
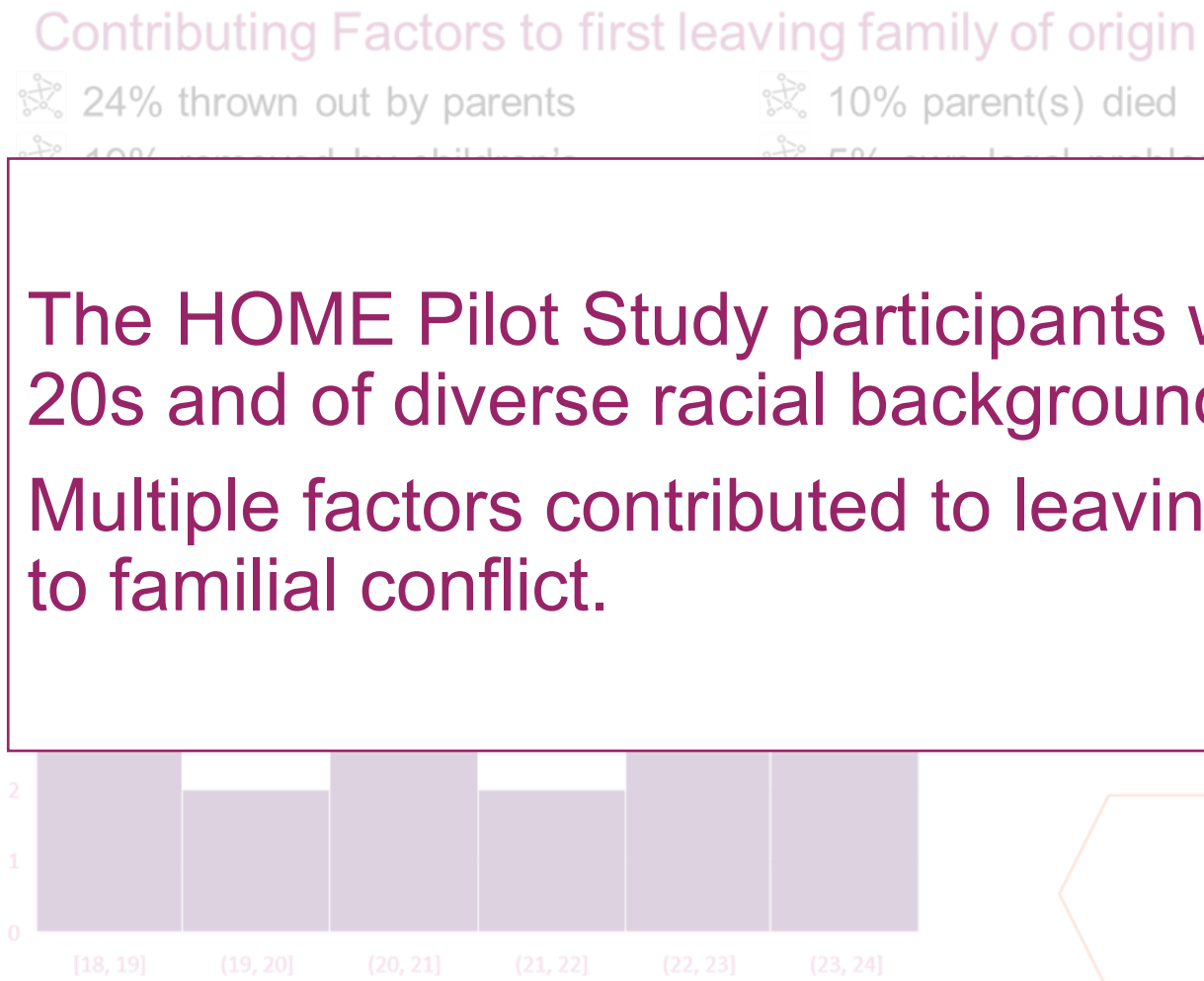


During the entirety of the previous year, 81% experienced homelessness. (3 of 3)

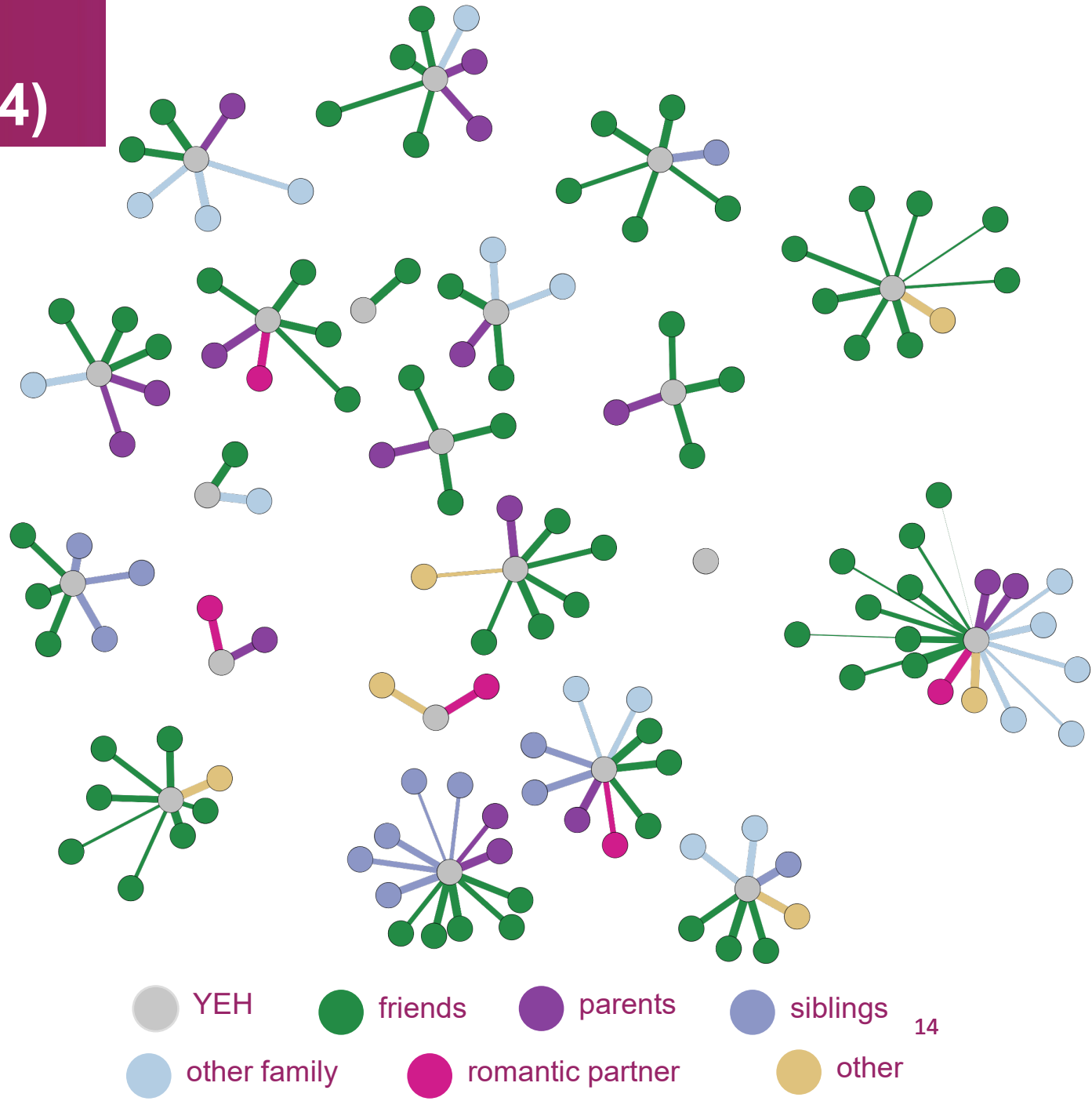


The HOME Pilot Study participants were generally in their early 20s and of diverse racial backgrounds.

Multiple factors contributed to leaving their homes, often related to familial conflict.

Contact Networks of YEH (1 of 4)

- On average, 6 people were in their networks, with more friends than family members in those networks
- Friends and family members make up the majority of youth contact networks
- Only 1 person reported not having a contact network made of family, friends, or others



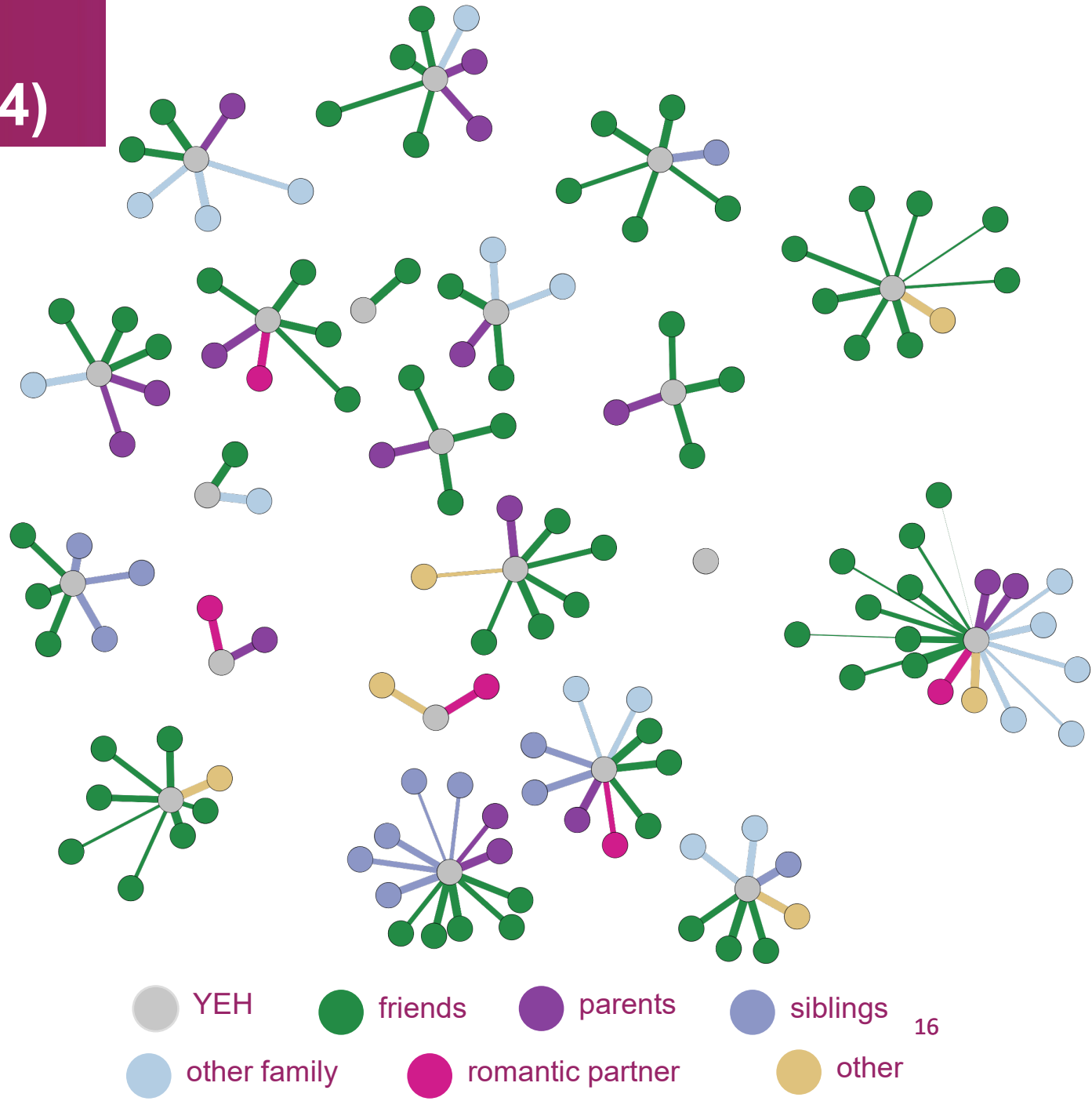
Contact Networks of YEH (2 of 4)

- On average, 6 people were in their networks, with more friends than family members in those networks
- Friends and family members make up the majority of youth contact networks
- Only 1 person reported not having a contact network made of family, friends, or others

YEH friends parents siblings other family romantic partner other

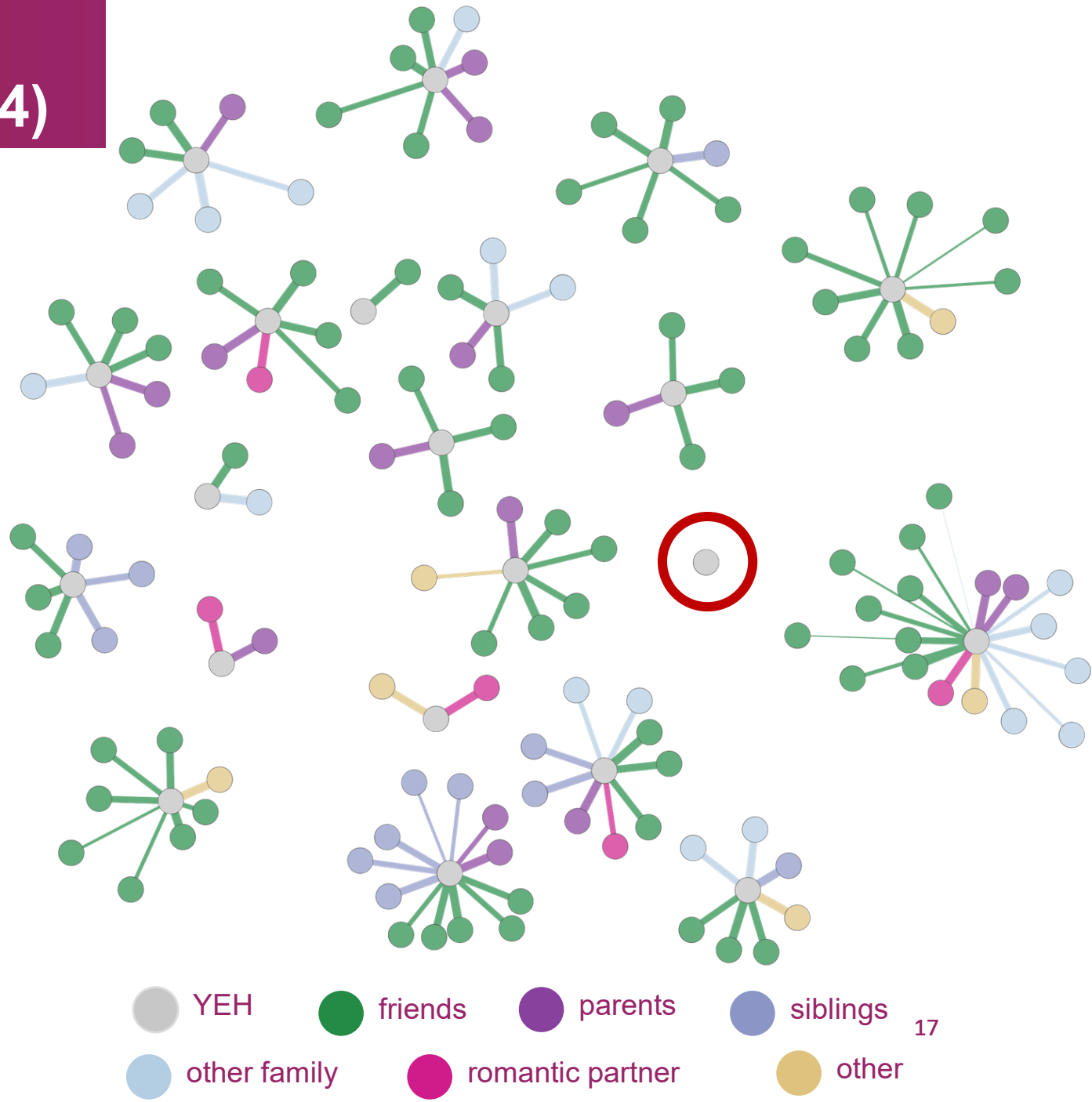
Contact Networks of YEH (3 of 4)

- On average, 6 people were in their networks, with more friends than family members in those networks
- Friends and family members make up the majority of youth contact networks
- Only 1 person reported not having a contact network made of family, friends, or others



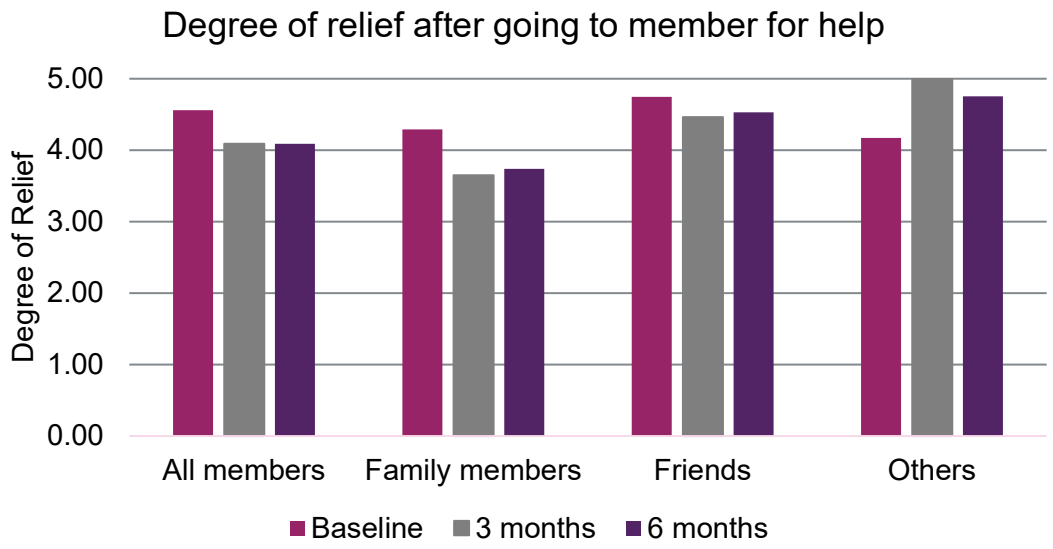
Contact Networks of YEH (4 of 4)

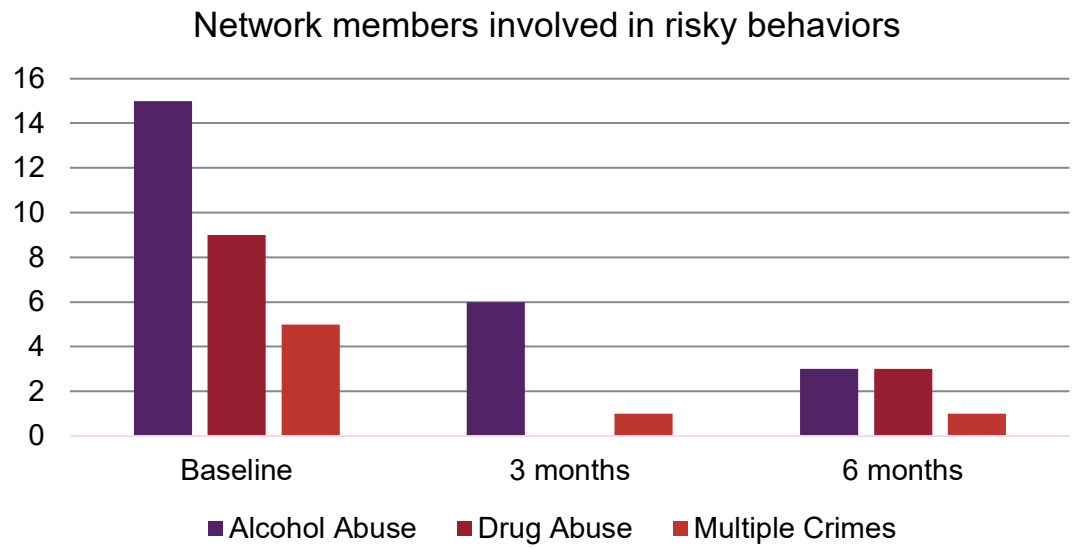
- On average, 6 people were in their networks, with more friends than family members in those networks
- Friends and family members make up the majority of youth contact networks
- Only 1 person reported not having a contact network made of family, friends, or others



Relationship characteristics in contact networks are important.

- Over the course of 6 months, frequency of contact increased.
- Degree of relief after going to network member for help varied slightly by type of member.
- Network members engaged in risky behaviors reportedly decreased over the 6 months.





Implications and Future Directions

- Family conflict was often a contributing factor to first leaving family of origin.
  - How does this impact network members and quality of relationships with member types?
- Network members engagement in risky behaviors (i.e., alcohol abuse, drug abuse, criminal activity)
  - How does the quality of support and frequency of contact impact them remaining in the network?
  - How does it impact their own behavior?
  - What motivates them to remove network members engaged in risky behaviors from their contact networks?
- Impact on outcomes
  - Drug and alcohol use and abuse
  - Health care use
  - Sleep outcomes
  - Mental health
  - Need issues and types

Field Team Experiences Collecting Social Network Data with YEH and Considerations for Future Collection

- Relationship type
  - Defining & clarifying (e.g., biological, step, adoptive, foster, chosen family)
- Relationship complexity
  - Volatility and change
  - Positive and negative aspects
  - History of abuse, neglect, rejection
  - Different types of support and trust
  - Isolation
- Confidentiality
  - Concerns over disclosing information about network members
  - Measuring change over time (identifying network members)

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Questions From the Audience

This webinar was produced by the HEAL Prevention Coordinating Center (HPCC) at RTI International. The HEAL Prevention Coordinating Center (HPCC) supports research projects and works to generate shared insights by collecting, analyzing, and reporting data across research projects.

PIs: Phillip W. Graham, DrPH, MPH; Ty Ridenour, PhD

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