

Ecological Networks and Community Attachment and Support Among Recently Resettled Refugees

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Highlights

- Advances the ecological network approach, which focuses on spatial patterns of routine activities.
- Examines how ecological processes contribute to sense of community attachment and support.
- Identifies avenues for enhancing community attachment and social capital among resettling refugees.
- Reveals impact of activity locations beyond residential neighborhood on shaping community sentiment.

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Abstract Interventions aimed at enhancing mental health are increasingly centered around promoting community attachment and support. However, few have examined and tested the specific ecological factors that give rise to these key community processes. Drawing from insights from the ecological network perspective, we tested whether spatial and social overlap in routine activity settings (e.g., work, school, childcare) with fellow ethnic community members is associated with individuals' attachment to their ethnic communities and access to social resources embedded in their communities. Data on routine activity locations drawn from the Refugee Well-Being Project (based in a city in the Southwestern United States) were used to reconstruct the ecological networks of recently resettled refugee communities, which were two-mode networks that comprise individuals and their routine activity locations. Results indicated that respondents' community attachment and support increased with their ecological network extensity—which taps the extent to which respondents share routine activity locations with other community members. Our study highlights a key ecological process that potentially enhances individuals' ethnic community attachment that extends beyond residential neighborhoods.

Keywords Community attachment · Ecological networks · Mental health · Refugee · Sense of community

Attachment to, and perceived support from fellow community members is important to mental health and general quality of life (Mak, Cheung, & Law, 2009). This study focuses on the role ecological processes play in promoting community attachment and access to social resources among recently resettled refugees in a mid-sized city in the southwestern United States. Drawing from insights from the ecological network perspective (Browning & Soller, 2014), we argue that visiting social locations that are also frequented by fellow community members throughout the course of one's routine activities enhances the potential for repeated encounters with fellow ethnic community members. These encounters in turn promote attachment toward members of one's ethnic community and enhance access to social resources that are embedded in informal community networks (e.g., social support). Data on individuals' routine activity settings from an ongoing community-based intervention aimed at promoting refugee integration and mental health were used to reconstruct community *ecological networks*, which comprise community members and their ties to specific locations that individuals frequent as part of their routine activities (e.g., church, grocery stores, childcare centers, work; Browning & Soller, 2014). We then tested the association between individual positions within ecological networks and community attachment and support. Our results indicate that individuals who share activity locations with other community members report higher levels of community attachment and support, thus highlighting a key ecological precursor to the sense of community among our

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respondents. As such, overlapping activity spaces can be viewed as important to community development and attachment.

Background

Refugees and Refugee Well-being

The number of forcibly displaced people in the world is at an unprecedented high, numbering over 65 million at the end of 2015, with approximately 1 of every 113 people in the world having to flee their home because of war, conflict, or fear of persecution (UNHCR, 2016). Only about one-third (21.3 million) are classified as refugees; most (40.8 million) are considered to be internally displaced persons, forced to leave their homes but remaining within the borders of their country of origin. Refugee status is a political category defined and designated by the United Nations High Commission for Refugees as applying to those persons who are forced to flee their home country because of a well-founded fear of persecution, war or violence, and who are unable to return (UNHCR, 1951). Because of the rapidly growing number of refugees in recent years, there is an increasing urgency and considerable debate regarding durable solutions for the millions of people who are forcibly displaced. Currently, fewer than 1% of the refugees in the world are resettled in a third country, such as the United States or Canada.

Regardless of whether they are living in refugee camps or resettled in third countries, refugees have higher rates of mental health problems, including PTSD and depression symptoms, when compared with general populations (Fazel, Wheeler, & Danesh, 2005; Heeren et al., 2012; Mills et al., 2005; Pham, Vinck, & Stover, 2009; Porter & Haslam, 2005; Robjant, Hassan, & Katona, 2009). Refugees are at high risk for PTSD, depression and other mental illness because of their exposure to trauma during pre-migration (e.g., sustained warfare, death of family/friends), migration (e.g., fleeing under life-threatening conditions, separation from family/friends), and encampment (e.g., prolonged stays in unsafe, overcrowded camps), and because of the extensive stress associated with beginning new lives in exile (Steel et al., 2009). However, rates of psychological distress among refugees are actually lower than what might be predicted given their typically high levels of exposure to trauma and the stressors they experience during migration and resettlement.

Initially, most research and intervention with refugees focused on the role of pre-migration experiences (trauma exposure) in refugee mental health. However, a growing body of research over the past 20 years has demonstrated the profound impact of post-migration, daily

stressors on refugee well-being (Miller & Rasmussen, 2010, 2014; Tempany, 2009). In fact, post-migration stressors such as discrimination, lack of economic opportunity, lack of access to resources, and social isolation often more strongly predict refugees' emotional distress than exposure to trauma before or during flight (Pernice & Brook, 1996; Porter & Haslam, 2005; Rasmussen et al., 2010). Furthermore, research has demonstrated that trauma exposure does not result in similar mental health problems in all people, but instead, that its impacts are variable, depending upon individual, family, community, and structural factors, including the conditions that refugees experience after the trauma has occurred (Carswell, Blackburn, & Barker, 2011; Gorst-Unsworth & Goldenberg, 1998).

Social Networks and Resettlement Processes

Among the many post-migration factors that impact refugee mental health, social networks, and social support have been found to be powerful predictors of (Carlsson, Mortensen, & Kastrup, 2009; Hauff & Vaglum, 1995) or strongly related to (Carlsson, Olsen, Mortensen, & Kastrup, 2006; Ghazinour, Richter, & Eisemann, 2004; Khawaja, White, Schweitzer, & Greenslade, 2008; Miller, Worthington, Muzurovic, Tipping, & Goldman, 2002) mental health. This is not surprising given that refugees often lose their entire social networks and must leave most family and friends behind when they flee. Gorst-Unsworth and Goldenberg (1998) found that the relationship between poor social support and depression symptoms was stronger than that between trauma exposure and depression symptoms. In addition, receiving social support from others who have had similar experiences (Behnia, 2004; Schweitzer, Melville, Steel, & Lacherez, 2006; Simich, Beiser, & Mawani, 2003) has been found to be helpful for improving refugees' mental health post-resettlement.

An ecological perspective focuses on the multiple levels of context, including interpersonal/microsystem (e.g., family, school, work settings), exosystem (e.g., other formal and informal social structures), and macrosystem (e.g., political, legal, economic, and other social systems) that impact an individual's health and development, with emphasis on improving the fit between individuals and their environments. When considering refugee well-being, ecological theory suggests that it is essential to attend to refugees' attachment to their communities and the social support they receive from multiple settings in which they are embedded. Because refugees often face unique challenges (e.g., language barriers and difficulty navigating their new environments) to integrating and developing community attachment after resettlement, refugee

participation in the broader community may be most effectively facilitated through the creation of settings which enable refugees to develop the abilities, skills, and understanding of the system that are necessary to empower them. This is frequently achieved by initially focusing on opportunities for refugees to participate in or build connections with members of their own ethnic communities (Goodkind & Foster-Fishman, 2002). There is some evidence to suggest that this within-group community building is a precondition for meaningful participation of marginalized individuals in their larger community, particularly when linguistic and cultural barriers are large (Goodkind, 2006; Jong, 1989). In this study we consider the ecological precursors to community attachment and support among recently resettled refugees. We pay attention to patterns of spatial overlap among community members to understand the emergence of individual attachment to fellow community members.

Time, Institutions, and Community Attachment and Support

Social scientists have long been concerned with the emergence of community social organization and attachment. For instance, Kasarda and Janowitz's (1974) systemic model (see also Sampson, 1988) illustrates how residential stability promotes relationships among neighbors that benefit neighborhood social organization and enhance community attachment. Kasarda and Janowitz (1974) state: "since assimilation of newcomers into the social fabric of communities is necessarily a temporal process, residential mobility operates as a barrier of extensive friendship and kinship bonds and widespread local associational ties" (p. 330). At aggregate levels, overall levels of stability are crucial for shaping individual attachment, for as Sampson (1988) notes "an individual in a highly mobile area faces quite different constraints than residents in stable areas...for one thing, an individual in all likelihood has few opportunities to form friendships and to participate in local affairs in areas of high residential turnover" (p. 768). As the systemic model suggests, time engenders repeated interactions and exposures within shared interactional contexts, which provide a key building block for individual and shared community sentiments.

Focusing specifically on ethnic communities, Breton's (1964) structural model argues that *institutional completeness*—the capacity of ethnic organizations (e.g., businesses, religious, and civic organizations) to serve members' economic and social welfare needs—is a key factor for enhancing attachment and positive sentiments toward fellow community members (Hein, 2014). The structural model predicts that members of ethnic

communities characterized by high levels of institutional completeness maintain higher proportions of in-group ties and have greater subjective attachment to co-ethnics than members of ethnic groups with less institutional completeness (Breton, 1964). Institutional completeness enhances community attachment and sentiment by fostering repeated encounters among co-ethnic community members. One key implication of this model is that strong institutional bases enhance community attachment in part through repeated exposures to fellow community members when engaging in routine conventional activities (e.g., work, church, shopping).

While the systemic and structural models of community organization elaborate on the factors that enhance attachment to community members, the extent to which these theories of community attachment hold true for resettling refugees is uncertain. For one, the disruption and dislocation associated with refugee resettlement experiences means that many members of refugee communities lack the period of residence that is necessary to establish ties, identify sources of support, and build a sense of attachment to fellow community members within their receiving locations. Thus, most recently resettled refugees will not have experienced the key exogenous factor that enhances community support and attachment. Second, solidarity ties for most urbanites extend beyond local bounded solidarities such as neighborhoods (Wellman, 1979). While urban ethnic enclaves can encompass large proportions of members' kin, primary ties, and sources of support (Gans, 1962), communities comprised of more recent migrants and members of weakly rooted ethnic communities are often (at least initially) dispersed throughout urban areas. As communities that are comprised primarily of recent migrants or refugees often extend beyond the geographic confines of neighborhoods, the distribution (i.e., physical locations) of sources of community solidarity for resettling refugees likely extend beyond the local confines of residential neighborhoods.

Regarding institutional completeness, refugees are often members of newly arriving and unestablished groups, and thus have not had opportunities to establish ethnic institutions (e.g., churches, businesses) that function as shared interactional contexts for community members. Thus, institutions—at least those headed by co-ethnics—likely either do not exist or lack the completeness necessary to promote strong senses of community attachment. Nevertheless, institutions that are run by non-community members but frequented by fellow community members may provide the basis for community attachment and social support (see also Small, 2009).

In sum, repeated encounters with fellow community members provide an important basis for individual senses

of community attachment and support. However, because refugee communities often lack well-defined spatial boundaries, the settings that give rise to potential encounters with other community members are often dispersed across urban locales. Nevertheless, we consider how patterns of shared interaction spaces among resettling refugees may promote senses of community and perceived support from fellow community members. Below we draw from the ecological network approach (Browning, Calder, Soller, Jackson, & Dirlam, 2017; Browning & Soller, 2014) to elaborate on the potential network and spatial underpinnings of community attachment and support among recently resettled refugees.

Ecological Networks and Community Support

While the systemic model highlights key structural factors that enhance community attachment and sentiment, scholars have neglected more mundane, commonplace, and alternative processes that enhance community attachment (Browning, Calder, Soller et al., 2017). However, scholars are increasingly exploring the ecological underpinnings of community attachment and social organization. Drawing from Jane Jacobs' *The Death and Life of Great American Cities* (1961), Browning, Calder, Soller et al. (2017) argue that frequent, repeated intersections among community residents in public space enhance opportunities for public contact and give rise to the ecological conditions for familiarity and trust among community members. Repeated contact among residents that occurs through routine activities promotes social climates through building a web of public trust and enhances a shared identity built around the collectivity. At the individual-level, community members' attachments are thought to increase with the frequency with which they encounter other residents when engaging in conventional routine activities. These repeated encounters may enhance baseline familiarity with other community members and enhance opportunities to promote individual level attachment and support from fellow community members.

Browning and Soller (2014), Browning, Soller, and Jackson (2015), Browning, Calder, Soller et al. (2017) recently introduced the concept of *ecological networks*, which comprise links between people and the shared activity spaces that community members occupy throughout their ongoing, routine activities (e.g., shopping, childcare, work, school). Empirically, ecological networks represent two-mode, or "affiliation" networks (Robins & Alexander, 2004) in which individuals are indirectly tied to one another through a set of shared conventional routine activity locations. In this study, we specify community-level ecological networks comprising

members of ethnic communities¹ (e.g., Iraqi, Afghan, and Great Lakes Region African) who are linked to specific routine activity locations (e.g., specific grocery stores, childcare locations). Importantly, individuals' proximity to other members of the ecological networks—which can be quantified by measuring tendencies to overlap in shared activity locations—is a key precursor to social contact with other members. We hypothesize that community attachment and support will increase with levels of spatial overlap with other community members within the larger ecological network.

Specific patterns of interaction within ecological networks give rise to key community processes, including perceptions of collective efficacy, intergenerational closure (i.e., familiarity and social cohesion among adults and children), and network-based interaction and exchanges within neighborhoods (Browning, Calder, Soller et al., 2017). Importantly, as networks are by nature relational constructs, individual positions within ecological networks must be understood in reference to the routine activity locations of other community members. For instance, community members may actively maintain schedules of repeated routine activities, but those activities will not provide the potential for public contact within the community if other members do not engage in activities within each other's chosen settings. Conversely, ecological networks characterized by high degrees of spatial and contextual overlap among community members provide more potential opportunities for individuals to encounter one another when engaging in their routine activities.

At the individual-level, *extensity*—the level in which an individual's set of routine activity locations overlap with other residents' locations—has the potential to yield repeated public contact with other community members. For example, community members may frequent the same shopping centers, grocery stores, and public parks with other community members. Frequenting the same locations as fellow community members provides the potential for repeated contact with other members may in turn enhance informal exchanges, promote subjective attachments to other community members, and may promote supportive relations with community members.

Thus, non-home routine activities that may extend beyond local neighborhoods are likely especially important for connecting communities comprised of refugees who do not reside in single ethnic "enclaves" but are

¹ In the mid-sized urban area in which the current study is located, refugees comprise most members of the particular ethnic communities; in other words, there were not substantial Iraqi, Syrian, Afghan, Burundian, Congolese, or Rwandan communities prior to recent refugee resettlement. Thus, in this case, there is not a meaningful distinction between refugee co-ethnic community and co-ethnic community.

instead typically (at least upon initial arrival) dispersed throughout urban locales. In this study, we focus on the potential for individuals' positions within community ecological networks to shape subjective attachments to others within their ethnic communities. In particular, we hypothesize that extensity—measured by the extent to which individuals' routine activities overlap with network members' activities—is positively associated with perceived support from and attachment to community members.

Methods

Data and Sample

Data came from an ongoing larger mixed methods study funded by the National Institute on Minority Health and Health Disparities (NIMHD R01MD007712) that tested an intervention to improve refugee mental health and well-being. The intervention aims to (a) increase refugees' ability to navigate their new communities; (b) improve refugees' access to community resources; (c) enhance meaningful social roles among refugees; (d) reduce isolation; and (e) increase community responsiveness to refugees.

Our goal was to enroll all refugees currently residing in the city where the research was conducted who had resettled in the United States in the past 3 years from Afghanistan, Iraqi, Syria, and the Great Lakes Region of Africa (Burundi, Democratic Republic of Congo, and Rwanda) in the study. Through our research team members from the refugee communities and partnerships with community organizations, we were able to include 86% of the local refugee adult population from these countries. Quantitative interviews occurred at four time points over 14 months and were conducted using computer assisted personal interviewing. Interviews took place in participants' homes. The quantitative portion of each interview was conducted by a bilingual, bicultural interviewer who spoke the participant's native language. The qualitative component of each interview was conducted by a bilingual, bicultural interpreter and a native English speaker. Informed consent was obtained in participants' native language by a bilingual, bicultural interviewer, and participants received a copy of the consent form in their native language. Whenever possible (and almost all of the time), project staff and interviewees were matched by gender: men were interviewed by men and women by women. Participants received gift cards in compensation for their time to complete the interviews (\$20 for pre-interview, \$30 for mid-interview, \$40 for post-interview, \$50 for follow-up interview).

The study was implemented with four cohorts (2013–2017). For each year of the study, all refugees in a mid-sized city in the southwestern United States from Iraq, Afghanistan, and the Great Lakes Region of Africa who had been resettled in the United States within the last 3 years were invited to join the study. Participants were then randomized by family groups into control and intervention conditions. The control group was invited to attend a one-time stress management session, and the intervention group was invited to participate in the 6-month intervention in which participants were paired with undergraduate students who were trained in a mutual learning and advocacy model with the aim of increasing access to resources and social support. The sample for the present study involves the pre-interview data from the 178 respondents from the first three cohorts, including 81 Iraqis, 56 Afghans, and 41 individuals from the Great Lakes Region of Africa. Forty-seven percent (46.6%) of the sample is male.

Dependent Variables

Community Support and Attachment

Ethnic community support and attachment were measured with the Multi-Sector Social Support Inventory Scale (MSSSI; Layne et al., 2009). The MSSSI assesses perceived support from one's family, ethnic community, and non-members of respondents' ethnic community throughout the past month. Respondents' ethnic community support includes nine items capturing subjective attachment (e.g., I feel like I "fit in" and belong with the members of the African/Iraqi/Afghan community in the past month) and perceived support from other community members (e.g., I can count on members of the African/Iraqi/Afghan community if I need help in the last month). Ordinal responses ranged from 0 = *never* to 4 = *almost always* ($\alpha = .905$). Higher scores indicate greater perceived social support. The MSSSI has been found to have "acceptable to good" test–retest reliability, and convergent validity (Layne et al., 2009).

We test the association between eco-network extensity and two dimensions of community sentiment subscales that were measured with items from the *community support and attachment* scale. *Subjective attachment* is based on four items from the community attachment scale and includes items such as "I feel like I 'fit in' and belong with the members of the African/Iraqi/Afghan community" and "I feel like the African/Iraqi/Afghan community appreciates my abilities and helps me to believe in myself" ($\alpha = .844$). *Community support* is based on five items that tap the perceived availability of support and resources from fellow community

members and includes items such as “There is a member of the African/Iraqi/Afghan community who I can turn to for good advice” and “There is at least one person in the African/Iraqi/Afghan community who can help me in practical ways, like providing rides, helping with translation, or helping me repair something that is broken” ($\alpha = .858$).

Ecological Network Variables

Extensivity

As part of the interview, respondents indicated whether they visited a number of closed-ended locations (e.g., specific local grocery stores, restaurants, places of worship) during the past 30 days. These specific locations were chosen by research staff (which included members of the ethnic communities) because they were known to be frequented by community members. Additionally, respondents provided the names and locations (via closest cross streets) of other locations that they frequently visited over the last 30 days. Research team members coded the open-ended responses to denote single locations to enable us to capture participation in overlapping activity locations for the open-ended responses (e.g., the “Walmart on 5th and Main ST” was coded as the same location as “Wallmart on Main and Fifth”). We used the open- and closed-ended responses to reconstruct ecological networks for the three main ethnic groups in our study: Afghan, Iraqi, and Great Lakes Region of Africa. For each ethnic group, we constructed distinct ecological networks, with ties linking community members to their routine activity locations.

To measure ecological network extensivity, we first projected the two-mode networks into a one mode matrix/network. The elements of the symmetric projected matrix indicate the number of shared locations between respondents i and j . For instance, a value of 7 indicated that respondent i and j shared 7 distinct locations, a value of 0 indicated they shared 0 locations. To measure extensivity, we took the sum of the non-diagonal values for each row and divided that value by the number of other fellow community members included in our study. The resulting values indicate the average number of locations respondents shared with other members of their communities. Importantly, our measure of extensivity does not measure one’s actual co-presence or *temporal* overlap with other community members across locations, but rather taps the underlying potential for interaction with other community members when conducting one’s routine activities. While extensivity does not necessarily lead to temporal overlap with other community members (e.g., if schedules do not permit, etc.), spatial overlap is

necessary for public contact with other community members to occur.

Additional Network Variables

We also control for the *number of reported activity locations*, which is a count variable indicating how many locations respondents reported attending, and *no reported locations*, which is binary and indicates that the respondent did not report frequenting locations during the interview.

Control Variables

Emotional Health

We measured *internalizing symptoms* with a subset of 24 items from the Hopkins Symptoms Checklist (HSCL-25). Items tap how much respondents felt anxiety (e.g., felt fearful), somatic symptoms (e.g., headaches, heart pounding, or racing), and depression symptoms (e.g., felt blue, hopeless about the future) over the past week. Ordinal responses ranged from *not at all* to *extremely* ($\alpha = .787$). This measure has been used with diverse populations, including refugees in previous studies (Mollica et al., 2001). Kaaya et al. (2002) have reported that the instrument has good internal consistency and Bech, Bille, Moller, Hellstrom, and Ostergaard (2014) have reported that its subscales are psychometrically valid.

Acculturation

Acculturation was measured using a modified version of the Language, Identity, and Behavior (LIB) Acculturation Scale (Birman, Trickett, & Vinokurov, 2002). The scale included eight items that tap multiple dimensions of acculturation (e.g., “How much do you eat American food? How much do you know about American culture?”). Responses were ordinal and ranged from 0 = *not at all* to 3 = *very much* ($\alpha = .964$).

Family Support and Attachment

Family support was measured with a subset of items from the MSSSI. Respondents’ family support includes nine items that parallel items used to measure ethnic community support and attachment (e.g., I feel like my family appreciates my abilities and helps me to believe in myself and I feel emotionally connected to the members of my family – we care about each other). Responses were ordinal and ranged from 0 = *never* to 4 = *almost always* ($\alpha = .832$). Higher scores indicate greater perceived family support.

Support and Attachment from Non-Ethnic Community Members

We also included a measure of support from individuals who are not members from their ethnic communities. Respondents' support from non-ethnic community members includes nine items that parallel items (measured with the MSSSI) used to measure ethnic community and family support (e.g., I feel like at least one non-African/Iraqi/Afghan from the community appreciates my abilities and helps me to believe in myself, I feel emotionally connected to at least one person from the non-African/Iraqi/Afghan community). Responses were ordinal and ranged from 0 = *never* to 4 = *almost always* ($\alpha = .888$). Higher scores indicate greater support from non-ethnic community members.

We include measures that may confound the association between extensity and respondents' community attachment. First, respondents who have had more time in the receiving city have had more time to acclimate themselves to the city and establish relations within their local ethnic community. Therefore, we include a measure *time in receiving city*, which is the number of weeks the respondent has lived in the city where our study is located. Additionally, individuals with transportation difficulties may have difficulties in reaching locations frequented by fellow community members. We therefore included a measure indicating *transportation difficulties*, which indicates the extent to which the respondent had difficulties with transportation. Responses were ordinal ranging from 1 "not difficult at all" to 4 "very difficult." We also include a binary variable indicating whether the respondent has regular *access to an automobile* (0 = no, 1 = yes). Additionally, respondents with low English proficiency may have trouble navigating the city and feel more socially isolated. Therefore, we include a measure of *English proficiency*, which is based on the responses to the question "How well can you speak English?" Responses were ordinal and ranged from 0 *Not at all* to 3 *Like a Native (an American)*.

Demographic Characteristics

Finally, we control for numerous demographic characteristics, including *age* (in years) and *male gender* (female = 0, male = 1). We control for *education* by including dummy variables for *high school graduate*, *some college*, and *college graduate or higher* (less than high school is the reference category), *employment status* (0 = unemployed, 1 = employed), and a count variable indicating the *number of children in the home*. We include measures of *ethnicity* with two binary variables indicating Afghan and African ethnicity (0 = no, 1 = yes, Iraqi is reference). We also

include a binary variable indicating that the respondent was randomly assigned to the *intervention group* (0 = no, 1 = yes). Finally, we include a measure of *residential distance*, which captures the average distance (in kilometers) between a respondent's residence and the residences of other ethnic community members.

Modeling Strategy

We use linear regression to test the association between eco-network extensity and our measures of support and community attachment. We imputed missing values on the variables using Imputation through Chained Equations. This procedure uses regression techniques to produce multiple datasets for which missing values are imputed (with some degree of randomness) with plausible values, based on the values of other variables in the analysis (Royston, 2004). Through this procedure, we constructed 10 imputed datasets and then estimated models based on the imputed data using the MI regress command suite in Stata13. These results were nearly identical to those that were based on non-imputed data. Statistical significance was assessed using two-tailed tests.

Results

Descriptive statistics for our sample are presented in Table 1. Descriptive statistics are displayed for the entire sample and broken down by ethnicity. Overall, there are only minor and non-significant differences in the mean values of our key variables across ethnic groups with one exception. The mean level of eco-network extensity is lower for Iraqis compared to Afghans and Africans.

Linear regressions of the community variables are presented in Table 2. Model 1 is a regression of the community support subscale. We found that family support and support from non-ethnic community members were both positively and significantly associated with the community support subscale. Importantly, the measure of extensity was positively and significantly associated with community support ($b = 0.358$, $p < .05$). The magnitude of the association is such that a one standard deviation increase in extensity results in a roughly 0.24 standard deviation increase in community support. None of the control variables were significantly associated with the outcome.

Model 2 (Table 2) presents the regression of community attachment. As with the model of community support, family support and support from non-ethnic community members were significantly and positively associated with the subjective attachment measure. Men reported higher levels of subjective attachment, while acculturation was

Table 1 Descriptive statistics

	Total sample (<i>N</i> = 178) Mean (<i>SD</i>)	Iraqis (<i>N</i> = 81) Mean (<i>SD</i>)	Afghans (<i>N</i> = 56) Mean (<i>SD</i>)	Africans (<i>N</i> = 41) Mean (<i>SD</i>)
Dependent variables				
Community support	1.45 (1.05)	1.56 (0.99)	1.36 (1.19)	1.38 (0.94)
Community attachment	1.95 (1.07)	1.82 (1.11)	2.11 (1.07)	2.00
Control variables				
Male	0.47	0.49	0.46	0.41
Age	35.88 (12.07)	38.05 (11.79)	32.63 (10.32)	36.05 (13.98)
Ethnicity				
Iraqi	0.46			
Afghan	0.31			
Great Lakes Region African	0.23			
Education	3.25 (2.22)	3.96 (2.32)	3.12 (2.09)	2.04 (1.59)
Intervention group	0.48	0.53	0.45	0.44
Acculturation	1.43 (0.62)	1.36 (0.60)	1.30 (0.68)	1.75 (0.49)
Internalizing symptoms	1.64 (0.63)	1.87 (0.70)	1.48 (0.49)	1.42 (0.49)
Number of children	2.37 (2.10)	2.22 (1.60)	2.05 (2.07)	3.13 (2.79)
Employed	0.28	0.25	0.23	0.41
English proficiency	1.12 (0.67)	1.18 (0.63)	1.00 (0.79)	1.16 (0.50)
Has access to automobile	0.38	0.57	0.27	0.17
Transportation difficulty	2.76 (1.23)	2.27 (1.27)	3.45 (0.93)	2.80 (1.05)
Time in receiving city	29.52 (28.04)	36.95 (31.37)	20.03 (25.34)	27.81 (19.68)
Non-ethnic community support	1.04 (0.87)	1.08 (0.83)	0.73 (0.76)	1.38 (0.97)
Family support	2.92 (0.84)	2.95 (0.81)	3.05 (0.84)	2.70 (0.88)
Ecological network variables				
No reported activities	0.06	0.05	0.11	0.02
Number of activities	5.52 (3.04)	5.67 (3.13)	5.34 (3.33)	5.49 (2.44)
Extensity	1.32 (0.71)	1.06 (0.59)	1.29 (0.72)	1.87 (0.62)

Table 2 Regression model coefficients for community support and attachment

	Model 1 Community support	Model 2 Community attachment
Male	.18 (.17)	.34* (.17)
Age	.00 (.01)	.00 (.01)
Afghan	-.13 (.24)	.28 (.24)
African	-.45 (.31)	.12 (.31)
Education	.02 (.05)	.05 (.05)
Less Than High School	.05 (.25)	.11 (.24)
High school graduate	-.17 (.25)	.02 (.24)
Intervention group	-.05 (.16)	-.10 (.16)
Acculturation	-.09 (.14)	-.35* (.15)
Internalizing symptoms	.08 (.14)	-.12 (.14)
Has child	.04 (.05)	.04 (.06)
Employed	.09 (.19)	-.07 (.19)
English proficiency	-.17 (.16)	-.16 (.16)
Has access to automobile	-.07 (.21)	-.20 (.20)
Transportation difficulty	-.04 (.08)	-.03 (.08)
Time in receiving city	.00 (.00)	.00 (.00)
Non-ethnic community support	.29** (.10)	.25* (.10)
Family support	.37** (.10)	.50** (.11)
Residential distance	.01 (.05)	.05 (.05)
No reported activities	.63 (.49)	.48 (.47)
Number of activities	.03 (.04)	.02 (.04)
Extensity	.36* (.18)	.31† (.18)
Intercept	-.26 (.71)	.41 (.71)

†*p* < .10, **p* < .05, ***p* < .01 (two-tailed tests)

negatively associated with subjective community attachment. Regarding the focal independent variable, ecological network extensity had a positive and marginally significant association with community attachment (*b* = 0.312, *p* < .10). A one standard deviation increase in ecological extensity was associated with a roughly 0.21 standard deviation increase in attachment.

Discussion

Community attachment and support are associated with numerous key outcomes, including mental and physical health. Community scholars have long pointed to key processes that enhance attachment to fellow community members and access to social resources. However, few have considered how everyday practices and routine activities enhance community attachment and support. Instead, factors such as time in one’s community (i.e., length of residence) have dominated the theorizing and research on individuals’ support from and attachment to fellow community members. Others have focused on how institutional completeness can promote community attachment and sentiment, but few have considered how people navigate institutions and how networked patterns of interactions shape community-related outcomes.

This study considered how patterns of routine activities among recently resettled refugees from three ethnic communities in a mid-sized city in the southwestern United States shaped their sense of community attachment and access to community resources. Drawing from insights from the ecological network perspective—which emphasizes neighborhood residents’ intersections within shared interactional spaces as a key precursor to neighborhood social organization—we argued that frequenting interactional spaces that other ethnic community members occupy enhances the potential for repeated encounters with fellow co-ethnics. Thus, we hypothesized that members of ethnic communities who share interactional settings with other members when engaging in their routine activities are more strongly attached to other members and have enhanced access to resources that are embedded within their communities. Data drawn from an intervention study aimed at advancing well-being and resettlement among members of three ethnic groups supported our key hypothesis. Specifically, we found that ecological network extensity—which captures the degree to which individuals share activity settings with other community members—was positively associated with both subjective community attachment and access to social support from other community members.

These results underscore the potential for ecological processes—in particular, spatial overlap in community members’ activities—to enhance attachment to other community members. More broadly, we highlight how routine practices and individuals’ ties to non-home routine activities may promote attachment to fellow co-ethnic community members. Given their recency of arrival, our respondents likely have had less time and fewer opportunities to establish a sense of community when compared to individuals who have resided in the same location for longer periods of time. Thus, the potential for social overlap that extensity yields may be particularly important for building senses of community for those who have had less time to establish close interpersonal ties to other community members.

To date, hypotheses informed by the ecological network perspective have only been tested using data from large-scale neighborhood-based studies in Los Angeles County, California and Columbus, Ohio (Browning, Calder, Boettner, & Smith, 2017; Browning, Calder, Soller et al., 2017; Browning et al., 2015). Thus, it has remained unclear whether ecological networks are relevant to outcomes among specific ethnic communities, whose members are often residentially dispersed across urban landscapes. However, individuals often spend most of their non-sleeping hours outside of their residential neighborhood and belong to communities that extend beyond neighborhood boundaries (Browning & Soller, 2014).

Recognizing the potential of the ecological network perspective to advance the understanding of broader community processes, we demonstrated the value of considering how spatialized patterns of co-ethnics’ routine activities are consequential for members’ senses of community attachment and access to social resources embedded within communities. Thus, our study represents an important step in understanding the ecological precursors of community attachment among resettling refugees, whose lives have been severely disrupted and radically restructured.

Understanding how community processes develop among refugee populations is important given that one of the most essential tasks for refugees is integration into their new communities. As Brodsky (2017) notes, sense of community is important because of its relationship with individual and community well-being, and the value of diversity relies on the extent to which it involves meaningful inclusion. For refugees and other newcomers, meaningful inclusion necessitates opportunities to interact with individuals, public spaces, and institutions both within and beyond their ethnic communities. Such interactions enhance the acquisition of skills, knowledge, connections to broader communities, and power necessary for successful integration. Interestingly, we found that non-ethnic community support and attachment was positively associated with ethnic community attachment and support, suggesting that attachment and support to non-ethnic community members do not necessarily diminish attachment to one’s ethnic community. Rather, connections to members beyond one’s ethnic community may enhance attachment and perceived support from community members and function as bridging ties that strengthen the capacity for building social capital within and between ethnic communities (Neal, 2015). Future scholarship that further theorizes the link between diversity and ethnic community processes may advance the understanding of how refugee communities maintain solidarity while building connections to wider receiving communities.

Our study also underscores novel ways that network analysis can advance the understanding of community. Community psychologists are increasingly employing methods and insights from social network analysis to understand community processes (Neal, 2015). However, community psychologists most often conceptualize networks in terms of individuals and their direct ties to one another (e.g., friendships), but pay little attention to community members’ routine activities and use of public space (Lenzi, Vieno, Santinello, & Perkins, 2013). For instance, Neal (2015) elaborates on how key network processes (e.g., homophily) and segregation and proximity within residential communities may give rise to interpersonal networks that vary in their potential to enhance

community social capital. Boessen et al. (2014) highlight the association between the number and types of neighborly contacts and neighborhood residents' perceptions of cohesion. These and other studies that focus on interpersonal networks continue to provide important and novel insights into community processes. However, we contend that beyond location of residence, spatialized network processes impact enhance members' senses of community and may impact interpersonal networks. Conversely, individuals who share personal ties to other community members may deliberately establish new shared activity locations and foci that in turn provide additional opportunities for more consistent and close public contact (Feld, 1981). Given the potential interplay between ecological and interpersonal networks, we encourage community psychologists to incorporate insights from the ecological network perspective to further understand how network processes shape community processes. Ecological networks—which center on *non-home* routine activity locations—may be especially important for shaping ethnic and religious communities, whose members are not necessarily geographically bounded within specific residential neighborhoods.

Recent community-based interventions have focused on social ecologies to enhance individual well-being. However, the understanding of how ecological processes that are related to the everyday use of public space promote well-being is underdeveloped. Our study highlights the potential for enhancing community sentiment through altering community members' routine activity patterns. In particular, as sharing routine activity settings with other members is associated with stronger community attachment and support, interventions that promote encounters among community members through sharing interactional spaces may foster individuals' capacity to realize the full benefits of community membership. Efforts at altering individuals' positions within ecological networks may represent an additional avenue for enhancing a sense of community and attachment among resettling refugees, particularly for those who have not had adequate opportunities for integration into the interpersonal networks of their ethnic communities.

Importantly, social resources may advance specific communities in large part because they promote spatial overlap in members' routine activities, thereby enhancing the potential for public contact among community members. Thus, it is important that future research examines the specific properties of key activity locations (e.g., size, average time spent at location, etc.) to understand how particular *qualities* of locations shape community processes. Such an analysis is beyond the scope of the current project as we only have data for three ethnic communities and our study focuses on how individual positions within

ecological networks shape individual members' community attachment and access to social support and resources. We also do not have detailed information on the activity locations that could be leveraged to further analyze how location properties shape our respondents' community attachment. However, such analyses could advance the understanding of how ecological networks shape community processes and have implications for interventions that aim to promote community attachment.

While our study contributes to the understanding of community processes among resettling refugees, it has limitations. First, because we only focused on recently resettled refugees, we are unsure whether our study is relevant to members of ethnic communities who have not had the same experiences with trauma and migration. Future research is needed to understand whether and how spatial and network patterns of interaction shape community support and attachment within non-refugee populations. Research that builds on our study may help understand how ecological networks factor into processes operating within other communities, such as more well-established ethnic groups (e.g., Cubans, Mexicans, Vietnamese) that are both residentially centralized in enclaves or dispersed throughout urban and non-urban centers. Additionally, while our study is recent, attempts at restricting travel by the Trump administration from nations from which some of our respondents originated, coupled with increases in nationalist sentiments may be restricting our respondents' use of public space out of fear. Thus, it remains unclear whether shared interactional spaces continue to serve as a source of community attachment today.

Importantly, we measured only a subset of our respondents' routine activities. As a result, we likely underestimated the extent of spatial overlap among our respondents' routine activities. This limitation, however, likely biased our results toward the null. Additionally, we were unable to measure how much our respondents experience *temporal* overlap in their routine activity locations. Although extensity likely enhances the potential for public contact with fellow community members when engaging in routine activities, we cannot assess the degree to which extensity leads to public encounters among co-ethnic community members. Future research that utilizes GPS technology to track respondents' actual routine activity locations in real time can provide a more complete assessment of the extent of spatial and temporal overlap within ethnic communities' ecological networks (Browning & Soller, 2014).

Despite these limitations, our study contributes to the understanding of how ecological processes shape community outcomes. Our results suggest that beyond whom one knows, where one goes might be a crucial factor in

community building. We hope that future research and interventions continue to build on our study to understand how network patterns of routine activities promote individual and collective well-being.

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Compliance with Ethical Standards

All authors assert that accepted principles of ethical and professional conduct have been followed.

Conflict of Interest

There are no conflicts of interest to report.

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