There is a long tradition of research on personal networks and personal relationships. However, social researchers have too often studied an individual's personal relationships without taking into account the linkages between network members. Yet it goes without saying that network members do not function independently of each another. It is crucial to regard the focal individual's interaction with one network member in relation to his or her interaction with other network members. For example, a family may decide together that each of the adult children will take turns in providing care for an elderly parent. Thus, the study of personal relationships evolves into the study of personal networks if relationships are viewed as part of a larger network and if linkages between these relationships are taken into account. Below I will elaborate on this issue.

Research on Network and Network Features

There is a great deal of good research that examines how characteristics of a focal person are related to features of individual relationships. For example, many studies have examined how differences in well-being are explained by differences in structural and functional aspects of networks. Examples of structural aspects of a network are size, composition (e.g., proportion of kin) and homogeneity (e.g., proportion of same-sex network members). Information on how the network functions can be obtained by combining the content of individual relationships on such things as interaction (e.g., number of frequent contacts) or support intensity (e.g., proportion of instrumentally supportive relationships, the sum of support received). This type of research typically uses information on the star network.

Figure 1 gives an example of a star network. This type of network consists of one focal person (the "anchor" of the network), eight persons, and their relationships with the anchor. The anchor is graphically represented as the middle of a star. Data from the lower level of the separate network members and/or relationships are generally transferred to the higher level of the focal person by aggregation, taking the mean or the sum of the network member and/or relationship characteristics across the network of the focal person.

A second type of research is dedicated to differences between relationships. For example, we might explain differences in the amount of support received from relationship characteristics such as traveling distance. Network characteristics such as the network size or the number of supporters within a small distance can be used to open the network perspective. With respect to data analysis, data from the higher level of the focal person are transferred to the lower level of the separate network members and/or relationships. However, data from different cases are not independent of each other: they share the characteristics of the network. Moreover, (relationships with) network members of the same focal person will usually be more alike than (relationships with) network members of different focal persons. Since multilevel analysis techniques are now available, violation of the assumption of independence of observations is no longer a problem.

Although both types of research have contributed much to our knowledge of the meaning of personal relationships, studying only the relationships of the focal person has limitations. One of my research interests is reciprocity of support, based on exchange theories. A theoretically and empirically challenging idea is Wentowski's (1981) notion of "generalized support reciprocity," which refers to a network in which members give support without expecting it to be returned in the same proportion and from the same people. When studying support exchanges within relationships, it can be hypothesized that the conse-
quences of relationship imbalance will differ for networks characterized by generalized reciprocity compared to other networks. To assess the degree of generalized reciprocity, we need information about the mutual relationships between the network members. An example of such a full network is given in Figure 2. As in the star network, there are relationships between the anchor and network members, but there are also relationships between network members. Missing links indicate that network members are not in contact with each other. However, there is still one focal person in this network. In other words, it is an ego-centric network in which the network characteristics are primarily related to one person.

**Data Collection on Full Networks**

Full networks have rarely been studied, with the exception of \( N=1 \) studies (e.g., relationships between students in a classroom). As part of a large study on social networks and living arrangements of older adults in the Netherlands, we have recently completed a longitudinal survey of full networks. Let me briefly describe the design of this study. In the initial interview, network members of older adults were identified (van Tilburg, 1995). There was no limitation on the number, and the actual network size varied from 0 to 77. In addition, there was large variation in the types of relationships listed: some networks were composed of kin only, others of non-kin, and others were mixed. A sub-sample of the respondents and a limited number of their network members were asked to cooperate in a Network Study (van Tilburg et al, 1995). The eight network members with the highest frequency of contact were selected, and the anchor was asked to identify each one with their full names and addresses. In preparation for the production of the follow-up questionnaires, the extent to which the network members had contact with each other was inventoried by way of a density matrix. This made it possible for the written questionnaires to only ask network members questions about other network members with whom they had contact. All nine persons in this network received a questionnaire. The anchor was asked to answer questions about his/her relationship with all eight network members, his/her spouse about seven relationships, and so on. In total in 1992-1993 we mailed questionnaires to 4,264 respondents (for 671 anchors) with 17,396 mutual relationships. Questionnaires were completely personalized so that the names of other network members were included on the list (e.g., "Mrs. A.B. Merchant, neighbor of Mr. C.D. Anchor"). The questionnaire included a number of questions about the network members themselves and their relationships with other members of the network, including the anchor. The next two waves of data collection had an interval of one year.

Conducting a full network study is characterized by several obstacles. It is not only a very time-consuming and expensive (for example, since all questionnaires were unique, for almost a year a printer was producing the questionnaires), it is also necessary to intrude on the privacy of anchors and their network members. Respondents’ cooperation was needed at several stages, and each stage generated some non-response. In the first step, about 50% of the anchors refused or conditioned their cooperation (e.g., we were not allowed to contact all network members, or we were only allowed to approach them after the anchor asked for and received approval; about 25%). Furthermore, non-response at the network level was high, yet analysis of full networks requires that anchor and all the selected network members returned the mailed questionnaires. For 296 networks we have data from wave 1 available when we accepted 20% non-response within a network (i.e., one network member did not respond or for whom anchor refused cooperation; note that some anchors had less than eight relationships). Despite the high non-response rate missing data was non-selective, with the exception of age: more complete network data were available for the younger than for the oldest anchors.

**Studies in Progress**

The available data allows us to analyze the data from three perspectives: the older person, the network member, and the structure of the network. Each perspective is unique and supplements the other two. For example, in one paper (Klein Ikkink & van Tilburg, 1997) we examined why imbalances continued over time in some relationships while balance was restored in
other relationships. Using multilevel analysis, we found that continued unbalanced relationships occurred more often in networks characterized by generalized reciprocity (measured as the proportion of unbalanced relationships within the full network). This indicates that the network's system of exchange influenced the exchanges within individual relationships. In another paper in progress, we hypothesize that differences in older adult's loneliness can be explained by (the ratio between) the intensity of support received-and-given within relationships, and by differences in the generalized network reciprocity.

In addition to studying the interplay of relationship and network characteristics, the data allow us to study related research questions about reciprocity at the level of individual relationships. For example, in a paper by Klein Ikkink, van Tilburg & Broese van Groenou (1995), we used data from two waves to determine which relationships older adults invested in by giving support. Consistent with an exchange perspective, we found that older adults invested in relationships in which they did not invest in the past, from which they received support in the past, and in relationships that constituted the nucleus of their network (e.g., their partner or children). A fourth paper in progress studied reciprocity within relationships between adult children and their parents from both perspectives, using data collected from both parties. Older adults' and children's circumstances (e.g., health and employment status, the child's caring for his/her children) and attitudes about intergenerational support-giving and support-receiving affected the actual exchanges. Of interest was that the strength of the reciprocity effects were different for reports from adult children and their parent, suggesting that differences between these reciprocity reports may reflect different constructions of the social world.

Conclusion

I am not the first to call our attention to the interplay of networks and relationships. Starker, Morgan & March (1993), for example, have suggested that we replace the study of changes in either networks or relationships with the study of changes in networks of relationships. Moreover, I suggest that focusing on full networks, in particular, can provide valuable information. However, not all possibilities have been explored, and more research is needed to demonstrate the value of such an approach. For example, software packages (e.g., UNICET) available for N=1 network analysis can be used to compute network characteristics such as centrality and to detect clusters of supporters, which can then be related to focal person's situation. The application of the full network approach allows us to go beyond the limitations N=1 studies and ego-centric star networks.

References


Klein Ikkink, C.E., & van Tilburg, T.G. (1996). Do network members of older adults continue to provide support in imbalanced relationships? Manuscript submitted for publication.


