Original Article

Expanding Social Network Conceptualization, Measurement, and Theory: Lessons from Transnational Refugee Populations

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Abstract

With forcible displacement at unprecedented levels and only expected to increase as conflict, economic inequities, and climate change escalate, it is critical to understand the ways in which social networks of migrants are disrupted and reconstituted in new contexts. This requires critical examination and expansion of existing social network conceptualization, measurement, and theory that considers transnational movement and experiences to ensure cultural and contextual validity. As part of a community-engaged intervention study designed to promote the well-being of recently resettled refugees by addressing social determinants of mental health, the social networks of refugees were measured over time. This paper describes the conceptualization, operationalization, data collection, and data analysis of refugees' social networks; challenges and lessons learned; and implications for transdisciplinary social network theory and methodologies. Tracing the development of quantitative and qualitative instruments and participatory processes of iteratively refining them throughout implementation with four cohorts of refugees (2013–2017; N = 290) resettling in a medium-sized city in the Southwestern United States, we offer innovative ways of viewing social networks that expand conceptualization, improve measurement, and extend theory. Our findings address known challenges to social network data collection (e.g., instrument bias, participant recall bias, and interviewer capacity) and suggest how social networks data collection can be strengthened through approaches that include (1) community members as collaborative researchers, (2) transdisciplinary theoretical and methodological perspectives, and (3) team-based practices that share leadership, learning experiences, and responsibility for data analysis, interpretation, and dissemination.

Keywords

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Introduction

Global displacement has increased and is expected to rise precipitously in the coming years (United Nations High Commissioner for Refugees [UNHCR] 2022). Forcible displacement disrupts social networks, which are intricately linked to health and well-being (Bankston 2014; Lipson 1991). Accordingly, it is important to understand the dynamics of the social networks of newly resettled refugees (Greene 2019). This process-oriented paper demonstrates how community-engaged and transdisciplinary approaches to research (Goodkind et al. 2017) can further the theory on the social determinants of health and social networks. It also suggests an approach to research that is responsive to challenges and limitations well known to data collection broadly and social network data collection specifically, including instrument bias, interviewer capability, and recall bias (Johnson 2015). To this end, this paper connects the theory on the social determinants of health and social networks, known challenges to data collection, and community-engaged processes that inform instrument development, testing, and analysis. Innovative instruments and specific questions (e.g., for ego and ecological network data collection, qualitative interviews) are described, as well as processes and outcomes related to improving the rigor of data collection activities, which inform an organizing framework that connects research activities, instruments, and findings between and across studies to improve future research on social networks within community settings.

Background

Social Determinants of Migration (and Health)

Social policy and context influence patterns of migration (Bruno, Palombino, and Rossi 2017), social relationships and networks (Berkman et al. 2000), and refugee health and well-being (Fee and Arar 2019). UNHCR (2022) has reported 89 million people were forcibly displaced at the end of 2021, including over 53 million who were internally displaced and more than 27 million people with refugee status. Displacement and migration often begin with persecution and violence (FitzGerald and Arar 2018) and are fraught with premigration and postmigration trauma and stress (O'Donnell, Stuart, and O'Donnell 2020). These experiences also correspond with changes in connections and levels of trust—across people, systems, and resources (Arar 2016; Lamba and Krahn 2003). Accordingly, societal forces and experiences converge and influence the health and well-being of refugees—extending throughout and long after resettlement (Hynie 2018). Positive resettlement experiences often entail reconstituting social networks (Elliott and Yusuf 2014; Pittaway, Bartolomei, and Doney 2016).

Building on seminal scholarship on social integration (Durkheim [1897] 1966), contemporary social research has shown how social networks are related to physical and mental health (Bankston 2014; Kawachi and Berkman 2001; Thoits 2011; Umberson and Montez 2010). Although social network analysis has a long tradition of a quantitative design (Freeman 2004; Scott 1988), a range of approaches have been used to study social networks, including mixed methods (Bolíbar 2016). However, social networks research often becomes more challenging with less accessible and more mobile subpopulations, and therefore, sample sizes tend to be small (Kingsbury et al. 2018), and studies frequently use qualitative approaches (Dobbie, Reith, and McConville 2018).

Within migration-specific research on social networks, a range of study designs have been used, including survey research (Lamba and Krahn 2003), in-depth interviews (Kingsbury et al. 2018), and ethnography (Williams 2006). Unique insights can be gleaned—revealing or concealing different dimensions of social experiences—depending on differing perspectives on social networks (or isolation) and methodology used (Doyle, Brady, and Byrne 2009). To improve

reliability and validity, researchers have called for the use of mixed methods in future studies related to refugee social networks (Lamba and Krahn 2003).

Although social network research has a strong quantitative tradition, qualitative research has productively shaped social network literature (Sommer and Gamper 2021). Kawachi (2010) notes that qualitative approaches have helped to better understand the downside of social capital and how relationships are shaped by broader historical social structures. Recent work has suggested the benefits associated with mixed-methods social network studies in which qualitative data can be coded and used to triangulate findings (Rice et al. 2014). Furthermore, Rice et al. (2014) suggested that recall bias can be mitigated to a certain extent by combining name generator social network data with semistructured interview data.

Although qualitative social network research is sometimes critiqued for being less reliable and valid than quantitative research (Mays and Pope 1995; Payne and Williams 2005; Wainwright 1997), qualitative interview questions may help expand conceptualizations of social networks in ways that a name generator approach does not allow. Overall, quantitative and qualitative data can be useful to triangulate findings across study outcomes (Heale and Forbes 2013). In addition, social network research has begun to extend beyond connections among individuals to examine how people are connected to places through their routine activities (Browning et al. 2017). As such, shared and overlapping spaces may also facilitate collective efficacy, intergenerational closure, and social exchanges (Browning, Soller, and Jackson 2015) and contribute to tie formation among individuals (Feld 1981).

A recent review of social network studies with refugees described the need for greater exploration of the conceptualization of social networks as they relate to refugees (Ahmed, Geraldine Chan, and Mutalib 2022). Indeed, social network research with refugees has tended to be either quantitative using name generators (Löbel 2020; Njeru et al. 2020) or qualitative through indepth interviews (de Anstiss, Savelsberg, and Ziaian 2019; Sundvall et al. 2021). Although some studies have involved collaboration with local refugee communities, engagement has often been limited to translation rather than more meaningful and indepth colearning. In addition, there is a dearth of mixed-methods social network research with refugees. This paper describes challenges associated with the conceptualization and collection of primary social network data within a mixed-methods community-based intervention study and presents innovative, community-informed solutions for addressing these challenges.

Social Network Data Challenges

Challenges with collecting and analyzing social network data—similar to those faced in data collection broadly—include instrument bias, interviewer capability, and recall bias (Johnson 2015). These challenges influence levels of reliability and validity of measurement and interpretability of findings (Heise and Bohrnstedt 1970; Kogovšek and Ferligoj 2005). To begin, instrument bias can be described as systematic misinterpretation of questions and parameters within instruments and questions and details about network ties (Cornwell and Hoagland 2015). Social network research has often relied on participants describing their social ties through variations of ego network name generators (Burt et al. 2013). Within an ego network name generator in a survey, the ego is the participant, and their social ties are referred to as alters (Hawe, Webster, and Shiell 2004; Luke and Harris 2007). However, the language used in the name generator question in a survey (in which ego network data are collected connecting a participant to their self-reported social ties) typically limits responses and can create uncertainty about the reliability of responses. For example, a participant may truly have a small social network, or they may have a larger number of network ties but never needed to "discuss important matters" with them and thus have not listed otherwise strong ties.

In addition, social network instruments are necessarily curtailed—emphasizing strong ties to minimize respondent burden, often to approximately six people per question, thus truncating the possible reported social network sizes. Although networks are truncated for practical reasons, collecting data that minimize actual social networks may lead to inaccurate conclusions about a lack of community embeddedness and greater levels of social isolation than that truly exists, potentially leading to unneeded interventions. Moreover, social ties may be action-based (e.g., providing a service such as childcare) or role-based (e.g., a parent or spouse). To this end, there may be confusion on whom to count or include as an important social tie (given varying social roles), including discrepant interpretations among participants and interviewers. For example, Greene (2019) reported ambivalence from newly resettled refugees as to their decisions on including medical professionals as social ties.

Second, recall bias within a question occurs when respondents forget to mention relevant people because of memory lapses, time pressure, or other factors (Cornwell and Hoagland 2015). Highlighting the gravity of this issue, Cornwell and colleagues (2009) found that 15 percent of all respondents who had a spouse or partner did not recall their spouse or partner for an important matter's question until prompted by a programed follow-up question. Such concerns might be accentuated in certain circumstances, such as when being pressed for time to complete an interview or when a respondent is experiencing symptoms of posttraumatic stress disorder (PTSD) or other forms of psychological distress.

Lastly, respondent and interviewer fatigue can be associated with diminished thoroughness of responses (Cornwell and Hoagland 2015). This appears to have been a problem even within long-established General Social Survey (GSS) questions (Bailey and Marsden 1999; Burt 1984), where researchers (McPherson, Smith-Lovin, and Brashears 2006) found that overall network sizes had decreased from nearly three to just over two between 1985 and 2004. This was later contested by Paik and Sanchagrin (2013) noting that the characteristics of the interviewers (e.g., levels of training and interviewer fatigue) had a greater statistical influence on the findings than the characteristics of interviewees. As Becker (2017) has noted, the people who collect research data have an important role that influences the quality of the data collected. Attention to the identities and actions of interviewers, as well as to other key methodological concerns, was central to the data collected and described in this paper as a part of a community-engaged research study to improve resettlement experiences and the well-being of newly resettled refugees. To this end, attention to researcher and community power dynamics and the influence of varied positionalities is critical to the evaluation of research processes and outcomes (Andress et al. 2020).

The Refugee Well-Being Project

The Refugee Well-being Project (RWP) was a community-based mental health intervention and study awarded to the senior corresponding author from the National Institute on Minority Health and Health Disparities (R01MD007712). The RWP involved a university-community partnership that included student advocates and newly resettled refugee individuals and families. The research team comprised refugee community members, community advocates, and university staff, faculty, and students from a range of disciplines (e.g., sociology, anthropology, psychology, and medicine). Participants were recruited with the help of refugee resettlement organizations and team members who spoke refugees' native languages (e.g., Dari, Pashto, Arabic, Kirundi, Kinyarwanda, and Swahili). The study incorporated an experimental design (randomized controlled trial; RCT) in which participants were randomly assigned to the RWP learning and advocacy intervention or a waitlist control group after completing a baseline interview (see Goodkind et al 2017, 2020 for additional details).

Four cohorts of refugee households from Afghanistan (35.5 percent), Iraq and Syria (32.8 percent), and the Great Lakes region of Africa (31.7 percent; including Burundi, Democratic Republic of Congo, Republic of Congo, and Rwanda) were recruited and completed quantitative and qualitative interviews at four time points over 12 months (N = 290 individuals in 143 households). Just over half (52.4 percent) of the participants were women. The study included a wide range of psychosocial instruments, measuring key intervention outcomes such as levels of reported culturally specific psychological distress and PTSD, anxiety, and depression symptoms. Of critical importance to this manuscript, social network questions were included in both quantitative and qualitative interviews at each time point. We also collected data on regular activity spaces for shopping, eating, religious practice, education, and recreation to inform analyses of ecological networks. This paper aims to describe how social networks' methodology and methods were conceptualized, operationalized, and implemented in a community-engaged intervention study, with particular attention to guiding social network theories and key data challenges associated with collecting social network data from recently resettled refugees with linguistically and culturally diverse backgrounds. We also describe how insights gained from our study can be used to help organizations that promote refugee resettlement. Of importance, this study entailed a community-engaged design, which has been shown to enhance the rigor and validity of research processes and build trust between researchers, participants, and communities (Goodkind et al.2017; Roe, Minkler, and Saunders 1995).

Data and Methods

Findings from this paper are based on an analysis of the processes of developing and implementing social network questions. Measures were developed and refined with attention to social network theory and experiences with implementation in the field. Challenges were encountered and addressed in collaborative team meetings and engagement with community members and a community advisory board. Key concerns, decisions, and outcomes were documented in research team meeting notes and data decision documents.

Developing Quantitative Social Network Questions

Quantitative social network data have long been collected within large-scale social and health surveys (Cornwell and Hoagland 2015). Saturation surveys, such as those used in the National Longitudinal Study of Adolescent to Adult Health survey (Add Health), assess complete networks and can study characteristics of social ties and the network structure within bounded social contexts such as schools or workplaces at a single time point. However, this type of data collection is often not feasible for dispersed networks or hard-to-reach populations (Lin 1999). In addition, our intervention study employed a sequential cohort design, which made measuring ties among all community members at one time unfeasible. Our study also focused on ties to others with whom participants discuss important matters. Importantly, there is no clear boundary for such ties, which made the collection of complete network data for our purposes unfeasible.

Incomplete network name generators are more feasible and have been used in nationally representative studies like the GSS (Burt 1984) and smaller studies with hard-to-reach populations or among more fragmented study samples (Neal and Neal 2017). To this end, name generator surveys are flexible and adaptable, and there are numerous versions from which to select. Burt et al. (2013) studied eight versions of name generators and found that the GSS version that asks about "ties that people discuss important matters with" tends to retrieve more network ties than other measures. They also noted that several distinct name generators can be used in the same study. We based our survey items on the GSS items and modified them to be specific to our study context. Our *a priori* assumptions were that strong and weak social connections would benefit

refugees (Lai, Lin, and Leung 1998) and that such supportive networks could be built and strengthened during participation in the RWP intervention.

We asked refugee respondents three questions that were bounded to the city where participants were living (because we were interested in their networks within their new resettlement communities) and limited to six social ties per question (for a maximum count of 18). Our initial set of questions comprised the following:

1. "Are there people (adults) in [CITY NAME] with whom you discuss important matters?"
2. "Are there people (adults) in [CITY NAME] who you have asked for advice or help in getting things done in the United States?"
3. "Are there people (adults) in [CITY NAME] who you ask for advice or help when you are not feeling good about yourself or your situation?"

After each question, participants were asked to name up to six people and provide either a first name or initials for each person listed. Descriptive characteristics asked about each tie included (1) "Is this a man or a woman?", (2) "Is this person from [COUNTRY OF ORIGIN OF RESPONDENT]?", (3) "How do you know this person?", and (4) "Does this person speak your language?". Response choices for "How do you know this person?" were family member not in household, friend, coworker, doctor/medical provider, mental health care provider, social service provider, person from RWP intervention, and other. Of note, we asked whether social ties had been listed previously to avoid data entry duplication and ensure unduplicated overall counts. As such, our analyses only used unduplicated counts—focusing on the theoretical importance of the total number of local ties and the social role of each tie. Thus, we aimed to quantitatively measure social ties and characteristics about those ties using higher levels of measurement (e.g., ratio variables as opposed to ordinal or nominal) (Abell 1968) to be able to include them in regression analyses. We envisioned using these data to better understand existing networks, changes in refugees' social networks over time, the composition of those networks across indicators of network homophily or heterogeneity (McPherson et al. 2001), and supports from varying strong ties (Wellman and Wortley 1990).

Because the community-based mental health intervention was designed to increase refugees' social support and access to resources within their communities, we also included questions to assess respondents' shared activity spaces to inform ecological network analyses (Browning et al. 2015). We asked about specific locations derived through consultation with community members and community discussions about places that refugees were likely to frequent for different activities and provided the opportunity for respondents to list all other locations they visited. The following language introduced this section of the interview.

> I also have some questions about places you go to shop for food in [CITY NAME]. Here is a list of places some people go, but you can tell me about other places as well.

Locations were subsequently listed and responded with either yes, they had frequented the location, or no, they had not. Locations were grouped by activity (food stores, health care, spiritual places, work, adult education, childcare and school, and resettlement services). If a respondent answered yes, they were asked how many times they had been there in the past month. After each activity section, there were instructions to add places with locations and their cross streets and the number of times they had frequented newly listed places in the past month.

Developing Qualitative Social Network and Social Support Questions

From the earliest points of study conceptualization, the university-community research team was concerned about ethical and methodological issues related to the RCT design and quantitative

data collection. Although the community-based RCT was mutually developed after more than 8 years of partnership and intervention implementation, we paid careful attention to challenges, limitations, and innovations to this approach, which are thoroughly described in an earlier paper (Goodkind et al 2017). One important innovation to address these concerns was to include mixed methods for assessing social networks and key dimensions of well-being and explanatory variables. Qualitative interview data prioritize context and meaning—for example, about the role of social networks and participant perspectives on them—capturing data that are not obtainable from quantitative methods. The mixed-methods approach facilitated the ability to expand upon and extend findings from the quantitative data (Pearce 2012). Taking a mixed-methods approach to social networks, we developed the following qualitative interview protocol questions that were part of a longer semistructured interview guide:

> One of the challenging things, when people come to a new place, is building up a social support network (people you can turn to for different things: advice, a ride, childcare, money, or someone to talk to or spend time with). How has this been for you? Can you give us an example from the last week or so of someone you turned to with these kinds of things?
>
> Have you received help accessing resources from other refugees in the community? Can you give me an example of this?
>
> Have you helped other family members or friends (who are refugees) access resources or advocated for them in any way? Can you give me an example?

The first question conceptualized social ties and social networks as entailing instrumental and psychological support (Bankston 2014; Wellman and Wortley 1990). It also entailed including examples of such forms of support that would commonly resonate with refugee concerns and needs. In addition, the question included a prompt to ask for examples of specific times when such supportive social ties had been used. We also wanted to make sure we asked respondents about people they had helped to capture the mutuality of social networks and to avoid a sole focus on how refugees were recipients of aid. Important to note, these questions were asked in addition to questions about the challenges and benefits of living in the United States and the influence of resettlement on family members, as well as access to resources and hopes and goals for the future.

Feedback from Interviewers and Preliminary Data Analyses

Our community-engaged approach enabled us to note challenges early in the process, make corrections, and implement improvements to research processes to minimize bias. Despite careful planning, community involvement, and regular interviewer training, we initially experienced several limitations described in the social network literature (instrument bias, recall bias, and limits on interviewer capacity).

In terms of instrument bias, we attended to the language used in the name generator questions, which can limit responses or create uncertainty about the reliability of responses. We first attempted to account for this form of bias by including several name generator questions that could be combined for an unduplicated sum of social network ties. After enrolling the first cohort of refugees, our team critically assessed the cultural and contextual validity of the three name generator questions. We found that we were neglecting a key aspect of social networks for recently resettled refugees from the Middle East and Great Lakes Region of Africa—having people with whom to share meals. Although this added to the length of the survey, a fourth name generator question that asked about people with whom the respondent shared meals was

incorporated into the quantitative interview. Because this question was added after data collection began, data using this question were incomplete for baseline data and not included in any baseline analyses.

We also considered issues of recall bias in our study. We routinely heard from interviewers that participants had not fully completed the social network section of the survey. Interviewers stated that they knew specific participants had met with a friend that they had in common recently or had not listed a spouse or family member. In one respect, we wanted to honor participants' perceptions of their social networks and social support and to accept some of the limitations inherent in the name generator survey. However, we also learned that some interpreters and interviewers had misunderstood questions and had initially not included family members or RWP student advocates as social ties. To address this, we improved training on these questions and created reminder sheets that were included with the survey folders given to all interviewers so that interviewers would be prompted with correct instructions for these questions before and during interviews. In addition, one of our lead interviewers also reinterviewed several participants when it was clear that mistakes were made due to interviewer error.

Lastly, in terms of interviewer fatigue and capacity concerns, we relied on interviewer training and data tracking that included letting interviewees know average times to complete interviews for planning purposes. However, given the range of fluency required to complete interviews and limitations on available interviewers speaking participants' native languages, some interviewers were given greater workloads than others and certainly experienced more fatigue. Conversely, respondents sometimes had tight schedules and were at times asked to complete interviews early in the morning before work or church or later in the evenings after a full day of work. During these times, it is likely that respondents were more inclined to further truncate or rush their social network responses. Although interviews could be completed in several sittings, we know that sometimes there was a choice between completing an interview quickly or not at all within the study's timeframe. Although this remained challenging, our study compensated participants for their time, in addition to including interviewers in data analysis, interpretation, and dissemination, thus further enhancing the rigor and validity of the data.

Iterative Adjustments to Social Network Questions

As described above, early in the study, we observed that respondents had valuable social interactions that were not being captured by our questions. This led us to introduce a new question that measured an important social interaction that was common and demonstrated new and valuable social relationships but was not included in the first set of social network questions:

4. "Are there people/families (not including members of your household or people under 18) in [CITY NAME] who you regularly share meals/drink tea/ or visit with? (By regular, we mean at least once per week)" and "How many?"

The following findings are based on our reflections from research activities and key insights from a review of outcomes described in manuscripts published using quantitative and qualitative social network data from this study. They are organized around three important aspects of social network research: (1) expanding conceptualization, (2) extending theory, and (3) improving measurement.

Processes and Key Insights

Expanding Conceptualization

After adopting existing ego network name generator instruments and ensuring that our measures were culturally and contextually relevant for recently resettled refugees, we learned that we still

had not incorporated an important aspect of refugee social life. This finding emerged from learning that interviewers and interpreters (who were embedded within participant communities) were faced with situations where they understood that participants were forming new social ties, but they were not considering them relevant to existing social network questions (e.g., on discussing important matters or asking for advice or help to either get things done or if they did not feel good about themselves). Thus, after discussion with interviewers, we expanded our conceptualization of important social ties by adding an item to the ego network questions on regularly visiting and sharing meals with social ties. This finding highlights the importance of inclusivity within community-engaged research both in terms of conducting research and being responsive to concerns and suggestions for improvement to research processes and measures as they emerge and can be appropriately addressed. It demonstrates how community-based interviewers with local knowledge can identify potential areas where questions and overall responses and data are not sensitive to participants' experiences and can be improved.

Extending Theory

Going beyond longstanding measures and approaches to assess the quantity and quality of social networks, we also leveraged our transdisciplinary team's interests and expertise, to incorporate questions assessing activity spaces used by participants during their resettlement process—and the overlap of those spaces in relation to indicators of positive resettlement.

This process also involved engagement with community leaders to determine the most common areas that refugees might frequent as part of routine activities and include them as fixed response options within surveys. These ultimately included a list of places that were agreed upon as the most likely frequented spots within a period of 30 days by community members, including specific local grocery stores, restaurants, and places of worship. Participants were asked if they frequented a specific location and then how often they had been there in the past month. This research extended beyond specific social ties and perceptions of social networks alongside well-being and examples of support to the value of places and familiarity with those places toward positive experiences with resettlement. Such research gives value in the development and support of places where people can establish positive social ties, form attachments, and build social capital. This research suggests valuable patterns of community processes such as collective self-efficacy, intergenerational closure, and network-based interactions within communities. However, collecting these data was also challenging in terms of identifying locations for the fixed responses and then subsequently identifying and verifying cross streets for other locations and their associated Geographical Information System coordinates. It also required more sophisticated and unique network analyses compared with ego network and qualitative interview data.

Improving Measurement

Interviewers and interpreters were regularly trained on conducting qualitative and quantitative interviews and for understanding and translating key study concepts including social networks and well-being. As such, translations for questions were shared and reviewed with refugee community leaders and revised to ensure understanding of the meaning of the questions and the value the questions had to the study outcomes. Such training continued for analysis with the research team including refugees, undergraduate students, graduate, and medical students, as well as staff and faculty participating in the formatting of interview transcripts, coding, and writing analytical memos.

The diversity of team members, roles, and positionalities helped focus attention on varied data sources and research questions, further improving the overall value of the data among a wider group and improving training and research processes. For example, key sections of survey and

interview protocols were reviewed and discussed by undergraduate, masters, doctoral, and medical students, and students participated in training with interviewers. In these trainings, we further explained the purpose of specific research questions, hypotheses, and specific interview questions—which helped to highlight the importance of rigorous data collection, cleaning, and analysis. This work also introduced the purpose of mixed-methods data collection and relationships between quantitative and qualitative research data. Another focus of training for interviewers and interpreters was to explain social network theory and share preliminary findings as well as potential concerns with the data, to support the ongoing importance of careful and thorough data collection.

Ultimately, multiple ways of studying social networks in this context introduced different lenses and relationships to theory. Each frame required unique qualitative questions and led to different research papers. However, the findings overall paint a broad picture to document and contextualize the relationship between social networks and well-being during refugee resettlement experiences after migration. Furthermore, the quality of the data—for the entire study and each manuscript—was bolstered through processes that (1) included community members as collaborative researchers, (2) valued transdisciplinary theoretical and methodological perspectives, and (3) facilitated team-based practices that share leadership, learning experiences, and responsibility for data analysis, interpretation, and dissemination. The relationship between conceptualization and outcomes within and across findings is presented in Table 1.

Discussion

This paper highlights multiple perspectives in conceptualizing, implementing, and refining social networks measurement in community-engaged research (Knapp and Hall 2018). Accordingly, we highlight the use of mixed-methods social network data collection through both quantitative survey questions and qualitative interview questions. Through this work, we note key decisions regarding selecting and refining questions, collecting and analyzing data, and interpreting results. To this end, we note how the social networks theory can benefit from community-engaged research studies and vice versa. Social networks research questions and the interpretation of results can engage with existing theory as well as expand on it. This paper also demonstrates how research on the quantity and quality of social ties among newly resettled refugees can be studied and used to understand the impacts of community-level interventions.

Including diverse perspectives and empowering student and refugee leaders bolstered the quality of data collection and utilization. This is evident in several of the papers published making use of the ego network data, other social support measures, and qualitative interview questions (Miller et al. 2018; Soller et al. 2018; Shah et al. 2019; Hess et al. 2019; Goodkind et al. 2021). For example, research using baseline social network data from all cohorts revealed that local social networks of refuges were small but that refugees reporting more local adult kinship ties tended to have lower levels of psychological distress (Greene 2019).

In addition, this work supported additional mixed-methods research. Miller and colleagues (2018) found that family separation was one of the strongest determinants of emotional distress, PTSD symptoms, and poor psychological quality of life—first from qualitative analyses, then substantiated in quantitative analyses. Related research has also used qualitative findings on economic stressors after migration to inform and test quantitative hypotheses related to stress proliferation (Goodkind et al. 2021).

Findings also show how the benefits of familiarity within one's space and the likelihood of encountering people who refugees know can contribute to mental health during resettlement. Expanding upon research on youth, health, and delinquency (Browning et al. 2015), this theoretical framework drew from ecological network research that links community members and their ties to locations that are frequented (such as churches, grocery stores, childcare centers,

Table 1. Innovations in Social Network Conceptualization, Theory, and Measurement.

Research activity	Example instrument wording	Key outcomes	Key insights
Modify existing quantitative instruments	"Are there people/families (not including members of your household or people under 18) in [CITY NAME] who you regularly share meals/drink tea/or visit with? (By regular, we mean at least once per week.)"	Greater numbers of kinship ties are related to greater psychological quality of life.	**Expanding conceptualization** Community-engaged research improves the accuracy of conceptualization and contributes to minimizing instrument bias and recall bias. **Extending theory** Transdisciplinary application of theory and methods can contribute to theoretical innovation. **Improving measurement** Shared participation in data analysis, interpretation, and dissemination improves data quality and interviewer capacity. Mixed methods enable triangulation of findings, with qualitative data adding meaningful context and guiding interpretations of quantitative results.
Develop unique qualitative interview questions	"One of the challenging things, when people come to a new place, is building up a social support network (people you can turn to for different things: advice, a ride, childcare, money, or someone to talk to or spend time with). How has this been for you? Can you give us an example from the last week or so of someone you turned to with these kinds of things?"	Family separation and social isolation are some of the strongest determinants of mental health among refugees. Cultural brokers with familiarity with both home and new countries and communities are important assets for feelings of support and overall well-being.	
Incorporate innovative theory and methods (ecological networks)	"I also have some questions about places you go to shop for food in [CITY NAME]. Here is a list of places some people go, but you can tell me about other places as well."	Greater overlapping activity spaces are related to increased community attachment among refugees during resettlement.	

and work) and other social outcomes. These data informed research on shared and overlapping activity spaces (and the frequencies of their use), which we found to be related to greater feelings of community attachment among refugees (Soller et al. 2018). In total, this research has reinforced the importance of maintaining and developing new social ties and the placement of refugee families within communities upon resettlement. Furthermore, this research portfolio builds additional evidence linking social determinants to refugees' mental health by demonstrating how social relationships throughout the refugee experience matter in terms of resettlement and well-being. In addition to the specific social network questions and techniques we used to gather the data, our findings may also be helpful for refugee resettlement agencies and the growing number of community-based organizations (CBOs) working toward integrating and promoting the well-being of newcomers. For example, resettlement and CBO staff could incorporate the four name generator questions (including the new one our study team added) into a brief screening for social isolation to assess and ensure that recently arrived refugees are developing adequate social support in their resettlement contexts. In addition, they could use the community-engaged processes we used for asking refugees from different regions what the most important aspects of social support and connection are for them to guide program development.

Our team also identified numerous central locations within ecological networks (e.g., grocery stores, places of worship) that were important for connecting our respondents to fellow community members. Recently, we demonstrated the feasibility and utility of the ecological network approach in research on refugee well-being and resettlement (Soller et al. 2018). On the applied side, our study highlights the potential benefit of inquiring about central public settings that function as social hubs among community members. Practitioners can in turn pass along information regarding such locations to isolated members of the community seeking to make connections to others within their communities.

Our research also addresses key concerns about collecting social network data (e.g., instrument bias, recall bias, and interviewer capacity) and how to assess and minimize them. Community-engaged methods can help reduce problems with instrument selection and recall

bias, particularly when interviewers are from the communities in which research is taking place. Similar beneficial outcomes occur from sharing leadership responsibility for interview training, data analysis, and dissemination.

To be sure, challenges remain, and adaptations to specific contexts will be needed. Different tools and instruments may make sense for other studies such as those connecting people to specific resources or types of ties. For example, in certain cases, position or resource generators might better serve research goals of measuring social capital than a name generator. In addition, collecting complete networks, which would assess bidirectional relationships between alters and ties (e.g., reciprocity of ties), would allow for a greater range of social network analyses related to network position (e.g., betweenness and centrality; Borgatti and Everett 1992). Such analyses are more commonly found in studies using data from Add Health. However, given the demonstrated capacity to estimate global network properties with egocentric data (Smith and Gauthier 2020), future research that uses name generators to gather ego network data may be able to estimate a wider array of network variables that can be used to further understand and aid refugee resettlement. Implementing the array of methods, analyses, and graphical representations from Add Health and associated studies may provide valuable insight into refugees and social networks for future studies.

Furthermore, studies frequently suggest that social network formation leads to valuable supports and resources (Bankston 2014; Hynie et al. 2013; Lamba and Krahn 2003); however, research has also shown that refugees may practice strategic anonymity and limit new social ties to protect themselves from possible future persecution (Arar 2016) and that refugees often report social isolation (Sundvall et al. 2021). Such studies suggest the value of a perspective on the quality of social networks as opposed to one focused solely on quantity.

Although resource- and time-intensive, mixed-methods research provides the possibility of triangulation and can broaden perspectives on the dynamic social networks of refugees. Future research might entail more longitudinal mixed-methods studies that explore how refugees' social networks change over time and what contributes to more positive changes or expansion of networks. Future research could similarly use social network items in community-based studies with other populations who are engaged in forming new relationships, such as those in recovery or those newly housed after having faced housing instability.

Ultimately, this paper shows how theory and data connect to research in a community setting and how the processes of social network conceptualization and measurement can unfold with the community and use different theoretical and methodological perspectives to produce more reliable and valid data among understudied and diverse populations. The conceptualization and operationalization processes have been highlighted in other research and evaluation contexts (Baggetta and Alexander 2016; Daigneault and Jacob 2009; Prah Ruger 2010; Saunders et al. 2018) but not within social networks research in a community-engaged research study. Although there are enduring challenges to collecting social network data, community engagement and inclusion can improve the quality of questions and instruments—as well as the processes of data collection and interpretation and dissemination of findings. Social networks are paramount to explicating the social determinants of health and can be a powerful way of studying social interventions aimed at improving health and well-being in a world where it matters not only how many people one knows but also who and how one knows them.

Declaration of Conflicting Interests

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