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## The development of trauma-informed community partnerships: A mixed method social network study

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### Abstract

Trauma-informed communities establish cross-sector coalitions that advocate for the use of trauma-informed practices. Whether and how communication occurs within newly established trauma-informed communities is unclear. We collected qualitative data and social network data from six trauma-informed community partnerships that received funding to build community capacity to address trauma across a range of special populations in Los Angeles county.

We identified three communication network sub-types and highlight contributions of network leadership in setting the tone for cross-partnership communication. While partnership leaders shared the goal of strengthening cross-organizational communication, social network results illustrated a need to develop strategies that target these goals.

### Keywords

Organizational leadership; social network analysis; mixed methods; trauma-informed community

### Introduction

Trauma and violence are widespread and costly public health concerns (SAMHSA, 2014). Exposure to interpersonal traumas such as child maltreatment and community violence, and other large-scale adversities such as poverty and discrimination, increase the likelihood of engaging in risky health behaviors alongside serious physical and mental health problems among victims (Hughes et al., 2017). The effects of trauma can be mitigated by trauma-informed, trauma-responsive communities and service systems that promote healing and resilience (Branson et al., 2017; SAMHSA, 2014).

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There are subtleties in trauma-informed terminology. ‘Trauma-informed care’ focuses on increasing awareness about the psychosocial and biological consequences of trauma, and emphasizes cultural sensitivity and humility in service delivery (SAMHSA, 2014), typically across an organization or service system (Knight, 2019; Twis et al., 2023). Trauma-informed approaches build on the same principles but are broader, capturing all individuals in various service agencies, organizations, or communities such that all members *realize* the impact of trauma from an individual to a societal level; *recognize* the signs of trauma; integrate a *responsive* trauma-informed approach into all aspects of organizational functioning and programming; and *resist revictimization* (SAMHSA, 2014). The effects of trauma may be mitigated on a larger scale by trauma-informed, responsive communities and service systems that promote healing and resilience (Branson, et al. 2017; SAMHSA, 2014). A trauma-informed lens recognizes the importance of community-level and contextual factors which affect exposure to and recovery from traumatic events (SAMHSA, 2014).

### Trauma-informed communities

There is an emerging movement to develop trauma-informed communities (Ellis & Dietz, 2017; Hargreaves et al., 2017; Matlin et al., 2019; Pinderhughes et al., 2015; King et al., 2021), which strive to organize cross-sector stakeholders (e.g., community-based organizations, community health providers, law enforcement, and education) in developing coordinated responses to trauma while leveraging a community’s existing strengths. Trauma-informed communities address trauma by establishing service networks and cross-sector coalitions that advocate for the use of trauma-informed practices. Organizations that are part of a trauma-informed community explicitly adjust their interactions, practices, policies, and environments to promote 1) safety; 2) trustworthiness and transparency; 3) peer support; 4) collaboration and mutuality; 5) empowerment, voice and choice; and 6) cultural competency (e.g., awareness of, and sensitivity to cultural, historical and gender considerations) among individuals with trauma histories (Branson et al., 2017). Trauma-informed communities collaborate towards improving community health and well-being by considering social determinants (e.g., social, economic and environmental factors) that increase trauma risk at the community level. It allows communities to build capacity to prevent trauma/re-traumatization, and identify, plan, and deliver trauma-informed care in a way not possible through the efforts of a single agency (Matlin et al., 2019). This ‘upstream’ approach is an important adjunct to treatment of mental health symptoms.

Many factors influence the success of such community-based collaborations including commitment from participating organizations’ executive leadership and the availability of project-specific resources (Heatly et al., 2023). Transparent communication within and between partnering organizations is also necessary, as it supports the development of trusting relationships among collaborating individuals and organizations that aim to foster cross sector collaborations (Hu et al., 2020; King et al., 2021) and those creating a trauma-informed system of care (Shier & Handy, 2016).

### Diffusion of Innovations and trauma-informed communication

Diffusion of Innovations theory explains that innovative ideas must be communicated through social networks before they are translated into widespread practices (Rogers, 2003).

The Diffusion of Innovations process consists of four main elements through which novel ideas are spread. 'Innovation' is an idea or practice that is new to an individual that is shared with others in a network through 'communication channels.' 'Time' reflects how long it takes for a system to adopt or reject an innovation following initial communication. The 'social system' is a set of individuals, organizations, or informal groups that are working together to accomplish a common goal. Thus, Diffusion of Innovations is the communication of innovative ideas through certain channels over time among members of a social system (Rogers, 2003, Valente, 1995).

Diffusion of Innovations theory holds that the roles and organizational affiliations of a social system's individual members, along with the existence or absence of communication between these individuals can influence the dissemination and adoption of innovative practices. With respect to trauma-informed communities, it is through these communication channels that novel, trauma-informed practices can be shared across a system of stakeholders from different organizational and professional backgrounds (Menshner & Maul, 2016). Efforts to disseminate diverse perspectives on trauma-related matters, the adoption of a trauma-sensitive language, and plans to implement capacity building activities that promote healing and recovery also rely on communication within and across organizations.

### **Sociometric techniques**

Social network theory offers tools for understanding how communication within a network of individuals from different organizations can set the stage for diffusion of novel ideas and, ultimately, influence program implementation (Hu et al., 2020; Palinkas et al., 2011; Provan & Milward, 1995; Yousefi, et al., 2020). Under this paradigm, the nature and quality of communication among a network's actors, along with an organization's or a coalition's culture, policies, procedures, and routines, can influence the network's capacity to adopt new behaviors (Mischen & Jackson, 2008). Organizational social network literature highlights the vital role of leadership (Palinkas et al., 2011; Valente & Pumpuang, 2007) in maintaining a network's flow of information, in circulating advice about new practices, and influencing collaboration among individuals from different organizations.

Sociometric techniques can illustrate communication as it occurs within a network of collaborating community-based organizations. These techniques have been used to study collaboration in organizational networks that serve homeless individuals (Hu et al., 2020), behavioral health teams (Siantz, et al. 2018), communities that address trauma in early childhood (Matlin et al., 2019), and advice seeking among mental health clinicians (Bunger et al., 2013). Certain network metrics are especially useful for studying whether and how a network communicates information and can indicate whether networks are meeting program goals (Provan & Milward, 1995; Valente, 2007; Wasserman & Faust, 1994). For example, a network's 'density' is the existing proportion of a network's possible ties, which can illustrate whether or not network communication is occurring (Valente, 2010). A dense network would have connections that are sufficient for disseminating information about innovative ideas. Network 'centrality' is the degree to which a network's linkages are concentrated around one person or a group of individuals. A centralized network can have

faster diffusion, but a network that is too centralized can inhibit innovations from reaching a diverse set of individuals (Valente, 1995). ‘Isolates’ are persons in a network that are not connected to others in the network. By definition, ‘isolates’ are unlikely to receive novel information pertaining to a network’s activities. ‘Reciprocity’ is the extent to which network ties are reciprocated (i.e., that both persons indicate that they communicate with one another, rather than only one member of a dyad listing the name of the other person). Low reciprocity can indicate weak communication in a network (Gessel et al., 2010).

Previous work has used sociometric techniques to examine changes in cohesion among trauma-informed organizations (King et al., 2021). However, to our knowledge, mixed social network and qualitative methods have not been used to study communication within cross-sector partnerships designed to increase community capacity to address trauma across diverse mental health populations and cultural and linguistic communities. Sociometric techniques can help researchers quantify whether communication is occurring between individuals a network, reveal whether or not a network’s communication is occurring through one leader or around several persons, and can generate maps that ‘visualize’ these network characteristics. However, social network techniques alone cannot illustrate whether and how innovative ideas are communicated throughout a social network. Qualitative methods, which can contextualize social network results, can explore what facilitates or undermines network communication, how communication impacts partnership development and supports initiative goals, and the roles of network leadership in shaping these dynamics.

### **Opinion Leaders and the Diffusion of Information**

Opinion leaders are individuals who influence the attitudes, beliefs, motivations, opinions, and behaviors of those in a network and are critical for the implementation of community-based efforts for their ability to serve as change agents (Valente & Pumpuang, 2007). Opinion leaders can be identified through sociometric surveys that ask respondents to name who they most frequently approach for collaboration, communication, or advice. In these instances, opinion leaders are persons who are named more frequently (i.e., receive more ‘nominations’) relative to others in a network. Being connected to many persons in a network can make opinion leaders useful key-informants on many network related matters, including communication about a new practice or initiative, or how information is dispersed throughout a network.

### **Purpose**

Analyzing cross-organizational communication in trauma-informed, community-based partnerships using a Diffusion of Innovation lens and the tools of social network analysis (SNA) can illustrate the presence or absence of communication in a partnership and explain whether the network conditions (e.g., density, reciprocity, centrality, isolates) for communicating innovations are optimal at a given time point. Qualitative interviews with a network’s opinion leaders who also hold key ‘opinion leadership’ positions can provide contextual information about the development of a network’s communication structure, give real-life examples of cross-network communication and share goals and plans for improvement. In this study we aim to: (1) Describe the communication structures of six trauma-informed community-based partnerships using SNA; (2) Determine whether

partnerships' communication structures are optimal for diffusion of innovative ideas; and (3) Explore qualitative contextual variation across communication networks using key-informant interviews with each network's leadership.

## Methods

### Setting

The present study reports on data derived from the Los Angeles County Department of Mental Health (DMH) Innovations 2 (INN2) Pilot Program. Using funding from California's Mental Health Services Act, DMH provided support for nine regionally-based community partnerships to build capacity to address trauma in their communities over a four-year initiative. Partnerships varied by size. They were led by a single 'lead agency' with extensive knowledge about community needs and strengths, and included other community-based organizations with complementary expertise and resources. For example, lead agencies focused on families with children age 0–5 collaborated with organizations focused on maternal and baby well-being, while agencies serving homeless transition age youth (TAY) partnered with food and employment resources. These collaborations were intended to be mutually beneficial; lead agencies relied on community partner involvement to receive INN2 contracts and to increase their community presence, while the smaller community-based organizations increased their capacity by partnering with larger lead agencies. Lead agencies led the contract application, which involved naming their partnering organizations and describing their relationships and proposed activities. Many partnering organizations became 'subcontractors' with memorandums of understanding with lead agencies. INN2 funds were intended for initiative staffing, concrete community supports, trainings, and outreach and engagement activities. Partnerships were overseen by 1–2 partnership leaders.

Once funded, partnerships implemented one or more of seven trauma-informed community capacity building strategies that focused on populations such as parents of young children and TAY. These strategies involved community outreach, engagement and resource linkage, and addressed issues such as healthy parenting skills (for community members) and trauma-informed professional development (for partnership staff). These activities occurred alongside other support for community members who engaged with their programs over time. Additional information surrounding INN2 outcomes has been reported on in a separate manuscript (Gilmer et al., 2021).

### Study Design

This study followed a 'Qual →QUAN' mixed-methods sequence (Creswell & Clark, 2017; Palinkas et al. 2011), in which the study team collected qualitative interviews with partnership leaders prior to collecting social network data. These interviews contributed contextual information about cross-partnership communication, while our Social Network Survey revealed whether communication occurred within networks, and if communication was sufficient for diffusing novel initiative-related information. Thus, this design had the function of 'complementarity,' which was used to obtain qualitative 'depth' of information about network communication and quantitative 'breadth' (Aarons, et al., 2012; Palinkas et al., 2011, Palinkas et al., 2019).

To refine our social network data collection process, the Social Network Survey was piloted in spring of 2019. The pilot data (not reported on in the present study) revealed variation in networks' structural properties (e.g., density) and indicated that partnership leaders received more nominations than others in the networks. To explore network communication further, we then conducted interviews with network leadership in fall 2019. The finalized Social Network Survey was then administered to all partnerships in February of 2020. Finally, qualitative and SNA data were merged to understand whether and how the interviews contextualized and added depth to the variations observed in our finalized SNA (Creswell & Clark, 2011).

### Qualitative Data and Analysis

**Qualitative Data Collection**—Interviews were conducted with 1–2 leaders per partnership (N = 8 total). Six of these individuals were officially named partnership leaders who also held the title 'program director.' At the request of two partnerships, N = 2 additional interviews were conducted with persons in INN2 leadership positions who were also employed by the lead agency. Participants were recruited by our study coordinator using a combination of email and follow-up phone calls.

Interviews focused on partnership leaders' impressions of partnership development and included questions about partnership communication. Example questions included: *What are some of the main INN2 topics discussed within your partnership? As a partnership leader, what are some of your strengths in influencing partnership communication? Do you find some methods of communication more effective than others?* The interview guide was semi-structured to allow for discussion of emergent topics. Interviews were conducted by individual MA or PhD-trained project team members who were familiar with the project goals and were experienced qualitative interviewers.

**Qualitative Data Analysis**—Interviews were conducted and analyzed with attention to factors that could influence partnership communication. Thus, our codebook included nine codes related to communication, including 'information flow' to capture knowledge about who talks to whom in the network; 'communication barriers' and 'communication facilitators.' Interviews were coded using MAXQDA software (VERBI Software, 2019).

We ensured rigor through 'team debriefing' during data collection and analysis, which included the first three study authors (E.S., A.L., and K.C.), who also conducted the interviews. The purpose of these meetings was to discuss data insights and to achieve consensus on any coding and analytical disagreements. The study team also maintained an 'audit trail' cataloging analytical decisions. Our triangulation of qualitative and social network data also added rigor (Rubin, 2000).

### Social Network Data and Analysis

**Social Network Data Collection**—Social Network Survey participants were individuals employed by INN2 lead agencies and partnering organizations. While the survey was administered in nine partnerships, the present study includes six partnerships with response rates ranging from 64%–75%. Costenbader and Valente (2003) note that measures of

centrality remain stable with response rates as low as 50%. Still, we excluded three partnerships with low response rates ranging from 10% –50%. One of these three partnerships was led by a local public health entity and implemented one strategy. Two others were led by child welfare advocacy organizations and both implemented two strategies.

Our Social Network Survey followed the approach of Burt (2004) and Meltzer et. al. (2010). Partnership leaders provided a complete list of their individual partnership members which included their organizational affiliations and professional titles, which they updated online one month before survey launch. Participants were asked to complete the survey during an initiative-wide learning session, and were later reminded to complete the survey via email.

Using an online platform, participants responded to the following name generator: “With whom do you communicate most frequently regarding your INN2 work?” To reduce respondent burden, an autofill feature was implemented; when respondents typed individual names, the software auto-populated after the first few letters were entered. Participants could also add names that were not pre-programmed. Incorporating ‘autofill’ and adding names were minor modifications to improve data quality and user experience informed by our pilot. Time to complete a survey varied according to network size and number of nominations made. In instances where participants named (i.e., ‘nominated’) very few people, survey completion took minimal time, whereas when participants nominated many individuals, completing the survey took longer.

**Social Network Analysis**—The SNA occurred in four stages: (1) individual-level analyses of each network; (2) structural analyses of each network; (3) classification of each network type using the Network Diagnostic Tool (Gesell et al., 2010); and (4) creation of network maps. All analyses were conducted using UCINET for Windows, Version 6 (Borgatti, et al., 2002). All network links were symmetrized, meaning that if one person indicated a relationship existed and the other did not, the link was still counted as a data point. We used the Network Diagnostics Tool (Gesell et al., 2010) to interpret network metrics. This tool provides empirically supported thresholds that indicate optimal versus sub-optimal network performance and can inform recommendations to improve partnership performance.

Individual-level metrics included number of isolates’ and reciprocity. We examined networks for isolates because all persons in an effective community-based partnership should be communicating with at least one other person in the network. Thus, networks should have zero isolates (Gesell et al., 2010). We examined networks for ‘reciprocity’ (i.e., the extent to which network ties are reciprocated). Reciprocity values should be  $>.50$ . Lower reciprocity indicates weak communication.

Structural metrics included density and centralization. Density refers to the existing proportion of a network’s possible ties, which should range from 15% - 50% (Gesell et al., 2010). We then calculated network centralization, which we express as a percentage varying from 0 (every member is connected to every other member) to 100 (all members are connected to only 1 member) (Scott et al., 2005). Optimal network centralization is  $<$



25% (Gessell et al., 2010). Using these thresholds, we characterized network subtypes as: (1) high density/high centralization, (2) low density/high centralization, (3) high density/low centralization, or (4) low density/low centralization.

We then created network maps using NetDraw 2.090 using the spring embedder routine. Spring embedding conceptualizes dyads of two persons as ‘pushing’ or ‘pulling’ each other, based on the strength of their connection: two points located close together represent people who pull on each other because they have a strong connection, whereas distant points represent people who do not share ties and are pushing apart from one another. The algorithm seeks a global optimum where there is the least stress on the springs connecting people to one another (Rice et al., 2012).

### **Integration of Social Network and Qualitative Findings**

After classifying the community partnerships into quantitative network subtypes, we created memos using the coded qualitative material to understand variations in network density, which allowed us to examine the qualitative data for patterns and commonalities within and across network classifications. All methods were carried out in accordance with the University of California, San Diego Institutional Review Board.

## **Results**

### **Characteristics of Trauma-Informed Communication Networks**

The SNA yielded 289 respondents across the six partnership communication networks. The number of persons in each network (i.e., ‘network size’) ranged from 28–66 persons, with an average network size of 48 persons. About 60% (N = 172) of participants represented the networks’ partnering agencies, while the remaining 40% (N = 117) represented the lead agencies. Participants held a range of professional backgrounds, with ‘community advocates’ (n= 42; 14.5%); program directors, (n=40; 14%), executive directors (n=26; 9%), and peer navigators (n=21; 7.2%) as the most frequently used professional titles. The average response rate was 72%.

A total of 81 organizations were represented across partnership networks (Table 2), with partnerships including between 6–26 participating organizations (median = 9). Participating organizations included community-based non-profit organizations (n=56; 69%); community health clinics (n=6; 7.4%), religious organizations (n=4; 5%), school districts (n=2; 2.4%), and other county run-entities, such as hospitals (n=8; 10%).

Table 3 details our social network results. On average, 11% of possible network ties were observed across networks (range = 6% - 21%). The average centralization was 43% (range = 23% - 67%). The average number of ‘isolates’ across partnerships was 5.5 (range = 4–14); and the average reciprocity was .26 (range = .12-.37).

### **Trauma-Informed Communication Network Subtypes**

SNA revealed that partnerships varied with respect to density and centralization, and three potential communication network subtypes emerged from our analysis. Partnerships 1 and 2 fell within the “high density/high centralization” classification, with density

15% and centralization .25 scores. Partnerships 3, 4, and 5 fell within the “low density/high centralization” classification, with density < 15% and centralization .25 scores. Partnership 6 fell within the “low density/low centralization” classification, with density < 15% and centralization < .25 scores. No networks met “high density and low centralization” classification criteria. All networks had > 0 isolates and had reciprocity < .50. Table 4 details each network type and includes network visualizations and exemplary quotes. Qualitative results are summarized first by similarities and then by differences across all partnership communication networks followed by findings specific to each of the identified communication network subtypes.

### Similarities across Trauma-Informed Communication Networks

Across all network types, partnership leaders explained that a significant portion of communication occurred during monthly partnership meetings. These meetings were part of the INN2 initiative activities, and partnering organizations were invited to attend. These meetings provided space for partnership leaders to deliver information from DMH, for general program planning, resource sharing, and development of initiative-related messages to the community. Partnership 4’s leader summarized example meeting topics, which included:

Making sure that our partners are doing their work and how they’re impacting the community [and] truly understand how to utilize trauma-informed practices with their staff, and if their staff use it with their clients or their patients... we’re trying to make sure that we have a shared understanding and shared vocabulary across the different agencies...

Another individual described connecting individuals from different service sectors as a goal of INN 2 partnerships, which was made possible through these meetings. This individual remarked: “It’s bringing together people that haven’t traditionally worked together to address almost every aspect of someone’s life, like there’s an education and employment piece, there’s a health piece, a family piece...”

Cross-network communication also occurred through community forums, which were outreach efforts intended to promote initiative engagement. During these forums, community members and INN2 staff would build community and exchange initiative-relevant updates. These forums were also opportunities to create and share definitions of trauma and resilience to use when working with the community.

Partnership leaders explained that communication with and between participating organizations also occurred outside of these in-person events and described using email, Slack, and Zoom as typical ways to share updates from DMH, and to ensure that staff understand their role and the initiative’s mission. They also explained how they frequently communicated with newly hired initiative staff to ensure they understand the initiative and partnership processes.

## Variation across Trauma-Informed Communication Network Subtypes

While the partnerships shared several commonalities, differences emerged during our mixed methods analysis. Our merged qualitative and SNA data revealed that: a) partnerships with more dense communication networks were situated in environments where the lead agency expected collaborators to participate in decision making, which was challenging for one partnership but easier for the other because of their collaboration history; b) less dense networks were situated in environments where partnerships had newer collaborators or where collaborators served multiple diverse communities; c) Leaders of partnerships with highly centralized communication recognized that they were drivers of communication, which helped ensure that partners understood the initiative; and d) One partnership had less centralized communication, and was highly motivated to facilitate cross-partnership networking which occurred during partnership meetings.

### High Density Trauma-Informed Communication Networks

Partnerships 1 and 2 were relatively small networks (32 and 28 individuals respectively) and were considered ‘high density’. Interviews revealed lead agency processes for engaging their partners in initiative planning. Partnership 1’s leader acknowledged the importance of communicating with and soliciting feedback from partners, and partnership 2’s leader described their process of challenging partners to contribute the partnership’s vision, mission, and governance structure. Specifically, he discussed using partnership meetings as a collaborative space and remarked: “We just had our partnership meeting, where we identified roles that partners can play during these meetings, so it’s more of a co-facilitation and ‘collab’ process versus just [lead agency] leading away.” This individual also noted the challenges of working across a broad range of stakeholders, and described his plans to increase communication across different sectors represented in their partnership:

[Communication] has been a challenge, because our partners and our schools have very different ways of communicating... we’re starting to have conversations around making sure that the leadership team and the frontline staff are communicating, and we’re in a unique position where we have subcontractors that have staff that they hired, but then we’re also the backbone agency...

Whereas partnership 2 was challenged to (yet succeeding in) strengthening partnership communication, partnership 1’s leader noted that many of their collaborators had histories of collaboration. He also remarked that many of their partnering organizations were also physically located in the same building, which facilitated communication. He commented: “[INN 2] allows us to build new neurons within this ecosystem, if you will, within this partnership, because the partners had to work together by virtue of being here at the wellness center, but not as intimately as this...”

### Low Density Trauma-Informed Communication Networks

The network sizes of partnerships 3,4,5, and 6 ranged from 53–66 individuals and were classified as ‘low density.’ These partnerships consisted of community-based organizations that did not have a strong history of collaboration. Staff turn-over early in the initiative also undermined cross-partner communication. As partnership 3’s leader commented: “All of the agencies had big changes... so people that were part of the original grant were no longer

at the agency, so then having to communicate with them around like okay, this is what the vision was, let's co-design this together.”

Partnership 6's leader also described her efforts to establish relationships across partnering organizations, which were still at the early stages of initiative work. She felt that that communication within the partnership would “be slow to start” and would require persistence to maintain, noting that: “We will get those connections going, but then people might lag on it a little. It's like how they say: When you outreach to someone for services you have to outreach a lot of times before they finally accept.”

In contrast, partnership 5's leader described having decade-long relationships with many of her partnering organizations, and made a strategic choice to include many smaller non-profits in the partnership, rather than a few major ‘key players.’ Thus, partnership 5 (which focused on building capacity with culturally diverse multigenerational families) included organizations that served the community's diverse cultural communities:

We've got the groups that are influential in the Cambodian community...and groups influential in the Latino community. We have health department people, we're bringing in the Latino group at [local university]. We've got the African American ministers that are most influential...getting them to the table and talking to them is a little bit of a challenge. They are super busy.

Partnership 5's leader planned to facilitate relationships between these communities in the future, though this was not their current focus:

It's also facilitating- getting the groups together and helping them work across groups, which is going to be very cool. But, they've requested that we first work intergenerationally within ethnic groups. It's going to be organic and what they want to do...

### Centralized Trauma-Informed Communication Networks

Partnerships 1–5 were classified as centralized. In these instances, partnership leaders acknowledged that they were ‘communication facilitators,’ and described various reasons for having this role. Partnership 1's Leader called himself the partnership's ‘*backbone*,’ noting that he initiated in-person communication with team members to ensure that they understood the INN2 initiative and how to interact with persons who have experienced trauma:

(INN2) is complex and kind of vague at times... So, I say ‘do you have a few minutes at 2:00?’... and we'll we just have a conversation. We do that all the time, and it allows me to check in with them... because then things will come up like, oh, what to do when people cry...

Leaders of partnerships with centralized communication also reported communicating most frequently with individuals from ‘newer’ partnering organizations. As one leader commented: “I talk to [organization that addresses food insecurity] a lot because they're totally new, so they need a lot of support.”

Partnership 4's leader described her role as ‘sheep herder.’ She explained that the partnership needed her to facilitate communication, because partnership members were still

getting to know one another. She remarked: “Even though maybe we’ve known them before, they haven’t worked together or known each other, so all the communication really starts with me.”

Partnership 3’s leader aspired to be less central to partnership communication and planned to increase connections between their partnering organizations in the future:

It will eventually get to a place that’s sustainable without me being the only funnel of information... In an ideal world, they’ll talk to each other, because I know INN2 money will run out, but we want to continue working together.

### **Decentralized Trauma-Informed Communication Network**

Partnership 6 was the singular decentralized network . One of partnership 6’s leaders described their partnering organizations as highly motivated to create relationships with one another and noted that facilitating these relationships is one job of the lead agency: “...As the lead agency, that’s our role, facilitating this and not having too much of a hand in it because we’re only here for four years...”

This individual dedicated partnership meeting time to networking and cultivating new relationships, noting how this began by working with one partnership member to initiate networking breakout sessions:

We all come together and we have great ideas, but at the same time we don’t really know each other past our introductions, and I said, ‘Well, would you be interested in that first 10 minutes of every meeting having a networking breakout?’ We’ll split everyone into groups and you can do like a networking amongst yourselves within your group,’ and she said, ‘Yeah, either one of those sounds great.’

## **Discussion**

INN2 was an opportunity to build the capacity of community-based organizations through funding and trauma-informed training and to disseminate novel trauma-related information across a range of partners. Using the lens of Diffusion of Innovations, we conducted interviews with partnership leaders and sociometric SNA to explore whether and how members of six trauma-informed community-based partnerships communicated with one another in the second year of a four-year trauma-focused initiative. In the end, we found that no partnerships had the ‘optimal’ communication structures for diffusing initiative-related information throughout a network most efficiently and effectively. We also explored the roles of partnership leaders in initiating and maintaining network communication and found that many leaders used their longstanding relationships with their fellow community practitioners to stimulate initiative engagement and cross-network communication. Taken together, our analytical approach responded to the call that research occurring at the intersection of human service organizations and implementation science a) examine implementation within the context of a regional system, while b) emphasizing relationships with community partners, and c) using rigorous mixed-methods designs (Bunger & Lengnick-Hall, 2019). Our results have several implications for practitioners,

planners, and scholars of human service organizations working within the public mental health sector.

Our results indicated that no partnerships in this study reflected the high density and low centralization structural characteristics considered to be optimal by the Network Diagnostic Tool (Gessel et al., 2013). While improving network communication would likely involve organizational effort on the part of each agency (Schoen et al., 2014), recent work has also called for the exploration of 'external' organizational factors that impact program implementation (Bunger & Lengnick-Hall, 2019). In the case of INN2, elements of the external organizational environment that impact cross-partnership might include funding and other resource fluctuations on the part of DMH along with contract arrangements with participating community-based organizations (Birkin, et al., 2017). As others have noted, public agencies can play a key role in facilitating relationships among collaborating organizations (Hu et al., 2020), and can do so by implementing strategies that support program delivery. Practice facilitation (Siantz, et al., 2021) is an example of an implementation strategy that DMH or other funding agencies could implement to strengthen communication among participating organizations. Practice facilitators are skilled individuals who work with clinical practices and service delivery systems to make changes designed to improve client outcomes, and support service providers and quality improvement teams to develop the skills needed to implement new practices. Studying such an implementation approach within the context of a large-scale community initiative would likely require use of an effectiveness-implementation hybrid implementation design (Curran et al., 2012), which would both examine initiative outcomes at the client level and the implementation strategy's impact on indicators related to program adoption or, in this case, provider communication.

An organization's internal environment consists of its structure, leadership, and social context (Birkin et al., 2017), and also shares in the work of program implementation. Previous work has described the potential power that network managers and other leadership figures can have in cultivating collegial relationships in human service settings (Hu et al., 2020; Vermieren & Raymaekers, 2020), which can lead to successful program adoption (King et al., 2021). Our finding that most networks in this study were centralized around a single leadership figure (which was potentially related to funding allocation) aligns with this previous work. However, to sustain their work over time, partnership members will need to develop a strategy for communicating initiative-related knowledge amongst themselves. Network-building interventions (Yousefi Nooraie et al., 2021) are deliberate efforts to change the social networks of individuals.

An example network-building intervention that could be delivered at the outset of a future-community based initiative using the network's 'internal environment' might include establishing a communication plan at the beginning of any partnership that delineates communication goals and expectations and a strategy for achieving them. It might explain the roles of all organizations and individual collaborators, and help ensure that group members who have been historically excluded or have less seniority (i.e., peer support specialists) are included in communication and key decision making. Organizations leading these efforts should also identify other network members that should be strategically brought

into a network's communication core. In very large networks, it might be appropriate to develop working groups of 2–3 organizations, rather than forcing a large network to operate as a whole (Valente, 2008). Before developing a communication plan, collaborators must first understand why strong communication channels are needed for sharing new ideas, and how this can impact program outcomes. Of note, while many partnership leaders in the present study described their strategies for improving communication (e.g., networking breakout sessions during partnership meetings), a formal communication plan was not discussed and, to our knowledge, was not required by DMH.

### **Implications for Scholarship and Research**

This study has illustrated a range of INN2 network configurations and highlights contextual factors that surrounded these social network dynamics. Our mixed methods approach allowed for an exploration of these topics, yet future research is needed to evaluate whether and how network dynamics (e.g., partnership size, density, centralization) and contextual factors (e.g., a history of collaboration, partnership priorities) surrounding communication influence development of organizational capacity and, ultimately, reduce the consequences of trauma in the community. Future research could include a longitudinal mixed methods approach. Social network data collected over multiple time points could allow researchers to examine the development of network communication over time (King et al., 2021). Interviewing multiple stakeholders, including additional initiative staff members, is also needed to explore whether and how these trends impact program outcomes.

Future studies might also include a more thorough exploration of external organizational supports from DMH, or other relevant funding agencies and policy environments. To support program implementation, funding agencies (part of an organization's 'external environment') could support interorganizational communication more systematically by investing in an implementation strategy such as practice facilitation. Hybrid designs (Curran et al., 2012) would allow researchers to identify changes in client-level outcomes (e.g. service engagement, clinical improvements) while exploring how these external implementation supports impact program adoption (e.g. cross-organizational communication, integration of trauma-informed principals). Recent research has incorporated longitudinal SNA (King et al., 2021), and has explored the roles of network leadership (Hu et al., 2020; Vermeiren et al., 2020). However, there has been less emphasis on the process of implementing such community-based initiatives particularly that focus on the delivery of external supports.

### **Implications for Practice**

Organizations in the early stages of collaboration should nurture cross-partnership communication to increase the capacity of all partnership members. Such networking could lead to denser, less centralized collaborations that support the diffusion of new practices including trauma-informed information and services. Initial networking and communication between newly collaborating organizations might consist of sharing information about scheduled public events, or raising awareness about services that are available in the community. However, a complex multisector collaboration such as the INN2 initiative requires regular communication between staff from various organizations to diffuse

information related to project goals, progress, and sustainability (Kansas University Center for Community Health and Development, 2023).

Cross-organizational communication could be accelerated by developing a communication plan at the beginning of a collaboration and strengthened through strategic use of partnership meetings. Thus, we recommend that organizations and systems initiating similar work use partnership meetings to build relationships, develop a climate of trust, and to communicate messages throughout the network and the community that pertain to trauma. This process could strengthen network dynamics overall, and support movement towards project goals (Gillam et al., 2016). Other strategic uses of partnership meetings might include a remote option for members who lack the time or resources to attend meetings in person. However, such meeting space should be considered a ‘point of departure’ for future communication (which can accelerate) and long-standing relationships (which can maintain) the diffusion of information that supports the delivery of trauma-informed programming to community members.

Leadership is critical in effective implementation of innovation (Aarons et al., 2015). Partnership leaders can have an important role in stimulating cross-organizational communication (Vermeiren & Raeymaeckers, 2020; Hu, et al., 2021) and could leverage their influence in a network by facilitating cross-organizational communication. Such activities might be especially critical in larger networks, in networks with high rates of staff turnover, and in networks where members from partnering organizations do not yet know one another. Funding agencies could invest in training for network leadership in an implementation model, such as Leadership and Organizational Change for Implementation (LOCI) model (Aarons et al., 2015;) which supports development of leadership skills and creating a climate for program implementation. This particular model has been used to develop trauma-informed capacity of clinicians serving children who have experienced trauma (Solheim., et al., 2022).

**Strengths and Limitations**—To our knowledge, this study is among the first to examine the communication structures of trauma-informed community-based partnerships to understand whether communication networks are optimal for diffusion of innovative ideas and to explore qualitative contextual variation across communication networks. We utilized a rigorous mixed method design in which our interviews with network leadership provided background and context to our social network results.

Still, our conclusions should be taken in light of some limitations. These data are cross-sectional and were collected during the second year of program operations, mid-way through the initiative. Future studies might consider collecting network data at multiple time points to explore whether and how a network’s diagnostics evolve as an initiative progresses, and to understand the relationship between partnership dynamics and staff turnover. We acknowledge that our exclusion of three partnerships with low response rates might have introduced bias into our results, though it is not possible to tell whether the excluded networks would have had stronger or weaker network diagnostics and accompanying contextual factors. Information related to their communication processes would have made our results more thorough.



Further, our sociometric data sets had missing data. This could obscure existing ties, causing our density scores and reciprocity to appear lower and the number of isolates to appear higher than in reality. Our decision to symmetrize the data (i.e., that a communication tie exists when one person nominates the other, but is not necessarily nominated back) might make partnership communication appear stronger than in reality, though social network literature has historically defended the “strength of weak ties” (Granovetter, 1973).

In terms of our qualitative work, a larger sample would have given information about network communication from multiple perspectives. We also recognize that individuals with leadership roles in these partnerships might express a more positive view of program activities, process, and outcomes. Unfortunately, interviewing additional networks members was not feasible due constraints of project logistics and available resources. Still, our study team has published a manuscript that features data from focus groups conducted with TAY peer navigators combined with the social network data presented here (Siantz et al., 2023), which highlighted the need for organizations and partnership leaders to proactively involve these professionals in network communication.

We also acknowledge limitations related to the timing of our qualitative and social network data collection. Conducting interviews after the Social Network Survey would have allowed for agency leadership perspectives on the SNA results, rather than only background and contextual information. Finally, more information about the use of a common, trauma-sensitive language in partnership communications would also have been informative.

## Conclusion

We have documented the communication contexts and networks of six trauma-informed community-based partnerships, and provide suggestions for strengthening communication among collaborating organizations undergoing similar efforts that could be implemented at the external and internal contexts of participating organizations. While these partnerships might benefit from implementing the strategic communication planning steps described above, partnership leaders were aware of their role as communication facilitator and were motivated to strengthen communication within their networks.

While this study fulfilled several recent recommendations for research that integrates scholarship pertaining to human service organizations and implementation science (Lengnick-Hall, 2019), Future studies should take a mixed-method longitudinal approach to explore the impact of external organizational supports such as practice facilitation and /or leadership training on program implementation using a hybrid design.

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## Data availability statement:

All social network data sets and qualitative transcripts consist of or include significant amounts of identifiable information. Thus, the study team believes that publicly sharing this manuscript's data would jeopardize participant confidentiality and supporting data sets are not available.

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### Practice Points

- Communication is needed to spread novel information about trauma-informed care and community capacity building throughout trauma-informed community-based partnerships
- To sustain partnership work it is essential that members of partnering organizations communicate new information about resources and trauma-informed knowledge between themselves, rather than only communicating directly through the partnership's leader.
- A 'communication plan' could delineate opportunities for persons from partnering organizations to participate in communication and decision making, and help ensure that individuals with less seniority (i.e., peer supporters) remain involved in network communication.

**Table 1**

## Trauma-Informed Strategies Used Across Partnerships

<b>Partnership number</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	
<b>Strategies used</b>							<i>Total Partnerships using strategy</i>
Building Trauma Resilient Families with children 0–5	X	X	X	-	X	-	4
Trauma informed support for School Communities	X	X	X		-	-	3
Transitional Age Youth (TAY) Support Network (16–25-year-old TAY)	X	-	-	X	-	X	3
Coordinated Community Employment	-	-	-	-	-	X	1
Culturally Competent Activities for multigenerational families	X	-	-	-	X	-	2
<b>Total strategies used</b>	<b>4</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>2</b>	
<b>Types of partnering organizations</b>							<i>Types of partnering orgs total</i>
Community based non-profit	5	7	9	5	11	19	56
County-run entity	1	-	-	-	3	4	8
School district	-	1	-	-	1	-	2
Religious organization	-	-	-	1	3	-	4
Community health clinic	-	-	1	1	3	1	6
Other	-	-	-	1	2	2	5
<b>Total organizations in partnership</b>	<b>6</b>	<b>8</b>	<b>10</b>	<b>8</b>	<b>23</b>	<b>26</b>	<b>81</b>
							<i>Avg response rate</i>
<b>Social Network Survey response rate</b>	<b>64%</b>	<b>79%</b>	<b>78%</b>	<b>75%</b>	<b>69%</b>	<b>69%</b>	<b>72%</b>

**Table 2**

Individual characteristics for social-network data

<b>Partnership number</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>Full Sample</b>	
<b>N and percentages</b>	<b>n</b>	<b>n</b>	<b>n</b>	<b>n</b>	<b>n</b>	<b>n</b>	<b>n</b>	<b>%</b>
Total Participants	32	28	53	55	55	66	289	100
<b>Agency affiliation</b>								
Lead organization	8	9	32	22	20	26	117	40
Partnering organization	24	19	21	33	35	40	172	60
<b>INN2 position</b>								
Executive Director	4	-	5	5	-	12	26	9
Program Director	3	4	8	7	6	12	40	14
Assistant/Associate Director	1	1	-	1		2	5	1.7
Program Manager	1	1	6	-	7	5	20	7
Program administrators	2	-	-	3	3	7	15	5
Program Coordinator	-	-	1	4	6	6	17	6
Peer navigator	5	-	9	-	7	-	21	7.2
Community outreach advocate *	7	2	3	17	4	9	42	14.5
Promotora/community health worker or navigator	1	3	-	-	1	2	7	2.5
Mental health consultant/clinician **	-	7	-	3	-	-	10	3.4
Case management	-	-	4	-	3	-	7	2.4
Child Development Specialists	-	3	-	-	-	2	5	1.7
Other INN2 staff ***	8	7	17	15	18	9	74	25.6

\* Examples include community outreach and engagement, community advocate, community resource coordinator, community activator

\*\* Examples include trauma informed behavioral health coach

\*\*\* Examples include DMH employees, librarians, faith leaders, other health care workers, school employees

**Table 3**

## Network Diagnostics

Partnership	Network Size	Number of isolates <sup>1</sup>	Reciprocity <sup>2</sup>	Density <sup>3</sup>	Centralization <sup>4</sup>
1	32	4	0.37	15%	0.53
2	28	3	0.32	21%	0.42
3	53	4	0.21	8%	0.40
4	55	1	0.12	8%	0.38
5	66	7	0.36	8%	0.67
6	55	14	0.19	6%	0.23

<sup>1</sup>For optimal network functioning the number of Isolates should = 0

<sup>2</sup>For optimal network functioning reciprocity should be >.5


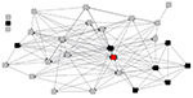



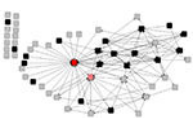
<sup>3</sup>For optimal network functioning density should be between 15%–50%

<sup>4</sup>For optimal network functioning centralization should be <0.25



**Table 4**

Mixed method analysis: Communication network subtypes with illustrative quotes

Network Type	Partnership	Network Visualization	Illustrative key-informant quote
<b>Type 1:</b> High Density, High Centralization	Partnership 1		<i>Innovations2 allows us to build new neurons within this ecosystem, if you will, within this partnership, because the partners had to work together by virtue of being here at the wellness center, but not as intimately as this</i>
	Partnership 2		<i>We just had our partnership meeting, where we identified roles that partners can play during these meetings, so it's more of a co-facilitation and 'collab' process versus just [lead organization] leading away...</i>
<b>Type 2:</b> Low Density, High centralization	Partnership 3		<i>Even though maybe we've known them before, they haven't worked with or known each other, so all the communication really starts with me.</i>
	Partnership 4		<i>"I think that eventually it will get to a place that's like sustainable without me being the only funnel of information, ideally speaking.</i>
	Partnership 5		<i>We've done a formal meeting with executive directors of the organizations and their staff... yeah, one on ones.</i>
<b>Type 3:</b> Low Density, Low Centralization	Partnership 6		<i>So I was like, "... would you be interested in doing group discussion breakouts or, that first 10 minutes of every meeting having like a networking breakout?" Like, "we'll split everyone into groups and you can do like a networking amongst yourselves for about 10 or 15 minutes</i>
<b>Type 4:</b> High Density, Low Centralization		-----	-----

\* Network is high density if density  $\geq .15$ ; Low density is  $< .15$

\*\* Centralization is high if centralization is  $\geq .25$ ; low centralization is  $< .25$

\*\*\* Black box indicates member of lead organization; gray box indicates member of a partnering organization; red box is Key-Informant with a qualitative interview conducted