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"The framily plan": Characteristics of ties described as both "friend" and "family" in personal networks

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Abstract

Despite the growing potential for multiplexity in our complex social world, social network methodology often does not adequately capture this phenomenon. Most commonly in research on egocentric social networks, when respondent designate a tie as both family member and friend, the tendency is to default to "family" prior to aggregation for analysis, potentially ignoring important and meaningful variation. As a result, relatively little is known about multiplexity in personal social networks, and particularly about individuals who are simultaneously kin and friends. To address this gap, we assess the rate of occurrence of kinship/friendship multiplexity, and examine characteristics of alters nominated as friends and kin in comparison to those with unidimensional functionality. We find that this kind of multiplexity is fairly common–comprising about one-fifth of kinship ties and one-fourth of friendship ties. Moreover, cross–listed alters are significantly different from those characterized in one function, serving in greater capacity in terms of provision of support, frequency of contact, closeness, and as resources for discussion of important matters. Our findings underscore the critical need to appropriately classify multiplex kinship/friendship ties to avoid making incorrect inferences about support processes and their effects on outcomes across different relationship types.

Keywords: *multiplexity, egocentric social networks, social ties, kinship, friendship, methodology*

1 Introduction

Personal social networks, or egocentric networks, are the relationships among a set of individuals nominated by a focal person, or ego. In egocentric social network research, the role or type of relationship between network members has emerged as one of the strongest predictors of individual behavior and relationship characteristics (Perry & Pescosolido, 2015; Wellman & Wortley, 1990). Whether a network member is a spouse, parent, friend, neighbor, or coworker has profound implications for the ways two individuals interact and exchange support and other resources

(McPherson et al., 2001). Social network members often provide distinct types and amounts of support, including instrumental help with chores or childcare, emotional support, novel information or advice, and companionship (Wellman & Gulia, 1999). Importantly, these and other patterns of interaction, such as frequency of contact and topics of discussion, often map closely onto various types of relationships (Bearman & Parigi, 2004).

As human beings, one of our fundamental needs is connectedness to other people (Bagwell & Schmidt, 2011). Friendship is one of the most important relationships in social life across the lifespan (Hartup & Stevens, 1997), and has been linked to improved physical and mental health, as well as life satisfaction (Weeks & Asher, 2012). Friendships provide us with validation, caring, companionship, recreation, and guidance (Bagwell & Schmidt, 2011). Positive, healthy friendships result in less loneliness, which improves wellbeing and life chances (Kingery & Erdley, 2007). Longer term friendships provide opportunities for shared histories (Fehr, 1999), and boost self-esteem (Hartup, 1996). Even the presence of friendships in childhood impacts adult success in relationships, marriages, and jobs (Bagwell et al., 1998). Friendships tend to be homophilous in terms of interests, self-concepts, personalities, and preferred hobbies and activities (Akers et al., 1998).

Friendship is also distinctive from most other types of roles. Namely, unlike relationships that are ascribed or determined by structural or familial arrangements (e.g. doctor, coworker, mother), friendship is an achieved or elective role. However, we tend to choose our friends from among those we know through ascribed roles and focused activities and social contexts (Feld, 1981). For example, a neighbor by chance may eventually become a friend by choice through sustained and meaningful interactions. Likewise, we do not choose our family members, but through frequent contact and shared significant experiences they may become our friends. This tendency for people to have multiple different roles in a network is known as multiplexity in social network research (Bliemel et al., 2014; Kapferer, 1969). Multiplexity takes the form of one relationship serving different functions (Ibarra, 1995), providing opportunities for a variety of types of exchanges (Kapferer, 1969), and/or fostering multiple affiliations (Wheeldon, 1969). Often, multiplex ties are among the strongest and most durable relationships in a network because two people are tied through more than one set of mutual expectations and shared benefits (Lorenzen & Vaarst Andersen, 2012). However, multiplexity, especially in the case of friendship, can pose challenges in egocentric social network research.

Most commonly, data on egocentric social networks is collected through a series of name generators and name interpreters. Respondents (egos) first list types of people with specific attributes (e.g. those who provide social support, or discuss important matters), and then a set of questions, or name interpreters, is asked about each person (or alter) named. Name interpreters are utilized to ascertain socio-demographic characteristics and features of the relationships between the listed alters and the ego respondent. A standard name interpreter asks about the role of the alter, or the type of relationship between ego and alter (e.g. family member, coworker, friend, etc.), and often multiple roles can be selected. Because people tend to choose friends from among those they know through work, school, or family, friendship is often the most multiplex type of relationship. It is not unusual for someone to be listed as both a

friend and a family member, or a friend and a coworker. When a respondent lists a tie as both a family member and a friend, the tendency is to default to "family" as the designation for the tie. Making this analytic decision a priori is a requisite step in the process of aggregating alter-level data to the level of network characteristics (e.g. percent of the network that is family). This paper sought to investigate how widespread multiplex family and friendship ties are, and whether this practice might have implications for the results of egocentric network research. That is, if ties are designated as both family *and* friend—as reported by the respondent—as opposed to being designated exclusively as family or friend, does this provide unique information about those relationships or alters that is masked by the current analytic strategy?

2 Theoretical background

Personal social network ties fulfill a variety of different functions in the lives of individuals. They often exert social influence, convincing individuals to pursue a certain course of action or engage in particular behaviors (Latkin et al., 1995; Sampson & Laub, 1997; Umberson & Montez, 2010). Social network members also play a critical role in decision-making, especially in the face of uncertainty and crisis (Pescosolido, 1992). Also, social networks have been shown to exert social control, shaping prosocial or deviant behavior through normative expectations and shared goals and values (Perry & Pescosolido, 2015; Sampson & Laub, 1997).

The most frequently studied function of personal social networks is the access they provide to social support and other resources (Walen & Lachman, 2000; Wellman & Gulia, 1999; Wellman & Wortley, 1990). Four types of resources may be available through social networks: emotional support, or listening to a person and providing positive affirmation; instrumental support, defined as supplying material or other kinds of help; social companionship; and informational support, or giving novel information, guidance, and advice (Perry & Pescosolido, 2015; Umberson & Montez, 2010). These resources are correlated with more positive outcomes, both because they convey a general sense of belonging and purpose that buffers stressful circumstances, and because they provide access to concrete resources that can be used to avoid hardship and improve economic, social, physical, and emotional wellbeing (Umberson & Montez, 2010).

Among the types of ties within an ego's network, friends hold a particular significance. Friendships provide both important psychological and emotional support and material assistance (Allan, 1998; Fehr, 1999). These relationships are characterized by mutual affection, companionship, and trust, and they provide a sense of belonging and purpose (Selman & Schultz, 1990). Research suggests that friendship quality and number of friends are correlated with health, wellbeing, and functional adjustment (Dwyer & Cummings, 2001), in part because friends influence one another's prosocial behaviors (Felmlee & Sprecher, 2000).

Wellman and Wortley (1990) found that kinship ties and friendship ties provide different kinds of support. Kinship ties encourage shared resources and long-term reciprocal relationships (Schneider, 1984). Americans have greater expectations of support from kinship ties than friendship ties; this is especially true of immediate

family (Argyle & Henderson, 1985). Kinship ties tend to be densely interconnected, while friendship ties are less normatively bound and less densely knit (Côté et al., 2009). As a result, accepting help and support from friends can be more problematic, as the relationship is voluntary, which necessitates reciprocation (Côté et al., 2009; Wellman & Wortley, 1990). Kinship ties tend to provide solidarity, commitment, and trust, as well as financial assistance and acquisition of knowledge (Wellman & Wortley, 1990). Friends, in contrast, typically offer emotional support, companionship, and social mobility resources, such as job leads (Granovetter, 1995; Wellman & Wortley, 1990).

Kinship ties and friendship ties differ substantially in their characteristics. Kinship ties cultivate frequent contact and bring new ties we would not have encountered otherwise into our networks (Gillespie et al., 1985). Among kinship ties, sibling relationships have been shown to provide more emotional and instrumental support (Litwalk, 1985), yet often have less homophilious interests than other ties (Litwalk, 1985). For women in particular, siblings may be more likely to serve as companions, confidants, and sources of instrumental support relative to other types of family ties (Wellman & Wortley, 1990). Friendship ties, on the other hand, tend to be more intimate and active, and serve as the most important source of companionship in our networks (Wellman, 1992), particularly earlier in the life course (Curran et al., 2001). Additionally, its voluntary status means a friendship association requires regular maintenance (Wellman, 1992).

2.1 Multiplexity in social networks

Of course, social ties do not always fit discretely in categories. Circumstances of regular, organic contact, and socializing, as well as the perception of homophily, often create multiplex relationships. For instance, studies have shown that friendships often develop from positive working relationships (Feld, 1981). Multiplexity results in the superimposition of roles that one person fulfills, such that there exist multiple opportunity structures and motivations for interaction. Research suggests that multiplex ties are stronger than ties serving only one role (Granovetter, 1983).

Multiplexity has been found to increase solidarity between ties (Gould, 1991). This theory has been used extensively in organizational discourse in fields as diverse as manufacturing (Burt, 1980), interest groups (Heaney, 2014), banking (Carroll, 2006), publishing (Heebels et al., 2013), fashion (Uzzi, 1997), and restaurants (Autry et al., 2014). Shipilov et al. (2014) retermed multiplexity "relational pluralism," arguing that multiplex ties can increase flexibility, allow the adoption of tailored innovations, and stabilize relationships. Multiplexity has also been found to influence frequency of contact between individuals, and is associated with increased interaction through Facebook and other media (Park et al., 2012).

Multiplexity may also increase the influence and social control functions of relationships and social networks. For example, Krohn et al. (1988) found that multiplex relationships with friends and parents have a strong protective effect on adolescent cigarette smoking, suggesting that more network-embedded relationships have a stronger normative influence on health behaviors. Likewise, Brass et al. (1998) found that multiplex relationships constrain unethical behavior, attributing

this to the high cost of losing a valuable relationship that serves multiple roles. This social influence can have negative consequences, as well. For example, multiplex ties between drug users have been shown to correlate with a higher incidence of risk-taking (Latkin et al., 1995).

Additional research demonstrates that multiplexity plays a role in the quality of relationships and the resources flowing through social networks (Cross et al., 2001). Overall, multiplex ties tend to be more intimate, supportive, and voluntary (Kogovsek et al., 2013; Wellman & Wortley, 1990). Multiplex ties stake numerous claims on the attention of individuals embedded in them, and foster more detailed knowledge of the needs of interaction partners (Verbrugge, 1977). Because multiplex ties tend to be more supportive and intimate, individuals with more multiplex ties in their networks report higher self-esteem, better psychological adjustment, and greater satisfaction with their social networks and relationships, on average (Mesch & Talmud, 2006).

2.2 Multiplexity in egocentric research methodology

Despite the importance of multiplex ties and the growing potential for multiplexity in our complex social world, personal social network methodology does not adequately capture this phenomenon. Research on egocentric social networks typically requires aggregation to the ego level, so ties in an ego's network are often characterized as either family or friend to simplify this process. For example, two common measures used in egocentric research are the percent of the network made up of family members and the percent that are friends (or, alternatively, a count of kin and friends). To avoid double counting one network member, a decision must be made about how to categorize multiplex ties. Those ties listed as family and friends by the ego respondent are typically coded as "family" by default (Wall & Gouveia, 2014; Walen & Lachman, 2000).

This strategy of a priori coding ties with multiple roles as either friends or family members may be problematic for a number of reasons. Recent studies have noted increasing blurring of boundaries between friends, family members, and other types of ties, pointing to a need for a more nuanced classification (Edwards & Gillies, 2012). Ties characterized as both friends and family members may function more like one or the other type of relationship, introducing complexity and unexplained variation in the statistical linkages between roles and outcomes. Alternatively, individuals who are both kin and friends may have characteristics that are distinctive from those who fulfill only one of these roles. We know relatively little about multiplexity in general, and almost nothing about individuals who are simultaneously kin and friends. Consequently, Flap & Volker (2001) point out that this lack of nuance in measurement and analysis of alter characteristics is a site worthy of inquiry.

To address this gap in the literature, we assess the incidence of kinship/friendship multiplexity, and examine characteristics of alters nominated as friends and kin in comparison to those with unidimensional functionality. More specifically, we address three research questions: (1) How common is multiplexity between the role of friend and family member? (2) What demographic and other characteristics distinguish alters identified as only a friend, only a family member, both friend and family, and

those who are neither friend nor family? and (3) Is multiplexity between friendship and kinship roles associated with relationship quality and functionality?

3 Methods

3.1 Sample

The data for this paper are drawn from a community sample assessed as part of a larger umbrella study, the Indianapolis Network Mental Health Study (INMHS; Perry & Pescosolido, 2012), conducted between 1990 and 1997. The study focused on two populations: (1) individuals with mental illness obtaining treatment for the first time; and (2) network members nominated by people with mental illness. Specifically, during their interview, focal respondents with mental illness ($n = 173$) were asked to report on their social network ties and, in most cases, gave permission for one or more of those individuals (of their choosing) to be interviewed for the study. This second sample is comprised of "network respondents," people who are primary network members of someone with a mental illness, but who themselves do not have a mental illness. The network respondents reported on the focal respondents with mental illness, but also provided information about their own personal social networks.

For this analysis, we focus on the individuals without a mental illness and their perceptions of their own social networks ($n = 255$). We draw on this sample rather than using other nationally representative data (e.g. the General Social Survey) for four reasons: First, the INMHS network respondents were asked to list up to five possible connections to each alter. Another common strategy is to ask respondents to choose the one connection that best describes the relationship, which does not permit an assessment of multiplexity. Second, population studies of social networks almost always truncate the number of alters that can be named, restricting the universe of alters to the core network and increasing the likelihood that multiplex ties are nominated (i.e. because they tend to be the most salient and strongest ties). This could lead to a biased population estimate of the rate of multiplexity between friendship and kinship ties. Third, the INMHS network respondent interview uses a name generator that explicitly asks about family members with whom the person has a minimal level of correspondence, ensuring variation in the types of kinship ties represented in the data. Fourth, friendship ties are elicited using separate name generators that explicitly prompt for "friends and acquaintances" (i.e. rather than asking for general supportive ties), maximizing the number and range of types of friends in the dataset. In all, a total of 13 different name generators are employed to elicit alter names, providing a much richer picture of the social networks of people in the community than are available in nationally representative surveys.

The socio-demographic profile of the 255 network respondents is presented in Table 1. About 70% are women, reflecting the tendency for people with mental illness to nominate female supporters and caregivers as potential interviewees. More than 72% of the sample is White and the remaining 28% are non-White. The respondents range in age from 15 to 86 with a mean age of 42.52. The mean education level is 12.41 years, with 36% having a high school diploma or equivalent and 19% having a four year college degree. The 255 respondents identified a total

Table 1. *Sample descriptive statistics, INMHS.*

Variables	Percent	Range	Mean	(SD)
Egos ($n = 255$)				
Female	69.80			
White	72.16			
Age		15–86	42.52	14.62
Education		5–16	12.41	2.41
Number of ties		3–57	20.96	9.57
Alters ($n = 5{,}344$)				
Female	56.38			
Age		1–97	38.97	17.39

of 5,344 alters (See Table 1), averaging 20.96 alters per respondent. About 56% of alters are women, with a mean age of 39 years old.

3.2 Dependent variables

Dependent variables measure perceptions of relationship quality with each alter. One dependent variable measures the number of support functions that an alter provides to the respondent. A summation scale comprised of five options assesses different forms of support that each alter provides, and ranges from 0–5. It includes responses (yes = 1, no = 0) to the statements about whether each alter listens to ego, cares about ego, gives ego practical suggestions, helps ego with chores/transportation, and gives/loans money to ego.

Another dependent variables measures frequency of contact between the respondent and the alter. It is based on an item asking how often the respondent and alter see or talk to one another, and includes the responses "often," "occasionally," and "hardly ever." This ordinal variable was recoded into a binary variable where alters who contact the respondent often are the reference group (1) and occasionally and hardly ever are the omitted group (0).

The quality or intimacy of the relationship between ego and alter is measured using an item asking, "How close do you feel to this person currently?" Responses include "very close," "sort of close," and "not very close." This variable was dichotomized such that very close = 1 and sort of close and not very close = 0.

Finally, a dichotomous variable measures whether respondents identify the alter as someone with whom they would discuss matters that are important to them. The variable is coded 1 if the respondent listed the alter in response to the question, "who are the people in your life with whom you discuss matters important to you?" and 0 if the alter was not listed.

3.3 Independent variables

Demographic variables are used as controls in these analyses predicting the quality and functions of relationships. This strategy is based on existing research suggesting that gender, race, and age of egos and alters affect the characteristics of relationships between them and other network-level outcomes (Wellman & Wortley, 1990). Because demographic patterns of friendship and kinship may confound the relationship

between multiplexity and relationship characteristics, it is important to control for these variables.

With respect to gender, female egos and alters are coded as 1; male egos and alters as 0. Egos who self-reported as White are coded 1 and non-White egos are coded 0. Information about race is not available for alters. Age and educational attainment are measured in years for both ego and alter.

Characteristics of relationships and networks are also included as independent variables in analyses. Network size is measured using a count of the number of unique alters each respondent identified in response to all of the name generators in the survey instrument. These include family, friends, coworkers, neighbors, household members, fellow students, members of voluntary and church organizations, and acquaintances. This approach provides a near inventory of people who have regular contact with respondents, including ties of great significance (e.g. core supporters) as well as those who may play a more peripheral or unidimensional role (e.g. coworkers, neighbors, etc.).

The key independent variable of interest indicates the type of relationship between the respondent and alter for each dyadic pair. The respondent was asked to identify the nature of the connection with each alter and was asked to provide up to five connections or roles. Respondents were supplied a list of possible choices including spouse/partner, parent, sibling, friend, neighbor, coworker, and various other connections. Based on these classifications, three dummy variables were created to delineate among alters who were identified only as family members (spouse/partner, parent, sibling, child, grandparent, grandchild, aunt/uncle, in-law, and other relative), alters who were identified only as friends, and alters who were identified as both a friend and family member in any of the responses identifying alter connection to respondent. For this set of dummy variables, the omitted group includes any alter who was not identified as either a family member or a friend.

3.4 Analytic strategy

Analyses presented here examine demographic and relationship characteristics among four distinctive sub-groups of alters: (1) ties who are neither family nor friend, (2) ties who are solely friends, (3) ties identified as exclusively family, and (4) ties who are identified as both a family member and friend. The first research question addresses the incidence of multiplexity between the role of friend and family member, and is assessed using simple descriptive statistics. The second research question asks whether alters identified as only a friend, only a family member, both friend and family, and those who are neither friend nor family differ systematically with regard to socio-demographic and relationship variables. These characteristics are compared using crosstabs and chi-square tests for nominal and ordinal variables, and ANOVA and F-tests for interval-ratio variables.

To identify how multiplexity and the types of roles assigned by egos to alters affect the quality and function of the relationship, we use multivariate multilevel modeling. Variables described above are measured at two distinct analytic levels. Characteristics of ego (i.e. the focal person at the center of the network analysis) and social network size constitute Level 2, consistent with previous research on

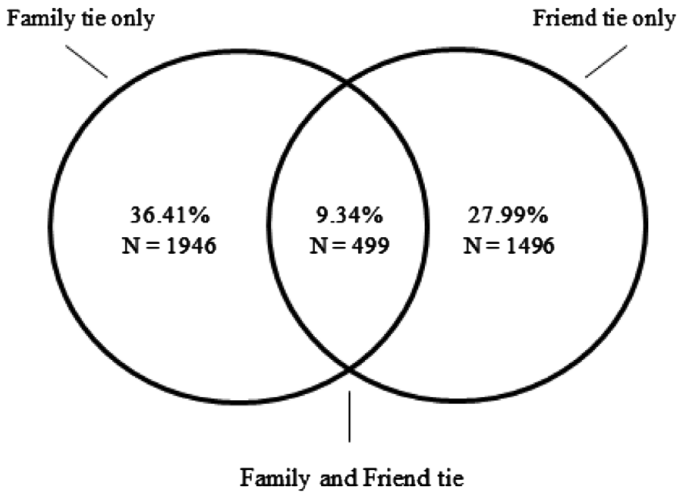

Fig. 1. Percent of alters who were identified as only a friend, only a family member, and both a friend and family member ($n = 5{,}344$).

egocentric networks analyzed using multilevel modeling (de Miguel Luken & Tranmer, 2010). Characteristics of alters and relationships between egos and alters constitute Level 1.

A random-intercept model is used with Level-1 alters nested in Level-2 egos. These models include a random intercept for each ego and adjust for the lack of independence between observations for nominated alters. As an example, the two-level binary logistic regression model predicting probability p of ego j having a close relationship with alter i is written as

$$\log\left(\frac{p_{ij}}{1-p_{ij}}\right) = \beta_0 + \beta_1 x_{1ij} + \beta_2 x_{2ij} + \zeta j + \varepsilon ij$$

In this model, i corresponds to alter (i.e. Level 1) identifier, j to respondent (i.e. Level 2) identifier, ζj to the random intercept, and ϵ_{ij} to the Level-1 residual. Together, ζj and ϵ_{ij} represent random parts of the model, while the other components are fixed.

This analytic strategy is ideal in cases where the dependent variable is a characteristic of alters or ties since aggregation to the ego level results in a loss of information. All models control for ego and alter demographics. Odds ratios and confidence intervals are presented for binary logit models, and incidence rate ratios are presented for the negative binomial regression model.

4 Results

There is considerable overlap, or multiplexity, between friendship and kinship roles. As Figure 1 indicates, the percent of alters identified as only a friend is 36%, and the percent identified as only a family member is 28%. However, an additional 9% of ties were identified as both a family member and a friend. Put another way, about 20% of all family members listed by egos were also described as friends. Conversely, about 25% of all friends were also identified as family members.

Table 2. *Comparison of alters only identified as friends (Just friend), only identified as family (Just family), and considered both a friend and family member (Both), INMHS (n = 5,344).*

Variables	Neither	Just friend	Just family	Both	Chi^2/F	Sig
Alter demographics						
Female	0.57	0.62	0.55	0.56	17.82	***
Age	40.51	40.30	37.11	38.61	13.22	***
Function and strength						
Very close	0.14	0.42	0.53	0.76	585.19	***
Number of support functions	1.54	2.63	2.74	3.30	110.07	***
Very frequent contact	0.54	0.57	0.58	0.69	28.86	***
Discusses important matters	0.05	0.21	0.26	0.36	304.43	*
Number of ties	6.47	7.53	8.55	2.77		*

*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$ (two-tailed test).

Bivariate differences between alters with different roles are presented in Table 2. The group of alters defined as just friends is more likely to contain women ($X^2 = 17.82$, $p < 0.001$). People identified as just family or as family and friends are younger, on average, than those identified as just friends or neither friends of family ($X^2 = 13.22$, $p < 0.001$). With respect to relationship characteristics, there is substantial variation across role types. A greater proportion of alters who are both friend and family are classified as "very close" compared to any other group ($X^2 = 585.19$, $p < 0.001$). About 76% of multiplex ties are described as very close, compared to only 53% of those who are only family members, 42% of those who are only friends, and 14% of those who are neither. These multiplex ties also provide more different types of support functions, on average ($X^2 = 110.07$, $p < 0.001$). Similarly, multiplex ties are significantly more likely to have very frequent contact with the ego ($X^2 = 28.86$, $p < 0.001$), and to discuss important matters with the ego ($X^2 = 304.43$, $p < 0.05$). Finally, on average, the network of multiplex ties is smaller than any other type of role-defined network, reflecting the significance and relative uniqueness of multiplexity. Each ego named about three multiplex ties, nine family members, eight friends, and seven other types of ties.

Table 3 displays results from the regression of relationship quality and function on multiplexity and type of role. Results in Model 1 suggest that alters with multiplex friendship and kinship roles provide more unique types of support resources, on average, than other kinds of ties. Controlling for potential confounding factors, being friend and kin is associated with a two and a half fold increase in the predicted odds of providing an additional type of support function relative to being neither a friend nor family member ($p < 0.001$; See Model 1). Being just a family member (IRR = 1.71, $p < 0.001$) and just a friend (IRR = 1.84, $p < 0.001$) are also associated with providing more types of support, relative to alters who are neither friends nor family members, though the magnitude of this effect is largest for those with a multiplex tie. This may suggest that those described as both friends and family member provide the types of support that are characteristic of both kinds of ties (i.e. they fulfill more functions).

Multiplexity is also associated with the frequency of social interaction in person or over the phone. As shown in Model 2, alters who are both friends and family

Table 3. *Multilevel negative binominal and logistic regressions of number of support functions, frequency of contact, closeness, and discussion of important matters on multiplexity, INMHS (n = 5,344).*

	Model 1 Support functions		Model 2 Frequency of contact		Model 3 Closeness		Model 4 Important discussant	
Variables	IRR	CI	OR	CI	OR	CI	OR	CI
Ego race (White)	0.95	0.86, 1.06	0.60***	0.45, 0.80	0.52***	0.38, 0.71	1.22	0.95, 1.57
Ego gender (fem)	1.11*	1.01, 1.23	1.28	0.98, 1.68	1.15	0.85, 1.57	1.24	0.97, 1.59
Ego age	0.99**	0.99, 1.00	1.01	1.00, 1.02	1.03***	1.02, 1.04	0.99	0.99, 1.00
Ego education	1.03**	1.01, 1.05	1.01	0.96, 1.07	1.01	0.95, 1.07	1.00	0.95, 1.05
Alter gender (fem)	1.02	0.98, 1.06	1.06	0.91, 1.23	1.28**	1.11, 1.49	1.44***	1.22, 1.69
Alter age	1.00***	1.00, 1.01	0.98***	0.98, 0.99	0.99***	0.99, 0.99	1.02***	1.01, 1.02
Alter role†								
Family and friend	2.45****	2.23, 2.70	2.64***	1.92, 3.63	48.07***	33.20, 69.60	17.57***	12.03, 25.66
Just family	1.71***	1.58, 1.85	0.95	0.75, 1.19	9.20***	7.05, 12.01	7.68***	5.63, 10.48
Just friend	1.84***	1.69, 2.00	1.16	0.91, 1.47	7.11***	5.39, 9.37	6.10***	4.42, 8.43
Network size	0.99**	0.99, 1.00	0.97***	0.96, 0.98	0.98*	0.97, 1.00	0.97***	0.96, 0.98
Rho	0.23		0.13		0.19		0.09	
LR test	462.61***		170.88***		258.83***		55.62***	
n (Observations)	3,835		3,870		4,396		4,748	
n (Groups)	234		234		242		245	

*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$ (two-tailed test); † = omitted category includes alters who were not identified as the denoted relationship type.

members are about 2.65 times as likely, on average, to have very frequent contact with the ego relative to those who are neither family nor friends. Being a family member or friend alone is not significantly predictive of increased frequency of contact. This indicates that either regular interaction fosters increased affection between family members, or that people tend to associate more frequently with family members who are considered friends.

Model 3 reveals a very strong relationship between multiplexity and closeness. Namely, being a multiplex friend and family member is associated with being nearly 50 times as likely to have a very close relationship with the ego compared to being neither a friend nor a family member ($p < 0.001$). In contrast, being just a family member is associated with about nine times greater odds ($p < 0.001$), and being just a friend with about seven times greater odds of ego reporting a very close relationship to an alter. This finding confirms that friendship among kin—an elective or achieved role—is reserved for those family members to whom ego respondents feel closest.

Finally, as shown in Model 4, the likelihood of intimate discussion between two people is associated with multiplexity. Our results suggest that an ego is nearly 18 times as likely to talk to an alter with multiplex roles about important matters as to a person who is neither a friend or a family member ($p < 0.001$). In contrast, alters who are just family members are about eight times more likely to be involved in discussions of important matters ($p < 0.001$), and those who are just friends are about six times as likely ($p < 0.001$), on average. This finding has important implications for the kinds of activities and exchanges that occur within multiplex and more one-dimensional relationships. Namely, alters who are considered both friends and family members are especially likely to be involved in the kinds of serious discussions about life events and circumstances that might lead to social influence, giving advice or information, and providing emotional support or other resources.

5 Discussion

By and large, social scientists have not taken full advantage of multiplex relationships involving family members, potentially mischaracterizing alters according to a predetermined hierarchy. Moreover, no research to date has examined correlates of multiplex ties connected through both friendship and kinship. Consistent with our expectations, we find that alters cross-listed as both friends and family are significantly different from those characterized as only friends or family members. Specifically, our results indicate that ties described by an ego as *both* friend and family serve in a greater capacity in terms of support, frequency of contact, closeness, and resources for discussions of important matters.

To date, little research has examined multiplex kinship relations, instead focusing on the unique functions, or functional specificity, that kin and friends provide (Perry & Pescosolido, 2010; Wellman & Wortley, 1990). We find that multiplex kinship/friendship ties are fairly common, comprising about one-fifth of family relationships and one-fourth of friendships. We observe a relationship between multiplexity and frequency of contact, suggesting that spending time together provides opportunities for developing voluntary ties from more structured foci of activity, such as becoming friends with a coworker (Feld, 1981). Conversely, having

a strong, multiplex relationship probably increases the desirability of interaction and commitment to maintaining a relationship, particularly if the tie provides access to resources like emotional and instrumental support (Cross et al., 2001).

These findings also provide evidence that multiplex ties are unique from more unidimensional ones, occupying critical positions in the social lives of individuals. Consistent with previous research, we find that multiplexity reflects overlapping motivations for interaction and exchange of resources, resulting in intimate and more broadly functional ties (Kogovsek et al., 2013). Most interesting is the finding that multiplex ties are substantially more likely than unidimensional kinship and friendship ties to be a context for discussion of important matters. Consequently, these multiplex ties probably hold disproportional social influence over egos' behaviors and decisions.

From a methodological standpoint, the practice of coding an alter as family when an ego labels them as both friend and family leads to a loss of information and perhaps incorrect assumptions about the meaning and implications of friendship and kinship. Here, we provide novel evidence that decisions about how to code alters' relationships to egos may have important consequences for multivariate research, particularly where connection to an alter is used as a proxy for tie strength. Consequently, when an interviewee reports an alter as both a friend and a family member, the researcher should consider including a designation for a combined or multiplex category as opposed to coding the alter as "family." Future research should examine the interactional processes through which multiplex friend/family relationships develop over time, and assess the consequences of various coding strategies for using aggregated network variables in multivariate analyses.

6 Limitations and future research

This research has limitations that warrant future research. First, while the egos used in this inquiry did not themselves suffer from a mental illness, their networks contain a member who does. It is possible that this circumstance may have affected the characteristics and composition of the networks. Thus, this could impact the generalizability of the inquiry. It is possible that the findings presented here may be attributable in part to the nature of having a close tie with a mental illness. Future social network research should investigate whether creating a specific grouping of ties who are delineated by the ego as both "friend" and "family" impacts analysis. Future research should attempt to capture whether this unique categorization creates a multiplex relationship. Second, the sample here is not nationally representative. It is also a small sample. Future studies should try to capture a more nationally representative and larger sample to test the findings presented here.

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