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Discussion Networks and Resilience of College Students: Explicating Tie Strength in Communicative Interaction

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With the prevalence of mental health problems on college campuses, resilience has emerged as a meaningful concept for understanding students' well-being. Having strong ties to capitalize on is theorized as predicting resilient functioning. Yet the precise forms of strong ties, particularly manifested in communicative relations, is underexamined. Joining network and communication theoretical perspectives, this study disentangles how indicators of tie strength are associated with resilience. Analysis of 599 students' personal networks shows that, beyond mental health and indicators of tie strength in the static network, how students activate communication ties (i.e., frequency of communication and diversity of topics discussed) explained two intrapersonal resilience dimensions: *perceptions of future* and *social competence*. In addition, substantive topics discussed had varying effects on the four resilience dimensions examined. Implications for integrating recent theorizing on networks in practice into traditional network perspectives (i.e., emphasizing network structure), and practical suggestions for understanding college students' resilience, are presented.

Keywords: resilience, personal networks, tie strength, core discussion networks, social network analysis

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Resilience is understood as the ability to cope with stressful events, adapt to changing circumstances, and maintain a relatively stable trajectory of functioning (Bonanno, 2004; Connor & Davidson, 2003; Friborg, Barlaug, Martinussen, Rosenvinge, & Hjemdal, 2005). With college students experiencing higher rates of mental health problems, both academics and practitioners are increasingly concerned with understanding and assessing their resilience (e.g., Abolghasemi & Varaniyab, 2010; Hartley, 2011). Research aims at identifying various contributing factors to resilience across contexts and at different points in the life cycle (e.g., Luthar, Cicchetti, & Becker, 2000). One stream in this research domain focuses on the role of relationships with other people. Social ties are essential to well-being (Fisher et al., 2012) and assist individuals in modifying their reactions to stressful events and attaining successful outcomes (Werner, 1995).

Established ties such as family members, partners, and members of the local community are often the first sources drawn upon in the face of disruptive life events (Buzzanell, 2019). In addition, dense networks with more connections among network members are more conducive to providing informal support than sparse networks (Hurlbert, Haines, & Beggs, 2000; Marsden, 1987). Yet literature suggesting the importance of strong and dense networks is largely based on measures of *static* or *a priori* structure of networks (i.e., the ascribed characteristics of one's contacts and preexisting relationships among them). Little is known about how the specific ways networks are *activated* through communication influence resilience. The act of confiding in others improves physical health and mental well-being (Cohen & Wills, 1985) and paves the way for seeking advice and support (Small, 2017). How individuals choose to activate certain sectors of their networks in response to particular events varies (Pescosolido, 1992). In other words, two individuals who have analogous forms of personal networks with family, friends, and others may differ greatly in terms of how they communicate with their network members.

Delving into this distinction between *static* and *activated* networks, this study integrates recent theorizing on how individuals use networks in practice (Small, 2017) with traditional network perspectives (i.e., emphasizing network structure). More specifically, this research addresses the following question: Once the structure of static networks is accounted for, how are the resilience traits of college students associated with the frequency (i.e., how often a given contact is communicated with), topic diversity (i.e., the variety of topics discussed with a given contact), and content (i.e., the substantive topics being discussed) of their communication ties? We answer this question by using a fine-grained data set of college students' discussion networks that includes a large number of network contacts and topics discussed with each contact.

College Students' Mental Health and Resilience

The transition from high school to college can be turbulent as students move away from their friends and family and amass more adult responsibilities. In 2019, 77% of undergraduate students reported their overall stress over the previous month was moderate to high (American College Health Association, 2020). Students with mental health disorders show poorer relationships, less campus engagement, and lower graduation rates (Salzer, 2012).

Resilience has emerged as important to students' mental health as well as their academic performance. Resilience is sometimes viewed as personal dispositions linked with psychological factors,

personality characteristics, or coping habits (Connor & Davidson, 2003). In other conceptualizations, resilience is considered a process in which people proactively engage in communication, storytelling, interaction, and sensemaking to cope with difficult situations (Buzzanell, 2019). In empirical studies, resilience has been examined as a determining factor for psychological or health outcomes such as burnout, life satisfaction, and recovery after illness or medical procedures. For example, resilience was found to partially mediate the relationship between perfectionism and emotional distress symptoms among college students (Kilbert et al., 2014). Students' perceived resilience also influenced their use of regulatory strategies, including time management, self-regulation, and effort regulation, which subsequently predicted their academic achievements (Johnson, Taasoobshirazi, Kestler, & Cordova, 2015). In contrast, when resilience is examined as an outcome, various factors ranging from personality traits and cognitive strategies to social relationships are shown to be contributors. In the current study, we adopt the latter perspective and examine the network and communicative predictors of college students' resilience. Students' egocentric networks (i.e., personal networks) are examined, in which the focal node (i.e., ego) is a student connected via ties (i.e., communicative relationships) to other people (i.e., alters).

Networks as Protective Factors

Substantial evidence exists about the importance of individuals' connections with others for their mental health and well-being (e.g., Fisher et al., 2012; Wyman et al., 2019). McPherson, Smith-Lovin, and Brashears (2006) propose that the strength of ties is linked with the breadth (e.g., various types of support) and depth (e.g., the extent of support in a certain area) of possible support, implying its importance in well-being. Social network literature uses various indicators for measuring strong ties such as density, relationship types, intimacy, and time spent together (e.g., Granovetter, 1973). Yet indicators of strong ties are often correlated with one another (Marsden & Campbell, 1984). Strong ties are generally assumed to involve relationships with similar others who form dense connections among themselves. For example, kinship networks are dense in that members of the same family naturally have ties to one another (Roberts, Dunbar, Pollet, & Kuppens, 2009) and are likely to be high in racial, religious, and socioeconomic homophily. Because of these correlations, which make it difficult to theorize how aspects of strong ties are associated with resilience, there is a need to parse out the unique contributions of each dimension of tie strength. The following section explains three major indicators of strong ties derived from the static structure of the network: relationship types, homophily, and density.

Relationship Types

Ties surrounding an individual can be pictured as concentric circles (Roberts et al., 2009) in which relational type is used as an indicator of tie strength. Strong ties, including family and romantic relationships, are represented by the smallest circle around the ego; weak ties, including friends and acquaintances, are in the medium circle; and strangers are in the largest circle. Family ties are bound by norms and expectations for providing support (Roberts et al., 2009), often offering critical support in both routine and nonroutine situations (Hurlbert et al., 2000). Strong involvement with a romantic partner is associated with a greater likelihood of support and communication resulting from the partner's networks (Parks, Stan, & Eggert,

1983). The composition of college students' networks, in terms of relationship types, impacts their well-being. Familial support is linked to fewer symptoms of anxiety and depression (Khan, Kasky-Hernandez, Ambrose, & French, 2017) and college persistence, particularly for underrepresented students (Mishra, 2019). Further, friend support moderated the relationship between academic stress and resilience (Wilks, 2008); and students centrally located in their friendship networks exhibited higher levels of resilience (Fernández-Martínez et al., 2017).

Homophily

Homophily, the principle that similar people are likely to form ties with one another, tends to be observed more in strong and confiding relationships compared with less intimate ones (McPherson, Smith-Lovin, & Cook, 2001). Homophily has been examined for attributes including race, age, gender, class, and education. For example, racial homophily predicts college students' social circles (Mayer & Puller, 2008). Sharing similarity with other people improves psychological comfort, and greater similarity among friendship networks is related to higher life satisfaction (Seder & Oishi, 2009). Furthermore, relationships exist between perceived similarity and the perceived support available from groups (Campbell & Wright, 2002). International students who reported higher levels of connectedness with locals, which was measured partly by whether they met those with similar characteristics to themselves, showed higher levels of resilience (Cheung & Yue, 2013).

Density

Density is a powerful indicator of two contrasting structures of networks: closure and brokerage (Burt, 2000). Network closure—a structure in which nodes are strongly interconnected—facilitates trust, norms, and cooperation (Coleman, 1988). In contrast, network brokerage—a structure whereby an individual spans weaker connections among groups—brings benefits of information and control to the broker. The contrast between closure and brokerage maps onto the two forms of social capital: bonding and bridging (Putnam, 2000). Bonding ties are associated with dense connections in immediate circles, while bridging ties reach out to external entities. Consequently, individuals who have dense networks can be hypothesized to benefit from the stronger web among alters. Density is shown to be positively associated with well-being (e.g., Walker, 2015). For example, the life satisfaction of married people is increased by having denser networks, which may be attributed to the social support from close others (Acock & Hurlbert, 1993).

Network Activation Through Communication Ties

Along with aspects of network structure, examining the substance of communication helps understand how resources can be mobilized and improvised through activating network ties. Interpersonal communication plays a significant role in receiving support and coping with stress (Fisher et al., 2012). Maintaining and using communication networks is a key process of enacting resilience (Buzzanell, 2019) and can be considered a coping strategy when dealing with stress (Fletcher & Sarkar, 2013). Scharp, Wang, and Wolfe (2022) showed that first-generation college students relied on supportive communication with both enduring institutional networks and temporally contingent ties to cope with disruptions during the pandemic. College students' conversation-oriented experiences with family members, defined as engaging in open communication on various

topics, was associated with their ability to use communication networks to receive social support in stressful situations (Dorrance Hall & Scharp, 2021). Similarly, conversational (rather than conforming) family communication patterns positively predicted high school students' academic resilience (Jowkar, Kohoulat, & Zakeri, 2011). Immigrants maintained and used online communication networks with physically distant family members as a resilience strategy (Scharp, Geary, Wolfe, Wang, & Fesenmaier, 2021). These studies suggest that talking often and across various topics with others may be useful.

Extending these studies, which typically focus on dyadic instances of support provision, the current study takes a holistic look at the personal network environments that surround an individual. Recently, increasing attention to network practices, beyond the a priori structure, produced a more complex conceptualization of tie strength (Brashears & Quintane, 2018). Studies also suggested the need for both the structural and behavioral aspects of strong ties to be unpacked. For example, Small (2017) proposed that the likelihood of triadic closure that leads to dense networks is not an unquestionable outcome of strong ties but subject to whether the actors share institutional contexts in which activities are jointly organized.

Building on these debates, this study assesses how indicators of tie strength in the communicative interaction uniquely contribute to dimensions of resilience when static network structures are controlled. In addition to measuring communication frequency and the number of topics discussed, we extend the limited set of literature on substantive topics discussed with close network members (e.g., Brashears, 2014) to the context of college students.

Communication Frequency

Tie strength can be gauged by communication frequency, which represents the amount of time spent associating with a contact (Granovetter, 1973) as well as how likely or frequently information is exchanged with contacts. Brashears and Quintane (2018) suggest the frequency of tie activation as a factor that comprises tie strength. For college students, more frequent communication with both strong and weak ties predicted their well-being (Wang, Chua, & Stefanone, 2015). Daily expression of prioritizing education from family members was found to help first-generation college students' academic accomplishments (Gofen, 2009), indicating repeated conversations may be particularly important. In addition, college students' frequent telephone conversations with parents predicted satisfying and supportive parental relationships (Gentzler, Oberhauser, Westerman, & Nadorff, 2011).

Topic Diversity

Another characteristic of communication related to tie strength is capacity, or the extent to which a tie can transmit content (Brashears & Quintane, 2018). The breadth of topics discussed with alters is related to intimacy, which represents tie strength (Marsden & Campbell, 1984). Whether a dyadic tie can act as a conduit of information, knowledge, or support in diverse domains has implications for various outcomes (Sosa, 2011). In our study context, the number of topics about which students communicate with their network contacts reflects the capacity of communication networks.

Substantive Topics Discussed

While long-standing assumptions in network literature maintain that strong ties are associated with discussion of important topics, recent studies showed that discussing important topics may be independent of the composition of the networks. For example, 45% of people in core discussion networks were not considered important by respondents and, instead, availability and knowledge were reasons that people discussed important topics with nonclose alters (Small, 2013). Thus, the number of people to whom one can disclose each type of substantive topic may have effects on resilience independent of the effects of strong ties themselves.

Table 1 summarizes the variables examined in this study, and the following hypotheses and research questions reflect the key inquiries of the study:

H1: Having ties with higher communication frequency in one's personal networks will be associated with a higher level of resilience, after controlling for tie strength in static network structure.

H2: Having ties with higher communication topic diversity in one's personal networks will be associated with a higher level of resilience, after controlling for tie strength in static network structure.

RQ1: How is discussion of substantive topics associated with the level of resilience?

RQ2: What are the relative contributions of indicators of tie strength in static network structure and activated communication ties in predicting resilience?

Table 1. Summary of Variables.

Indicators of tie strength	Static Network Structure	Network Activation Through Communication
	• Proportion of kin ties in one's network • Proportion of romantic ties in one's network • Homophily (sex, race) • Network density	• Communication frequency • Topic diversity: Number of topics one discusses with each alter • Substantive topics discussed
Control variables	• Demographic characteristics (year, sex, race, religion) • Mental health • Associational memberships • Network size	

Method

Respondents were recruited using an online research system at a large Midwestern university from May to November 2018. Undergraduate students from various majors enrolled in communication courses completed a survey and earned extra credit for their participation. The total number of participants was 599

after data cleaning. Table 2 presents a breakdown of demographic characteristics. Non-response caused the sum for each characteristic to be below 599 in some cases.

Table 2. Demographic Characteristics of the Study Sample.

Characteristic	*n*	%
Year		
First year	150	25.08
Second year	128	21.40
Third year	168	28.09
Fourth or higher year	152	25.42
Sex		
Male	224	37.46
Female	374	62.54
Race		
Asian	152	25.46
Black/African American	26	4.36
Hispanic or Latino	29	4.86
White	361	60.47
Other or mixed race	29	4.86
Religion		
Protestant	55	9.21
Catholic	151	25.29
Other Christian	149	24.96
Others	69	11.56
No religion	173	28.98

Measures

Personal Network Structure

This study adopted a standardized network instrument used in the General Social Survey (Marsden, 1987). First, a name generator question was asked: "Over the last six months, who are the people with whom you discussed important personal matters? Please just tell us the first names or initials of 10 people." American adults usually name an average of two discussion partners, and only about 10% of respondents name four or more (Brashears, 2011; Hampton, Sessions, Her, & Rainie, 2011). As the intention of this study was to access discussion partners outside of students' most intimate connections, we asked students to name 10 people to encourage them to look beyond their "first-string" ties. Second, name interpreter questions about each nominated alter were asked: sex, race, relationship type, communication frequency ranging from 1 (once a year or less) to 5 (every day), and whether the alters in the network "know" one another.

Discussion Topics

For nine topic categories, respondents indicated the topic(s) they discuss with each alter. This method allowed collecting comprehensive information about discussion topics with all alters nominated by a respondent. Topics were: (1) family, (2) friends and relationships, (3) politics and current events, (4) career and life goals, (5) health and well-being, (6) culture and entertainment, (7) personal finances, (8) failure and mistakes, and (9) successes and triumphs.

Resilience

This study adopted the Resilience Scale for Adults (RSA; Friborg et al., 2005), which takes a more comprehensive approach than a few other widely accepted scales that place emphasis on personal psychometric properties (CD-RISC; Connor & Davidson, 2003; Resilience Scale, Wagnild & Young, 1993) or on specific segments of populations (e.g., Adolescent Resilience Scale, Oshio, Kaneko, Nagamine, & Nakaya, 2003). The scale assesses protective factors that buffer, offset, or counteract the effects of adversity. It measures both intrapersonal and interpersonal dimensions using 5-point semantic-differential scales (Friborg et al., 2005). Only the intrapersonal resilience subscales were used in this study. *Structured style* (α = .63) measures the extent to which an individual feels and succeeds when life is structured or organized, while *social competence* (α = .78) measures perceptions of authentic and positive social skills (Friborg et al., 2005). *Perception of self* (α = .69) is related to perceptions of one's strengths and abilities, while *perception of future* (α = .72) is related to perceptions of opportunities for achieving plans and goals (Friborg et al., 2005). Focusing on intrapersonal resilience allows for the examination of how social-oriented characteristics like discussion networks are associated with self-oriented cognitive and behavioral aspects of resilience.

Respondents were also asked to think about the hardships they encountered recently and report, "What made you feel that you were (or were not) recovering from or adjusting to them?" We used excerpts from open-ended responses to exemplify the findings from network and statistical analyses.

Control Variables

Demographic variables including academic year, sex, race, and religion were controlled in the models. Mental health was measured using the 5-item version of the RAND Mental Health Inventory (Berwick et al., 1991; α = .80) to account for the baseline levels of psychological well-being. Associational memberships, a dimension of social capital, were assessed by asking students the extent to which they belonged to various organizations: not a member, member but not very active, or active member (Ball-Rokeach, Kim, & Matei, 2001). A summed variable was computed for 13 membership types adapted to the college context. Last, we controlled for the number of contacts an ego named since large networks had larger numbers of potentially supportive ties and predicted well-being (e.g., Wang et al., 2015).

Analysis

The egor package in R (Krenz, Krivitsky, Vacca, Bojanowski, & Herz, 2020) was used to compute measures of personal network structure, including proportions of each relationship type, sex homophily, race

homophily, and density. Homophily was computed by the E-I measure, in which +1 indicated complete heterophily (i.e., difference) and −1 indicated complete homophily (i.e., similarity). For both sex and race, the E-I measure was negative, indicating a strong tendency of homophily. Density was computed as the number of existing ties among alters divided by the number of total possible ties that could exist among them. Communication frequency was calculated as the mean of the frequency of communication with nominated alters. Topic diversity was computed as the mean of the total number of topics discussed with each of the nominated alters. For substantive topics discussed, the number of alters with whom respondents discussed each topic was measured.

A set of hierarchical regression models[2] was run to predict each of the four dimensions of resilience. Control variables and static network structure variables were entered in the first step, and communication variables were included in the second step. Each of the substantive topics discussed was tested in separate models because of their strong correlations with one another.

Results

Table 3 provides descriptive statistics and pairwise correlations. As to topic diversity, on average, respondents discussed 5.48 different topics with their alters. Variables (11)–(19) show the total number of alters with whom respondents reported discussing each topic. Friends and relationships was the most widely discussed topic, at an average of 7.6 alters.

Table 3. Descriptive Statistics and Pairwise Correlations.

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) Mental health	—					
(2) Memberships	.07*	—				
(3) Network size	−.04	.11***	—			
(4) Proportion of kin ties	.11***	−.09**	−.19***	—		
(5) Proportion of romantic ties	−.05	−.02	−.13***	−.04	—	
(6) Sex homophily	.03	−−08*	−.27***	.23***	.16***	—
(7) Race homophily	−.00	−−00	.04	−.13***	−.00	.08**
(8) Network density	.17***	−.01	−.14***	.23***	.05	−.04
(9) Comm. frequency	.14***	.13***	−.02	−.03	.00	−.17***
(10) Topic diversity	.11***	.05	−.03	.09**	.08*	−.06
(11) Family	.08**	.10**	.36***	.16***	.03	−.14***
(12) Friends and relationships	.03	.06	.55***	−.13***	−.03	−.25***
(13) Politics and current events	.06	.05	.21***	.01	.02	−.12***
(14) Career and life goals	.07*	.07*	.37***	−.01	.03	−.14***
(15) Health and well-being	.08**	.09**	.33***	.02	.04	−.13***

[2] Because the dependent variable of resilience was measured as an ordered and discrete variable, ordered probit models were also run as a robustness check. The results were consistent with those from the linear regression.

(16) Culture and entertainment	.08*	.05	.33***	−.05	−.00	−.16***
(17) Personal finances	.07*	.08**	.19***	.03	.05	−.08*
(18) Failure and mistakes	.05	.11***	.35***	−.06	.01	−.15***
(19) Success and triumphs	.10**	.09**	.37***	−.00	.04	−.18***
(20) RSA: *Perception of self*	.58***	.06	−.02	.15***	−.01	.02
(21) RSA: *Perception of future*	.29***	.12***	.07*	.14***	.04	−.03
(22) RSA: *Structured style*	.17***	.08**	−.01	.04	.02	−.12***
(23) RSA: *Social competence*	.31***	.19***	.14***	−.13***	−.01	−.11***
M	4.00	5.36	9.36	.33	.05	−.34
SD	.82	3.96	1.79	.20	.07	.37
Min	1.4	0	1	0	0	−1
Max	5.8	20	10	1	0.5	1

Variables	(7)	(8)	(9)	(10)	(11)	(12)
(7) Race homophily	—					
(8) Network density	−.18***	—				
(9) Comm. frequency	−.11***	.25***	—			
(10) Topic diversity	−.05	.40***	.27***	—		
(11) Family	−.08**	.31***	.18***	.67***	—	
(12) Friends and relationships	−.04	.22***	.21***	.54***	.57***	—
(13) Politics and current events	−.04	.17***	.13***	.64***	.45***	.40***
(14) Career and life goals	−.04	.25***	.16***	.73***	.63***	.59***
(15) Health and well-being	−.02	.29***	.22***	.75***	.63***	.60***
(16) Culture and entertainment	−.01	.22***	.18***	.69***	.54***	.55***
(17) Personal finances	−.03	.20***	.19***	.69***	.52***	.38***
(18) Failure and mistakes	−.01	.22***	.22***	.76***	.63***	.61***
(19) Success and triumphs	−.01	.26***	.19***	.74***	.64***	.64***
(20) RSA: *Perception of self*	−.02	.13***	.17***	.15***	.10**	.08**
(21) RSA: *Perception of future*	−.10**	.13***	.20***	.18***	.18***	.11***
(22) RSA: *Structured style*	−.09**	.09**	.17***	.09**	.14***	.07*
(23) RSA: *Social competence*	−.04	.19***	.32***	.25***	.25***	.32***
M	−.63	.51	4.09	5.48	6.09	7.62
SD	.52	.26	0.53	2.14	3.17	2.84
Min	−1	0	1.9	0	0	0
Max	1	1	5	9	10	10

Variables	(13)	(14)	(15)	(16)	(17)	(18)
(13) Politics and current events	—					
(14) Career and life goals	.52***	—				

(15) Health and well-being	.50***	.71***	—			
(16) Culture and entertainment	.58***	.63***	.59***	—		
(17) Personal finances	.56***	.57***	.58***	.50***	—	
(18) Failure and mistakes	.45***	.69***	.71***	.61***	.56***	—
(19) Success and triumphs	.46***	.69***	.69***	.59***	.51***	.83***
(20) RSA: *Perception of self*	.10**	.13***	.10**	.07*	.11***	.08*
(21) RSA: *Perception of future*	.18***	.18***	.14***	.13***	.15***	.15***
(22) RSA: *Structured style*	.07*	.11***	.11***	.00	−.01	.07*
(23) RSA: *Social competence*	.13***	.24***	.25***	.20***	.16***	.29***
M	3.94	6.30	5.79	5.94	3.35	5.80
SD	3.06	3.09	3.26	3.41	2.64	3.35
Min	0	0	0	0	0	0
Max	10	10	10	10	10	10

Variables	(19)	(20)	(21)	(22)	(23)
(19) Success & Triumphs	—				
(20) RSA: *Perception of self*	.15***	—			
(21) RSA: *Perception of future*	.22***	.45***	—		
(22) RSA: *Structured style*	.07*	.25***	.29***	—	
(23) RSA: *Social competence*	.30***	.36***	.33***	.13***	—
M	6.39	3.53	3.59	3.52	3.59
SD	3.49	0.62	0.80	0.79	0.74
Min	0	1.8	1.25	1.25	1.2
Max	10	5	5	5	5

Note. *** $p < .01$, ** $p < .05$, * $p < .1$; Variables (11)–18) refer to the number of alters with whom respondents discussed each topic.

Figure 1 displays the network structure of all 599 respondents, in which various network structures are noticeable. Some students report rather distinct clusters of alters or clusters with partial overlap, while others have much denser networks where almost everyone knows one another. The number of topics discussed with each alter, as represented by node size, also varies greatly.

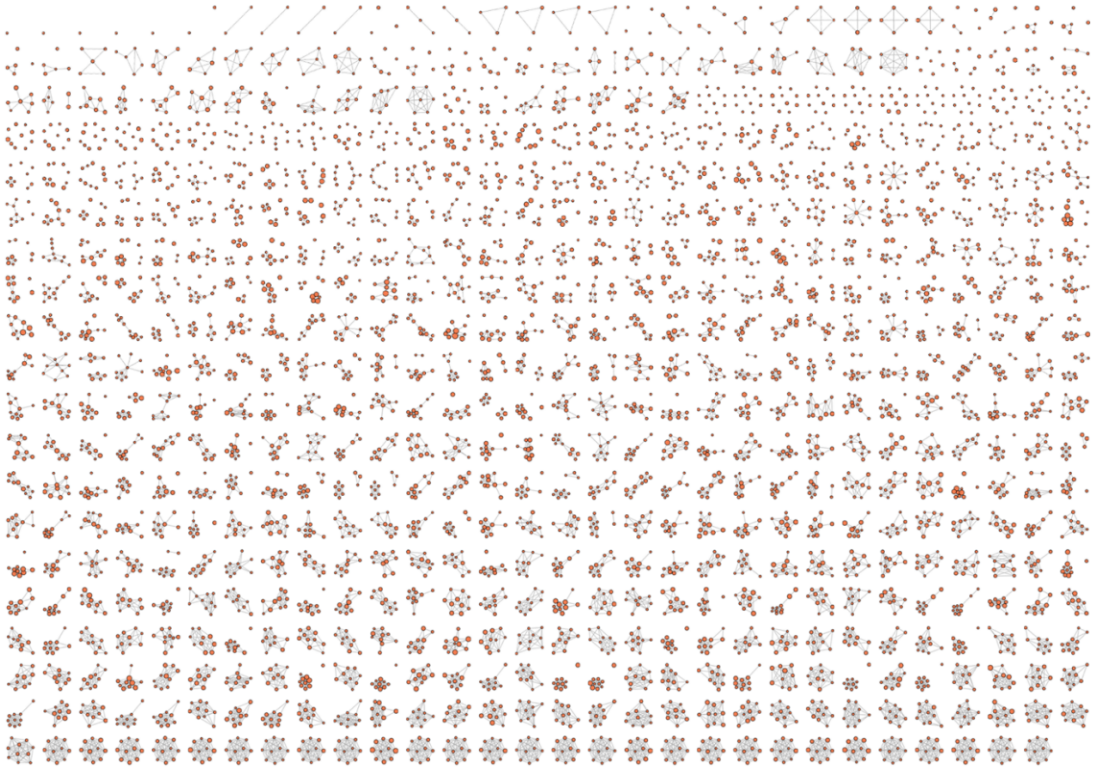

Figure 1. Structure of all 599 respondents' personal networks.

Note. Ego (respondent) is excluded from each network visualization. Node size represents topic diversity (i.e., the number of topics discussed with a given alter). Networks are sorted first by size and then by density, from top left to bottom right.

Figure 2 provides a close-up illustration of two egos who are similar in network structure for the most part but differ greatly in their communication with alters.

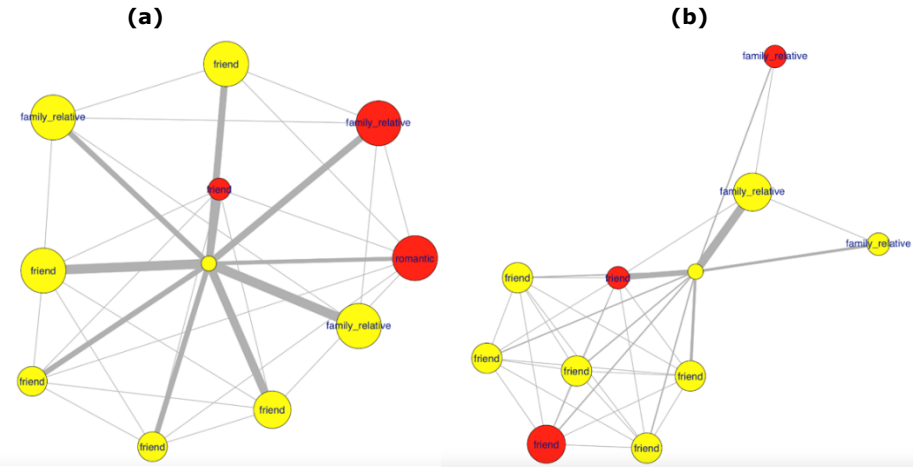

Figure 2. Structure of two respondents' personal networks, highlighting contrasts in the strength of communication ties.

Note. Yellow indicates female, and red indicates male. The blank node in the middle denotes the ego (i.e., respondent). Node size represents frequency of communication. The width of the edges represents topic diversity. The structure of the network is similar, with many densely connected friends and family members and three members of the opposite sex. The patterns of communication are different, with the ego in (b) reporting a higher level of communication frequency and topic diversity.

Table 4 presents the results of the models predicting each of the four intrapersonal dimensions of resilience. Mental health was a strong positive predictor for all dimensions. Having a larger number of organizational memberships explained two dimensions: *perception of future* (only in Model 1) and *social competence*. Overall, results regarding the dimensions of *perceptions of self* and *structured style* demonstrated similar patterns, where network structure and communication predictors had minimal contributions. *Perceptions of self* was not explained by any of the network structure or communication predictors. *Structured style* was positively predicted by sex homophily (i.e., having a larger proportion of alters of the same sex) and communication frequency.

As to *perceptions of future*, the proportions of kin and romantic relations in one's network were positive predictors, in addition to network size. Higher communication frequency and topic diversity predicted higher scores in *perceptions of future*. The dimension of *social competence* was explained by several network variables. Density and network size had positive effects, although the effect of density did not remain once communication variables were included. Proportion of family ties negatively predicted *social competence*. In terms of communication variables, higher communication frequency and topic diversity explained higher scores in *social competence*. For these two dimensions of resilience, adding communication variables in Model 2 significantly improved the explanative power. These results provide partial support for H1 and H2.

Table 4. Predicting Dimensions of Resilience.

	Perception of self		*Perception of future*		*Structured style*		*Social competence*	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Control variables								
Year								
Sophomore	.11	.08	−.08	−.12	.01	−.01	.06	.01
Junior	−.02	−.03	−.23**	−.26**	−.08	−.10	−.12	−.14
Senior	.06	.05	−.17*	−.18*	−.08	−.08	−.11	−.11
Sex (Female)	−.06	−.08	.03	−.02	.17*	.15*	.18**	.13*
Race								
Asian	−.12*	−.10	−.22*	−.17	.00	.03	−.28***	−.21**
African American	−.02	.00	−.08	−.04	−.16	−.14	−.33*	−.28*
Other/mixed race	−.24*	−.24*	−.15	−.13	.18	.16	−.11	−.11
Hispanic/Latino	.04	.05	−.03	−.01	−.38*	−.38*	−.11	−.10
Religion								
Protestant	.15	.13	.07	.02	−.06	−.09	.21	.17
Catholic	.01	.00	.09	.07	.21*	.19	.19*	.16*
Other Christian	.04	.03	−.06	−.08	−.02	−.04	.09	.07
Others	−.05	−.05	.11	.11	−.10	−.09	.27**	.28**
Mental health	.43***	.41***	.26***	.23***	.18***	.16***	.29***	.25***
Memberships	.00	.00	.02*	.02	.01	.01	.02**	.01*
Network size	.01	.01	.04*	.05*	.00	.00	.04*	.06**
Structure: tie strength								
Proportion of kin	.22	.23	.41*	.46*	.15	.20	−.79***	−.69***
Proportion of romantic	.38	.42	1.08*	1.11*	.62	.76	.05	.10
Sex homophily	−.07	−.05	−.12	−.07	−.28**	−.25*	.03	.08
Race homophily	.05	.04	−.09	−.09	−.11	−.09	.00	.01
Density	.02	−.06	.11	−.06	.05	.01	.40***	.20
Comm: tie strength								
Comm. frequency		.07		.16*		.14*		.27***
Topic diversity		.02		.04*		.01		.04**
N	591	587	591	587	591	587	591	587
R^2	.37	.37	.16	.18	.10	.11	.25	.30
ΔR^2		.0		.02***		.01		.05***

Note. *** $p < .01$, ** $p < .05$, * $p < .1$; Model 1 includes control variables and measures of static network structure. Model 2 adds communication frequency and topic diversity to Model 1. For demographic variables, freshman (year), male (sex), White or Caucasian (race/ethnicity), and no religion (religion) served as base categories. For sex homophily and race homophily, smaller observed values indicated a stronger tendency of having similarity with alters.

Figure 3 shows a summary of results regarding RQ1, which explores the substantive topics of discussion. Having many contacts with whom one can discuss each topic differentially predicted the four dimensions of resilience. Three topics—friends and relationships, career and life goals, and success and triumphs—contributed to *perceptions of self*. Five topics—politics and current events, career and life goals, finances, failures and mistakes, and success and triumphs—contributed to *perceptions of future*. No topics contributed to *structured style*. A higher level on the *social competence* dimension was predicted by having more people to talk with about seven topics: family, friends and relationships, career and life goals, health and well-being, finances, failures and mistakes, and success and triumphs. In these models, the effects of demographic and network structure variables were largely consistent with those in the models presented in Table 4. In sum, in answering RQ2, the role of tie strength measured in static network structure and activated communication ties differed across resilience dimensions.

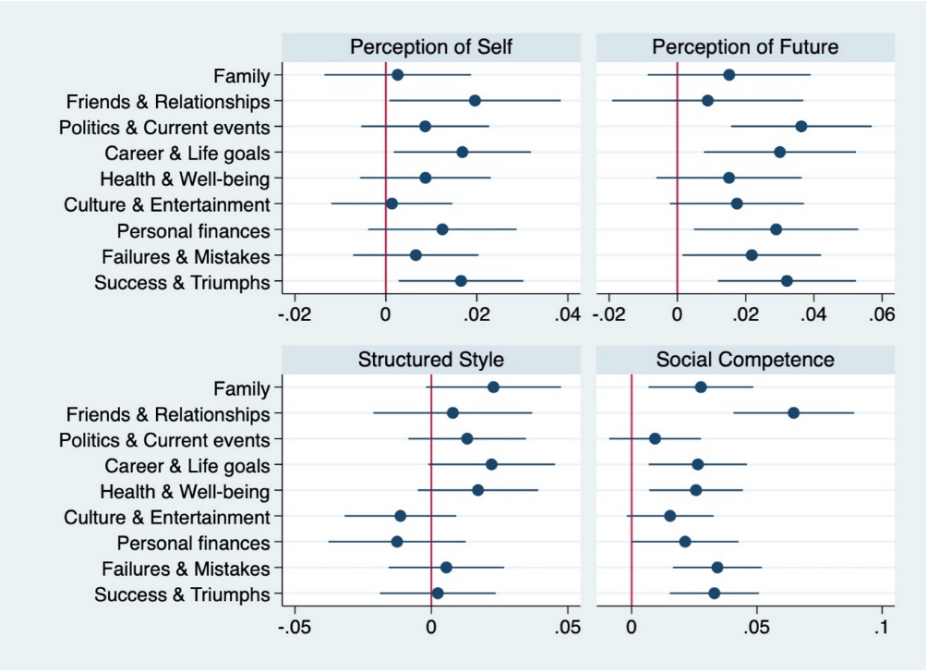

Figure 3. Regression coefficient plot with 95% confidence intervals for each of the discussion topics predicting four dimensions of resilience.

Note. Respondents' demographic characteristics and measures of static network structure were also included in the model. Full regression results can be obtained from the first author.

Discussion

This study uses a detailed data set that includes information about a range of topics college students discuss with their alters to examine the intersection among network structure, communicative practices, and resilience dimensions. The results show how multiple indicators of tie strength contribute to the theorizing of resilience.

Tie Strength Measured in Static Network Structure

Network studies emphasize the need to distinguish among different indicators of strong ties (e.g., Sosa, 2011). This study's findings vary across the three indicators of strong ties, supporting this argument. Overall, relationship types were found to explain resilience in more cases than homophily did; in particular, race homophily did not predict any of the dimensions. In one exception to this pattern, having many alters of the same sex was associated with the extent to which one feels capable of keeping up with daily routines and of planning and organizing (*structured style*). The current study contests the common notion that connecting with similar others benefits well-being, showing homophily may have limited explanatory power for resilience. As to relationship types, having a large proportion of family and romantic ties explained higher levels of *perceptions of future*. For example, one participant described overcoming hardship: "A sense of anxiety goes away because I focus on more positive things and new opportunities to replace what was lost or ended. I seek encouragement from my boyfriend, parents, and friends." Finally, the noticeable negative effect of proportion of kin ties on *social competence* could be attributed to possessing a low proportion of friendship ties in one's social network.[3]

Network density was partly associated with *social competence*. In line with Jones and colleagues (2013), this result shows that having ties with a close-knit group of contacts may offer people the perception of available social support. In addition, large network size contributed to the dimensions of *perception of future* and *social competence*, suggesting that a larger number of contacts may signal an abundance of accessible resources. One participant detailed an experience interning abroad, which was characterized by "extreme anxiety for the unknown conditions" of the workplace, stating the student "turned to [their] family, friends, and [their] psychologist for help." Many participants disclosed similarly challenging hardships and having turned to their large networks for assistance.

The Role of Communication and Discussion Topics

While most previous studies explicated psychological correlates of resilience measured through dimensions that are intrinsic to an individual, we suggest that resilience is also associated with the forms in which one communicatively connects with others. Indicators that rely only on ascribed characteristics (e.g., kinship, sex, race) may not show the whole picture; expanding the conceptualization of tie strength to activated communication ties provides a meaningful addition to understanding network structure and function. Results regarding H1 and H2 specifically suggest that communication frequency predicted all dimensions of resilience except for *perception of self*, and discussing diverse topics was associated with two of the dimensions: *perceptions of future* and *social competence*. These results support the idea that discussing exclusive or a narrow range of topics does not necessarily signal the benefits derived from relationships, and communicating about diverse topics may be an avenue for engaging in coping behaviors.

The effect of network density on *social competence* was replaced by the effect of communication frequency and discussion topic variables when they were jointly included in the model. Burt (2001) suggests

[3] Proportions of kin and romantic relationship are both negatively correlated with proportions of friends. On average, friends occupied 57.4% of alters; family and relatives occupied 33.1%; romantic partners occupied 5.3%; and other relationship types were rarely nominated.

the benefits of network closure, where strong direct connections among alters improve information access and provide reliable channels of communication. The importance of the structure of communicative interaction may be explained by such processes. The finding also aligns with recent studies that emphasize practice and action beyond network structure itself (Small, 2017). An individual's resilience is reliant on the capacity to put skills to effective use (Werner, 1993); in this sense, communicative interaction might be one of the drivers of this process. For example, one participant indicated the effect of not activating a network, explaining, "I feel like talking to my parents and friends really helped me get through hardships and times of need. However, I often hid my feelings instead of talking about them, which did not help me get better." Finding utility in talking to alters highlights the need to better define what constitutes strong ties.

With some students feeling compelled to hide feelings from certain people and others being more open with the people in their lives, students' communication patterns varied largely. This contrast, shown in Figure 2, points toward the importance of understanding how students activate their discussion networks beyond characterizing the composition of static personal networks. Networks can be expanded or reconfigured as one enacts the process of resilience (Buzzanell, 2019). Self-disclosure, or revealing information about the self to others, is a primary tool for relational development and predicts various dimensions of resilience (Brown et al., 2020). Particularly, college students' intimate and intentional disclosures on Facebook were associated with higher life satisfaction (Zhang, 2017). Some studies have challenged the notion that people deliberately make decisions about whom they disclose to and seek support from (e.g., Small & Sukhu, 2016). The finding that network density did not matter once communication variables were added provided support for this idea. In other words, regardless of the nature of the existing dense social circles in which students are involved, the way they engage in communication with others, even with those who are not part of their dense circles, could be important for resilience.

Results also show the importance of substantive topics. Having many others with whom one could talk about career and life goals, as well as success and triumphs, predicted a higher resilience score on three dimensions. Having people with whom to talk about friends and relationships and about failures and mistakes were the next most important predictors. One participant said, "Talking to people about the issues and finding solutions or just spending time with them helps [to recover from and adjust to hardships]." This finding raises the question of with whom one talks about these topics. Brashears (2014) shows that there is an association between alter relations (roles) and topics, in which people tend to talk about certain topics with particular types of others. When considering the egos' personal networks, the pattern of concentration versus division becomes an interesting subject. Some individuals might have a concentrated set of discussion partners, where they discuss multiple topics with only small sets of alters. Other individuals might be discussing specialized topics, each with different alters. To examine this pattern, we computed the standard deviation of the total number of topics discussed with each of the nominated alters. A large value indicates that a student talks with some alters about many different topics but talks with other alters about only a few topics (concentration); a small value indicates that one talks with most alters about a similar number of topics (division). When included in models, this variable does not significantly explain any of the resilience dimensions, suggesting that the ways in which discussion topics are distributed across one's contacts are not predictive of resilience.

Practical Implications for Resilience

Demand for mental health and counseling services on campuses continues to increase and tends to exceed supply, leading students to look elsewhere for support. The current study suggests that each dimension of resilience is explained by a different set of predictor variables, which supports the notion of resilience as a multidimensional construct (Luthar et al., 2000). Considering multiple dimensions of resilience can help offer more tailored advice when engaging in counseling practices, depending on the specific difficulties faced by the student.

The *perception of future* dimension of resilience presents an interesting practical case. Because the results show that a larger network size and more associational memberships predict higher levels of *perceptions of future* resilience, students might be encouraged to grow their discussion networks through joining organizations. In addition, higher *perception of future* was predicted by proportion of kin ties. The perceived stability and permanence of these relationships may offer comfort when thinking about the future.

Results about the substantive topics of discussion (Figure 3) can guide programs on campus that aim to facilitate students' resilience. There are assumptions that peer relationships provide many conversational opportunities, but our findings indicate that may not be true for all students. For instance, participating in class discussions in American government may be students' only chance to talk about politics and current events, while meeting with mental health counselors may be the only place they feel comfortable discussing their failures and mistakes. Instructors and administrators would be prudent to recognize the wide array of communication networks students may engage in to be able to offer programming that supports their whole student body.

Providing spaces in which students can discuss respective topics with peers or other members of the college community can be beneficial. For example, celebrating the success and triumphs of students within their departments and colleges through social media posts or personalized e-mails may help students be more resilient in their *perceptions of self* and *perceptions of future*. Ensuring students can have quality conversations about their careers and life goals with their academic advisers may also relate to resilience. In addition, identifying spaces for students to discuss their personal finances with relevant experts may help them build plans to achieve fiscal stability. Instructors may also consider building in partnered and all-class discussions that address a wide array of topics. In general, creating opportunities for students to engage in dialogues that would be personally beneficial to them is important. Herein, the importance of offering counseling and mental health services for college students must be reiterated.

Limitations and Future Directions

The study measured core discussion networks that were larger in size than those conventionally studied (i.e., five alters). While this choice increases the possibility of accessing peripheral networks, the question wording is prone to eliciting alters that are already subsets of relatively strong ties one possesses rather than improvised ties or strangers. Future research should continue exploring novel methods of gathering information about people's weak ties.

In addition, it is difficult to determine the extent to which the discussion topics may be considered personal or private. For example, health and well-being may be much more personal to a student with a chronic physical health condition than to a student who is healthy. Future research can consider how personal a topic is to individuals, along with the relative importance of topics, to help with designing intervention programs on sensitive topics.

Limitations also exist in the cross-sectional design, which makes it unfeasible to parse out the causal mechanism. One possibility is that students with strong communication ties have positive perceptions about their abilities to influence their surroundings and adapt to adversities, which reflect personality traits of hardiness (Bonanno, 2004). Contrarily, hardy individuals are better at using social support and using positive emotion to stay in contact with people (Florian, Mikulincer, & Taubman, 1995), which may explain the possibility that students high on resilience dimensions tend to form strong communication ties.

Last, the unique institutional and demographic context of the large Midwestern university could have impacted several aspects of students' discussion networks. Frequency, as a measure of tie strength, may have biases in that the strength of ties with alters sharing geographical or institutional contexts (e.g., neighbors and coworkers) may be overestimated. Similarly, the level of homophily in one's networks could be a function of the activities and culture of the institution and the surrounding community.

Conclusion

Building on network theories concerning tie strength, this study examined how both the structure of and communication in discussion networks explained dimensions of resilience. Talking to other people may be a pathway for accessing resources like emotional support, financial assistance, or advice and guidance. Our explication of tie strength, particularly in the context of students' discussion networks, contributes understandings of how resilience is constituted through communicative processes.

References

Abolghasemi, A., & Varaniyab, S. T. (2010). Resilience and perceived stress: Predictors of life satisfaction in the students of success and failure. *Procedia—Social and Behavioral Sciences, 5*, 748–752. doi:10.1016/j.sbspro.2010.07.178

Acock, A. C., & Hurlbert, J. S. (1993). Social networks, marital status, and well-being. *Social Networks, 15*(3), 309–334. doi:10.1016/0378-8733(93)90010-I

American College Health Association. (2020). *National college health assessment II: Undergraduate student reference group data report fall 2019*. Retrieved from https://www.acha.org/documents/ncha/NCHA-III_FALL_2019_UNDERGRADUATE_REFERENCE_GROUP_DATA_REPORT.pdf

Ball-Rokeach, S. J., Kim, Y. C., & Matei, S. (2001). Storytelling neighborhood: Paths to belonging in diverse urban environments. *Communication Research, 28*(4), 392–428. doi:10.1177/009365001028004003

Berwick, D. M., Murphy, J. M., Goldman, P. A., Ware Jr., J. E., Barsky, A. J., & Weinstein, M. C. (1991). Performance of a five-item mental health screening test. *Medical Care, 29*(2), 169–176. Retrieved from https://www.jstor.org/stable/3766262

Bonanno, G. A. (2004). Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? *American Psychologist, 59*(1), 20–28. doi:10.1037/0003-066X.59.1.20

Brashears, M. E. (2011). Small networks and high isolation? A reexamination of American discussion networks. *Social Networks, 33*(4), 331–341. doi:10.1016/j.socnet.2011.10.003

Brashears, M. E. (2014). "Trivial" topics and rich ties: The relationship between discussion topic, alter role, and resource availability using the "important matters" name generator. *Sociological Science, 1*(27), 493–511. doi:10.15195/v1.a27

Brashears, M. E., & Quintane, E. (2018). The weakness of tie strength. *Social Networks, 55*, 104–115. doi:10.1016/j.socnet.2018.05.010

Brown, T., Yu, M. L., & Etherington, J. (2020). Listening and interpersonal communication skills as predictors of resilience in occupational therapy students: A cross-sectional study. *British Journal of Occupational Therapy, 84*(1), 42–53. doi:10.1177/0308022620908503

Burt, R. S. (2000). The network structure of social capital. *Research in Organizational Behavior, 22*, 345–423. doi:10.1016/S0191-3085(00)22009-1

Burt, R. S. (2001). Structural holes versus network closure as social capital. In N. Lin, K. S. Cook, & R. S. Burt (Eds.), *Social capital: Theory and research* (pp. 31–56). New York, NY: Aldine de Gruyter.

Buzzanell, P. M. (2019). Communication theory of resilience in everyday talk, interactions, and network structures. In S. Wilson & S. Smith (Eds.), *Reflections on interpersonal communication research* (pp. 65–88). San Diego, CA: Cognella.

Campbell, K., & Wright, K. B. (2002). On-line support groups: An investigation of relationships among source credibility, dimensions of relational communication, and perceptions of emotional support. *Communication Research Reports, 19*(2), 183–193. doi:10.1080/08824090209384846

Cheung, C. K., & Yue, X. D. (2013). Sustaining resilience through local connectedness among sojourn students. *Social Indicators Research, 111*(3), 785–800. doi:10.1007/s11205-012-0034-8

Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin, 98*(2), 310–357. doi:10.1037/0033-2909.98.2.310

Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology, 94*, S95–S120. doi:10.1086/228943

Connor, K. M., & Davidson, J. R. T. (2003). Development of a new resilience scale: The Connor-Davidson Resilience Scale (CD-RISC). *Depression & Anxiety, 18*(2), 76–82. doi:10.1002/da.10113

Dorrance Hall, E., & Scharp, K. M. (2021). Communicative predictors of social network resilience skills during the transition to college. *Journal of Social and Personal Relationships, 38*(4), 1238–1258. doi:10.1177/0265407520983467

Fernández-Martínez, E., Andina-Díaz, E., Fernández-Peña, R., García-López, R., Fulgueiras-Carril, I., & Liébana-Presa, C. (2017). Social networks, engagement and resilience in university students. *International Journal of Environmental Research and Public Health, 14*(12), 1488. doi:10.3390/ijerph14121488

Fisher, C. L., Goldsmith, D., Harrison, K., Hoffner, C. A., Segrin, C., Wright, K., & Miller, K. (2012). Communication and mental health: A conversation from the CM café. *Communication Monographs, 79*(4), 539–550. doi:10.1080/03637751.2012.727284

Fletcher, D., & Sarkar, M. (2013). Psychological resilience: A review and critique of definitions, concepts, and theory. *European Psychologist, 18*(1), 12–23. doi:10.1027/1016-9040/a000124

Florian, V., Mikulincer, M., & Taubman, O. (1995). Does hardiness contribute to mental health during a stressful real-life situation? The roles of appraisal and coping. *Journal of Personality and Social Psychology, 68*(4), 687–695. doi:10.1037/0022-3514.68.4.687

Friborg, O., Barlaug, D., Martinussen, M., Rosenvinge, J. H., & Hjemdal, O. (2005). Resilience in relation to personality and intelligence. *International Journal of Methods in Psychiatric Research, 14*(1), 29–42. doi:10.1002/mpr.15

Gentzler, A. L., Oberhauser, A. M., Westerman, D., & Nadorff, D. K. (2011). College students' use of electronic communication with parents: Links to loneliness, attachment, and relationship quality. *Cyberpsychology, Behavior, and Social Networking, 14*(1–2), 71–74. doi:10.1089/cyber.2009.0409

Gofen, A. (2009). Family capital: How first-generation higher education students break the intergenerational cycle. *Family Relations Interdisciplinary Journal of Applied Family Science, 58*(1), 104–120. doi:10.1111/j.1741-3729.2008.00538.x

Granovetter, M. S. (1973). The strength of weak ties. *American Journal of Sociology, 78*(6), 1360–1380. doi:10.1086/225469

Hampton, K. N., Sessions, L. F., Her, E. J., & Rainie, L. (2011). Core networks, social isolation, and new media: Internet and mobile phone use, network size, and diversity. *Information, Communication & Society, 14*(1), 130–155. doi:10.1080/1369118X.2010.513417

Hartley, M. T. (2011). Examining the relationships between resilience, mental health, and academic persistence in undergraduate college students. *Journal of American College Health, 59*(7), 596–604. doi:10.1080/07448481.2010.515632

Hurlbert, J. S., Haines, V. A., & Beggs, J. J. (2000). Core networks and tie activation: What kinds of routine networks allocate resources in nonroutine situations? *American Sociological Review, 65*(4), 598–618. doi:10.2307/2657385

Johnson, M. L., Taasoobshirazi, G., Kestler, J. L., & Cordova, J. R. (2015). Models and messengers of resilience: A theoretical model of college students' resilience, regulatory strategy use, and academic achievement. *Educational Psychology, 35*(7), 869–885. doi:10.1080/01443410.2014.893560

Jones, E. C., Faas, A. J., Murphy, A. D., Tobin, G. A., Whiteford, L. M., & McCarty, C. (2013). Cross-cultural and site-based influences on demographic, well-being, and social network predictors of risk perception in hazard and disaster settings in Ecuador and Mexico: Predictors of risk perception in hazard and disaster settings in Ecuador and Mexico. *Human Nature, 24*(1), 5–32. doi:10.1007/s12110-013-9162-3

Jowkar, B., Kohoulat, N., & Zakeri, H. (2011). Family communication patterns and academic resilience. *Procedia-Social and Behavioral Sciences, 29*, 87–90. doi:10.1016/j.sbspro.2011.11.210

Khan, J. H., Kasky-Hernandez, L. M., Ambrose, P., & French, S. (2017). Stress, depression, and anxiety among transitioning college students: The family as a protective factor. *Journal of The First-Year Experience & Students in Transition, 29*(2), 11–25. Retrieved from https://www.ingentaconnect.com/contentone/fyesit/fyesit/2017/00000029/00000002/art00001#

Kilbert, J., Lamis, D. A., Collins, W., Smalley, K. B., Warren J. C., Yancey, C. T., & Winterowd, C. (2014). Resilience mediates the relations between perfectionism and college student distress. *Journal of Counseling & Development, 92*(1), 75–82. doi:10.1002/j.1556-6676.2014.00132.x

Krenz, T., Krivitsky, P. N., Vacca, R., Bojanowski, M., & Herz, A. (2020). *Egor: Import and analyze ego-centered network data*. R package version 0.20.03. Retrieved from https://CRAN.R-project.org/package=egor

Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development, 71*(3), 543–562. doi:10.1111/1467-8624.00164

Marsden, P. V. (1987). Core discussion networks of Americans. *American Sociological Review, 52*(1), 122–131. doi:10.2307/2095397

Marsden, P. V., & Campbell, K. E. (1984). Measuring tie strength. *Social Forces, 63*(2), 482–501. doi:10.2307/2579058

Mayer, A., & Puller, S. L. (2008). The old boy (and girl) network: Social network formation on university campuses. *Journal of Public Economics, 92*(1–2), 329–347. doi:10.1016/j.jpubeco.2007.09.001

McPherson, M., Smith-Lovin, L., & Brashears, M. E. (2006). Social isolation in America: Changes in core discussion networks over two decades. *American Sociological Review, 71*(3), 353–375. doi:10.1177/000312240607100301

McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology, 27*(1), 415–444. doi:10.1146/annurev.soc.27.1.415

Mishra, S. (2019). Social networks, social capital, social support and academic success in higher education: A systematic review with a special focus on 'underrepresented' students. *Educational Research Review, 29*(1), 100307. doi:10.1016/j.edurev.2019.100307

Oshio, A., Kaneko, H., Nagamine, S., & Nakaya, M. (2003). Construct validity of the Adolescent Resilience Scale. *Psychological Reports, 93*(Suppl. 3), 1217–1222. doi:10.2466/pr0.2003.93.3f.1217

Parks, M. R., Stan, C. M., & Eggert, L. L. (1983). Romantic involvement and social network involvement. *Social Psychology Quarterly, 46*(2), 116–131. doi:10.2307/3033848

Pescosolido, B. A. (1992). Beyond rational choice: The social dynamics of how people seek help. *American Journal of Sociology, 97*(4), 1096–1138. doi:10.1086/229863

Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. New York, NY: Simon and Schuster.

Roberts, S. G. B., Dunbar, R. I. M., Pollet, T. V., & Kuppens, T. (2009). Exploring variation in active network size: Constraints and ego characteristics. *Social Networks, 31*(2), 138–146. doi:10.1016/j.socnet.2008.12.002

Salzer, M. S. (2012). A comparative study of campus experiences of college students with mental illnesses versus a general college sample. *Journal of American College Health, 60*(1), 1–7. doi:10.1080/07448481.2011.552537

Scharp, K. M., Geary, D. E., Wolfe, B. H., Wang, T. R., & Fesenmaier, M. A. (2021). Understanding the triggers and communicative processes that constitute resilience in the context of migration to the United States. *Communication Monographs, 88*(4), 395–417. doi:10.1080/03637751.2020.1856395

Scharp, K. M., Wang, T. R., & Wolfe, B. H. (2022). Communicative resilience of first-generation college students during the COVID-19 pandemic. *Human Communication Research, 48*(1), 1–30. doi:10.1093/hcr/hqab018

Seder, J. P., & Oishi, S. (2009). Ethnic/racial homogeneity in college students' Facebook friendship networks and subjective well-being. *Journal of Research in Personality, 43*(3), 438–443. doi:10.1016/j.jrp.2009.01.009

Small, M. L. (2013). Weak ties and the core discussion network: Why people regularly discuss important matters with unimportant alters. *Social Networks, 35*(3), 470–483. doi:10.1016/j.socnet.2013.05.004

Small, M. L. (2017). *Someone to talk to*. New York, NY: Oxford University Press.

Small, M. L., & Sukhu, C. (2016). Because they were there: Access, deliberation, and the mobilization of networks for support. *Social Networks, 47*, 73–84. doi:10.1016/j.socnet.2016.05.002

Sosa, M. E. (2011). Where do creative interactions come from? The role of tie content and social networks. *Organization Science, 22*(1), 1–21. doi:10.1287/orsc.1090.0519

Wagnild, G. M., & Young, H. M. (1993). Development and psychometric evaluation of the Resilience Scale. *Journal of Nursing Measurement, 1*(2), 165–178. Retrieved from https://pubmed.ncbi.nlm.nih.gov/7850498/

Walker, M. H. (2015). The contingent value of embeddedness: Self-affirming social environments, network density, and well-being. *Society and Mental Health, 5*(2), 128–144. doi:10.1177/2156869315574601

Wang, H., Chua, V., & Stefanone, M. A. (2015). Social ties, communication channels, and personal well-being: A study of the networked lives of college students in Singapore. *American Behavioral Scientist, 59*(9), 1189–1202. doi:10.1177/0002764215580590

Werner, E. E. (1993). Risk, resilience, and recovery: Perspectives from the Kauai Longitudinal Study. *Development and Psychopathology, 5*(4), 503–515. doi:10.1017/S095457940000612X

Werner, E. E. (1995). Resilience in development. *Current Directions in Psychological Science, 4*(3), 81–84. doi:10.1111/1467-8721.ep10772327

Wilks, S. E. (2008). Resilience amid academic stress: The moderating impact of social support among social work students. *Advances in Social Work, 9*(2), 106–125. doi:10.18060/51

Wyman, P. A., Pickering, T. A., Pisani, A. R., Rulison, K., Schmeelk-Cone, K., Hartley, C., . . . Valente, T.W. (2019). Peer-adult network structure and suicide attempts in 38 high schools: Implications for network-informed suicide prevention. *Journal of Child Psychology and Psychiatry, 60*(10), 1065–1075. doi:10.1111/jcpp.13102

Zhang, R. (2017). The stress-buffering effect of self-disclosure on Facebook: An examination of stressful life events, social support, and mental health among college students. *Computers in Human Behavior, 75*, 527–537. doi:10.1016/j.chb.2017.05.043