

**THE RIPPLE EFFECT: SOCIAL NETWORK DYNAMICS,
SOCIAL LOCATION, AND STRATEGIES OF INTERACTION
IN MENTAL ILLNESS CAREERS**

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To my daughters, Erelyn and Harper,
for your unconditional love,
and because our hope for a better tomorrow lies with you

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PREFACE

Social networks are dynamic in nature, characterized by ebbs and flows in the level and quality of interaction that correspond to important changes in the lives of individuals (Moody 2002; Morgan et al. 1997; Pescosolido 1992; Sutor et al. 1997; Wellman et al. 1997). Disruptive events and transitions (i.e., divorce, widowhood, or job loss) can restrict access to existing network ties and provide opportunities for new associations, altering network structure, function, and content in meaningful ways. While networks are fluid, our knowledge of dynamic network processes is limited. By conceptualizing an episode of mental illness as a disruptive event with profound consequences for social networks, I provide insight into mechanisms of change. More specifically, I ask how disruptive events require people to rethink their social interaction strategies and reorganize their social networks to cope with escalating needs and shifts in social location. In other words, the central question addressed here is how and why do social networks evolve in response to crisis?

To explain patterns of network dynamics, one must begin with the most basic foundation of social life – relationships between two individuals. Thus, it is crucial to understand how and why connections between individuals are established, what motivates us to maintain relationships, and whether and why they eventually end. In other words, why, on a fundamental level, do we *need* others, and how do we structure our lives and our relationships to satisfy this need in contemporary American society?

However, individual relationships do not operate independently of one another. They are structurally embedded in a social system, and the properties of this system as a whole influence the nature of relationships and the behavior of any one person (Wellman & Gulia 1999). The pattern of connections between the various positions in the social system determines access to resources and other outcomes. At one theoretical extreme, Harrison White (1992) contends that these operate independently of the people who occupy any given structural position. Identifying the link between the comings and goings of particular ties and the evolution of the social network as a whole — the number of people with whom we interact, the strength of connections between the people in our lives, or the role we may play in bridging different social groups together — constitutes a key piece of the network dynamics puzzle.

Sociologists have argued that the methodological inability of many studies of social networks, support, and integration to observe two or more analytic levels simultaneously represents a weakness that has constrained the explanatory power of the social network perspective (Pescosolido 2005; Pescosolido & Levy 2002; Wellman & Frank 2001). Social network processes are influenced by individual-level characteristics of the person and his or her associates, features of the relationship, the structure of the network in which individuals are embedded, and the broader neighborhood or community context in which networks operate. Here, I introduce a multi-level model of social network dynamics that captures the interplay between the circumstances in individuals' lives, the activation of social resources, and the evolution of networks. This model draws on research from individuals' social supports (Cohen & Syme 1985; House et al. 1988; Lin & Peek 1999; Pearlin 1999) to macro-level studies of core-periphery structures across

nations (Alderson & Beckfield 2004). I advance social network theory through an analysis of one case in which individual level events reverberate through the network. Data reveal that social network processes are driven by both choice and constraints. That is, individuals' inter-personal strategies unfold within the context of structural forces outside of their control.

For sociologists, mental illness has a long tradition of providing a window into basic social processes. From Hollingshead and Redlich's (1953) exploration of the link between social class and mental illness to Goffman's (1963) theoretical schema on stigma, the case of mental illness presents a challenge to and in social life. And, while the fortunes of the study of mental health and illness have been variable in sociology, its resonance in understanding the effects of the power of labels, the cultural response to daily problems, and issues of prejudice and discrimination persists (Pescosolido et al. 2007). However, in the sub-fields of medical sociology and mental health, network change is often pathologized. Alternatively, this research is guided by a social networks framework that normalizes instability (Wellman et al. 1997). This shift in perspective provides insight into *three* mechanisms of network attrition that are relevant to the case of mental illness, specifically, and the life course, more generally.

First, evidence suggests that people diagnosed with psychiatric disorders are vulnerable to problems like job loss, persistent unemployment, dropping out of school, and residential instability (Dowdall & Goldstein 1984; Estroff 1981; Munk-Jorgensen & Mortensen 1992; Rosenfield 1991; Silver et al. 2002). Social mobility and movement into and out of different groups and communities puts increasing social and physical distance between an individual and their networks, threatening relationships that may

already be tenuous. In other words, when our structural location changes, it compromises the frequency and quality of our social interactions with others who shared our former structural position (Blau 1977; Simmel 1955).

Second, people in crisis may adopt particular network strategies, choosing to interact with those who are most likely to have a positive impact on their social and emotional wellbeing (Hurlbert et al. 2000; Pescosolido 1992; Pescosolido & Perry 2007; Wellman 2000). Social network strategies are likely to be a more powerful mechanism of network dynamics for individuals with mental illness than previous research has assumed., in part because individuals with serious mental illness tend to have greater support needs than the general population. Moreover, as members of a society that negatively stereotypes those with mental illness, they are most likely sensitive to the potential social consequences of making excessive requests for support, and highly responsive to others' perceptions of them more generally (Link et al. 1989). In sum, people with psychological disorders can actively navigate a difficult illness experience, making key decisions and adopting particular strategies that shape their networks and broader health outcomes (Pescosolido 1991; Pescosolido et al. 1998).

Third, to the degree that relationship quality and function depend on the success of social interactions between individuals, any changes in behavior, beliefs, or values that impede mutual understanding and communication may disrupt social networks (Rosenberg 1984). Moreover, as suggested by the labeling perspective, mental illness poses a significant threat to both existing relationships and the potential for developing new ones (Link et al. 1989, 1999, 2004; Martin et al. 2007; Wolff et al. 1996). Not only are labeled individuals subjected to differential treatment by others, but as they attempt to

cope with the discrimination and loss of status associated with their new identity, they engage in strategies such as secrecy and withdrawal that exacerbate their social isolation (Link 1987; Link et al. 1989). Hence, the mental illness label may lead to social network decay both directly through rejection and avoidance, as well as indirectly through complex psychosocial processes.

These Indianapolis data reveal that each of these theorized mechanisms of social network dynamics in periods of crisis have important implications for people living with mental illness and the friends and family members who support them. Namely, unemployment, loss of status, downward mobility, and even homelessness, which tend to accompany mental illness (Dowdall & Goldstein 1984; Estroff 1981; Munk-Jorgensen & Mortensen 1992; Rosenfield 1991; Silver et al. 2002), have important social network consequences. Policies and interventions that promote stability, not only in treatment adherence, but in areas such as marriage, employment, residential location, and group participation, will likely to help people with mental illness secure access to emotional and instrumental support and other valuable resources through their social ties. Certainly, the little evidence we have on this supports the promise of understanding and focusing on the effect of social networks on life style and life chances (Segal & Holschuh 1991).

In sum, following individuals over the first three years of their illness career, I find that social network dynamics mirror the changing needs and strategies for interaction that accompany progression through this stream of the life course. Increases or decreases in our support needs shape the evolution of the overall structure and function of the network. Examining social network dynamics through the lens of a career framework improves our ability to understand and perhaps predict when the

social safety net provided by friends and family is likely to weaken or collapse. Thus, social network understandings can offer a map for developing supplemental support through the mental health and social services systems when people with mental illness need it most. The implications are profound, not only because it elaborates on network theory, but because it offers a tangible way to conceptualize the central focus on social context in illness, treatment, and recovery that medical science has called for recently (Singer & Ryff 2001; Shonkoff & Phillips 2000).

ABSTRACT

Brea L. Perry

THE RIPPLE EFFECT: SOCIAL NETWORK DYNAMICS, SOCIAL LOCATION, AND STRATEGIES OF INTERACTION IN MENTAL ILLNESS CAREERS

Social networks are dynamic in nature, characterized by ebbs and flows in the level and quality of interaction that correspond to important changes in the lives of individuals. Disruptive events and transitions have been theorized to restrict access to existing network ties and provide opportunities for new associations and alter network structure, altering network structure, function, and content in meaningful ways. The main objective of this research is to capture the interplay between the dramatically changing circumstances in individuals' lives, the activation of social resources, and the evolution of networks. Plainly, the central question is 'how and why do social networks evolve in response to disruption and uncertainty?' This research is fundamentally about how crisis requires people to rethink and respond to changes in their social interaction patterns, and reorganize personal social networks challenged by escalating needs, changes in social location, and the stigma attached to mental illness. Using the Indianapolis Network Mental Health Study (INMHS), I follow the social network experiences of 171 "first-timers," that is, individuals making their first major contact with the largest public and private treatment centers in the city.

Data reveal that crisis reverberates through the social network, initiating significant changes in network size, functionality, and level of membership turnover. When we experience crisis, support needs increase, in turn shaping interactions in ways

that have important implications for the stability of social networks. Moreover, crisis in one life domain tends to lead to disruptive transitions in other domains, as well. Seldom considered, but of great consequence for “first-timers,” are changes in social structural location, including residential and relationship instability, jeopardize existing ties and exacerbate the level of disruption in social ties. Network disruption then affects how networks function, as new social ties do not easily replace longstanding friends and family. In short, traumatic events, like illness, in the lives of individuals set into motion a ripple effect that has pervasive consequences for social life.

In sum, this research addresses the classic sociological tension between structure and agency. That is, it illustrates that individuals are not unobtrusive observers of social network instability or passive recipients of network resources. Rather, individuals early in their experiences with mental health treatment are often active and occasionally strategic agents who shape and maintain their social networks in ways that help them meet their needs and cope with uncertainty and crisis. However, people’s ability to construct their networks and mobilize resources is constrained by structural factors, often out of their control, including disruptive events that force transitions into and out of the different social roles, statuses, and group memberships that accompany mental illness.

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CHAPTER 1

COPING WITH CRISIS: NETWORK DYNAMICS, STRATEGIES OF INTERACTION, AND DISRUPTIVE EVENTS

In 2003, social networks were the subject of a special issue of *Science* (Jasny & Ray 2003), and were named the best new technology of the year by *Business 2.0* magazine (Pescovitz 2003). Although this perspective dates back to the late nineteenth century, social networks have recently garnered a great deal of attention both in the popular press and across multiple scientific disciplines (Jasny & Ray 2003). Whether termed social networks, social support, social integration, or social capital, research in this tradition is united by the assumption that patterns of social interaction are the foundation of social life (Pescosolido 2006). Indeed, this has been a core concern of sociology since the founding of the discipline (See Durkheim 1897; Khaldoun 1377; Simmel 1908). Since that time, a wealth of research has established that the structure of linkages between individuals, the resources shared by network members, and the ideas and information flowing through networks are critical determinants of a variety of social, psychological, and biological outcomes.

Although research employing a social networks perspective has contributed a great deal to our understanding of the structure, content, and function of social relationships and their effects, most of this body of work provides only a snapshot of social networks at one point in time (Suitor et al. 1997). Yet, there is a growing recognition that social networks are dynamic in nature, and are characterized by ebbs and

flows in relationship quality and activity (Moody 2002; Morgan et al. 1997; Pescosolido 1992; Suitor et al. 1997; Wellman et al. 1997). Recent interest in longitudinal social networks focuses on exploring how networks develop and change over time (Moody et al. 2005). Knowing more about network stability and instability is necessary for understanding the effects of networks on individual and group behavior and outcomes (Moody et al. 2005), and for identifying the mechanisms driving micro-processes (Pescosolido 1992). However, due in large part to the financial and organizational limitations associated with collecting longitudinal network data, little research of this kind currently exists.

Pioneering work in the field of network dynamics has generated a solid foundation on which future work can build. Indeed, we have established that networks are flexible and ever-changing, and have identified typical patterns of network dynamics (Morgan et al. 1997; Wellman et al. 1997). However, our understanding of the mechanisms underlying both gradual evolution and rapid shifts in network structure, function and membership is still in its infancy. It can be argued that moving beyond *describing* network change and toward *explaining* it requires a more complex multi-level approach. That is, it is critical that we explore relationships between aggregate, network-level variables and changes at the individual and tie-levels. In effect, we cannot fully comprehend the whole without knowledge of the working parts.

An area of research with strong potential for identifying these individual, tie, and network-level processes (and the interactions between them) examines the impact of disruptive events and transitions such as divorce, job loss, or natural disaster (Broese et al. 1990; Erikson 1976; Leik & Chalkey 1997; Milardo 1987; Pescosolido 1992; Suitor &

Keeton 1997; Wellman et al. 1997; Zeggelink 1995). These dramatic changes in the lives of individuals, also referred to as life events or turning points, reverberate through social networks. Specifically, they can fundamentally change the people who make up a network (and particularly one's inner circle), the size of the network, the resources and support that friends and family provide, as well as the ways members of a network relate to one another and to the group (Broese et al. 1990; Erikson 1976; Leik & Chalkey 1997; Milardo 1987; Pescosolido 1992; Sutor & Keeton 1997; Wellman et al. 1997; Zeggelink 1995).

There are several potential mechanisms underlying the effects of disruptive events on network dynamics that have received limited attention in existing literatures. First, shifts in social structural position associated with changing life circumstances (i.e. job loss, moving away) can put physical and social distance between individuals and members of their networks, constraining opportunities for interaction (Blau 1977; Simmel 1955). Second, people facing crisis and uncertainty may adopt particular network strategies, choosing to interact with those who are most likely to have a positive impact on their social and emotional wellbeing (Pescosolido 1992; Pescosolido & Perry 2007). Finally, to the degree that relationship quality and function depend on the success of social interactions between individuals, any changes in behavior, beliefs, or values that impede mutual understanding and communication may disrupt social networks (Rosenberg 1984).

In particular, the onset of mental illness represents an example of a highly disruptive event that has implications for escalating support needs, shifts in status and group membership, and changing behaviors and emotions. The goal of this research is

to advance our knowledge of dynamic network processes by conceptualizing an episode of mental illness as a life event with profound consequences for social networks. The central question addressed here is what happens to social networks when people experience periods of crisis and transition? How do disruptive events require people to rethink their strategies of interaction and reorganize their social lives?

THE SOCIAL NETWORK PERSPECTIVE

The social network perspective is based on the premise that the behaviors, beliefs, attitudes, and values of individuals are shaped through contact and communication with others. A social network can be defined as a “structure of relationships linking social actors” (Marsden 2000: 2727), or a “set of individuals who are either directly or indirectly connected” (Lin & Peek 1999: 243). This perspective is unique in that it embeds individuals and their decisions, outcomes, and life chances in the larger social context of relationships, group membership, and community.

In the late nineteenth and early twentieth centuries, sociologists like Durkheim (1897) and Simmel (1955) pioneered the idea that a person’s connections to others and to the social group are a key element of individual, social, and historical development. Their work paved the way for a multifaceted social network perspective that informs qualitative and quantitative research in myriad substantive areas and scientific disciplines. Importantly, this perspective links two distinct, but related approaches, social integration and social support (Berkman & Glass 2000; Haines et al. 2002; Hurlbert et al. 2000). These two diverge in that one is a top-down and the other a bottom-up approach to the organization of social interaction, and they therefore employ different levels of

analysis, data collection, and methodological techniques (Pescosolido 2006). However, they share the assumption that social relationships are an engine of action, and both are often considered part of the large umbrella of empirical and theoretical work in the social network tradition.

The social integration approach has its roots in Durkheim (1897), who conceptualized social integration as being bound to social groups and therefore to group values, norms, goals, and traditions. The support and guidance associated with social integration fosters a sense of comfort and security that minimizes both real and perceived threat to well-being (Lin & Peek 1999). Further, integration reinforces one's belongingness and obligation to a group, which in turn affirms one's own sense of worth and positive identity. The macro-level social integration approach generally documents linkages between community-level indicators of integration (e.g. altruism, civic participation, political participation, etc.) and outcomes like morbidity and mortality, crime rates, divorce rates, etc. (Adams & Serpe 2000; Angell 1942; Baller & Richardson 2002; Sampson et al. 2002).

The primary advantage of the social integration approach is the focus on collective aspects of communities, and the assertion that social embeddedness has implications for outcomes independent of behavioral or other individual-level factors. Alternatively, a weakness of this perspective is its assumptive nature. That is, research in this tradition typically does not explicitly theorize or measure the content and structure of social relationships. Certain relationships provide more or less comfort, security, and feelings of belongingness, and differentially impact mental and physical health (Cohen & Syme 1985). Furthermore, one's structural position in the complex set of

interrelationships that make up a community and others' relationships to each other also influence outcomes (Lin & Peek 1999). The social integration perspective does not capture these nuances, and tends to assume that the presence or absence of one additional relationship is the same as any other. Similarly, this perspective does not account for the possibility that stressful and burdensome social ties have negative implications for health, and instead assumes that all relationships have a protective effect (Pescosolido 2000).

The social support approach is another body of empirical and theoretical work that is closely tied to the social network perspective. This approach suggests that individuals benefit from resources provided by their personal networks and the community at large (Cohen & Syme 1985; House et al. 1988; Lin & Peek 1999; Pearlin 1999). Social support resources come in many forms, including instrumental support (e.g. loaning money), emotional support (e.g. providing trust and intimacy), information (e.g. giving advice), or companionship (e.g. engaging in leisure activities together). The micro-level social support approach measures the actual or perceived support resources available to individuals, particularly in times of crisis or stress, and links these to individual-level outcomes (e.g. psychological distress, educational attainment, etc.).

A strength of the social support approach is that it examines characteristics of interpersonal relationships and the individuals within them. In this tradition, the functions of social relationships are theorized, measured, and empirically tested. Further, the social support approach allows for some investigation of the parameters of social integration. Social support scholars can determine whether one close relationship is a sufficient level of integration, and whether additional relationships increase the positive effects of integration. However, research in this tradition is typically astructural, and sometimes

contains unidirectional (e.g. the direction of causation is implicit rather than empirically examined) and unipolar (e.g. there is no such thing as negative or harmful support, only a continuum of low to high levels of positive support) biases (Cohen & Syme 1985; Coyne & Downey 1991). In short, the majority of research in this area is unable to disentangle the multiple complex and interrelated factors and processes contributing to the correlation between support and outcomes.

In theory, the social network perspective connects the social integration and social support approaches, and hence bridges the macro and micro-levels (Coleman 1990; Haines et al. 2003; Hurlbert et al. 2000; Lin & Peek 1999). An individual's dyadic relationships provide a basis for network structures, upon which communities are built. The social network perspective takes a structural approach to understanding social interaction (Marsden 2000), examining how and to what degree individuals in a network are connected to one another, or integrated. Also critical are the resources flowing through social networks, to which a well-connected individual is likely to have access (Lin & Peek 1999). Importantly, while the social network perspective has the potential to facilitate the study of interactions between the micro and macro levels, and therefore bridge the two approaches, very little empirical research has actually done so. However, unlike either the social integration or support approaches alone, social network theory and methodology could allow researchers to investigate characteristics of the ego or individual, dyadic relationships, and the network as a whole, and to test interactions between these. In sum, the social network perspective is an ideal framework for this dissertation because it both draws from the unique insights of all three approaches to the study of social relationships, and enables us to examine intricate causal pathways

between and among network structure, function, and content at various levels of analysis (Wellman & Frank 2001).

In addition to bridging multiple levels of analysis, a comprehensive study of social network processes would incorporate different characteristics of networks, including function, content, and structure (Pescosolido 2006). Network function refers to the quantity and availability of resources provided by network members, including the different types of social support described above (Pearlin & Aneshensel 1986). Network function is essentially a measure of what, how often, and how much one's social ties do for a person. Alternatively, network content is a measure of the information, ideas, attitudes, and values accessible either directly or indirectly by members of a network. Content can be conceptualized as material and non-material resources flowing from tie to tie across the network (Pescosolido 2006; Wasserman & Faust 1994). Finally, network structure taps the position, constitution, and organization of linkages between network ties. For instance, the size (e.g., number of ties), density (e.g., level of connectedness), homogeneity (e.g., similarity of ties to one another and to ego), and centrality (e.g., having relationships with many ties) of a network and its members are considered structural properties.

Studies that measure interactions between these various characteristics of a network are less common, but are essential for understanding how social networks shape behavior and outcomes. For example, while structure (e.g., size and density) captures the amount of influence a network might have on an individual, content and function determine the direction of this effect (Cubitt 1973; DiMatteo & Hays 1977; Pescosolido 1991; Pescosolido 2006; Pescosolido et al. 1998). Importantly, network function, content,

and structure, as well as interactions between these characteristics, are measured and analyzed in this dissertation, which represents a unique contribution of this work.

SOCIAL NETWORK DYNAMICS

Although we now know that social networks are dynamic in nature, the overwhelming majority of research employing a social network perspective measures the aggregate of past social relationships captured as static ties at one point in time (Moody et al. 2005; Morgan et al. 1997; Sutor et al. 1997). For example, a common strategy is to ask respondents to name all of the individuals they spoke with about important matters during the past six months, which masks the changing patterns of social interaction that occurred during that time period. Social scientists have long been interested in understanding how and why patterns of interaction change over time, but until recently have been deterred by a lack of adequate analytic tools and the difficulty and cost of collecting longitudinal network data (Moody et al. 2005). However, there is a growing recognition that examining network dynamics is necessary in order to identify causal mechanisms and to understand ongoing network processes and their effects on individual and group behavior and outcomes (Pescosolido 1992).

Recent empirical work in the field of network dynamics suggests that personal networks are highly unstable (Wellman et al. 1997). In other words, network membership is constantly in flux. Although there is a significant amount of turnover in the individuals that make up a network, the structure of the network (e.g. size, density) tends to remain fairly stable over time (Morgan et al. 1997; Neyer et al. 1991; Sutor & Pillemar 1995; Wellman et al. 1997). The loss of network ties, then, does not mean that networks are

getting smaller, only that lost ties are being replaced by new or formerly inactive members (Grant & Wenger 1993; Wellman et al. 1997). In their longitudinal study of adults in Toronto, Ontario, Wellman and colleagues found that only about 27% of intimate ties persisted ten years later (1997). Similarly, Sutor and Keeton (1997) determined that 25% to 33% of caregivers' support networks were present a decade later. Finally, Morgan and colleagues' (1997) study of recent widows suggested that only about 22% of ties persisted over the course of a year. Factors that lead to the persistence of ties over time include high supportiveness, frequency of contact, and immediate kinship (Wellman et al. 1997). This replacement phenomenon, or the tendency for social networks to exhibit structural stability while simultaneously undergoing a great deal of membership turnover, demands a multi-level approach to the study of network dynamics.

UNDERSTANDING DYNAMICS: THREE SOURCES OF CHANGE

A small body of contemporary work in the area of network dynamics has identified three distinct types of membership turnover: *selective activation*, *internal dynamics*, and *external dynamics*.

First, social networks contain many members that are less salient and infrequently called upon, and so are likely to be inactive at any particular point in time (Bernard et al. 1981; Granovetter 1973; Morgan et al. 1997; Wright & Pescosolido 2002). Thus, *selective activation* occurs when needs or resources change and people selectively draw on different associates depending on who is most likely to be useful. For example, an unexpected employment search might prompt a call to a well-connected former colleague or associate, even if that tie had not been accessed for many years. Because weak and

infrequently activated associates tend to have social networks that overlap very little with one's own, they provide access to information, individuals, and resources that are unavailable within the more stable and dense set of core ties (Granovetter 1973). The selective activation of latent ties, then, represents a crucial coping mechanism for individuals facing unfamiliar challenges and periods of elevated support needs.

Second, another source of network dynamics cited by social network scholars is change internal to the network system, or *internal dynamics* (Leik & Chalkley 1997; Moody 2002; Zeggelink 1995). Conflict, which occurs naturally in all social groups, can shift interpersonal dynamics and lead to network loss (Carpentier & Ducharme 2003; White & Klein 2002). Moreover, as relationships progress, personal information is exchanged in order to build intimacy, or new information comes to light through interaction (Goffman 1963). Additionally, people's behaviors, attitudes, and values change in predictable ways over the life course, and can also evolve in response to disruptive events and transitions (Pescosolido 1992). For example, the birth of a child and the process of adapting to parenthood is a transition that radically alters a person's commitments, interests, and the way they spend their time. These changes can be socially isolating for many new parents (Gove & Geerken 1977; LeMasters 1957; Power & Parke 1984; Raush et al. 1974). As the assumptions on which ties are based change, the quality and cohesiveness of relationships may evolve (Leik & Chalkey 1997; Rollins & Cannon 1974; Spanier et al. 1975).

Third, *external dynamics* are changes that occur outside of the network or particular relationships that nonetheless alter the structure or function of a network and/or its members (Hallinan & Williams 1987; Leik & Chalkley 1997; Moody 2002; Ruan et

al. 1997; Zeggelink 1995). Organizational and environmental factors may affect the amount of contact between two people in a network, which is needed to provide the rewards of relationships and to share resources (Hallinan & Williams 1987). External events such as moving to a new city can reduce the amount of contact between an individual and members of the network, which can potentially cause a loss of ties. Additionally, broad changes in the macro-level structures of society can alter patterns of interpersonal interaction (Ruan et al. 1997), or random life events like death or natural disaster can disrupt normal network functioning (Erikson 1976; Leik & Chalkley 1997).

Although researchers have begun to classify sources of network instability and patterns of social network dynamics, the majority of this work has been speculative or descriptive. We are beginning to develop answers to such questions as ‘How unstable are social networks?’ and ‘How do structural and functional characteristics of networks shift over time?’ (Feld 1997; Hallinan & Williams 1987; Moody 2000; Morgan et al. 1997; Newcomb 1961; Sutor et al. 1997; Wellman et al. 1997). However, in part because of the paucity of longitudinal ego-centered network data, empirical work that looks for causal factors in network dynamics is still in its infancy. While a few studies have investigated mechanisms driving social network instability and tie formation and loss (Broese et al. 1990; Carpentier & Ducharme 2003; Leik & Chalkey 1997; Milardo et al. 1983; Milardo 1987; Ruan et al. 1997; Sutor & Pillemar 1995; Sutor & Keeton 1997; Zeggelink 1995), these tend to focus on one small link in the causal chain. The sub-field of social networks lacks an over-arching, unifying theory of change in personal community networks that synthesizes extant, existing literatures and provides a framework to guide future research. Importantly, a first step in developing such a theory is to explicitly define the distinct

components of social networks that have bearing on the ways in which networks change over time.

POCKETS OF STABILITY AND INSTABILITY: THE CORE/PERIPHERY

STRUCTURE

Network dynamics is a particularly complicated area of research in part because of the underlying core-periphery structure that is typical of most personal social networks (Morgan et al. 1997). Evidence suggests that networks are comprised of two basic components: a smaller and more stable core and a larger set of temporary or sporadic ties (the periphery). In short, some sectors of networks are very stable, while others are constantly in flux. This represents what Wellman and colleagues (Wellman & Leighton 1979; Wellman 1988; Wellman et al. 1997) have named the “community liberated” argument:

“...Communities have neither withered nor remained village-like in contemporary developed societies. Rather, they are structurally fragmented and specialized, with people maneuvering through different social worlds...relations vary in length, as people adapt to changing situations (Wellman et al. 1997:31)”

The approximately 25% of ties that persist over time represent the core network, a large proportion of which tend to be densely-knit immediate kin (Wellman et al. 1997), while the rest of our associations tend to be adaptable, transitory, sparsely connected, and functionally specific. This core-peripheral structure necessitates the investigation of both stability and instability in social networks over time, as well as a closer examination of specific sectors of networks and their potentially divergent characteristics, underlying mechanisms, and consequences.

This peripheral network, in particular, poses important challenges to the study of cross-sectional networks (Bernard et al. 1987; Killworth et al. 1990). If individuals engage in sporadic and brief periods of meaningful contact, as when a good friend visits only occasionally, the likelihood of these relationships being present in a snapshot of a network is essentially random. Similarly, when peripheral ties are not captured, they are assumed to be absent rather than inactive. As Morgan and colleagues note, instability in personal networks is not synonymous with real change, and “recognizing the existence of instability means that we expect a certain amount of “coming and going” in the membership of most personal networks (1997:10).” Measuring and examining peripheral networks and instability is essential for truly understanding patterns of interaction and the structure of connection rather than simply identifying characteristics of support networks (Bernard et al. 1989).

This new line of research suggests that examining stability and instability in social networks, and hence both the core and periphery, is crucial for identifying and understanding patterns of interaction and the structure of human connection (Bernard et al. 1989). However, apart from more frequent contact, closeness, and a larger proportion of kin (Morgan et al. 1997; Wellman et al. 1997), we know little about what distinguishes the core from the periphery. This is key: *Why does the core/periphery structure persist and why is it so pervasive? Why do core ties remain active in the lives of individuals who are experiencing a period of elevated need and diminished ability to reciprocate support? Why, in contrast, do peripheral ties sometimes disappear and later reappear, and what drives the movement of friends, family, and acquaintances into and out of the core and periphery?*

Because there has been a pervasive tendency in social support research to measure only individuals' core ties (Hammer 1983), we understand very little about the core/periphery distinction and peripheral network processes more specifically, particularly how and why these develop and evolve over time. Hammer (1983) further argues that for establishing that there is a connection between networks and health, the measurement of core networks is the most convenient. However, this strategy is insufficient if the goal is to identify the characteristics of respondents and ties that shape this association, or to understand the processes that underlie them. Importantly, most of us interact with myriad individuals who are not members of our core network on a daily basis. These people may provide access to unfamiliar ideas, attitudes, and information, or might affirm our existing values and beliefs about ourselves, our behaviors, and the world around us. In this way, our loose associations shape our psychosocial development, and according to Hammer (1983), our health and wellbeing, over time. As suggested by Granovetter (1973; 1974), these peripheral individuals can even provide access to employment opportunities.

Importantly, although the structure of two people's core networks may be identical, their extended networks are likely to be highly unique (Hammer 1983). Individuals may have very dense extended networks, from which they receive similar ideas, information, support, and feedback from all network members. Alternatively, people may have more open sets of relationships that provide more diverse resources from sources that do not mutually interact. In short, there are structural characteristics of relationships between core and peripheral networks and of peripheral networks themselves that cannot be captured with measurement of the core network alone.

This limitation can be illustrated by examining, for example, the association between social class and health (Hammer 1983). Although research has identified no systematic differences between the core networks of people of high and low socio-economic status, divergent peripheral networks may explain health differentials. Striking differences have been found in the so-called “weak” ties (specifically, the average number of people with whom a person had contact in a day) of blue collar workers and professionals. For blue collar workers, there is a relatively bounded extended network, a large proportion of which is in frequent contact. For white collar workers, the extended network is about four times larger, but contact is less frequent. One potential explanation is that differences in the structure of the peripheral network differentially facilitate movement by peripheral ties into the core network, which has important implications for psychosocial characteristics, such as self-esteem, and for health behaviors and beliefs (Hammer 1983). Illuminating these kinds of complex processes surrounding the recruitment of ties from the peripheral network and from outside the network into the core is essential for understanding network dynamics on a more aggregate level.

Importantly, the existing conceptualization of a two-component core/periphery structure, as described by Hammer (1983), Wellman (Wellman & Leighton 1979; Wellman 1988; Wellman et al. 1997), Morgan (Morgan et al. 1997) and others, has proven to be a critical first step toward this goal. However, as more is learned about processes driving the selective activation of peripheral individuals into the core network, it will be necessary to update, refine, and think more critically about how to measure and define the core and periphery.

In this spirit, I argue for a three-component version of the core/periphery structure (See Figure 1.1) that is more consistent with what is known about friendship choice and entry and exit into and out of core networks. Wellman and colleagues (1999) differentiate between three tiers of associates: “3-6 socially close, intimate ties, 5-15 less strong but still significant ties, and approximately 1,000 acquaintances and latent (but often still mobilizable) relationships (p. 85).” However, the processes underlying this structure are never explicitly theorized.

I contend that it is critical to differentiate between members of the core who are truly stable over time, and those who have been recruited temporarily to fulfill more immediate needs. Undoubtedly, there are significant differences between the very small group of individuals who stick by us for better or worse and come what may, and the network of fair-weather friends (or, perhaps more accurately, rainy-day friends) who play an important, but temporary, role depending on the circumstances in our lives at any particular point in time.

Yet, these more temporary core ties do not belong in a category with peripheral ties, either. The people with whom we develop more intimate relationships must have some unique set of characteristics that motivates us to choose them. Whether similarity in personality (Duck 1973), mutual liking and common interests (Finch & Mason 1993), shared social context (Huckfeldt 1983) or other characteristics, something sets these voluntary relationships apart (Pahl & Spencer 2004). Identifying what distinguishes these activated ties from peripheral ties not elevated to friendship status requires that activated ties be conceptualized as a distinct group.

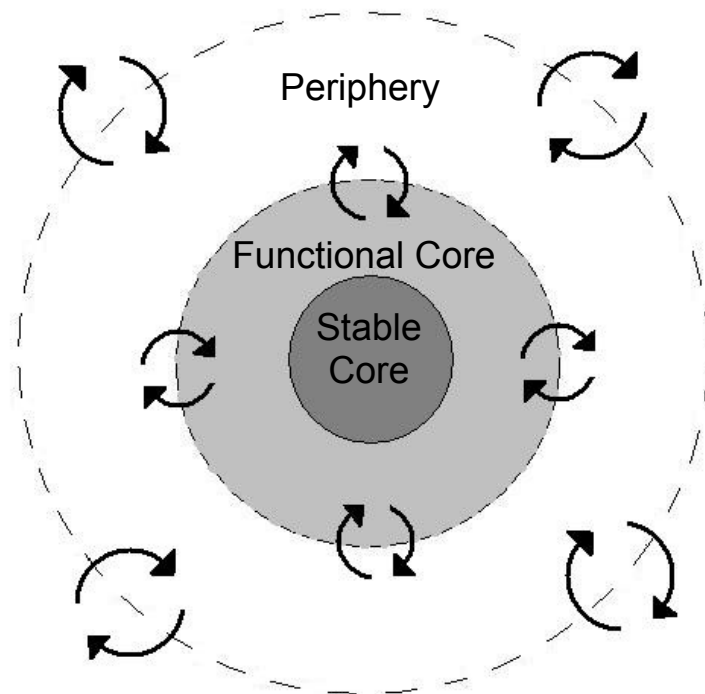


Figure 1.1. Three-component core-periphery structure of personal social networks

Ties are activated into the core group of supporters because they are willing and able to provide specialized resources that fulfill one's immediate needs. Thus, they form the *functional core*. These resources could include virtually any service one person might provide to another — for example, instrumental support such as transportation or childcare, information, advice, and help with problem solving, emotional support and validation, or simply companionship. Of course, developing and maintaining any relationship requires reciprocity, or a balance of giving and receiving. When this balance is compromised, either because one or both friends stop providing resources, or because one or both stop needing the other, commitment to the relationship is likely to fade.

Because people's specific needs and resources (and one's ability to provide them to others) evolve rapidly depending on individual life circumstances, so does the foundation on which voluntary associations are built (Pahl & Pevalin 2005). Hence, ties based on functionality tend to be very important for relatively short periods of time.

Alternatively, members of the *stable core*, as defined here, more closely resemble the core that Wellman and colleagues describe (1997). That is, they are a highly dense, broadly functional group comprised mostly of immediate kin and long-term partners. For most, these are parents (typically mothers), siblings, children, and spouses. Importantly, these long-term associations are based not on immediate needs and resources, but on a shared history and mutual feelings of obligation and (sometimes) affection. Also, it is worth noting that interactions between individuals and members of their stable core are not always positive. Rather, the stable core often contains "regulators," or those people who do and say what they think is best for you, whether or not you are interested in listening. Likewise, just as the stable core provides a safety net for in times of crisis, at some point the tides are likely to turn and you will be responsible for their wellbeing. Therefore, stable core ties can be among the most supportive, but also the most burdensome.

Finally, the *periphery* is made up of all of the various individuals with whom we come into contact on a semi-regular basis, but with whom we typically do not interact voluntarily outside of a particular social context. In short, the periphery includes everyone else — enemies, acquaintances, extended kin, and people with whom we are friendly, but do not consider "friends." Importantly, peripheral ties are typically associated with a particular shared social context that establishes and defines the level

and nature of interaction between two people. For example, coworkers share a common work environment, neighbors share a common residential area, and brothers and sisters of the Fraternal Loyal Order of Moose share membership in a common organization. For this reason, when peripheral ties do occasionally provide services, these services are highly specialized and context-specific. For example, we might ask a neighbor to watch our house, a coworker to cover our shift, or a fellow student to take notes for us in class. In other words, resources provided by the peripheral network are tied to the common goals, interests, problems, organizations, and geographical areas that brought two people into contact in the first place.

Creating this distinction between a kin-centered core group that is highly stable and broadly functional, a voluntary core that is temporary and functionally specific, and a periphery that only rarely provides very specialized and context-specific support is essential for answering many important questions about network dynamics. For instance, why are functional core relationships activated, and where do they come from? Are they recruited from outside of the existing set of ties, or are peripheral relationships simply upgraded over time? How quickly do ties proceed to the core, how long do they stay there, and what happens to those relationships when they no longer serve a purpose? Finally, what mechanisms drive the selective activation of relationships, and hence underlie social network dynamics more broadly? Importantly, much can be learned about social network processes, and indeed about the very nature of human connection, from examining social interactions that are voluntary, strategic, and motivated by the need for companionship and support.

DISRUPTIVE EVENTS AND TRANSITIONS: UNRAVELING DYNAMIC SOCIAL NETWORK PROCESSES

Research examining disruptive events and transitions holds great promise for untangling how individual life circumstances, relationship quality and function, and aggregate network characteristics all interact with one another in the context of the core/periphery structure. This research, which draws from a variety of theoretical orientations and substantive areas, contributes to our understanding of how and why social networks change in response to individual-level events (Ambrose et al. 1983; Broese et al. 1990; Erikson 1976; Gerstel et al. 1985; Grant & Wenger 1993; Jones 1971; Leik & Chalkey 1997; Lopata 1977; Milardo 1987; Perry 2005; Sutor & Keeton 1997; Wellman et al. 1997). Wellman and colleagues (1997) note that personal community dynamics operate similarly to biological evolution, which is to say that they undergo gradual, random ebbs and flows in membership punctuated by “intense rapid shifts” (p. 47) that correspond to significant events like divorce or parenthood. Disruptive events and transitions may both restrict access to existing network ties and provide opportunities for new associations, and often alter network structure, function, and content in meaningful ways. While some research has focused on uncommon events like natural disaster (Erikson 1976) or serious illness (Pescosolido 1992), far more has examined typical life course events and transitions (e.g. job loss, widowhood, marriage and divorce, residential mobility).

Disruptive events and transitions impact social networks via multiple different mechanisms. For example, they may decrease contact with former co-workers, classmates, neighbors, and in-laws (Perry 2005). Because contact is necessary for exchanging resources and developing and maintaining intimacy, relationships

characterized by little contact often dissolve (Wellman et al. 1997). The loss of even one bridging tie via diminished contact or the development of conflict can isolate people from formerly accessible ties, as when divorced individuals cut off ties with relatives or friends of their ex-marriage partners (Gerstel et al. 1985; Wellman et al. 1997). Also, important events and transitions can cause people to activate particular sectors of their networks that are best suited to provide resources in times of crisis (Pescosolido 1992). Social norms govern the provision of support, including how much, what kinds, and by whom, when individuals enter a state of elevated need (Grant 1993; Pescosolido 1992; Wellman et al. 1997). Further, these life-changing events are often accompanied by shifts in behavior, attitudes, and values that disrupt the foundation of existing relationships and render them problematic (Pescosolido 1991, 1992). Similarly, events like employment transitions, disability, and marriage can alter available resources, including time and income, which may ultimately affect one's ability to reciprocate and to maintain existing ties (Carpentier & Ducharme 2003; Marks 1994; Pescosolido 1992; Wellman et al. 1997). In short, circumstances in people's lives can impact the structure, function, content, and membership of the smaller activated network at any specific point in time.

What is needed is a synthesis of research and theory on social network dynamics into one generalized model of the ever-shifting relationship between the circumstances in individuals' lives and their social networks. This model should be parsimonious, yet conceptually broad and testable by means of a wide range of substantive cases. Most importantly, it should move beyond existing research to provide a theoretical framework composed of simple postulates that are applicable to most social problems and processes involving the interplay between individuals and their social networks.

A MULTI-LEVEL MODEL OF SOCIAL NETWORK DYNAMICS

In this research, an episode of mental illness is the substantive case used to develop and test a generalized model of the interplay between network dynamics and the circumstances in individuals' lives (See Figure 1.2). Here, the central argument is that coping with crisis and uncertainty requires people to rethink their strategies of interaction, and profoundly reshapes social networks via multiple potentially-interacting mechanisms. Specifically, I contend that disruptive events and transitions affect social relationships through two mechanisms: 1) evolving social, emotional, and instrumental needs; and 2) changes in life circumstances and social structural location that shift opportunities for interaction. Following this model, I describe a series of three broad postulates that guide this research and from which specific hypotheses are later drawn.

SHIFTING OPPORTUNITY STRUCTURES: CHANGES IN SOCIAL STRUCTURAL LOCATION

Sociology as a discipline has long been concerned with the impact of structure and social mobility on individuals and their patterns of social interaction (Simmel 1955). Blau (1977) defines social structure as “the distributions of a population among different social positions that reflect and affect people’s relations with one another (p. 27).” Individuals who occupy different social positions — those with unequal statuses or distinct group memberships — have fewer opportunities for social interaction with one another (Blau 1977; Fischer 1982). In other words, personal social networks are constrained by the social contexts in which a person participates. Circumstances in life (our job, our family, where we live) influence, but do not determine, the formation and

maintenance of social networks. "The cultural differences that emerge from social separation reinforce that separation (Fisher 1982; p. 7)." Thus, we enter a structural position that is accompanied by a unique group culture and set of norms. Once we adopt this culture, we generally are more comfortable with and prefer the company of others that share our structural position. Members of a social network tend to be relatively homogeneous both because shared characteristics attract people to one another and to the same structural position, and because interaction causes close ties to become more similar as time passes.

What happens to social networks, then, when structural position changes? I argue that such events compromise the frequency and quality of our social interactions with others who share our former structural position. First, because interaction is necessary for sharing resources and reaping the rewards of social relationships (Hallinan & Williams 1987), infrequent contact often leads to relationship dissolution (Wellman et al. 1997). Second, events like job loss or divorce can fundamentally alter the way we live, disrupting the common interests, activities, resources, value orientation, etc., on which many relationships (and the homophily principle) are based. Thus, changes in social structural position that increase physical or social distance between an individual and his or her social ties (e.g., becoming unemployed, being institutionalized, etc.) are likely to weaken relationships and eventually lead to social network attrition. Further, although changes in one's own social location are likely to have more far-reaching network consequences, changes in the social status, physical location, or group memberships of one's associates are an important source of natural and random ebbs and flows in networks, as well.

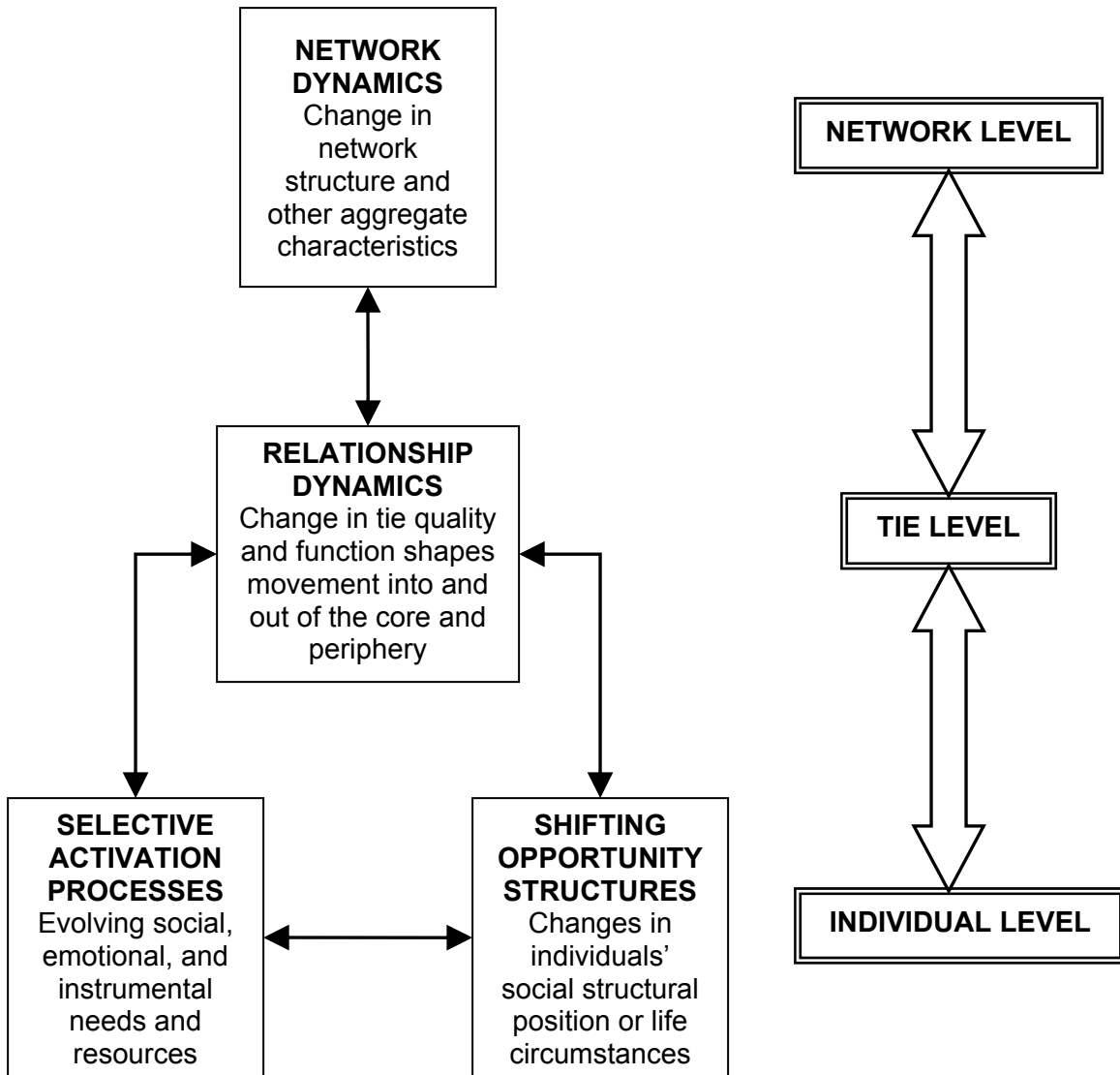


Figure 1.2. A multi-level model of social network dynamics

In short, any explanation of social network processes must consider changes in social structural location, or the intersections of various social roles and statuses, social and physical contexts, and group memberships in which individuals and their ties are embedded. Access to networks is shaped by participation in social institutions and organizations, by membership in communities and neighborhoods, and by relative social status and power (Fischer 1982). Position in the social structure — including

“educational and financial resources, status in the labor force, ethnic memberships, family commitments, residential locations, and so on (Fischer 1982, p. 254)” — can provide both opportunities and barriers to social interaction, and can shape the nature of that interaction (Blau 1977; Simmel 1955). Thus, existing social structural theory posits:

P1.1: Shifts in social structural position, including changes in status and group membership, disrupt existing social relationships that depend on those structures.

SELECTIVE ACTIVATION PROCESSES: NETWORK STRATEGY AND CHANGING NEEDS AND RESOURCES

Personal community networks are one of the foremost ways that people cope with the hardship and uncertainty of day-to-day life (Kadushin 1981). Resources of all kinds flow through social networks via informal systems of support. Not all associates are supportive, however, and different people tend to provide distinct types of goods and services. There is some evidence that resource provision has more to do with the nature of the relationship between two people than the characteristics of the person providing support (Wellman & Wortley 1990). In other words, social support is the product of actions on the part of both the giver and receiver, and is based on closeness, accessibility, and norms of reciprocity and obligation between the two. According to Wellman and Wortley (1990), while we tend to receive a broad range of stable support from our ascribed ties (e.g. immediate kin), we also fill in the gaps with adaptive support that we solicit from our achieved ties (e.g. non-kin companions). Ascribed ties provide large services and financial support, while achieved ties generally do not. However, companionship is the domain of achieved ties. Among kin, only siblings tend to be

companions. Because we depend on the resources provided by members of our network, we put a great deal of effort into maintaining closeness and contact, and must actively work to mobilize resources from a variety of sources simultaneously in order to meet our needs.

In the 1980's, scholars recognized that individuals tend to adopt social network strategies that are goal-specific, prompting the "specificity hypothesis" (Cohen & McKay 1984; Morgan 1989; Pearlin 1985), which suggests that "different problems will call for variations in the kinds of supportive resources needed, and therefore in the specific individuals who serve as sources of support (Suitor et al. 1995; p. 1574)." That is, motivated by our own needs and preferences, we often choose with whom and how to interact in order to maximize the potential benefits of our social networks and interactions (Katz et al. 2004; Zeggelink 1995). People are highly cognizant of who they can ask for what kinds of help and when, and even sometimes avoid burdening network members with requests for support for fear of overstressing them (Wellman & Wortley 1990).

In many cases, we end up selecting similar others to provide support (Feld 1982; Marsden 1988; Merton 1968). In the case of emotional support and problem solving, we are likely to solicit help from people who have shared the same experiences and status transitions, as they tend to be the most empathetic and least likely to be critical or to reject us (Suitor et al. 1995; Thoits 1986). For small, instrumental services, we often choose ties from specific shared social contexts that are directly related to our particular needs, like the workplace or neighborhood (Campbell et al. 1999; Feld 1984; Wellman & Wortley 1989; 1990). Either way, there is clear agency in the support process on the part

of support recipients, and perhaps an element of strategy, as well. Thus, the existing social support and social networks literatures suggest:

P1.2: People selectively activate and solicit help from network members who are uniquely suited to provide specialized support.

In sum, this research examines dynamic and multi-level social network processes associated with a devastating life event that has far-reaching consequences for individuals and the friends and family who care for and about them. In the following chapter, I focus more narrowly on the case of people with mental illness, reviewing theory and research with specific implications for social interaction strategies and changes in social structural location in this population. In addition, a multi-level model that extends the one presented in this chapter, and more explicitly theorizes the impact of mental illness on network dynamics is outlined.

CHAPTER 2

STIGMA, SOCIAL MOBILITY, AND SOCIAL INTERACTION: NETWORK DYNAMICS IN MENTAL ILLNESS

The onset of an episode of mental illness has far-reaching network consequences, perhaps more so than many other disruptive events. In fact, Lipton and colleagues (1981) use the term “network crisis” to refer to the idea that not only individuals with mental illness experience distress and upheaval, but also the friends and family members who care for and about them. Periods of intense, rapid change in social networks tend to occur following the loss or addition of a network member due to death, marriage, birth, etc. However, network crisis is characterized by a "major change in a given member's position or functional ability (Lipton et al. 1981, p. 150)." Importantly, the network must adjust its expectations of the ill individual and the level and types of support functions performed by other members of the network in order to bring the system back into balance. Because of the stigma and loss of status associated with mental illness, and the heightened potential for discrimination and rejection of people with mental disorders and their close friends and family, an episode of mental illness often results in a particularly severe network crisis.

Pescosolido’s Network Episode Model (NEM; 1991, 1992, 2006) was one of the first attempts to explicitly theorize the dynamic interplay between social networks and illness. Focusing on patterns and stages of health services utilization, the NEM is based on the premise that individuals acquire information and attitudes that influence health-

related decisions through contact with network ties during an episode of illness. The second (Pescosolido & Boyer 1999) and third (Pescosolido 2006) versions of the NEM offer a more nuanced consideration of multi-level pathways, bringing into the model the role of community, organizations, and treatment context, as well as variables like personality, genetics, and biology. Importantly, Pescosolido (1991, 1992) argues that social networks and the illness career evolve together and because of one another via a series of complex social processes. Ultimately, changes in network structure, function, and content can influence not only key health-related decisions at each stage in the illness career, but can also fundamentally alter the course and severity of illness through psychological, biological, and genetic mechanisms (Perry 2005; Pescosolido 2006). Developed in response to static and individualistic models, the flexible, dynamic, and reciprocal NEM is representative of a critical turning point in the evolution of research on network dynamics.

While the Network Episode Model-III (Pescosolido 2006) is an approach that conceptualizes social networks as an underlying mechanism in a specific set of social processes (specifically, the illness career), it has much broader utility than other research in this area. Most notably, the NEM-III is unique in that it identifies the complex and multi-level interplay between social network dynamics and health and illness trajectories. However, Pescosolido (2006: 26) herself notes that the “major function” of the NEM may be “to offer a point of departure, to engage other views, and to provide a platform for tailored models.” In its efforts to be comprehensive, to incorporate all levels and factors that might influence health, illness, and healing, the NEM-III is useful largely as a guidepost for more concrete and testable models.

MENTAL ILLNESS AS A CASE: A MULTI-LEVEL MODEL OF NETWORK DYNAMICS

In this research, an episode of mental illness (MI) is the substantive case used to develop and test a generalized model of the interplay between network dynamics and the circumstances in individuals' lives. Illness, and in particular mental illness, is an ideal case for examining mechanisms underlying network change for three reasons: First, mental illness is a common problem throughout the world, and is the leading cause of disability in North America and Europe (Murray and Lopez 1996). Plainly, it is a social problem that touches millions of individuals and families.

Second, from a practical standpoint, entry into the illness career represents a case wherein a significant degree of network change is likely to occur. Entry into the mental health treatment system provides access to a variety of potential new ties, including formal caregivers and fellow consumers. Also, individuals in crisis mobilize network resources, activating sectors of their networks that can provide needed assistance, information, and advice (Pescosolido 1992). Alternatively, symptoms of mental illness and the stigma attached to psychiatric diagnosis may inhibit one's ability to maintain established ties and to develop new relationships in the community (Pescosolido 1991). Therefore, in focusing on people experiencing a mental illness, one is likely to capture a measurable and consequential amount of relationship formation and loss in a longitudinal study of social networks.

Third, and most importantly, an episode of mental illness is unique in that it is a life event with far-reaching and multi-level consequences. Specifically, an episode of mental illness is associated with other disruptive events, like job loss, persistent

unemployment, dropping out of school, and residential instability, and with downward mobility more generally (Dowdall & Goldstein 1984; Estroff 1981; Munk-Jorgensen & Mortensen 1992; Rosenfield 1991; Silver et al. 2002). In addition, serious mental illness radically alters physical, emotional, and cognitive characteristics of individuals in ways that may be acutely salient to the self and others. These visible signs of distress signal to the self and members of the network that a loved one is in legitimate crisis, and requires extra support and assistance. On the other hand, the stigma attached to mental illness can lead to social withdrawal and an overall decline in social functioning that causes more casual relationships to deteriorate (Coyne 1976; Estroff 1981; Henderson 1980; Hokanson et al. 1989; Johnson 1991). In short, the multi-level impact of mental illness facilitates an examination of mechanisms of dynamic social processes at three levels: 1) the individual level (e.g., shifts in social structural location, evolving needs and resources, and behaviors and emotions that shape interaction); 2) the tie level (e.g., ebbs and flows in the quality, content, and functionality of relationships between a person and members of the network as they come to the aid of their friend or family member); and 3) the network level (e.g., change in the size of the network, the level of membership turnover, etc.).

Again, the central argument guiding this research is that coping with crisis and uncertainty requires people to rethink their strategies of interaction, which profoundly reshapes social networks via multiple potentially-interacting mechanisms. I contend that mental illness affects relationships directly when behavioral, cognitive, and emotional symptoms associated with psychiatric disorder hinder successful communication and social interaction (See Figure 2.1). Further, I argue that mental illness and other life

events affect social relationships indirectly through two mechanisms described in the previous chapter: 1) evolving social, emotional, and instrumental needs and 2) changes in life circumstances and social structural location that shift opportunities for interaction. Importantly, in Figure 2.1, although the gray box represents illness-specific effects, the white boxes contain the generalized model described in Chapter 1, which is applicable to a variety of substantive cases.

SHIFTING OPPORTUNITY STRUCTURES: MENTAL ILLNESS AND DOWNWARD MOBILITY

In the previous chapter, I argued that our social networks are constrained by our social location and the social contexts in which we participate. When our structural location changes, it compromises the frequency and quality of our social interactions with others who share our former structural position. Evidence suggests that people diagnosed with psychiatric disorders are vulnerable to problems like job loss, persistent unemployment, dropping out of school, and residential instability (Dowdall & Goldstein 1984; Estroff 1981; Munk-Jorgensen & Mortensen 1992; Rosenfield 1991; Silver et al. 2002). This social mobility and movement into and out of different groups and communities puts increasing social and physical distance between an individual and their networks, threatening relationships that may already be tenuous.

A wealth of research has established a connection between mental illness and poor employment outcomes (Estroff 1981; Ettner et al. 1997; Jayacody et al. 1998; Link 1982; Marcotte & Wilcox-Gok 2001; Munk-Jorgensen & Mortensen 1992; Wahl 2000). Studies suggest that 5-6 million workers lose their jobs or fail to find employment

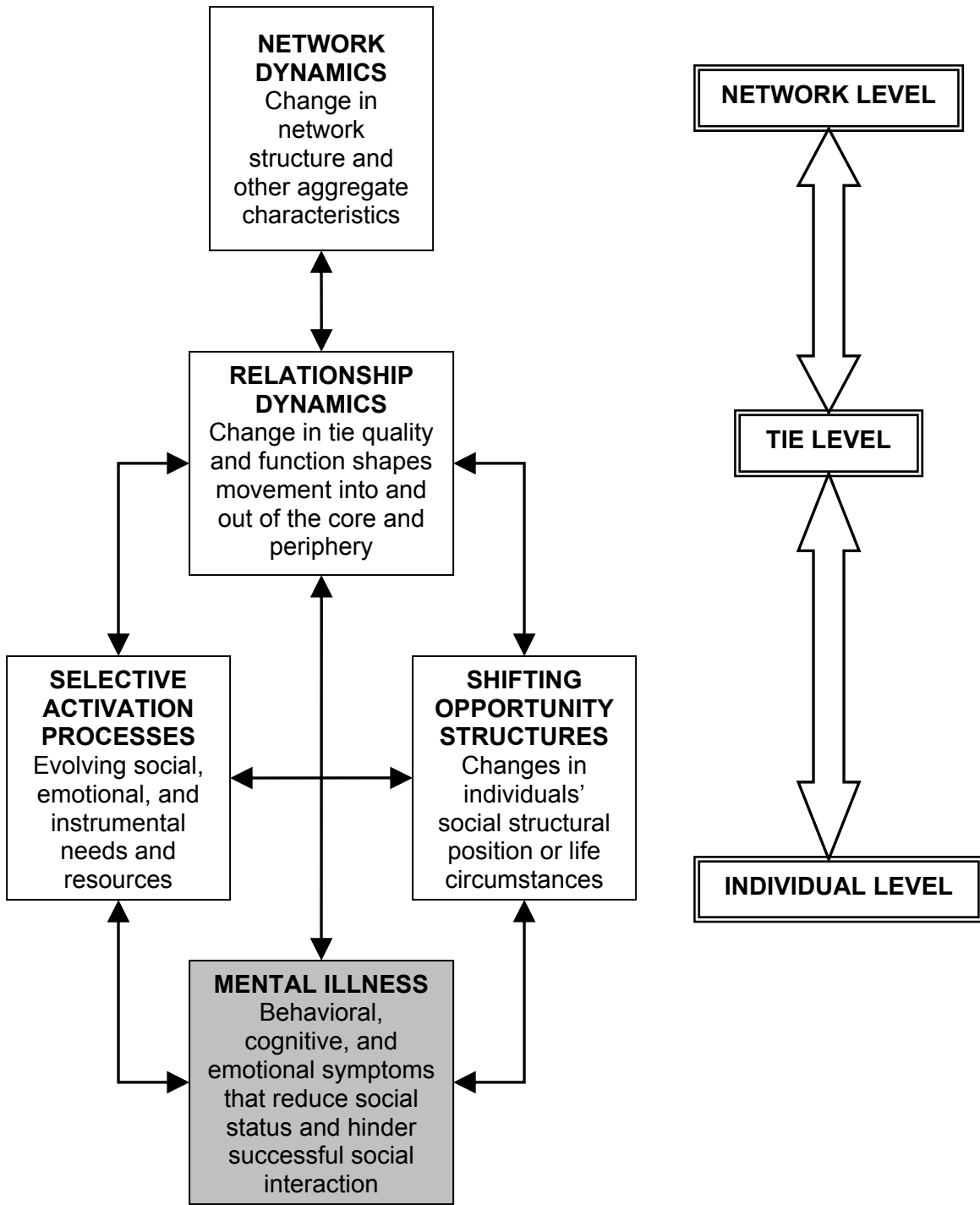


Figure 2.1. A multi-level model of social network dynamics in mental illness

annually as a result of mental illness (Marcotte & Wilcox-Gok 2001). Individuals with mental illness frequently report being terminated, demoted, or relieved of duties at work following an acute episode of mental illness or a psychiatric hospitalization (Wahl 2000). This trend is due, in part, to the stigmatizing attitudes of employers toward individuals with mental illness (Farina et al. 1973; Manning & White 1995; Olshansky et al. 1958; Wahl 2000), but is also a function of abandoned educational and occupational goals among people experiencing persistent threats to their self-esteem and perceived abilities (Wahl 1999).

Mental illness has also been linked to residential mobility and homelessness (Linhorst 1990; Metraux 2002; Page 1995; Silver et al. 2002). Research suggests that property owners and sub-letters are more likely to describe rooms or apartments as unavailable when they are aware of a potential lessee's psychiatric treatment history (Page 1995). Also, acute stays in group homes, halfway houses, or in-patient psychiatric treatment centers can result in a pattern of terminated or short-term leases that make residential stability difficult (Estroff 1981; Silver et al. 2002). Further, the prevalence of unemployment and underemployment combined with a shortage of low-income housing contributes to elevated levels of homelessness among people with serious and persistent psychiatric disorder (Linhorst 1990).

Research also suggests that only a small minority of people with mental illness are successful in finding and maintaining long-term sexual or romantic relationships, either through marriage or other social arrangements like cohabitation (Buckley et al. 1999; Dickerson et al. 2004; Frank & Gertler 1991; Jayakody et al. 1998; Perry & Wright 2006; Wright et al. 2007). For example, individuals with mental illnesses are between

two and two and a half times more likely than similar non-diagnosed individuals to obtain a divorce (Frank & Gertler 1991). Because of the stigma associated with the mental illness label, people with SMI are socially devalued and are therefore often not viewed as desirable marriage or relationship candidates (Link 1987; Link et al. 1987; Scheff 1984).

These individual-level effects of mental illness on social structural location, including employment and income, housing, and marital status, can have important implications for social networks. For example, researchers have determined that the quality and strength of network ties with close friends are jeopardized, and that contact with friends is reduced following job loss (Jones 1991). Because the workplace is one of the most important sources of non-kin ties (Wellman et al. 1997), unemployment or unstable employment is likely to precipitate significant network change. Residential instability also has problematic implications for social networks, as individuals often develop friendships or support systems in their neighborhoods and communities (Wellman et al. 1997). Finally, divorce results not only in the loss of a spouse, but also in the reorganization of social networks outside of the marriage (Gerstel et al. 1985). Divorce and separation often prevents contact and diminishes relationship quality among divorced individuals, particularly men, and former shared friends and in-laws.

In sum, changes in social structural position associated with downward mobility and residential instability can put physical and social distance between individuals with mental illness and members of their networks, constraining opportunities for interaction (Blau 1977; Simmel 1955). Despite their potential social significance, particularly among people with mental illness, events like divorce, job loss, or residential mobility have not

been considered as mechanisms of network instability in this population. Thus, existing research in the area of mental illness and life events posits:

P2.1: Because mental illness tends to be characterized by downward mobility and vulnerability to disruptive life events, it is also associated with elevated levels of network instability and attrition.

SELECTIVE ACTIVATION PROCESSES: MENTAL ILLNESS AND ESCALATING NEEDS

I argued in Chapter 1 that individuals tend to adopt social network strategies that are goal-specific (Cohen & McKay 1984; Morgan 1989; Pearlin 1985). That is, motivated by our own needs and preferences, we often choose with whom and how to interact in order to maximize the potential benefits of our social networks and interactions (Katz et al. 2004; Zeggelink 1995). Stressful life events, like an episode of mental illness, cause people to activate sectors of their networks that are most willing and best suited to provide specific kinds of resources in times of crisis (Hurlbert et al. 2000; Pescodolido 1992; Pescosolido & Perry 2007; Wellman 2000).

Although physical and social context constrain networks, individuals — even those living with serious illness — remain social actors within their environments (France and Homel 2006). In “Making it Crazy” (1981), Sue Estroff criticizes the lack of agency attributed to people with mental illness. She argues that existing theories underestimate the ability of individuals with mental illness to influence their social networks and the mental health and social welfare systems in order to get by in the community, and overstates the extent to which they are coerced and controlled. Estroff advocates mental

illness theory that balances "a sense of deliberateness and conscious choice with knowledge of the involuntary deficits and problems experienced and possessed by (mental health) clients (1981; p. 231)." In short, to ignore the agency of individuals with mental illnesses in social network processes is to engage in a sort of cultural determinism that masks the ways in which people with mental illness "push back" on their networks, using them to help meet their instrumental and support needs.

Social network strategy is likely to be a key mechanism of network dynamics for individuals with mental illness, in particular. Not only do they tend to have greater support needs than the general population, but people with mental illness are probably acutely sensitive to the potential social consequences of making excessive requests for support, and highly responsive to others' perceptions of them more generally (Link et al. 1989). People with psychological disorders actively navigate a difficult illness experience, making key decisions and adopting particular strategies that shape their networks and broader health outcomes (Pescosolido 1991; Pescosolido et al. 1998). Thus:

P2.2: People with mental illness, and others with elevated needs, employ social interaction strategies that help them procure vital resources while preserving existing relationships.

THE DIRECT EFFECTS OF MENTAL ILLNESS ON RELATIONSHIPS:

STIGMA, SYMPTOMS, AND THE SUCCESS OF SOCIAL INTERACTION

A mental illness is an organic neurological disorder that results in abnormal patterns of cognition, emotion, mood, and/or behavior. By definition, then, mental illness is associated with impaired functioning in a variety of areas, including social life, family,

and work. For instance, major depression is associated with diminished interest or pleasure in activities, a loss of energy, and feelings of worthlessness (Spitzer et al. 1990). Bipolar disorder is characterized by periods of persistent and extreme irritability, and schizophrenia by marked social withdrawal, peculiar behavior, and inappropriate affect (Spitzer et al. 1990). These kinds of experiences have clear implications for the development of new relationships and the maintenance of existing ones.

Currently, there are two dominant approaches to the study of how and why mental illness shapes social relationships. The social dysfunction perspective, with roots in clinical psychology and psychiatry, focuses on the impact of having a psychiatric disorder on the success of social interaction (Coyne 1976; Henderson 1980; Hokanson et al. 1989). The labeling perspective, on the other hand, attributes social network disruption to the psychiatric label and societal reactions to the label rather than to the disorder itself (Cullen & Cullen 1978; Scheff 1984).

The social dysfunction perspective holds that individuals with mental illness are less likely to attract and maintain social ties than those without psychiatric symptoms (Coyne 1976; Henderson 1980; Hokanson et al. 1989; Johnson 1991). There are three mechanisms thought to drive these social network processes: First, a decrease in social functioning, including withdrawal from social interaction and avoidance of formerly pleasurable activities, is a common feature of some mental disorders (e.g., major depression, substance use disorders, anxiety disorders; APA 1994), and can lead to isolation. Second, people with mental illness have impoverished social skills, which inhibit the formation and maintenance of relationships (Libet & Lewinsohn 1973; Youngren & Lewinsohn 1980; Winer et al. 1981). Third, the excessive burden and lack

of reciprocity associated with supporting individuals with mental illness causes them to be abandoned by caregivers and confidants (Carpentier & Ducharme 2003; Pavalko & Woodbury 2000; Reinhard & Horwitz 1995; Wright 1994). In sum, the social dysfunction perspective emphasizes strained or ineffective social interaction and the destructive nature of psychiatric disorder on social relationships and opportunities.

Compared to the general population, individuals with mental illness do have smaller, less supportive networks composed largely of kin (Cook 1988; Hammer et al. 1978; Henderson 1977; Liem & Liem 1976; Roy 1978; Tausig et al. 1992). Furthermore, laboratory studies suggest that people with mental illness perform less well than others on various evaluations of social skill and interpersonal style (Brugha et al. 1993; Libet & Lewinsohn 1973; Youngren & Lewinsohn 1980), are more likely to be rejected (Coyne 1976; Howes & Hokanson 1979; Winer et al. 1981), and may even provoke negative mood arousal in others (Hammen & Peters 1978; Strack & Coyne 1983). In addition, community-based longitudinal studies suggest that depression (Husaini & Von Frank 1985) and lower levels of baseline psychological wellbeing (Cutrona et al. 1986; Johnson 1991; Turner 1981) are associated with decreased social support and network attrition up to a year later.

While social rejection processes are central to the labeling perspective, its focus is on how others and the ill individual perceive and react to the psychiatric label rather than to symptoms of mental illness or the burdensome nature of relationships. In general, labeling theory is concerned with how an individuals' identity and behavior is shaped by how that person is categorized and perceived by others. While this theory has been applied to virtually all types of deviance, from criminal behavior to disfigurement, it has

commonly been used to explain the stigma associated with mental illness. According to labeling theory, people are socialized to accept negative cultural stereotypes about those with mental disorders (Link 1982). Not only are labeled individuals subjected to differential treatment by others, but as they attempt to cope with the discrimination and loss of status associated with their new identity, they engage in strategies such as secrecy and withdrawal that exacerbate their social isolation (Link 1987; Link et al. 1989). Hence, the mental illness label leads to social network attrition both directly through rejection and avoidance, as well as indirectly through complex psychosocial processes.

Empirical evidence supports the contention that being labeled with a mental illness has important social network consequences. We know, for example, that dangerousness, unpredictability, and ineffectiveness are key features of public perceptions of people with mental illness (Link et al. 1999; Martin et al. 2000; Phelan & Link 1998; Phelan et al. 2000; Wilczynski 1991; Wasow 1980). Further, substantial numbers of Americans report a desire for social distance from individuals with mental illness, expressing concerns about living, working, socializing, and being romantically involved with members of this population (Link et al. 1999; 2004; Martin et al. 2007; Wolff et al. 1996). While studies of public attitudes cannot affirm that labeled individuals are rejected *in practice* by others, they are suggestive of a hostile and discriminatory culture with implications for social interaction. Link and colleagues (1989), on the other hand, do provide direct evidence of the disruptive effects of the psychiatric label on psychosocial processes. They find that people with mental illness endorse strategies to cope with stigma, and that their support networks are compromised by these strategies and by the fear of rejection more generally.

Thus, the social dysfunction perspective and labeling theory posit:

P2.3. Mental illness has a destructive impact on social relationships and opportunities, and affected individuals are vulnerable to being rejected by others due to stigma, caregiver burden, a lack of social skills, social withdrawal and other symptoms of psychiatric disorder, or some combination of the above.

THE NATURE OF MENTAL ILLNESS BEHAVIORS

The labeling perspective, in particular, has focused largely on societal reactions to the mental illness label rather than reactions to the non-normative behavior displayed by people with mental disorders (Cullen & Cullen 1978; Link et al. 1987; Scheff 1984).

Indeed, the earliest proponents of these theories saw the labeling of abnormal behavior as a largely arbitrary process (Scheff 1984; Szasz 1961). In 1970, Walter Gove argued that the nature of mental illness-related behavior was critical, not irrelevant as some had contended (Scheff 1984), in determining others' reactions. This initiated a heated, decade-long debate surrounding the relative importance of behavior versus label in determining the fate of people with mental disorders (Chauncey 1975; Dunham 1971; Gove 1970, 1975, 1976; Nettler 1974; Scheff 1974, 1975). Empirical evidence was marshaled on both sides throughout the 1970's (Bord 1971; Farina et al. 1971; Kirk 1974; Loman & Larkin 1976; Lehman et al. 1976).

This debate re-emerged in the 1980's when Morris Rosenberg (1984) set out to identify the one essential, defining feature that distinguishes "sane" and "insane" behavior. He argued that it is not the label that signifies deviance or disorder, but the inability of people to take on the role (e.g., understand or explain the behavior) of people

with mental illness. The breakdown in communication that occurs when one cannot accurately anticipate others' responses leads to job loss, deterioration of friendships, and marital discord, and explains why people with mental illness can feel the effects of stigmatization without ever being formally labeled.

More recently, psychologists have examined the effects of mental illness behavior on social interaction in the context of a positive/negative symptom distinction. Positive symptoms can be thought of as instances in which someone *is* doing things that *are not* consistent with normative expectations (e.g., bizarre behavior, acting out). Conversely, negative symptoms are instances in which someone is *not* doing things that *are* consistent with normative expectations (e.g., not fulfilling social obligations, being inappropriately “flat”, disengaging socially). While positive symptoms may provoke fear or discomfort, negative symptoms seem to have a more profound effect on the size and functioning of social networks (Hamilton et al. 1989; Provencher & Mueser 1997). Negative symptoms may cause network disruption because they involve social withdrawal either literally or in terms of unfulfilled social obligations. People with many negative symptoms are socially disengaged, "interpersonally bland" (Hamilton et al. 1989), and unable to provide resources like companionship or intimacy (Provencher & Mueser 1997).

Despite the insights gained from this body of work, it has not been incorporated into existing sociological theories of mental illness. With the exception of a few studies looking at the effects of diagnosis and illness severity on level of stigmatization (See Link et al. 1987; Martin et al. 2007; Pescosolido et al. 2000), not since Rosenberg has this issue been given real consideration by sociologists. However, because relationship quality and function depend on mutual understanding and the success of communication

in day-to-day interactions (Rosenberg 1984), the nature of the symptoms themselves is a component of social network attrition that merits further attention. Thus, a social psychological perspective posits:

P2.4: The nature of mental illness behaviors, inasmuch as it impedes successful social interaction, shapes mechanisms of social network attrition.

CHAPTER 3

NETWORKS FIRM, NETWORKS IN FLUX:

THE CORE-PERIPHERY STRUCTURE

Relationships between individuals are the building blocks of society. Organize those blocks differently — alter the patterns of connections between individuals — and you ultimately change the social structure (White 1992). On the other hand, individuals are a product of their unique constellations of relationships (Simmel 1908). Our behavior, beliefs, values, opportunities, health, and wellbeing hinge on our connections to others and the ideas and resources that they provide. For this reason, relationships between two or more people play a central role in both macro and micro-level sociological processes.

Of particular concern are relationship formation, development, and dissolution. To explain social *process* – from individual transitions to sweeping social change – we must understand how and why connections between individuals are established, what motivates us to maintain relationships, and whether and why they eventually end. In other words, why, on a fundamental level, do we *need* others, and how do we structure our lives and our relationships to satisfy this need in contemporary American society?

The next two chapters of this dissertation examine the very nature of relationships between individuals and their kin, friends, neighbors, coworkers, and health and other professionals. Chapter 3 lays the groundwork for this line of research and for the multi-level model proposed in Chapter 1 by shedding light on why certain people are more important to us at any given time than are others. Essentially, I argue that we form and

maintain close relationships with friends and relatives who are willing and able to provide support when help is needed. Next, I ask how people are recruited into this circle of close associates, and, later, whether and how they exit it. In other words, I attempt to identify which kinds of people we tend to turn to for help, where those people come from, and how this affects the stability of relationships.

THE BROADLY SUPPORTIVE CORE AND THE FUNCTIONALLY SPECIFIC PERIPHERY: THE NATURE OF TIE ACTIVATION PROCESSES

The stability and instability of relationships are best explained in the context of an underlying core-periphery structure (Morgan et al. 1997). Some close friends and family remain a strong and constant presence in our lives over decades. Alternatively, a number of our associations persist, but may be inactive at any particular point in time, and some appear briefly in our lives, never to return. Importantly, people with whom we have loose associations can often be called upon for help, or activated, should the right circumstances develop. Generally, activation occurs when there is a match between a person's immediate needs and the resources a casual acquaintance or extended family member has to offer (i.e., a neighbor might collect your mail while you are away, a coworker might cover your shift, or a distant cousin might recommend you for a job).

By definition, core network ties are “strong” ties – relatively stable, supportive, and kin-centered (Marsden 1987; Wellman et al. 1997). The core network contains friends and family with whom we have fostered close bonds. We are highly invested in these relationships because they are broadly functional, regularly fulfilling multiple important support needs. For most individuals, the functional core contains a smaller

stable core – a group of people who, for better or worse, remain a central part of our social lives over an extended period of time. These tend to be our longest standing ties (i.e., parents, children, siblings), and the ones we can count on most to help in times of crisis, including illness (Haines et al. 2002; Wellman 2000). Conversely, peripheral ties have been described as adaptable, transitory, and functionally specific (Wellman et al. 1997). These are people with whom we come into contact regularly, but are not a stable source of companionship or support. Nonetheless, peripheral ties can have a significant impact on our behavior, beliefs, and opportunities (Granovetter 1973).

Differences between core and peripheral ties derive, in large part, from the broad functionality and elevated levels of support that are characteristic of core relationships, and the functional specificity of peripheral ones (Wellman & Wortley 1990). Peripheral associates are activated sporadically to fulfill specialized support functions, thus they are more likely to come from specific social contexts related to those specialized needs, like the workplace or neighborhood (Campbell et al. 1999; Feld 1984; Wellman & Wortley 1989; 1990). On the other hand, core networks tend to be kin-centered precisely because immediate kin are particularly likely to provide a variety of different types of everyday and emergency support (Fischer 1982; Wellman & Frank 2001).

Likewise, accessibility and closeness increase the likelihood that a tie is willing and available to provide many different support functions (Granovetter 1982; Wellman & Frank 2001). Thus, core ties are closer and characterized by more frequent contact than peripheral ties. Also, because women are more likely to be caregivers and to provide support than men (Wellman & Frank 2001), the functional core may contain a disproportionate number of women. Thus, I argue that the *Broad Functionality* (Claim

C3-1) of core ties results in significant differences between core and peripheral ties. Specifically, both stable and functional core associates provide a greater number and variety of support functions, are closer, have more frequent contact, and are more likely to be kin and women than peripheral members of the network.

Furthermore, differences in the functionality and characteristics of core and peripheral associates shape dynamic patterns of movement into and out of the core and periphery. Non-spousal kin (i.e., parents, children, and siblings) that comprise a large proportion of our core networks are a strong and constant presence throughout much of our lives, and therefore do not “come from” anywhere. These are our *ascribed* associates. However, close friends and other network members who have *achieved* core status over time typically begin as acquaintances. Later, when these acquaintanceships progress to more intimate platonic or romantic relationships, they become what Fischer calls “free-floating friendships” (1982). That is, they are no longer associated with any particular social context, like work, school, or neighborhood.

One way that we form acquaintanceships is through these various social contexts and activities (Blau 1977; Fischer 1982; Simmel 1955). Some associates, then, will be selected into the core through the larger group of peripheral ties that are associated with these various social roles and activities. For example, a casual, amicable relationship with a coworker may ultimately develop into a close, free-floating friendship with increasing contact and relevance outside of the work context. Because of this pattern of relationship development, it is likely that there exists a fair amount of movement between the core and periphery as less integral, context-specific associates are activated into the functional core, and/or deactivated back into the periphery. This would suggest an

Upgrade/Downgrade (Claim C3-2) phenomenon in tie activation processes, whereby ties are upgraded into the core from the periphery, and then downgraded back into the periphery when they become less functional.

In contrast, another way that we may encounter acquaintances that eventually become core associates is through our relationships and activities with friends and family members. This is especially true of sexual or romantic partners (Laumann et al. 1994), a group that is likely to achieve core status relatively quickly. For example, we may develop a new free-floating friendship or begin dating someone whom we met through social activities with a mutual friend. Core relationships that begin in this way are unlikely to ever appear in the periphery because they are not associated with any particular social context (e.g., they are free-floating from the beginning). Moreover, peripheral ties that move rapidly in to the core (so-called “fast friends”) are unlikely to be captured as members of the periphery in a longitudinal survey of social networks captured at discrete points in time. With respect to movement out of the core, relationships that end permanently and abruptly due to conflict, rejection, or some other mechanism that results in a lack of contact are also not likely to move through the periphery, but will instead exit the network directly. Thus, if core/periphery dynamics are characterized by the development of *Fast Friends and Enemies* (Claim C3-3), we would expect to observe a significant degree of movement by ties into the core from outside the network, and vice versa, without first “stopping” in the periphery.

Finally, peripheral ties are adaptable and sporadic by definition. As our needs and resources change, and as we enter and exit various social roles, statuses, and contexts, we encounter different sets of peripheral associates (Blau 1977; Fischer 1982; Pescosolido

1992; Simmel 1955; Wright & Pescosolido 2002). Many associates appear briefly in our networks, and then exit as we move through different stages of the life course. For example, our casual friends and acquaintances are likely to be replaced as we move from high school to college, from college to the labor force, and from the labor force to retirement. Only those peripheral relationships that achieve core status stand a fair chance of persisting. We would expect, therefore, to observe a high level of *Peripheral Turnover* (Claim C3-4) as ties move between the periphery and outside of the network.

A NESTED APPROACH TO THE ANALYSIS OF SOCIAL NETWORKS

The data for this dissertation come from the Indianapolis Network Mental Health Study (INMHS), a longitudinal study of network stability and change early in the illness career (Pescosolido et al. 1998). Participants were people experiencing an episode of mental illness who had recently entered the mental health treatment system. New patients at two hospitals in Indianapolis (the largest public and private facilities) were screened for participation between 1990 and 1997. Consenting individuals were administered the Structured Clinical Interview for DSM-III-R (SCID), which uses standardized information about a patient's history of mental illness and current symptoms to make a research diagnosis (Spitzer et al. 1990). Patients with a diagnosis of serious mental illness (primarily major depression, bipolar disorder, and schizophrenia) and a control group with adjustment disorder were recruited into the study if they had an acute history of psychiatric disorder for no longer than two years and lived in the greater urban area. Importantly, all new clients at the participating treatment organizations who met the

sample criteria during a given time period were contacted for inclusion in the study (66.4% agreed to be interviewed). Therefore, a wide range of experiences are captured.

Baseline in-depth interviews were conducted within the first three months of contact with the treatment facility. Respondents were asked to participate in three follow-up interviews occurring approximately 8 months, 24 months, and 48 months after the initial interview. All respondents from the baseline interview were contacted prior to each new wave of the study, even if they had not participated in a previous wave. Because the final interview was conducted over the telephone rather than in person, and contains limited information about respondents' networks, only the first three waves of data are used in these analyses.

A total of 173 individuals participated in the INMHS, and these respondents provided information about a total of 4,144 network ties over one, two, or three waves of the study, or occasions (See Figure 3.1 for data structure). Only two cases at the respondent level were dropped due to missing data on independent variables, resulting in a sample size of 171 focal respondents. Though small, this sample is comparable to the 164 first-time psychiatric patients who participated in Link's (Link et al. 1989) study of stigma coping strategies. As argued by Link and colleagues (1989), a sample of respondents entering the mental health treatment system for the first time is extremely difficult to obtain.

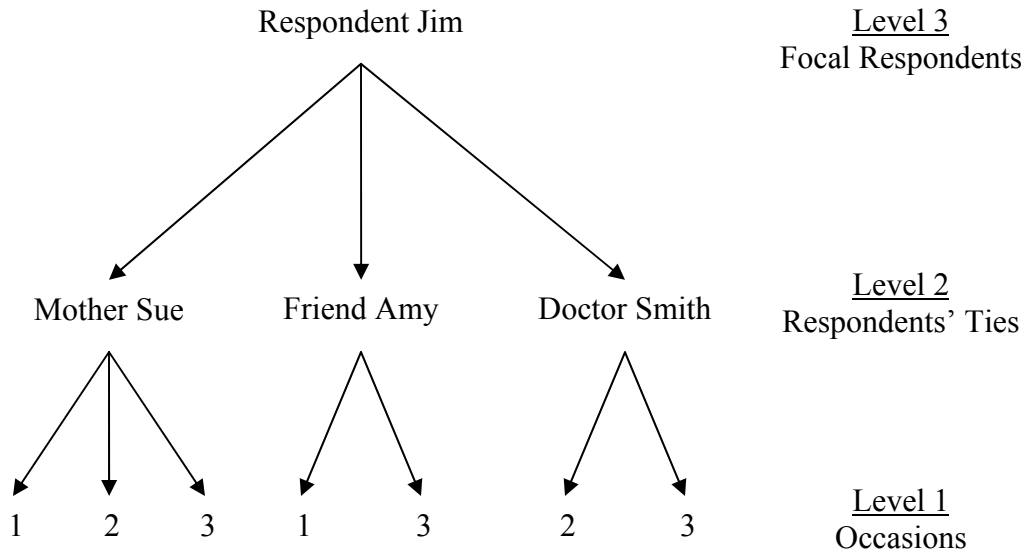


Figure 3.1. Three-level data structure of the INMHS

Considerably more data was missing at the level of occasions and ties. Many respondents did not participate in every wave, or occasion (See Table 3.1). Further, even if a respondent did participate in all three waves of the study, there was a great deal of network membership turnover and attrition such that most ties were only mentioned in one or two waves.

Table 3.1. Pattern of participation, INMHS

Pattern of participation	N	%
Wave 1 only (100)	56	32.7
Waves 1 and 2 (110)	13	7.6
Waves 1 and 3 (101)	15	8.8
All waves (111)	87	50.9
Total	171	100.0

To illustrate the extent of missing data, it is useful to compare the analysis sample to a hypothetical ideal. If every respondent had participated in all waves, and had mentioned every tie on each occasion, there would be a potential total of 12,432

observations in the data (4,144 ties multiplied by 3 waves). In this analysis sample, 4,374 observations are missing because a given tie was not mentioned at every wave. It is important to note that this is not missing data in the traditional sense, but rather reflects real fluctuations in network membership over time (Wright & Pescosolido 2002). Another 2,577 of these hypothetical observations are missing due to a respondent participating in fewer than three waves (e.g. missing data across waves). Finally, 2,209 observations have missing data on one or more tie-level independent variables (due largely to interviewer error).

Though the rate of attrition across waves is considerable, findings from a comparison of respondents who participated in one, two, or three waves reduces concerns about the implications of missing data. Chi-square tests comparing these three groups on socio-demographic variables, psychiatric diagnosis, network size, and network functionality indicate that they differ only with respect to a diagnosis of schizophrenia. Specifically, respondents with schizophrenia are more likely to drop out of the study than those with other diagnoses ($X^2 = 8.22, p \leq .05$). This suggests that the *evolution* of social networks and the factors driving these processes in respondents with schizophrenia (13% of the sample) may not be as well-represented by these data as those of respondents with other diagnoses.

The baseline demographic characteristics of respondents are presented in Table 3.2. Well over half of the sample is female (64%), and almost three quarters is White (73%). Respondents range in age from 16 to 72, with a mean age of 31 years. About 62% of the sample has a high school diploma or equivalent, and 13% has a degree from a four-year college. According to tests of group differences, these respondents are considerably

younger ($F = 87.6, p \leq .001$) and less educated ($F = 48.7, p \leq .001$) than a sample of general population respondents collected during the same period (Perry & Pescosolido 2008). Over half the sample (52%) has a diagnosis of major depression, 24% has adjustment disorder, 13% has schizophrenia or a related disorder, 7% has bipolar disorder, and 4% has some other diagnosis.

Table 3.2. Sample descriptive statistics, INMHS (N=171)

	Mean	SD	Range
Gender (1=woman)	0.64	0.48	0.00-1.00
Race (1=White)	0.73	0.44	0.00-1.00
Age at wave 1 (years)	30.56	10.17	16.00-72.00
Education at wave 1 (years)	11.59	2.00	6.00-16.00
Diagnosis (1=yes)			
Major depression	0.52	0.50	0.00-1.00
Bipolar disorder	0.07	0.26	0.00-1.00
Schizophrenia	0.13	0.34	0.00-1.00
Adjustment disorder	0.24	0.43	0.00-1.00
Other	0.04	0.20	0.00-1.00

It is worth emphasizing that this sample represents the experiences of individuals who, for whatever reason, entered the mental health treatment system. Because people with mental illness who have not entered treatment are likely to have social networks that differ in meaningful ways from those who did (e.g., attitudes toward medical professionals, knowledge and recognition of mental illness, number of close kin in the network, etc.), caution must be used in extending results found here to the untreated population.

EXPLORING STABILITY AND CHANGE IN SOCIAL NETWORKS

The INMHS instrument was designed to obtain detailed information about individuals with mental illness and their social networks. Respondents were asked about their mental illness-related experiences and attitudes, patterns of utilization, social structural location, and support and service needs and resources. These measures comprise the respondent-level variables. In addition, extensive data was collected about respondents' social networks across thirteen different domains: household members, family, romantic partnerships, work (paid and volunteer) ties, school ties, friends, acquaintances, enemies, important matters discussants, health matters discussants, people with common problems, and mental health treatment providers. Each domain has a corresponding name generator designed to elicit associates (See Table 3.A.1 in the Appendix), and there were no limitations on the number of people respondents could name. After compiling a list of associates during the course of the interview, respondents were asked a series of questions about each person and their relationship at the end of the interview. These measures of associate demographics, support functions, and relationship characteristics comprise the tie-level variables used in these analyses.

DEFINING CORE AND PERIPHERAL TIES

Ties were coded as either core or peripheral on the basis of three name generators and connection to the respondent. First, if a respondent mentioned the tie when asked to name those with whom they discuss important matters or health matters, they were coded as a core tie. Though recent research suggests that what constitutes "important matters" varies considerably across individuals (Bearman & Parigi 2004), there are two qualifying

phrases unique to the INMHS important matters and health matters name generators that make them ideal for capturing core networks. Specifically, respondents are asked to name people they “can depend on for help” and who they “can really count on” (See Table 3.A.1). In addition, if respondents mentioned the tie when asked to name “close friends,” and also reported that their primary connection was “friend” rather than coworker, neighbor, etc., he or she was coded as a core tie. Relationships that have transcended their specific social context and achieved the elevated status of friendship possess qualities – such as intimacy or more frequent, voluntary contact – that make them inherently core. Together, these defining characteristics (e.g., close friendship, dependability, etc.) yield a core group of ties that are most likely to be broadly functional in the sense that they regularly provide companionship and various different forms of support. All ties not meeting the conditions of a functional core tie were coded as peripheral. Of course, the extent to which our relationships are “core” is more of a continuum than this coding reflects, but describing a social network or a component of a network requires that it be defined, or bounded.

In this chapter, I distinguish between those members of the functional core that move in and out of the core network, and those that remain stable over the first three waves of the study (approximately two years). Functional core ties were characterized as stable core if they fulfilled one or more of the above conditions in every wave in which the respondent participated. Individuals who did not participate in all three waves of the study were coded missing and dropped from analyses involving stable core distinction on the basis that stability could not be determined.

CORE/PERIPHERY DISTINCTIONS AND DYNAMICS: DESCRIPTIVE

VARIABLES

Relationship characteristics

The nature of the relationship between a respondent and his or her associates is captured using items that were asked of every person elicited by the name generators. Respondents were first asked how they are connected to the person. This is coded into a series of dummy variables: One each for family, professionals (i.e., physicians, mental health treatment providers, lawyers, police officers, etc.), neighborhood or household, work or school, and “free-floaters.” Again, these free-floating relationships refer to people who are not associated with any particular social context. According to a frequency distribution, about 91% of free-floaters are friends. The other 9% are acquaintances, people with whom respondents do leisure activities, casual dating partners, ex-partners or spouses, relatives or friends of ex-partners or spouses, and relatives or friends of friends.

Next, respondents were asked, “How close are you to this person currently?” Responses (very close, sort of close, and not very close) are coded into a series of dummy variables. The question “How often do you see or talk to this person currently?” measures the level of contact between a respondent and his or her associate. Responses to this item (often, occasionally, and hardly ever) are also coded into a series of dummy variables. Additionally, respondents reported whether members of their network hassle, cause problems, or make their life difficult. Again, responses (a lot, sometimes, not really) were coded into a series of dummy variables.

Finally, the support functions provided by members of the network are measured using five binary variables. These include discussion partner (listening), emotional

support (saying they care), information and advice (making practical suggestions), instrumental support (helping with things like chores or transportation), and financial support (giving/loaning money). These are coded 1 if the associate provides the support function and 0 otherwise. In addition, five dummy variables indicate whether there is a match (coded 1) between respondents' support needs and the support functions provided by an associate. For example, if a respondent said that he or she needs help finding work, or is in a stressful financial situation, and a particular associate gives him or her money, this represents a match between needs and resources, and is coded 1. Finally, a count variable measures the total number of support functions provided by each associate.

ANALYTICAL STRATEGY

Frequency distributions are employed to describe characteristics of core and peripheral ties. The significance of differences between the periphery, functional core, and stable core is assessed using chi-square tests. In addition, I present frequency distributions on pathways into and out of the different components of networks in order to describe general patterns of network dynamics in these data. For these descriptive analyses, only respondents who participated in all three waves of the study are included (N=87). This strategy is necessary to distinguish stable core ties (those that actually persist across three waves) from more temporary functional core ties.

FINDINGS FROM AN ANALYSIS OF THE CORE-PERIPHERY STRUCTURE

A comparison of peripheral, functional core, and stable core ties (See Table 3.3) suggests that ties in the three components of the social network differ significantly on every

characteristic measured. Overall, these analyses establish the existence of a three-component core/periphery structure, and provide support for the *Broad Functionality* claim, which states that core ties provide a greater number and variety of support functions, are closer, have more frequent contact, and are more likely to be kin and women than peripheral ties.

As predicted, there are significantly more women in the stable core (64%) than in the functional core (55%) or periphery (55%; $X^2 = 21.58, p \leq .001$). Also, the stable core is largely kin-centered. Sixty-five percent of stable core associates and peripheral associates are family members, compared to only 31% of functional core associates ($X^2 = 364.21, p \leq .001$). Also, while 17% of the periphery is made up of coworkers and fellow students, only 8% and 5% of the functional and stable core are from the work or school context, respectively ($X^2 = 103.34, p \leq .001$). Neighbors and housemates make up a very small percentage of ties in all networks (4% in the periphery, 2% in the functional core, and 1% in the stable core; $X^2 = 13.38, p \leq .001$). Professionals are most common in the functional core (11%) and periphery (9%), and less common in the stable core (3%; $X^2 = 40.26, p \leq .001$). Finally, free-floaters make up 48% of the functional core, 26% of the stable core, and only 5% of the periphery ($X^2 = 732.28, p \leq .001$).

As predicted, the stable core is characterized by closer relationships than either the functional core or the periphery ($X^2 = 417.72, p \leq .001$). Sixty-seven percent of stable core associates are very close, compared to 49% of the functional core and 29% of the periphery. Also, stable core ties are characterized by more frequent contact ($X^2 = 225.44, p \leq .001$). Respondents report having frequent contact with 70% of the stable core, 51% of the functional core, and 43% of the periphery. Moreover, while few people

Table 3.3. Comparison of periphery (N=1,902), functional core (N=1,188), and stable core (N=810)

	Periphery Proportion	Functional Core Proportion	Stable Core Proportion	χ^2
Female	0.55	0.55	0.64	21.58***
Social context				
Kin network	0.65	0.31	0.65	364.21***
Work/school/volunteering	0.17	0.08	0.05	103.34***
Neighborhood	0.04	0.02	0.01	13.38***
Professional	0.09	0.11	0.03	40.26***
Free-floaters	0.05	0.48	0.26	732.28***
Relationship characteristics ⁴				
Closeness				417.72***
Very close	0.29	0.49	0.67	
Sort of close	0.40	0.39	0.26	
Not very close	0.32	0.12	0.07	
Frequency of contact				225.44***
Often	0.43	0.51	0.70	
Occasionally	0.31	0.36	0.24	
Hardly ever	0.26	0.13	0.07	
Hassles				35.60***
A lot	0.09	0.05	0.06	
Sometimes	0.18	0.14	0.22	
Never	0.74	0.82	0.72	
Functionality				
Discussion partner	0.56	0.84	0.88	269.82***
Emotional support	0.51	0.73	0.81	187.85***
Information and advice	0.37	0.67	0.76	293.14***
Instrumental support	0.21	0.32	0.52	166.74***
Financial support	0.20	0.35	0.51	161.04***
Number of support functions				459.54***
Zero	0.25	0.06	0.05	
One	0.22	0.13	0.05	
Two	0.19	0.18	0.11	
Three	0.20	0.28	0.25	
Four	0.07	0.16	0.20	
Five	0.07	0.19	0.33	
Match between function and need				
Discussion partner	0.28	0.41	0.48	65.01***
Emotional support	0.34	0.45	0.47	33.79***
Information and advice	0.18	0.33	0.28	56.58***
Instrumental support	0.20	0.32	0.50	155.04***
Financial support	0.11	0.19	0.25	56.24***

* = $p < .05$; ** = $p < .01$; *** = $p < .001$ (2-tailed test)

hassle, cause problems, or make life difficult for respondents, stable core associates (28%) and peripheral associates (26%) are more likely to do so than members of the functional core (18%; $X^2 = 35.60$, $p \leq .001$).

As suggested by the *Broad Functionality* claim, members of the stable core are more likely than members of the functional core to provide every kind of support measured, and peripheral associates provide fewer than either of these groups. Eighty-eight percent and 84% of stable and functional core associates, respectively, are discussion partners, compared to only 56% of peripheral ones ($X^2 = 269.82$, $p \leq .001$). Similarly, 81% of the stable core, 73% of the functional core, and 51% of the periphery provide emotional support ($X^2 = 187.85$, $p \leq .001$). Likewise, 76%, 67%, and only 37%, respectively, provide information and advice ($X^2 = 293.14$, $p \leq .001$). Finally, while about half of the stable core provides instrumental (52%) and financial (51%) help to respondents, only about one third of functional core associates and one fifth of peripheral associates do ($X^2 = 166.74$, $p \leq .001$; $X^2 = 161.04$, $p \leq .001$).

In all, peripheral associates fulfill significantly fewer support functions (1.85), on average, than either functional core (2.91) or stable core (3.48) associates ($X^2 = 459.54$, $p \leq .001$). Twenty-five percent of peripheral associates provide no support at all, compared to only a handful of functional and stable core members. Alternatively, while over half of the stable core and about a third of the functional core provides four or more support functions, only 14% of peripheral associates do.

Patterns across tie type for the match between support functions provided and respondents' needs mirror those for functionality alone. There is a match between needing to talk about problems and a tie being a good listener in nearly half of all stable

core relationships compared to 41% in the functional core and 28% in the periphery ($X^2 = 65.01, p \leq .001$). Similarly, 47% and 45% of associates in the stable and functional core fulfill respondents' needs for emotional support, compared to only 34% in the periphery ($X^2 = 33.79, p \leq .001$). Also, about one third of functional and stable core associates provide information and advice when respondents need it, while only 18% of peripheral ties do ($X^2 = 56.58, p \leq .001$), and half of stable core associates provide needed instrumental support compared to only one third of functional core associates and one fifth of peripheral associates ($X^2 = 155.04, p \leq .001$). Finally, there is a match between financial need and support in 25% of stable core relationships, 19% of functional core relationships, and 11% of peripheral relationships ($X^2 = 56.24, p \leq .001$).

Table 3.4. Patterns of movement into and out of core and peripheral networks¹

	N	%
Core ↔ periphery	178	8.13
Out of network ↔ periphery	858	39.18
Out of network ↔ core	647	29.54
Remain in periphery	153	6.99
Remain in core	270	12.33
Other pattern	84	3.84

¹ Sub-sample of respondents in all three waves of the study; N=2,190 ties

Patterns of movement into and out of core and peripheral networks are presented in Table 3.4. As expected, about 39% of associates enter and exit the periphery across the three waves of the study, providing support for the *Peripheral Turnover* claim. Another 30% enter and exit the core network without first “stopping” in the periphery, while only 8% move between the core and periphery, providing strong support for the claim that

associates from outside the network become *Fast Friends and Enemies* rather than being upgraded into the core from the periphery or vice versa (*Upgrade/Downgrade* claim). Finally, only 12% and 7% of associates remain in the core or periphery, respectively, throughout the study, suggesting that both of these components are highly unstable.

IMPLICATIONS: CORE-PERIPHERY DYNAMICS AND THE SELECTIVE ACTIVATION OF FUNCTIONAL TIES

Overall, these findings support existing research and the *Broad Functionality* claim, but also offer new insights into the core/periphery structure (See Table 3.5 for a summary of claims and findings). Specifically, I find that there are three distinct components of networks, each with a unique combination of functionality, relationship characteristics, and social context. Moreover, I find that patterns of movement between the core and periphery may be driven by one's motivation to obtain network resources.

As expected, my analysis of core and peripheral networks suggests that a few individuals bear the majority of the burden of helping individuals in need (Hammer 1984; Marsden 1987; Wellman et al. 1997; Wellman 2000). Core ties that persist are likely to be close female relatives who have frequent contact and provide a broad range of support functions. These friends and family are almost always willing to listen to you talk about your problems, and provide positive reinforcement and emotional support. However, this is not unique to stable members of the core. What sets the stable core apart is their willingness to help with everyday tasks like housework, childcare, and transportation, as well as provide financial support. Interestingly, members of the stable core are also more

Table 3.5. Summary of claims and findings in Chapter 3

	Question	Claim	Corroborated?
<i>C3-1 Broad Functionality</i>	What differentiates core friends and family members from the group of secondary or weaker ties with whom we also interact on a regular basis?	Stable and functional core associates provide a greater number and variety of support functions, are closer, have more frequent contact, and are more likely to be kin and women than peripheral members of the network.	Yes
<i>C3-2 Upgrade/Downgrade</i>	When we begin to develop core relationships, do we choose from among our existing weaker ties? When core relationships become weaker, do we still maintain those relationships, albeit to a lesser degree?	Ties are upgraded into the core from the periphery, and then downgraded back into the periphery when they become less functional.	Somewhat
<i>C3-3 Fast Friends and Enemies</i>	When we begin to develop core relationships, do we tend to do so with people we have just met or barely knew before? When those relationships weaken, do they end permanently?	Ties move into the core from outside the network, and vice versa, without first “stopping” in the periphery.	Yes
<i>C3-4 Peripheral Turnover</i>	Is there a significant amount of coming and going in those groups of people who play a less important role in our lives?	There is a great deal of movement between the periphery and outside of the network.	Yes

likely to hassle their close kin and companions, regulating their health and wellbeing even when such intervention is unwelcome. Regulators tend to be caregiving female relatives, and indeed findings confirm that over one third of stable core associates are mothers, daughters, or sisters.

However, these findings also reveal a secondary, less-stable group of functional core associates that also provide a disproportionate amount of assistance, particularly companionship, emotional support, and advice. Individuals who make up this instable functional core are almost equally likely to be men or women, and are overwhelmingly unlikely to be associated with any shared social context. Rather, these “free-floaters” are people who have transcended their social context and achieved friendship status, albeit temporarily. These “fuzzy friends” are recruited or step in to serve as emotionally-supportive listeners in times of crisis, perhaps filling in the gaps left by close relatives who have heard it all before, both literally and figuratively.

These findings also support the existence of a functionally-specific periphery. Members of the periphery are casual associates with minimal involvement in the daily lives of respondents. They typically fulfill one or two functions, while a quarter provide no support at all. As expected, peripheral associates are more likely to come from specific social contexts which are likely related to their specialized functions, such as the workplace (Campbell et al. 1999; Feld 1984; Wellman & Wortley 1989; 1990). Surprisingly, the periphery also contains a large proportion of kin. However, unlike the stable core, which is comprised largely of immediate family members, about one quarter of the periphery is made up of in-laws and extended kin, like aunts or cousins.

Patterns of core-periphery dynamics indicate that there is a great deal of membership turnover in both the core and the periphery. However, only a small proportion of this instability is due to members of the network moving back and forth between the core and periphery. Rather, associates are most likely to enter both the periphery and the core from outside of the network, and they exit in the same manner. It is likely that because some peripheral associates do move rapidly into the core from outside the network (particularly sexual and romantic partners), they are unlikely to ever be captured as members of the periphery in this survey of networks measured at six-month (or more) intervals. Still, you would expect by random chance to capture some of these fast-moving associates in the periphery (even those who remain there a short time), but very few are observed here. Also, there may indeed exist a brief initial period in which relationships that progress rapidly toward core status are just beginning to develop intimacy, and are more peripheral (i.e., a serious romantic partnership begins as a casual dating relationship). However, though this kind of relationship development may be characterized by more or less intimate stages, this process is not the same as recruiting supporters from existing peripheral networks of, for example, coworkers or neighbors.

In all, these patterns suggest that new members of the core are not simply peripheral members who have been “upgraded.” Though we may at times elicit certain types of context-specific support from members of the periphery, when it comes to developing broadly functional (but temporary) relationships, we typically recruit from outside our existing circle of acquaintances. Likewise, when we become less reliant on a particular core tie, that relationship is likely to end permanently and abruptly rather than simply being “downgraded” to the periphery. This trend may be unique to individuals

with excessive support needs, which compel them to seek help from individuals who are not their regular supporters or caregivers.

Why, then, are certain people more important to us at any given time than others? These findings suggest that we form new close relationships, and call on existing ones, when we need the kinds of help that others can provide. Broadly supportive family members are the first line of defense, and the most likely to provide all types of everyday assistance when experiencing a disruptive event or transition. However, we also recruit free-floating, fuzzy friends from outside of our networks to listen to our problems and provide advice and emotional support. It seems possible that the patterns identified here reflect a spillover effect. That is, these temporary functional core ties may reinforce the safety net provided by close caregivers during periods of crisis, when the demand for network resources exceeds a level sustainable by the stable core alone. This and other potential mechanisms of core/periphery dynamics are explored in the following chapter.

APPENDIX 3.A

Table 3.A.1. Social network name generators in the INMHS interview schedule

Domain	Name Generator
Household	“Let’s talk about the place you are living now. What is the total number of people, including yourself, presently living in your household? Please include everyone who lives here at least half of the time. What are their names?”
Romantic partnerships	“Do you have a boy/girlfriend, fiancée, or one “friend” you are dating and see a lot of? What is his/her name?”
Family	“Now I’d like you to tell me about the members of your family and relatives that do not live in your household, but that you saw or talked to at least occasionally over the last year. Are there any members of your family that you have not yet told me about that you avoid, are not speaking with, are estranged from, or who you generally don’t like?”
Paid work	“Now I’d like to know a little bit about the people you work with. Who are the people at work that you have contact with and talk to at least occasionally about things? Who are the people at work that you have not yet told me about that you avoid, are not speaking with, or you generally don’t like?”
Volunteer work	“Who are the people you know or talk to at least occasionally in doing your volunteer work? Are there any people in your volunteer work that you have not yet told me about that you avoid, are not speaking with, or you generally don’t like?”
School	“Who are the people at school that you hang out with, know, or talk to at least occasionally? Who are the people at school that you have not yet told me about that you avoid, are not speaking with, or you generally don’t like?”
Friends	“I’d like to take a few moments to think about who your close friends are. Who are these people? We’re interested in people who live near and those who live far away.”
Acquaintances	“Now I’d like to spend a little time talking about your more casual acquaintances. By this I mean people who are not close friends, but people you know in your neighborhood, from church, from the clubs or organizations you told me about, or from your hobbies or other leisure activities. I’d like you to take a minute now and think about who these people are.”
Enemies	“Are there any people you consider to be enemies, or people you just don’t like?”
Important matters	“From time to time, most people discuss important matters with other people, and we need people we can depend on for help. Who are the people in your life with whom you discuss important matters? Who are the people you can really count on? Is there anyone who always wants to talk to you about the important matters in your life, whether you want them to or not?”
Health Matters	“I’m interested in who, among all of the people in your life, you talk to about health problems when they come up. Who are the people that you discuss your health with, or that you can really count on when you have physical or emotional problems? Who are the people that are always talking about your mental and physical health and trying to get you to do things about them?”
Common problems	“Have you ever known anyone who was in a similar situation to you, had what you consider to be an emotional or mental problem, or has been treated by a mental health professional? Have you discussed your situation with them? Who are they?”
Mental health treatment providers	“Is there anyone on the staff of (treatment facility), including your doctor, that you consider to be a friend? Is there anyone here you feel you could call if you needed help? Is there anyone on the staff of (treatment facility), including your doctor, that gives you a hard time, hassles you, or who you don’t especially like?”

CHAPTER 4

THE COMINGS AND GOINGS OF SOCIAL TIES: MECHANISMS OF CORE-PERIPHERY DYNAMICS

Chapter 3 illustrates that the relationships making up our social networks can be organized into three more or less distinct groups. In periods of crisis, the degree to which we rely on these groups, and the kinds of help and support we elicit from them, differ. While the stable core is likely to help with everything from childcare to grocery money, the functional core is our source for practical advice and a shoulder or two on which to cry. However, when we need someone to occasionally provide specialized assistance, we turn to peripheral friends and family members who are best equipped to help, such as a neighbor picking up the mail, or a coworker covering our shift. These findings illustrate that social network resources, and the people who provide them, do not operate according to the “one size fits all” model. Rather, though boundaries between these different groups are quite permeable, we tend to organize our social relationships in a kind of hierarchy of usefulness.

If we prioritize certain relationships over others based on their functionality, then what causes friends and family members to fall out of (or into) our good graces? Simple logic suggests that if the status of any particular relationship is dependent on the resources that friends or family members provide, then any change in what they do for us or with us, and how they make us feel, may result in ties taking on a more or less primary role in our lives. This chapter develops the argument that relationship dynamics, or

movement into and out of the core and periphery, are driven by changes in the willingness and ability of others to provide support and assistance. More specifically, I examine characteristics of people and of relationships that cause particular friends and family members to join the group of core supporters, and also attempt to identify why they drop out of this primary group or remain in it for significant periods of time.

I hypothesize that movement into and out of these groups is a function of shared social context, and therefore shared interests and values. For example, a friendly fellow student is quite able to loan you their class notes (and probably willing to do so in hopes that you would return the favor), and also provides an opportunity to commiserate about class assignments. However, outside of the classroom context, there is little that holds this relationship together. Next semester, when this individual is no longer a fellow student, it is unlikely that the relationship would endure. Rather, he or she would probably be replaced by a different individual who nonetheless occupies the same social space, or performs a similar social role. In this way, the comings and goings of people in our lives is dependent upon our own comings and goings in and out of various social contexts.

I also suggest that the likelihood that a given person will enter your core group of supporters and later exit is related to their own orientations toward helping others. Specifically, I argue that women are more willing than men to provide certain kinds of support, and that they may actually be better at it. In short, gender roles dictate, to some degree, who offers services and support when our needs become apparent to others, and who we ask for help in times of crisis.

Finally, and perhaps most importantly, I argue that relationship dynamics are a function of both our own support needs and the degree to which any given associate is accessible and committed to providing resources. In other words, the people who occupy our core group of supporters are, simply put, those who provide a broad range of support. Moreover, they are those who we see or talk to frequently, and they are also people who feel obligated or compelled to help because they are family, or because they are close to us and care about our wellbeing. Further, I assert that individuals who are willing and able to provide the specific kinds of support we need the most are likely to become and remain a significant part of our lives, particularly when we are experiencing uncertainty and transition. By extension, the greater our needs, the more friends and family of this kind we will call on for help.

In sum, this chapter, a continuation of the last, attempts to shed light on the high levels of membership turnover characteristic of personal community ties by describing selective activation processes that are dependent on structural opportunities for interaction and are sensitive to evolving circumstances in the lives of individuals. Specifically, I ask how the social demographic characteristics of individuals and their associates, the nature of relationships, as well as specific support needs and tie functions, impact friends and family members' movement into and out of the core and periphery.

INDIVIDUALS, ASSOCIATES, AND THE NATURE OF THEIR TIES:

HYPOTHESES ON THE MECHANISMS OF CORE/PERIPHERY DYNAMICS

The functionality of relationships, and, therefore, movement into and out of the core and peripheral networks may be shaped by characteristics of individuals (i.e., support needs;

Pescosolido 1992; Wellman 2000) and their associates (i.e. gender; Kessler & Mcleod 1985), by features of the relationship itself (i.e. closeness and the level of contact; Wellman & Frank 2001), or by broader, network-level factors (i.e. network culture and group norms for interaction; Palinkas et al. 1990). Given the different types and levels of functionality that distinguish core and peripheral ties, this chapter examines whether there is a link between entry into and out of the core and periphery and characteristics of individuals, associates, and relationships.

SOCIAL DEMOGRAPHICS AND SOCIAL ROLES: STRUCTURAL LOCATION AND ITS EFFECTS ON SOCIAL INTERACTION

An individual's demographic characteristics, including gender, race, age, and educational attainment, have been shown to affect the structure and function of his or her social networks (Ajrouch et al. 2001; Marsden 1987; Peek and O'Neill 2001; Silverstein & Waite 1993). This may be true because demographic characteristics reflect social structural location, which shapes to some degree one's opportunities for social interaction (Blau 1977). For instance, because of factors like greater social mobility and labor market participation, as well as marital and parental status, Whites, young adults, and those with higher educational attainment have access to a larger number and more varied group of potential network members (Groot & Verberne 1997; Peek and O'Neill 2001; South & Deane 1993). As a result, these groups are likely to have more social ties, to have a higher proportion of non-kin in their networks, to receive less support, and to have less frequent contact with individual network members compared to those who are Black,

older, and less educated (Ajrouch et al. 2001; Marsden 1987; Peek and O'Neill 2001; Silverstein & Waite 1993).

These variations in network characteristics may lead to different patterns of movement into and out of core and peripheral networks for men and women, Whites and Blacks, young adults and the elderly, and those with high and low educational attainment. Specifically, individuals with smaller, highly supportive, kinship-based networks are likely to have a relatively stable core network, and people with larger and more varied context-specific networks are likely to have a high level of turnover, particularly in the periphery. Based on these assumptions, the *Social Location Hypothesis* (H4-1) suggests that Whites, young people, and more educated individuals have greater numbers of ties entering and exiting the core and periphery, while their Black, older, and less educated counterparts have more stable core and peripheral networks.

While social structural location undoubtedly does shape opportunities for social interaction (Blau 1977), it may be that the processes underlying this relationship are not captured by the measurement of socio-demographic characteristics alone. In fact, Harrison White (1992) argues that an individual's social structural location, and indeed one's identity, is based not on attributes (e.g., race, educational attainment, etc.), but rather on one's position in a pattern of relations. According to White's theory, access to existing and potential ties is a function of one's social roles, which are independent of the people who fill them. Therefore, social network dynamics are likely to be shaped by transitions into and out of different social roles or positions rather than by characteristics of individuals.

More specifically, when people exit a social role or position, it compromises the frequency and quality of social interactions with friends and family with whom that position was shared. Role exits like job loss or divorce can disrupt the common interests, activities, resources, value orientation, etc., on which many relationships are based. Also, disruptive transitions, including job and residential mobility, can reduce the amount of contact between a person and members of their network, which makes it more difficult to enjoy the rewards of social relationships (Hallinan & Williams 1987). In sum, as described in Chapter 1, changes in social structural position that increase physical or social distance between an individual and his or her social ties are likely to weaken relationships and eventually lead to social network attrition. Thus, the *Disruptive Transitions Hypothesis* (H4-2) suggests that changes in employment, housing, marital and parental status, and group membership shape tie movement into and out of the core and periphery.

GENDERED INTERACTION: THE ROLE OF WOMEN AS CAREGIVERS AND RECEIVERS

Perhaps more than any other indicator of social structural location, gender is an attribute with important implications for social networks. For instance, research suggests that because they have more structural opportunities for social interaction (i.e., higher levels of labor market participation) and fewer structural constraints (i.e., less responsibility for childcare and unpaid work), men tend to have larger *complete* networks than women, and a smaller percentage of kinship ties (Moore 1990; Peek and O'Neill 2001). However, women have larger, more varied, and more supportive *core* networks. Importantly,

women receive more social support from a wider range of individuals than men, and are better able to mobilize support when they need it (Belle 1989; Fuhrer & Stansfeld 2002; Kessler & Mcleod 1985). They are also more likely to have close relationships with people other than their spouse (Antonucci 1994). Thus, the *Gendered Interaction Hypothesis* (H4-3) suggests that women are more likely than men to have ties enter and exit their core network, while men are more likely to have ties enter and exit their peripheral networks.

Gender may also be a critical factor in determining a friend or family member's willingness and ability to help others in need, and therefore their likelihood of being in the core network. As noted, women provide more support to members of their network than do men, devote a disproportionate amount of time to caring for friends and relatives and responding to requests for support, and are more likely to be primary caregivers (Cook 1988; Kessler & McLeod 1985; Marks 1996; Neal et al. 1997; Wellman & Frank 2001). Research suggests that women's core values are oriented toward a concern for the welfare of others, and a feeling of responsibility for caring for those in need (Beutel & Marini 1995). Furthermore, there is some evidence that women may be more effective providers of support because they are more emotionally sensitive to the problems of others than are men (MacGeorge et al. 2003). These tendencies on the part of women lead to the *Caregiving Hypothesis* (H4-4), which suggests that women are more likely to enter the core network, and to stay in the core even when caregiving responsibilities escalate.

However, because women are sensitive to the negative consequences of caregiving, they may exit core networks at a higher rate than men, suggesting an

alternative to the *Caregiving Hypothesis*. For both men and women, providing support to needy others (particularly those with chronic mental illness) is burdensome, and caregiving is associated with elevated levels of stress and lower subjective feelings of life satisfaction and wellbeing (Carpentier & Ducharme 2003; Maurin & Boyd 1990; Pavalko & Woodbury 2000; Reinhard & Horwitz 1995; Wright 1994). However, research suggests that women are more vulnerable than men to the negative effects of caring, including physical and mental health problems (Cook 1988; Miller & Cafasso 1992; Pavalko & Woodbury 2000; Pinqart & Sorensen 2003; Wright 1994; Yee & Schulz 2000). This heightened sensitivity to the consequences of caregiving on the part of women, who bear the lion's share of this burden, may even prompt exits from the caregiving role (Pavalko & Woodbury 2000). Thus, the alternative *Cost of Caring Hypothesis* (H4-5) suggests that women are more likely to both enter *and* exit the core group of supporters.

FUNCTIONALITY AND THE NATURE OF RELATIONSHIPS BETWEEN SUPPORT GIVERS AND RECEIVERS

The nature of the relationship between an individual and an associate is a critical factor in determining both the status of that friend or family member (whether core or peripheral) and the stability of the tie. As described in Chapter 3, core relationships tend to provide a greater number and variety of support functions. Because core status is closely linked to broad functionality, friends and family who are accessible and who are the most willing and best suited to fulfill multiple support needs are activated into the core network (Granovetter 1982). Hence, core ties are closer, and are characterized by more frequent

contact. Because kin often feel a sense of obligation toward their family members, core associates are also likely to be connected through kinship. According to the *Broad Functionality Hypothesis* (H4-6), then, ties that possess and maintain these properties are more likely to enter the core from outside of the network, move from the periphery to the core, and remain in the core over long periods of time.

Importantly, it is not simply the level of functionality that causes associates to be activated into the core network, but the extent of an individual's support needs at any given time. We tend to engage in goal-specific social network strategies, choosing from whom to make which requests for help in order to maximize the potential benefits of our social interactions (Katz et al. 2004; Wellman & Wortley 1990; Zeggelink 1995). In particular, stressful events and transitions can cause people to activate sectors of their networks that are most willing and best suited to provide specific kinds of resources in times of crisis (Hurlbert et al. 2000; Pescodolido 1992; Wellman 2000). In sum, those with elevated support needs are likely to mobilize a greater number and variety of ties to provide support on their behalf. In other words, people in the periphery and outside the network are drawn into the core because they are recruited by the individual in crisis, because they feel compelled to offer help, or some combination of both. The *Drawing In Hypothesis* (H4-7) suggests, then, that increasing support needs are associated with broader functionality and movement into the core as network resources are mobilized.

Though the level of functionality and need for support are important determinants of network dynamics on their own, even more critical may be the *match* between the immediate needs of a person and the resources available to them through their networks (Campbell et al. 1999; Morgan 1989; Sutor & Keeton 1997; Wellman & Wortley 1990).

We value most those relationships that provide the specialized kinds of support that are critical for our wellbeing and happiness. For example, friends and family who are willing to loan money become very important to a person in dire financial straits. We are particularly dependent upon and invested in those relationships that fulfill multiple different functions. Thus, the *Complementary Functions Hypothesis* (H4-8) suggests that relationships characterized by congruous respondent needs and tie support functions are more likely to enter the core from outside of the network, move from the periphery to the core, and remain in the core over long periods of time.

PREDICTORS OF CHANGE: ANALYZING MOVEMENT INTO AND OUT OF THE CORE AND PERIPHERY

Like Chapter 3, these analyses are conducted using data from the Indianapolis Network Mental Health Study. However, the three-level data structure of the INMHS, as well as the extent of missing data at the tie level (See Chapter 3), necessitates a more cautious interpretation of findings from the complex, multivariate statistical models presented here. Descriptive statistics on variables in these models are presented in Table 4.A.1 in the Appendix.

Analyses are based on the classification of core and peripheral ties described in Chapter 3. However, because there is, by definition, no change in the membership of the stable core, the functional core and stable core are collapsed in these analyses of core/periphery membership dynamics. Thus, I refer to the combined functional and stable core (e.g. all activated ties) simply as “the core” from this point forward.

DYNAMIC PATHWAYS: DEPENDENT VARIABLES

Three dependent variables are designed to capture dynamic pathways into and out of the core and peripheral networks. One of these focuses the destination of *new associates* entering from outside the network, and the other two focus on the destination of *existing associates* in subsequent waves (See Figure 4.1). Therefore, although both sets of analyses are based on the same 171 respondents, there are two different analysis samples for these dependent variables at the tie level: observations on new associates and observations on existing associates.

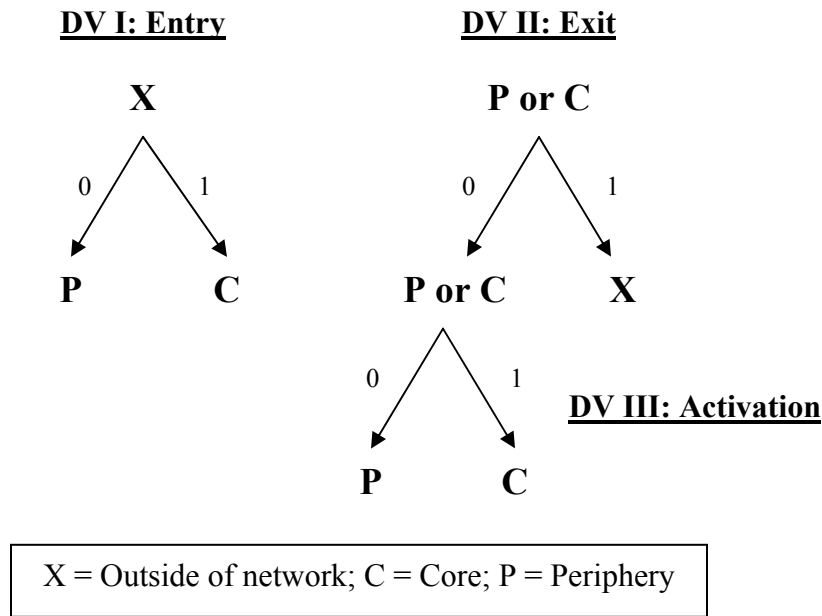


Figure 4.1. Dependent variables measuring core/periphery dynamics

Entry into the network is measured by a single binary, tie-level variable equal to 1 if an associate who was outside of the network in the previous wave entered the functional core in the current wave, and equal to 0 if he or she entered the periphery (See DVI, Figure 4.1). It is important to note that entry into the network can occur only once over the three waves. No information about the newness of ties was collected at wave 1,

and associates entering the network in wave 2 cannot enter again from outside the network in wave 3 (instead, they would be classified as having stayed in the network in wave 3). As a result, it is not necessary to cluster at the tie level on this variable.

A binary, tie-level variable captures existing associates' exits out of the network, as well (See DVII, Figure 4.1). This variable is equal to 1 if an associate is in the network (either core or periphery) in the current wave, but exits the network in the subsequent wave. It is equal to 0 if he or she remains in the network (again, either the core or periphery) in the next wave. As with the entry variable above, is it unnecessary to cluster this variable at the tie level. If an associate exits the network between waves 1 and 2, he or she cannot exit again between waves 2 and 3.

The activation of existing core and peripheral associates into the core network in subsequent waves (See DVIII, Figure 4.1) is also measured using a binary variable. Associates currently in the network (either the core or periphery) are coded 1 if they enter or remain in the core in the subsequent wave, and 0 if they enter or remain in the periphery¹. It is possible for each associate at the tie level to have two observations (one for each occasion, or time point, wave 1 → wave 2 and wave 2 → wave3), making it important to assess the need for a three-level model.

DYNAMIC PATHWAYS: INDEPENDENT VARIABLES

Demographics

A series of variables at the respondent-level is used to control for demographic characteristics. These include the respondent's gender (1 = female; 0 = male), race (1 =

¹ Variables measuring the activation of ties currently in the core versus those currently in the periphery were also created, but were later dropped when no significant differences between the two were found.

White, 0 = Black), age at wave 1 (in years), and education at wave 1 (years of schooling).

The associate's gender is also included in some models. Respondents with missing data on any of these variables (two cases) were dropped from all analyses.

Changes in social structural location

A series of variables representing changes in social location is also included. A count variable is equal to the number of different residences a respondent has lived in during the past six months. In addition, five binary variables measure whether there have been any changes in marital status, partnership status (significant others), number of children, employment, or group membership and participation (1 = change; 0 = no change) since the previous interview. In other words, these variables are coded 1 for respondents who have a new girl/boyfriend, a different job (even within the same industry), etc. There are no missing data on these variables.

Relationship characteristics

The nature of the relationship between a respondent and his or her associates is captured using a series of variables described in Chapter 3. The social context with which a tie is associated is measured using a series of five dummy variables for family, professionals, neighborhood or household, work or school, and "free-floaters." Closeness, frequency of contact, and hassles are also coded into a series of three dummy variables each (one for every response category). Additionally, the support functions provided by members of the network are measured using five binary variables, including discussion partner, emotional support, information and advice, instrumental support, and financial support. Finally, five binary variables indicate whether there is a match between the respondents' support needs and the support functions provided by the tie.

Support needs

A scalar variable measures the extent of a respondent's need for assistance in six different life domains: obtaining and keeping housing, employment or job training, psychiatric medication or additional therapy, welfare, Social Security benefits, or food stamps, childcare, and transportation to and from work and activities. Respondents reported how often they needed assistance (never, occasionally, often, or daily). The needs scale is equal to the sum of these individual items divided by the number of non-missing values, and ranges from 1 to 4. The structure of the INMHS interview and the placement of questions in the interview booklet (e.g., questions were placed sequentially in columns) led to missing data on the individual needs items. Respondents were first asked, "How much of a problem for you is...", and interviewers sometimes skipped the item asking how often help was needed if the respondent indicated that the particular life domain was not at all a problem. In these cases, the individual needs item is recoded from missing to 1 (never needs help).

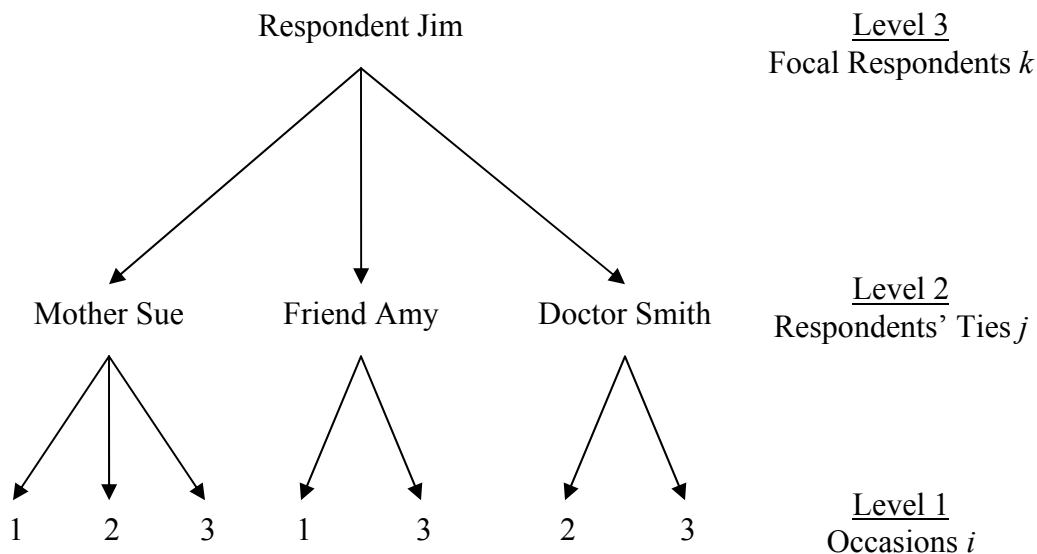


Figure 4.2. Three-level data structure in variance components models

ANALYTICAL STRATEGY

Explanatory analyses that identify predictors of dynamic pathways are based on two or three-level models that fit the data structure (See Figure 4.2) in which occasions for ties are clustered in focal respondents. We expect that observations at the tie-level j within the same respondent k are correlated. That is to say, our own ties tend to be more similar to one another than to someone else's ties (e.g., the homophily principle). In fact, the intraclass correlations on dependent variables at the respondent level are 0.15 for entry into the core versus periphery (new ties), 0.09 for exit out of the network (existing ties), and 0.10 for activation into the core versus periphery (existing ties). Though fairly modest, this degree of correlation between ties in the same respondent's network might influence the accuracy of the standard errors.

Observations within the same tie j over different occasions i are also likely to be correlated. In other words, a given tie is more similar to itself over time than to other ties. As noted earlier, for variables measuring entry into the core by new ties, and exit from the network by existing ties, it is only possible to have one occasion per tie. Thus, it is not necessary to cluster at the level of occasions. However, for existing ties that remain in the network, it is possible to have up to two occasions per associate. The intraclass correlation on this dependent variable is 0.28. A correlation of this magnitude suggests that ordinary regression models, which depend on the assumption that each observation is independent, may be inappropriate for these data. However, a closer look at the data structure reveals that fewer than half of all ties j contain two observations at the occasion-level i (a total of 601 of 1,209 ties). Therefore, while it is important to determine whether

a three-level model produces substantively different findings than a two-level model (and if so, a three-level model is more appropriate), results are likely to be similar.

In order to account for within-subject heterogeneity at levels one and two, two and three-level variance components models are employed using Stata's (2005) `gllamm` (for three-level binary logistic regression models) and `xtlogit` (for two-level binary logistic regression models) commands. Two level models contain a respondent-level random intercept ζ_k , while three-level models include both a respondent-level random intercept ζ_k and a random intercept ζ_{jk} for each combination of tie and respondent (Rabe-Hesketh & Skrondal 2005). The two-level model can be written as:

$$y_{jk} = \beta_1 + \zeta_k + \varepsilon_{jk}$$

The three-level model can be written as:

$$y_{ijk} = \beta_1 + \zeta_{jk} + \zeta_k + \varepsilon_{ijk}$$

For the three-level model, the dependent variable y_{ijk} is the measurement of occasion i for tie j in the network of respondent k , β_1 is the overall population mean, and ε_{ijk} is the residual measurement error. These multilevel, random-intercept models investigate and explain the source of cluster to cluster variation (and within cluster correlation) by modeling cluster specific regression coefficients as a function of cluster level variables plus random variation.

These models are a particularly good fit for these data because of the amount of missing observations across waves and the variation in length of time between interviews for each respondent. Unlike some longitudinal models, multilevel variance components models do not require that the data be balanced, and use all of the information available to model the effects of independent variables. The severely unbalanced nature of these

data renders many other longitudinal or clustered models inappropriate, including those that use cluster robust standard errors (Collins & Horn 1991; Collins & Sayer 2001).

Odds ratios are presented in tables. However, because these models are nonlinear in the outcome probabilities, the odds alone are insufficient for understanding the predictive relationships (Long 1997). Therefore, following all regression models, predicted probabilities are computed in order to determine the magnitude of the effects of various independent variables. Predicted probabilities of observed outcomes, holding other independent variables constant at their means, are presented throughout the text, and in bar charts and plots. In addition, simple bivariate statistics are employed to determine whether predicted probabilities are consistent with patterns observed in the data. Unless otherwise noted, all results from regression models match findings from cross-tabulations and analyses of variance (ANOVA).

Finally, cases with missing observations on independent variables have been dropped only if missing on variables in a particular model. In most cases, models using the same dependent variable and presented together in one table are based on the same subset of valid cases. A limitation of this strategy is that the use of slightly different sub-samples in the same set of analyses requires caution in identifying the population to which one can generalize results (Little & Rubin 1987). However, this is less problematic if sub-samples are similar with respect to the values of other variables in the analyses.

At the tie level, there is missing data on three sets of variables: relationship variables (closeness, frequency of contact, and hassles), support functions, and the match between support functions and respondent needs. Analyses comparing values on all independent variables, including respondent and tie demographic characteristics, were

conducted using cross tabulations for cases with and without missing data. Results suggest that, on the whole, there is likely to be little substantive impact associated with generalizing across analyses to the same population². However, these comparisons do indicate that associates who provide no support functions may be slightly underrepresented in the subset of analyses that includes these variables³. Therefore, regression analyses presented here may, in fact, *underestimate* the effects of support functions and the match between function and need on the movement of associates in and out of networks.

Though not ideal, the strategy used here for dealing with missing observations appears to be the best solution available for these data. Because of the extent of missing data at the tie level, a deletion of all cases with missing data on any independent variable (listwise deletion) leaves a sample size that is insufficient to support these complex, multi-level models, making it unfeasible to account for the highly clustered nature of these data. Moreover, listwise deletion reduces statistical power as well as the precision of the estimates, and may increase the probability of a type II error, all of which are particularly problematic in small samples such as the INMHS (Cohen & Cohen 1983; Donner 1982; Little & Rubin 1987). Likewise, imputation strategies (i.e., mean and regression imputation) would increase multicollinearity, bias variances and covariances, and reduce the precision of the standard errors (Little & Rubin 1987, 1990; Roth 1994).

² Cases with missing observations on relationship variables differ significantly from those without missing data only with respect to whether they serve as discussion partners ($X^2 = 13.52, p \leq .001$) and provide information and advice ($X^2 = 9.58, p \leq .01$). Even so, these differences are small (7% between groups).

³ Associates with missing data on the support functions and the match between needs and resources tend to be significantly less close ($X^2 = 24.40, p \leq .001$; $X^2 = 18.05, p \leq .001$), have less frequent contact ($X^2 = 72.12, p \leq .001$; $X^2 = 58.41, p \leq .001$), and are more likely to be professionals and kin ($X^2 = 41.98, p \leq .001$; $X^2 = 46.09, p \leq .001$). The magnitude of these differences is fairly small (between 6% and 10%). However, this pattern does suggest that errors may have occurred in the coding of the support variables. That is, it is possible that in a small number of cases where no support functions were indicated, a missing value rather than a zero value was recorded. Fortunately, these errors are likely to have occurred completely at random.

MOVEMENT INTO AND OUT OF THE CORE AND PERIPHERY: FINDINGS FROM MULTI-LEVEL MODELS

Odds ratios from random intercept logistic regression models for the effects of respondent and tie demographics on tie entry into the functional core versus peripheral network are presented in the Appendix (See Table 4.A.2). With the exception of gender, respondent demographics have no significant effect on tie entry into networks. This finding is inconsistent with the *Social Location Hypothesis*, which suggests that factors indicative of social structural location shape patterns of network entry and exit. In short, *static* social demographic characteristics do not matter for *dynamic* network processes.

However, according to Model 2 (See Table 4.A.2), female respondents are less likely to activate ties from outside the network into the core than are men (OR = 0.58, $p \leq .05$). In fact, contrary to the *Caregiving Hypotheses*, these results suggest that there is an interaction between the gender of the respondent and the gender of the associate such that men are significantly more likely to recruit men than women into their networks, but women are equally likely to recruit men and women (See Figure 4.3).

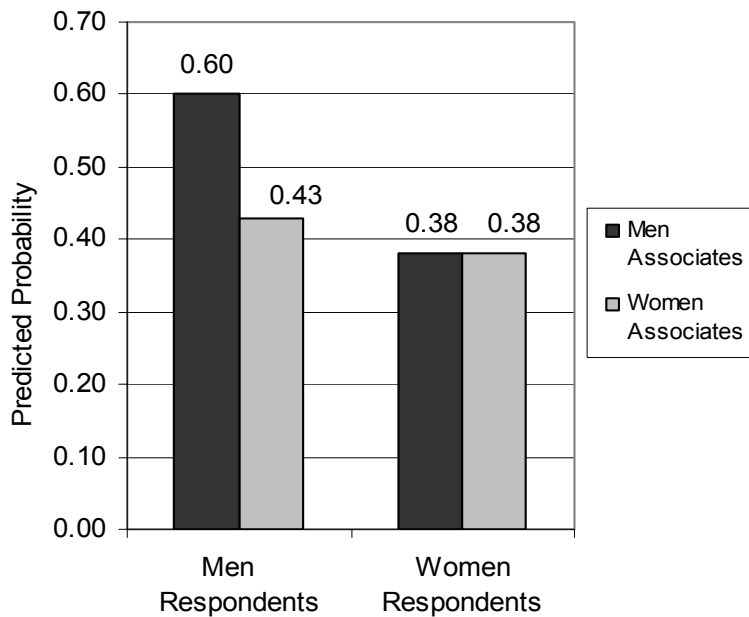


Figure 4.3. Predicted probability of new men and women associates entering the core versus peripheral networks of men and women respondents

The effects of respondent and associate demographics on the exit of existing ties out of the network in subsequent waves are reported in the Appendix (See Table 4.A.3). These findings also do not support the *Social Location Hypothesis*, as race, age, and educational attainment have no significant effect on ties' entry into the core or periphery, or exit from the network. However, there seems to be an interaction between the gender of the associate and the focal respondent. Predicted probabilities suggest that, substantively, the interaction is fairly small. For men, women associates are slightly less likely to exit the network in subsequent waves than men associates (0.38 versus 0.45, respectively). For women, female and male friends and family are about equally likely to exit the network (0.41 versus 0.38, respectively). However, a simple chi-square test does not support the existence of group differences among men and women in the exit of male and female associates from the network.

Table 4.A.4 in the Appendix presents results for the effects of demographics on the odds that existing associates are activated into the core versus the periphery⁴. As in previous models, results do not support the *Social Location Hypothesis*. Also, while Model 3 suggests that women associates are more likely to enter the core than men (OR = 1.39, $p \leq .01$), Model 4 suggests that there is an interaction between the gender of the respondent and the associate. Among women, female friends and family are more likely to be in the core in subsequent waves than males. However, among men, women and men are nearly equally likely to be in the core (See Figure 4.4).

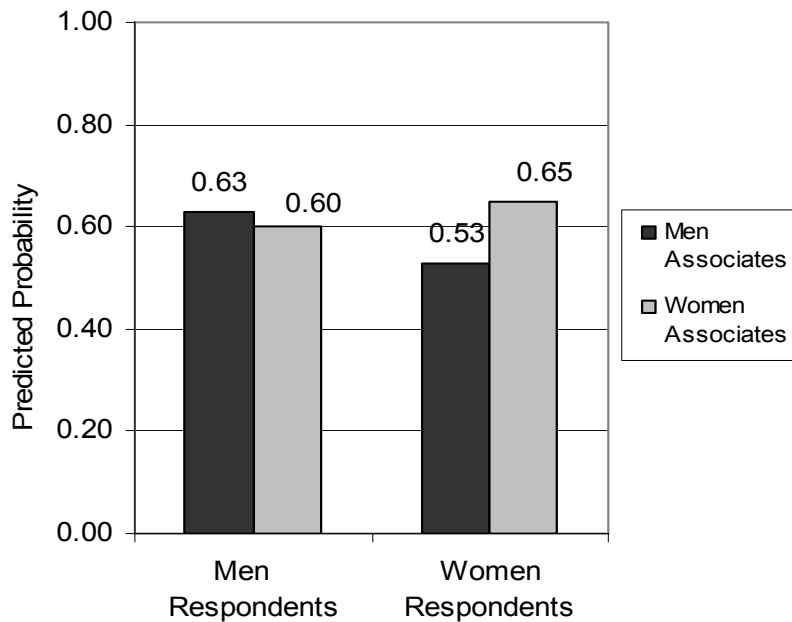


Figure 4.4. Predicted probability of existing men and women associates entering the core versus peripheral networks of men and women respondents

Results from the regression of core/periphery dynamics on changes in social structural location are presented in Table 4.1. Column 2 suggests that associates of people who experience a change in significant others (OR = 1.97, $p \leq .05$), employment (OR =

⁴ Because clustering at both the respondent and the tie level has little effect on the standard errors compared to clustering at the respondent level alone, substantive findings from two and three-level models are equivalent. Therefore, the results from the simpler two-level models are presented here.

1.67, $p \leq .05$), or group participation (OR = 1.61, $p \leq .05$) are significantly more likely to exit the network than those who do not experience these disruptions. When a respondent begins or ends a romantic relationship, it increases the predicted probability that friends and family will exit the network in the following wave by 0.16. Similarly, job mobility and joining or quitting social, political, or church groups increase this probability by 0.12 and 0.11, respectively. Also, unexpectedly, the more residences a person has had in the past year, the more likely their existing associates are to remain in the core network rather than the periphery in subsequent waves (OR = 1.65, $p \leq .05$). However, this pattern is not supported by simple cross-tabulations.

Table 4.1. Random intercept logistic regression^{1,2} for the effects of changes in social structural location on the odds of new associates entering the core (N=1,020), existing associates exiting the network (N=1,292), and existing associates being in the core (N=793)

	New tie enters core	Existing tie exits	Existing tie is in core
Changes in social structural location			
Number of residences	0.85 (-1.02)	0.88 (-0.75)	1.65* (2.17)
Change in marital status	1.45 (1.34)	1.07 (0.18)	1.20 (0.43)
Change in number of children	0.71 (-0.87)	0.54 (-1.35)	1.24 (0.46)
Change in significant other	1.10 (0.39)	1.97* (2.12)	0.70 (-0.94)
Change in employment	0.74 (-1.56)	1.67* (2.26)	0.69 (-1.39)
Change in group membership	0.86 (10.75)	1.61* (2.03)	1.43 (1.31)
Log likelihood	-664.68	-802.19	-516.59
Wald X^2	17.37	20.78*	12.03
Variance	0.82	0.52	0.58

¹ Table presents odds ratios; z-values in parentheses

² Models include the following control variables: female, White, age, education, and time

* = $p < .05$

Table 4.2 presents the effects of relationship characteristics on the odds that associates will enter the core versus the periphery. As predicted by the *Broad Functionality Hypothesis*, results from Model 1 suggest that the social context shared by respondents and their associates affects recruitment into the core. Specifically, coworkers/students are less likely to enter the core from outside the network than are kin (OR = 0.54, $p \leq .05$),

Table 4.2. Random intercept logistic regression^{1, 2} for the effects of relationship characteristics on the odds of new associates entering the core (N=834)

	Model 1	Model 2
Social context ³		
Work/school/volunteer network	0.54* (-2.14)	—
Professional network	6.14*** (6.18)	—
Neighborhood/household network	0.86 (-0.35)	—
Free-floaters	20.72*** (11.85)	—
Closeness ⁴		
Sort of close	—	0.29*** (-5.74)
Not very close	—	0.12*** (-7.19)
Frequency of contact ⁵		
Occasionally	—	1.53* (2.04)
Hardly ever	—	0.95 (-1.17)
Tie hassles or causes problems ⁶		
Sometimes	—	1.37 (0.62)
Not at all	—	1.94 (1.98)
Log likelihood	-435.85	-488.33
Wald X^2	214.13***	91.33***
Variance	0.65	0.92

¹ Table presents odds ratios; z-values in parentheses

² Models control for female, White, age, education, female associate, and time

³ Reference category is kin network; ⁴ Reference category is very close; ⁵ Reference category is often; ⁶ Reference category is a lot

* = $p < .05$; ** = $p < .01$; *** = $p < .001$

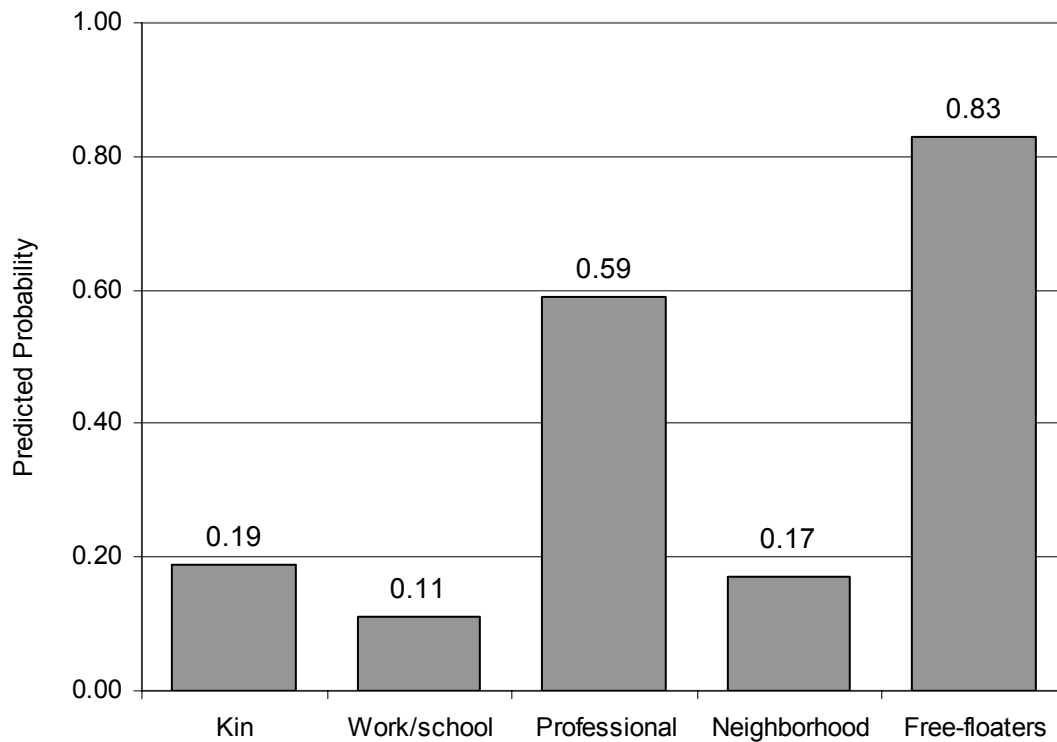


Figure 4.5. Predicted probability that associates from various social contexts will enter the core versus periphery

while professionals are over six times as likely ($OR = 6.14, p \leq .001$) and free-floaters are over twenty times as likely ($OR = 20.72, p \leq .001$). Predicted probabilities (See Figure 4.5) indicate that professionals (0.59) and free-floaters (0.83) have the highest probability of entering the core from outside the network.

Also, consistent with the *Broad Functionality Hypothesis*, associates that are sort of close ($OR = 0.29, p \leq .001$) and not very close ($OR = 0.12, p \leq .001$) are less likely than very close associates to enter the core (See Table 4.2). The predicted probability of a very close friend or family member entering the core network is 0.64, compared to 0.34 for people who are sort of close, and 0.18 for people who are not very close.

Unexpectedly, individuals that see or talk to respondents occasionally are more likely than those who have contact often to be selected into the core from outside the network

(OR = 1.53, $p \leq .001$). The predicted probability that an associate who has occasional contact is recruited into the core network is .48, compared to .38 for those have contact often.

Table 4.3. Random intercept logistic regression^{1,2} for the effects of relationship characteristics on the odds of existing associates exiting the network (N=2,452)

	Model 1	Model 2
Social context ³		
Work/school/volunteer network	6.36*** (13.04)	—
Professional network	5.79*** (11.39)	—
Neighborhood/household network	4.37*** (5.69)	—
Free-floaters	4.20*** (13.27)	—
Closeness ⁴		
Sort of close	—	1.71*** (4.74)
Not very close	—	4.19*** (9.41)
Frequency of contact ⁵		
Occasionally	—	1.71*** (4.84)
Hardly ever	—	1.57*** (3.20)
Tie hassles or causes problems ⁶		
Sometimes	—	1.36 (1.51)
Not at all	—	2.38*** (4.62)
Log likelihood	-1763.84	-1496.32
Wald X^2	331.60***	176.53***
Variance	0.44	0.56

¹ Table presents odds ratios; z-values in parentheses

² Models control for female, White, age, education, female associate, and time

³ Reference category is kin network; ⁴ Reference category is very close; ⁵ Reference category is often; ⁶ Reference category is a lot

* = $p < .05$; ** = $p < .01$; *** = $p < .001$

Results for the effects of relationship characteristics on the odds of existing associates exiting the network in subsequent waves are presented in Table 4.3. According to Model 1, coworkers and fellow students (OR = 6.36, $p \leq .001$), professionals (OR = 5.79, $p \leq .001$), neighbors (OR = 4.37, $p \leq .001$), and free-floating friends (OR = 4.20, $p \leq .001$) are all more likely than kin to exit the network. In fact, the predicted probability that a family member will exit the network is less than half that of all other social contexts (See Figure 4.6).

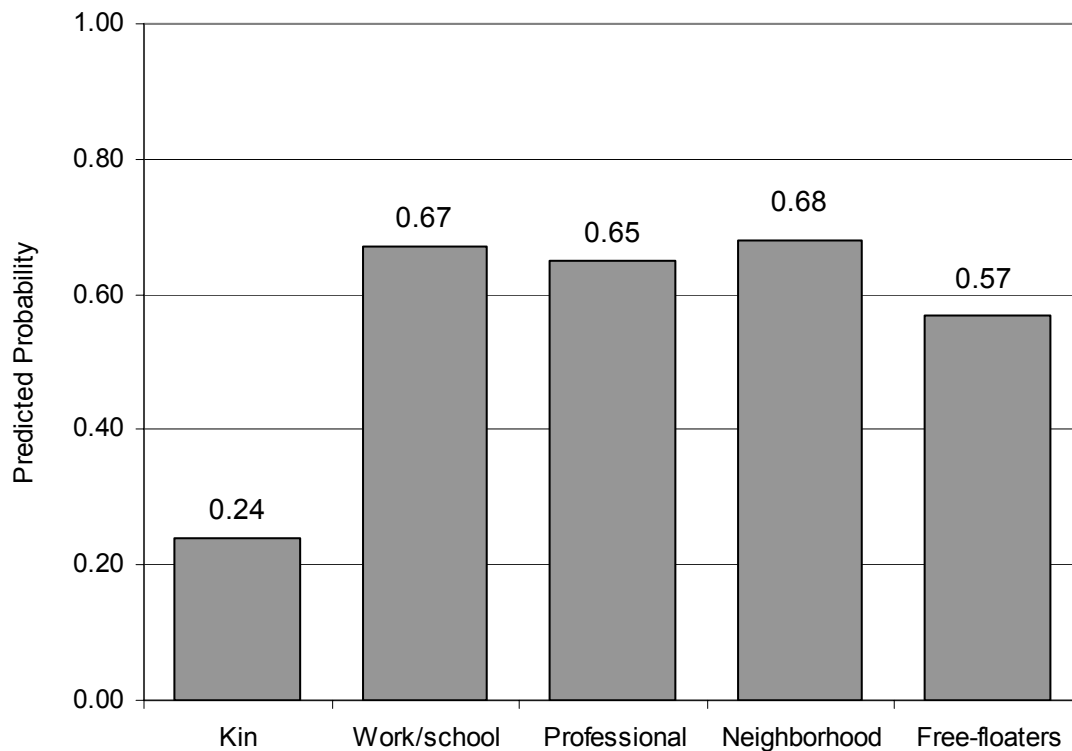


Figure 4.6. Predicted probability that associates from various social contexts will exit the network

Also, consistent with the results from Table 4.2, and as predicted by the *Broad Functionality Hypothesis*, associates that are sort of close (OR = 1.71, $p \leq .001$) or not very close (OR = 4.19, $p \leq .001$) are more likely than very close friends and family to exit the network. The predicted probability that someone who is very close will exit the

network is 0.28, compared to 0.40 for those who are sort of close, and 0.62 for those who are not very close. Similarly, associates with less frequent contact are more likely to exit the network (OR = 1.71, $p \leq .001$ for “occasionally”; OR = 1.57, $p \leq .001$ for “hardly ever”). For friends and family that have contact with respondents often, the probability of exiting the network is 0.33. The probabilities of exiting for those who have contact occasionally or hardly ever are 0.46 and 0.44, respectively. Lastly, associates who do not hassle the respondent at all are almost two and a half times more likely to exit the network than those who hassle, cause problems, or make life difficult a lot of the time (OR = 2.38, $p \leq .001$). The predicted probability of exiting the network for those who never hassle is 0.44 and 0.33 for those who hassle a lot.

Table 4.4 presents the effects of relationship characteristics on the odds that an existing friend or family member will be in the core versus the periphery in the next wave of the study. The previous two sets of models suggest that free-floaters are more likely than kin to enter the network from the outside, but are also more likely than kin to exit the network. Here, we see that free-floaters who remain in the network are more likely than kin to be in the core later rather than the periphery (OR = 11.23, $p \leq .001$). Predicted probabilities are presented in Figure 4.7.

With respect to other relationship characteristics, only closeness predicts whether existing ties will go to the core or periphery. As expected, associates who are sort of close (OR = 0.38, $p \leq .001$) and not very close (OR = 0.18, $p \leq .001$) are less likely to be in the core than those who are very close. The predicted probability of being in the core versus the periphery among existing ties is 0.70 for those who are very close, 0.47 for those who are sort of close, and 0.30 for those who are not very close.

Table 4.4. Random intercept logistic regression^{1, 2} for the effects of relationship characteristics on the odds of existing associates being in the core (N=1,450)

	Model 1	Model 2
Social context³		
Work/school/volunteer network	0.96 (-0.22)	—
Professional network	0.94 (-0.26)	—
Neighborhood/household network	1.35 (0.73)	—
Free-floaters	11.23 ^{***} (10.89)	—
Closeness⁴		
Sort of close	—	0.38 ^{***} (-6.71)
Not very close	—	0.18 ^{***} (-7.54)
Frequency of contact⁵		
Occasionally	—	0.86 (-1.00)
Hardly ever	—	0.68 (-1.85)
Tie hassles or causes problems⁶		
Sometimes	—	1.55 (-1.62)
Not at all	—	0.97 (-0.12)
Log likelihood	-1088.35	-900.99
Wald X^2	131.52 ^{***}	118.13 ^{***}
Variance	0.56	0.79

¹ Table presents odds ratios; z-values in parentheses

² Models control for female, White, age, education, female associate, and time

³ Reference category is kin network; ⁴ Reference category is very close; ⁵ Reference category is often; ⁶ Reference category is a lot

* = $p < .05$; ** = $p < .01$; *** = $p < .001$

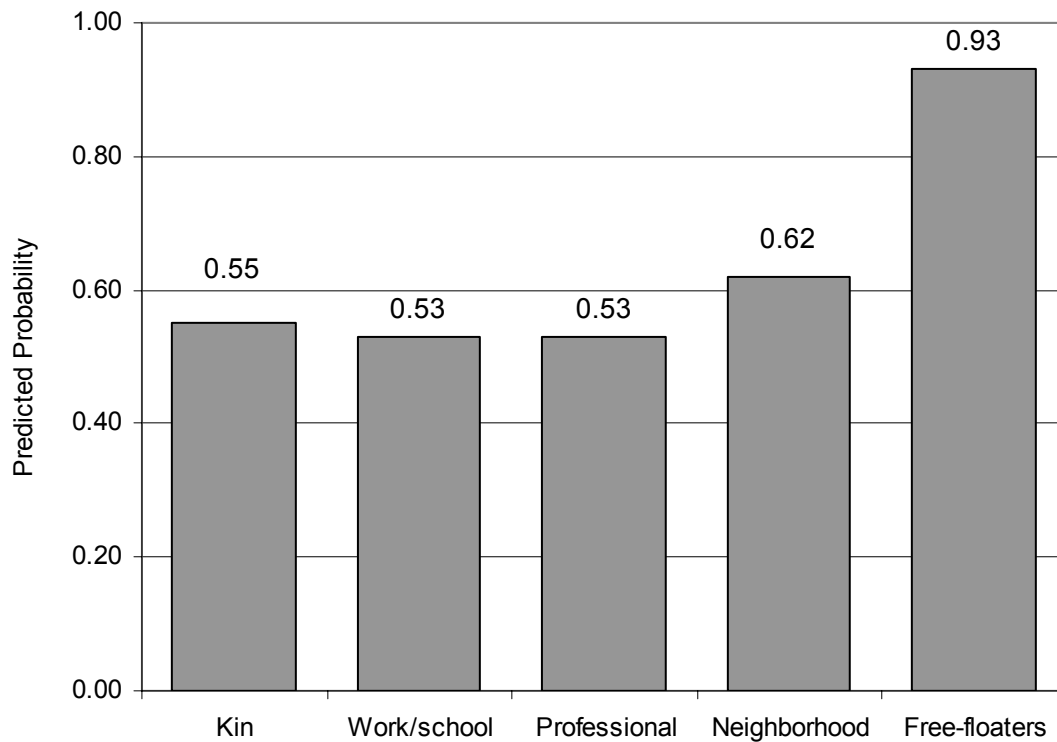


Figure 4.7. Predicted probability that existing associates from various social contexts will be in the core versus the periphery

The effects of focal respondents' support needs and associates' support functions on entry into the core or peripheral networks are reported in Table 4.5. Consistent with the *Drawing In Hypothesis*, findings from Model 1 demonstrate that the more needs a respondent has, the more likely it is that any particular friend or family member will be recruited into the core network rather than the periphery (OR = 2.54, $p \leq .001$). Figure 4.8 depicts the predicted probability of entering the core as needs increase.

Also as expected, discussion partners (OR = 2.27, $p \leq .001$) and friends and family that provide information and advice (OR = 1.97, $p \leq .001$) are about twice as likely to enter the core as the periphery (See Table 4.5, Model 2), while people who provide emotional support are over one and a half times as likely (OR = 1.59, $p \leq .05$). Predicted probabilities suggest that being a discussion partner, providing information and

Table 4.5. Random intercept logistic regression^{1,2} for the effects of support needs and functions on the odds of new associates entering the core versus periphery (N=733)

	Model 1	Model 2	Model 3	Model 4
Support needs (scale)	2.54* (2.49)	—	—	—
Associate support functions				
Discussion partner	—	2.27*** (3.27)	—	—
Emotional support	—	1.59* (2.09)	—	—
Information and advice	—	1.97*** (3.14)	—	—
Instrumental support	—	1.36 (1.23)	—	—
Financial support	—	1.39 (1.27)	—	—
Number of support functions	—	—	1.72*** (8.14)	—
Match between need and function				
Discussion partner	—	—	—	1.26 (0.97)
Emotional support	—	—	—	1.49 (1.66)
Information and advice	—	—	—	2.71*** (3.81)
Instrumental support	—	—	—	1.66* (2.05)
Financial support	—	—	—	1.49 (1.13)
Log likelihood	-665.31	-428.32	-430.24	-435.78
Wald X^2	16.91**	85.66***	81.55***	50.77***
Variance	0.72	0.78	0.82	1.06

¹ Table presents odds ratios; z-values in parentheses

² Models control for female, White, age, education, female associate, and time

* = $p < .05$; ** = $p < .01$; *** = $p < .001$

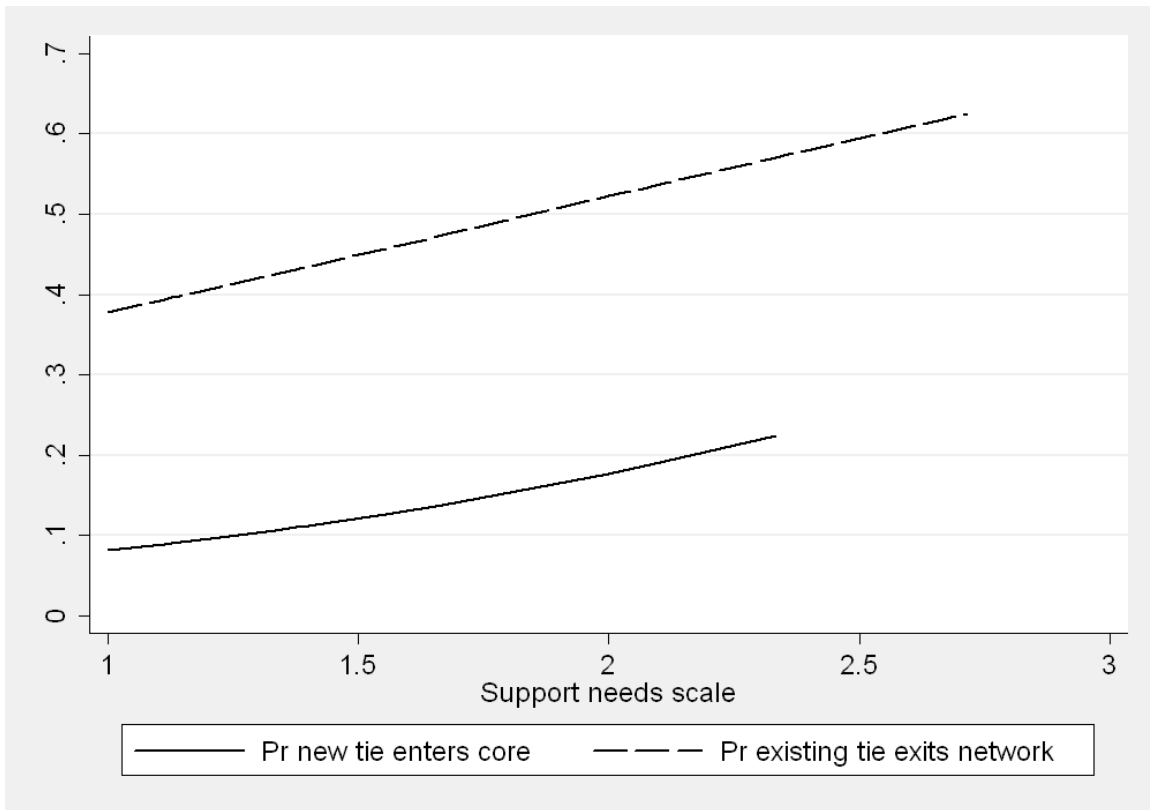


Figure 4.8. Predicted probability that a new associate enters the core and an existing associate exits the network as a function of respondents' support needs

advice, and being emotionally supportive increases the probability of entry into the core by 0.20, 0.12, and 0.17, respectively, compared to associates who do not provide these functions. In fact, each additional support function provided increases a person's odds of entering the core by a factor of 1.72 ($p \leq .001$; Model 3). Figure 4.9 suggests that the predicted probability of entering the core increases from 0.19 to 0.25 as the number of support functions increases from zero to five.

Finally, as suggested by the *Complementary Functions Hypothesis*, a match between respondents' needs and associates' support functions in the cases of instrumental support like helping with chores and childcare ($OR = 1.66, p \leq .05$), as well as providing information and advice ($OR = 2.71, p \leq .001$), increases the odds that a person will be recruited into the core from outside the network (See Table 4.5, Model 4).

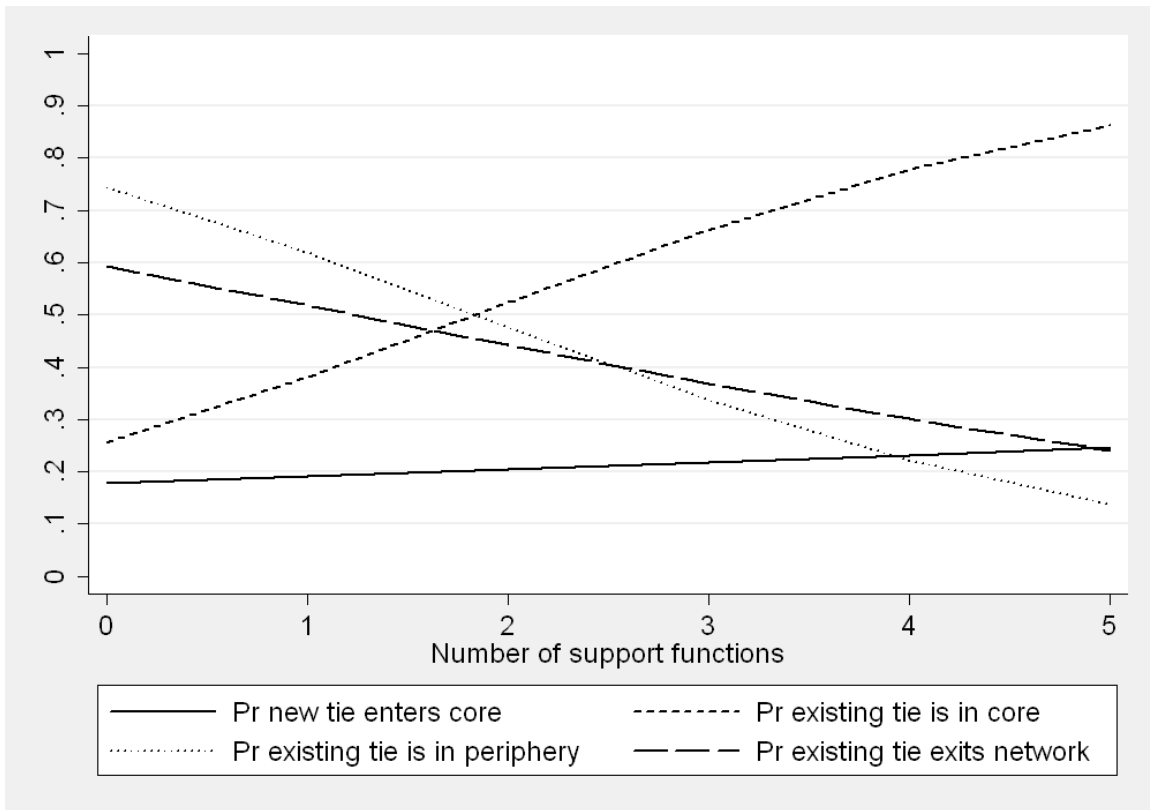


Figure 4.9. Predicted probability that a new associate enters the core, an existing associate exits the network, and an existing associate is in the core or periphery as a function of number of support functions provided

The magnitude of the effect of a match between needs and support functions in the case of information and advice is fairly large. It increases the probability of entry into the core rather than the periphery from 0.41 to 0.65 (a difference of 0.24). Also, a match between needs and support functions results in a difference in predicted probability of 0.12 compared to having unmatched needs and functions.

The effects of respondent needs and friends and family members' support functions on movement out of the network (See Table 4.6) suggest that the *Drawing In Hypothesis* (H4-7) only partially explains core/periphery dynamics. Specifically, Model 1 suggests that as a respondent's support needs increase, the likelihood that existing associates will exit the network in subsequent waves actually increases (OR = 1.80, $p \leq .001$). In sum, while respondents' increasing support needs do lead to higher odds that a

Table 4.6. Random intercept logistic regression^{1, 2} for the effects of support needs and functions on the odds of existing associates exiting the network (N=2,331)

	Model 1	Model 2	Model 3	Model 4
Support needs (scale)	1.80*** (3.50)	—	—	—
Associate support functions				
Discussion partner	—	1.30* (2.00)	—	—
Emotional support	—	0.76* (-2.18)	—	—
Information and advice	—	0.89 (-1.07)	—	—
Instrumental support	—	0.43*** (-6.50)	—	—
Financial support	—	0.47*** (-5.62)	—	—
Number of support functions	—	—	0.74*** (-9.72)	—
Match between need and function				
Discussion partner	—	—	—	0.88 (-1.00)
Emotional support	—	—	—	0.70** (-3.03)
Information and advice	—	—	—	1.15 (1.07)
Instrumental support	—	—	—	0.42*** (-6.97)
Financial support	—	—	—	0.53*** (-4.04)
Log likelihood	-2048.48	-1426.47	-1458.13	-1438.37
Wald X^2	18.76**	150.14***	101.68***	117.32***
Variance	0.32	0.54	0.51	0.58

¹ Table presents odds ratios; z-values in parentheses

² Models control for female, White, age, education, female associate, and time

* = $p < .05$; ** = $p < .01$; *** = $p < .001$

person will enter the network from outside, they also increase the likelihood that

associates will exit the network. Predicted probabilities are presented in Figure 4.8.

With respect to support functions, friends and family members who listen to respondents talk about their problems (OR = 1.30, $p \leq .05$) are more likely to exit the network, while those who provide emotional (OR = 0.76, $p \leq .05$), instrumental (OR =

0.43, $p \leq .001$), and financial support (OR = 0.47, $p \leq .001$) are significantly less likely to leave the network (See Table 4.6, Model 3). Being a discussion partner increases the predicted probability of exiting the network from 0.36 to 0.42. On the other hand, providing emotional support decreases the probability of exiting the network by 0.07, helping with tasks like housework, childcare, and transportation decreases the probability by 0.19, and giving/loaning decreases it by 0.17. Likewise, each additional support function provided by a friend or family member decreases the odds that he or she will exit the network (OR = 0.74, $p \leq .001$; See Model 3). Predicted probabilities as number of support functions increase are presented in Figure 4.9.

Finally, consistent with the *Complementary Functions Hypothesis*, the match between the assistance that a respondent needs and the support functions an associate provides has a significant impact on the likelihood of exiting the network in subsequent waves (See Table 4.6, Model 4). Specifically, those who provide emotional (OR = 0.70, $p \leq .01$), instrumental (OR = 0.42, $p \leq .001$), or financial (OR = 0.53, $p \leq .001$) support when respondents need these forms of help have lower odds of exiting the network. A match between respondents' emotional support needs and associates' resources decreases the predicted probability of exiting the network by 0.09. Similarly, a match between respondent needs and help with chores, childcare, or transportation decreases the probability of exiting by 0.20. Lastly, associates who give or loan money to respondents in financial need decrease their predicted probability of exiting the network by 0.15.

Table 4.7 presents the effects of needs and functions on the odds that existing ties are in the core versus the periphery in subsequent waves. Unlike for new associates entering the network and existing ones exiting, respondents' support needs appear to have

no significant effect on whether existing associates are in the core or periphery (See Model 1). Support functions, however, do matter. Friends and family members who serve as discussion partners (OR = 2.69, $p \leq .001$), give information and advice (OR = 1.71, $p \leq .001$), provide instrumental support (OR = 1.94, $p \leq .001$), and give/loan money (OR = 1.68, $p \leq .001$) are all more likely than those who do not to be in the core rather than the periphery (See Model 2). Making these resources available to respondents increases the predicted probability of being in the core by 0.24, 0.12, 0.15, and 0.12, respectively. As before, each additional support function provided increases the odds that he or she will be in the core in the subsequent wave by a factor of 1.79 ($p \leq .001$; See Model 3). Figure 4.9 depicts the relationship between predicted probabilities and number of support functions.

These findings also support the *Complementary Functions Hypothesis*. According to Model 4 (See Table 4.7), a match between respondents' needs and associates' support functions increases the odds of being in the core versus the periphery for every type of function measured. A match between being a good listener and needing to talk about problems increases the predicted probability of activation into the core from 0.57 to 0.70 (OR = 1.73, $p \leq .01$). Similarly, the probability of being in the core when there is a match between needs and resources with respect to emotional support is 0.66, compared to 0.57 with no match (OR = 1.46, $p \leq .05$). Also, associates who provide information and advice to those who need it increase their predicted probability of being in the core in the from 0.58 to 0.69 (OR = 1.62, $p \leq .01$), while those who provide instrumental help to those who need it increase their probability from 0.55 to 0.75 (OR = 2.48, $p \leq .001$). Finally, when there is a match between giving or loaning money and financial need, the predicted probability of activation into the core increases from 0.58 to 0.75 (OR = 2.13, $p \leq .001$).

Table 4.7. Random intercept logistic regression^{1,2} for the effects of support needs and functions on the odds of existing associates being in the core (N=1,390)

	Model 1	Model 2	Model 3	Model 4
Support needs (scale)	0.70 (-1.57)	—	—	—
Associate support functions				
Discussion partner	—	2.69*** (5.46)	—	—
Emotional support	—	1.26 (1.36)	—	—
Information and advice	—	1.71*** (3.53)	—	—
Instrumental support	—	1.94*** (4.19)	—	—
Financial support	—	1.68*** (3.21)	—	—
Number of support functions	—	—	1.79*** (12.61)	—
Match between need and function				
Discussion partner	—	—	—	1.73** (3.16)
Emotional support	—	—	—	1.46* (2.52)
Information and advice	—	—	—	1.62** (2.73)
Instrumental support	—	—	—	2.48*** (6.04)
Financial support	—	—	—	2.13*** (3.98)
Log likelihood	-1200.39	-820.65	-824.47	-854.99
Wald χ^2	5.10	173.33***	168.54***	115.15***
Variance	0.55	0.71	0.72	0.90

¹ Table presents odds ratios; z-values in parentheses

² Models control for female, White, age, education, female associate, and time

* = $p < .05$; ** = $p < .01$; *** = $p < .001$

Table 4.8. Summary of hypotheses and findings in Chapter 4

	Question	Hypothesis	Corroborated?
H4-1 <i>Social Location Hypothesis</i>	Do people’s social demographic characteristics (gender, race, age, and educational attainment) shape the development and decline of different kinds of relationships?	Whites, young people, and more educated individuals have more ties entering and exiting the core and periphery, while their Black, older, and less educated counterparts have more stable networks.	No
H4-2 <i>Disruptive Transitions Hypothesis</i>	When people move in and out of different social spheres — like marriage or employment — does this affect the nature of relationships with friends and family who are or were tied to those same social spheres?	Changes in employment, housing, marital and parental status, and group membership shape tie movement into and out of the core and periphery.	Yes
H4-3 <i>Gendered Interaction Hypothesis</i>	Does gender affect the kinds of relationships a person develops, how long those relationships last, and the extent to which a person relies on those friends and family members for help and support?	Women are more likely than men to have ties enter and exit their core network, while men are more likely to have ties enter and exit their peripheral networks.	No
H4-4 <i>Caregiving Hypothesis</i>	Are women more willing and able than men to enter and remain in a caregiving role, providing extensive support and assistance to those in need over long periods of time?	Women are more likely to enter the core network, and to stay in the core over time.	Somewhat
H4-5 <i>Cost of Caring Hypothesis</i>	Are women more likely to enter the caregiving role than men, but also more vulnerable to the stress and burden associated with prolonged caregiving?	Women are more likely to both enter <i>and</i> exit the core group of supporters.	No

Table 4.8 (cont.)	Question	Hypothesis	Corroborated?
H4-6 <i>Broad Functionality Hypothesis</i>	What kinds of relationship characteristics influence whether people call on particular friends and family members to provide support and assistance when they need it most?	Associates that are closer, are characterized by more frequent contact, are related through kinship, and who provide a broad range of support functions are more likely to enter the core from outside of the network, move from the periphery to the core, and remain in the core over long periods of time.	Yes
H4-7 <i>Drawing In Hypothesis</i>	When people experience periods of crisis and transition, and they need more help and support than usual, do they rely more heavily on their networks to meet those needs?	Increasing support needs are associated with broader functionality and movement into the core as network resources are mobilized.	Yes
H4-8 <i>Complementary Functions Hypothesis</i>	Are we more likely to rely on people who are willing and able to help us with our specific problems?	Relationships characterized by a match between support needs and functions are more likely to enter the core from outside of the network, move from the periphery to the core, and remain in the core.	Yes

IMPLICATIONS: SUPPORT NEEDS, TIE FUNCTIONS, AND SELECTIVE ACTIVATION STRATEGIES IN CORE/PERIPHERY DYNAMICS

Contrary to the *Social Location Hypothesis*, I find that a person's race, age, and educational attainment are unrelated to associates' movement into and out of core and peripheral networks (See Table 4.8 for a summary of hypotheses and findings). As noted in Chapter 3, the INMHS sample is considerably younger and less educated, on average, than the general population. Therefore, these results may simply be an artifact of the lack of variation in this sample. However, if real, this finding supports White's (1992) contention that social structural location and opportunities for social interaction are not based on individual attributes. Instead, as predicted by the *Disruptive Transitions Hypothesis*, I find that core/periphery dynamics are shaped, in part, by exits from social roles or positions. Specifically, changes in significant others, employment, and social group membership increase the likelihood that friends and family will exit the network. Further, higher levels of residential mobility are associated with existing associates remaining in the core network.

Though other demographic characteristics don't seem to matter, the persistence of the gender script in determining patterns of social interaction and tie functionality is noteworthy. For women, I observe a heightened commitment to long term female friendships, with women associates being more likely to stay in the core network over time than men. On the other hand, compared to women, men are more likely to bring people into their core network, and those individuals tend to be other men. However, male associates also exit the networks of men at greater rates than women. In effect, there seems to be a revolving door phenomenon whereby men are recruited to be close

confidantes of men experiencing trauma, but then exit the core network relatively quickly, perhaps because they are less able or willing than women to provide the level or types of support needed. In sum, the *Caregiving Hypothesis* is supported among women in crisis, but not among men, who tend to cycle through male companions, in particular. The predictive power of gender in determining patterns of interaction may relate to mothering instincts and adaptive genetic differences between men and women. Also, because gender is a master status, the social role of women as caregivers is entrenched in years of socialization that cuts across other statuses like race and social class background.

As suggested by the *Broad Functionality Hypothesis*, close ties with frequent contact are more likely to enter the core from outside of the network, less likely to exit the network, and more likely to remain in the core over time. As argued in Chapter 3, this pattern is likely a function of greater willingness and obligation to help among close friends and family, as well as increased access to resources provided by people who we see or talk to on a regular basis. Interestingly, friends or family members who never hassle, cause problems, or make life difficult are over two and a half times more likely to exit the network than those who do so frequently. Though this seems counterintuitive, it is consistent with the finding in Chapter 3 that stable core ties are more likely than others to be regulators. That is, a small group of highly stable individuals (largely female kin) attempt to regulate the behaviors, health, and wellbeing of the person in crisis.

With respect to social context, I find that professionals and free-floaters tend to both enter and exit the core network at high levels. As noted in Chapter 3, the core network is composed largely of kin, significant others, and friends. However, while kin typically remain in the network indefinitely, free-floating friends and romantic partners

often enter what amounts to a revolving door, cycling relatively quickly in and out of the core network. The same is true of professionals (largely mental health treatment providers), who undoubtedly come and go as people enter and exit treatment, and move between treatment programs and facilities. Importantly, when a free-floater does stay in the network, they are almost certain to remain in the core. People tied to specific social contexts (e.g. the neighborhood, work or school), on the other hand, are likely to enter and exit the periphery, accounting for a large proportion of the turnover observed among peripheral ties.

Also, these results only partially support the *Drawing In Hypothesis*, which suggests that increasing support needs are associated with broader functionality and movement into the core as network resources are mobilized. Specifically, I do find that core-periphery dynamics are motivated, in large part, by individuals' unique support needs and network members' ability and willingness to provide resources at any given time. Unsurprisingly, people rely more heavily on those relationships that fulfill the specific kinds of functions that are critical for our health and wellbeing, and as predicted, the match between a person's unique set of needs and the resources members of the network possess is an important component of tie activation. As individuals' support needs increase, they recruit more of these helpful ties into their core network. Who do they bring into the fold? According to Chapter 3, they recruit highly emotionally supportive companions and counselors, who supplement the stable group of kin that provides everyday assistance. However, my findings suggest that these high levels of support are not sustained for long. In fact, as individuals become more needy, ties exit their network in increasing numbers, as well. It could be that these helpful others, who

are unlikely to have persistent feelings of obligation characteristic of kin, simply burn out. Alternatively, people in crisis may move on from relationships when they discover that the person cannot or will not fulfill their needs.

In sum, this chapter provides support for the multi-level model proposed in Chapter 1. Specifically, I find evidence for the existence of resource mobilization processes and, more broadly, the selective activation of ties into the core network. My findings suggest that the movement of ties into the functional core may be a goal-specific strategy that helps people, particularly those with elevated support needs, obtain critical network resources. In other words, motivated by unfulfilled needs for companionship, emotional support, and advice, individuals choose with whom and how to interact in order to maximize the potential benefits of their social networks and interactions (Katz et al. 2004; Zeggelink 1995). This research contributes to a growing body of literature which suggests that stressful events and transitions cause people to activate sectors of their networks that are most willing and best suited to provide specific kinds of resources in times of crisis (Granovetter 1982; Hurlbert et al. 2000; Pescodolido 1992; Wellman 2000).

Also consistent with my broad theoretical model, I find that changes in individuals' social structural location shape dynamics at the tie level. In other words, our own comings and goings in and out of various social spheres, like the labor market or particular neighborhoods and communities, influences the comings and goings of our friends and family (particularly those with whom we have weaker ties). A key finding in this chapter is that social demographic characteristics alone do not capture this relationship. Instead, what matters more is a disruption in the shared social context that

provides a foundation for contact and common interests, goals, and values. I find that changes in social structural location create social and physical distance between two people, making it difficult to maintain a relationship.

Importantly, when individuals experience periods of trauma and transition, this can cause disruptions in other life domains, as well. For instance, job loss might cause marital stress and, ultimately, divorce, which could result in moving to a new neighborhood. In this way, a disruptive event may have a ripple effect on the social network, setting into motion a series of transitions that can jeopardize relationships, and ultimately cut off access to the people and resources we need to successfully cope with uncertainty and crisis.

APPENDIX 4

Table 4.A.1. Descriptive statistics on dependent and independent variables

	Mean	SD	Range
Dependent Variables			
Tie entry (1=core; 0=periphery)	0.47	0.50	0.00-1.00
Tie exit (1=exit; 2=periphery or core)	0.42	0.49	0.00-1.00
Tie activation (1=core; 0=periphery)	0.57	0.50	0.00-1.00
Independent Variables			
Time (months)	9.48	9.63	1.00-34.00
Demographic Characteristics			
Gender (1=woman)	0.64	0.48	0.00-1.00
Race (1=White)	0.73	0.44	0.00-1.00
Age at wave 1 (years)	30.56	10.17	16.00-72.00
Education at wave 1 (years)	11.59	2.00	6.00-16.00
Changes in social structural location			
Number of residences	1.41	0.74	1.00-5.00
Change in marital status	0.15	0.36	0.00-1.00
Change in significant other	0.24	0.43	0.00-1.00
Change in number of children	0.07	0.27	0.00-1.00
Change in employment	0.41	0.49	0.00-1.00
Change in group membership	0.46	0.50	0.00-1.00
Support needs scale	1.25	0.33	1.00-2.71
Tie's gender (1=woman; 0=man)	0.57	0.50	0.00-1.00
Social context			
Kin network	0.56	0.50	0.00-1.00
Work/school/volunteer network	0.11	0.32	0.00-1.00
Professional network	0.08	0.27	0.00-1.00
Neighborhood/household network	0.03	0.16	0.00-1.00
Free-floaters	0.23	0.42	0.00-1.00
Closeness			
Not very close	0.21	0.41	0.00-1.00
Sort of close	0.36	0.48	0.00-1.00
Very close	0.43	0.50	0.00-1.00
Frequency of contact			
Hardly ever	0.18	0.38	0.00-1.00
Occasionally	0.31	0.46	0.00-1.00
Often	0.51	0.50	0.00-1.00
Hassles			
Not at all	0.74	0.44	0.00-1.00
Sometimes	0.17	0.38	0.00-1.00
A lot	0.08	0.27	0.00-1.00

Table 4.A.1 cont.	Mean	SD	Range
Support functions			
Discussion partner	0.71	0.45	0.00-1.00
Emotional support	0.63	0.48	0.00-1.00
Information and advice	0.56	0.50	0.00-1.00
Instrumental support	0.30	0.46	0.00-1.00
Financial support	0.32	0.47	0.00-1.00
Number of support functions	2.53	1.65	0.00-5.00
Match between tie function and support needs			
Discussion partner	0.30	0.46	0.00-1.00
Emotional support	0.42	0.49	0.00-1.00
Information and advice	0.27	0.44	0.00-1.00
Instrumental support	0.29	0.45	0.00-1.00
Financial support	0.19	0.39	0.00-1.00

Table 4.A.2. Random intercept logistic regression¹ for the effects of focal respondent and associate demographics on the odds of new associates entering the core versus periphery (N=1,020)

	Model 1	Model 2	Model 3	Model 4
Time in illness career (months)	1.02* (2.33)	1.03* (2.46)	1.02* (2.33)	1.02* (2.33)
Demographic characteristics				
Female	—	0.58* (-2.12)	—	0.41** (-2.79)
White	—	0.79 (-0.90)	—	0.76 (-1.00)
Age (tens of years)	—	1.03 (0.27)	—	1.06 (0.46)
Education (years)	—	0.95 (-0.81)	—	0.93 (-1.09)
Associate is female	—	—	0.77 (-1.72)	0.50** (-2.57)
Female * Associate is female	—	—	—	1.97* (2.08)
Log likelihood	-670.98	-668.48	-643.74	-638.99
Wald X^2	5.44*	10.75	7.89*	17.29*
Variance	0.86	0.74	0.94	0.82

¹ Table presents odds ratios; z-values in parentheses
 * = $p < .05$; ** = $p < .01$; *** = $p < .001$

Table 4.A.3. Random intercept logistic regression¹ for the effects of respondent and associate demographics on the odds of existing associates exiting the network (N=3,124)

	Model 1	Model 2	Model 3	Model 4
Time in illness career (months)	0.99 (-1.11)	0.99 (-0.96)	0.99 (-0.73)	0.99 (-0.74)
Demographic characteristics				
Female	—	0.92 (-0.51)	—	0.75 (-1.63)
White	—	1.31 (1.68)	—	1.33 (1.73)
Age (tens of years)	—	0.93 (-0.99)	—	0.92 (-1.13)
Education (years)	—	1.02 (0.67)	—	1.02 (0.64)
Associate is female	—	—	1.01 (0.09)	0.77 (-1.80)
Female * Associate is female	—	—	—	1.49* (2.29)
Log likelihood	-2056.83	-2054.55	-2005.64	-2000.41
Wald X^2	1.24	6.05	0.54	11.21
Variance	0.38	0.35	0.39	0.36

¹ Table presents odds ratios; z-values in parentheses
 * = p < .05; ** = p < .01; *** = p < .001

Table 4.A.4. Random intercept logistic regression¹ for the effects of respondent and associate demographics on the odds of existing associates being in the core (N=1,810)

	Model 1	Model 2	Model 3	Model 4
Time in illness career (months)	1.01 (0.98)	1.01 (0.99)	1.01 (0.88)	1.01 (0.92)
Demographic characteristics				
Female	—	0.94 (-0.30)	—	0.65 (-1.86)
White	—	1.18 (0.83)	—	1.22 (0.98)
Age (tens of years)	—	1.07 (0.75)	—	1.07 (0.72)
Education (years)	—	1.02 (0.46)	—	1.02 (0.41)
Associate is female	—	—	1.39** (3.16)	0.87 (-0.67)
Female * Associate is female	—	—	—	1.90** (-2.74)
Log likelihood	-1202.44	-1201.62	-1189.11	-1184.38
Wald X^2	0.96	2.60	10.87**	20.35**
Variance	0.53	0.51	0.54	0.50

¹ Table presents odds ratios; z-values in parentheses
 * = $p < .05$; ** = $p < .01$; *** = $p < .001$

CHAPTER 5

THE SICK ROLE AND SOCIAL INTERACTION: CORE-PERIPHERY DYNAMICS IN MENTAL ILLNESS

The previous chapters suggest that we arrange our social relationships according to our own needs and preferences, as well as the willingness and ability of others to help out or support us in ways that matter. Of critical importance is the finding that as those needs and preferences change, so does the organization of our social ties. People move in and out of our network of close friends and family, in part, because we convey (or they perceive on their own) that they are needed, or because they need us.

On the other hand, results from Chapters 3 and 4 also indicate that the comings and goings of people in our lives is also a function of our own comings and goings in and out of different social spheres. Associates with whom we share one or more social contexts – our workplace, our neighborhood, our family – tend to have common interests, goals, and activities. These individuals are more likely to help out than those with whom we have little in common, particularly with tasks that are related to the shared context. However, when we exit one or more social spheres, and enter others, this disrupts the shared foundation of those relationships, but also creates a basis for forming new ties. In this way, our position in the fabric of society determines with whom we interact and the nature of those interactions.

Importantly, both of these mechanisms of core/periphery dynamics – changing needs and shifts in social location – are key components of mental illness. People

experiencing an episode of mental illness are coping with personal crisis that has profound effects on virtually every aspect of wellbeing. Thus, they have elevated support needs that, in extreme cases, can result in complete dependence on informal caregivers, mental health professionals, and the social services system (Cook 1988; Estroff 1981). Individuals affected by symptoms of mental illness are likely to need help with things like childcare, housework, or paying bills. They also seek out emotional support and affirmation, as well as people to talk to about their problems. In short, recruiting supporters into the core network, as well as eliciting higher levels of support from existing friends and family, is likely to be a critical strategy for those coping with mental illness.

In addition, research suggests that people with mental illness are vulnerable to downward mobility, loss of status, and exits from social roles (Dowdall & Goldstein 1979; Estroff 1981; Link 1987; Link et al. 1987; Munk-Jorgensen & Mortensen 1992; Rosenfield 1991; Silver et al. 2002). Because of the stigma associated with the mental illness label, people with psychiatric disorders are rejected and discriminated against by others in the areas of employment, housing, and romantic partnerships (Estroff 1981; Link 1987; Link et al. 1987; Scheff 1984). In addition, phenomena such as fear of rejection, social withdrawal, low self-esteem, and learned helplessness can cause people with mental illness to abandon their educational, occupational, and family-related goals (Estroff 1981; Wahl 2000). These patterns of victimization and self-destruction lead to very high levels of instability in various life domains, which, as suggested by Chapter 4, jeopardizes relationships.

An episode of mental illness may impact social interaction and core/periphery dynamics in more positive ways, as well. For example, entry into treatment may be accompanied by *constructive* changes in behavior, attitudes, and values that disrupt the foundation of existing *destructive* or burdensome relationships (Pescosolido 1991, 1992). Also, mental illness and entry into treatment can provide opportunities for forming new relationships, in particular with formal caregivers, other consumers, and people with shared identities or group memberships related to mental health status (Cantor & Little 1985; Carpentier & Ducharme 2003; Gans 1962; Litwak 1985).

In sum, mental illness is a disruptive event that reverberates through the social network (Pescosolido 1992). Ideally, the next step in this dissertation would be to compare core/periphery dynamics among people with mental illness and those experiencing some other disruptive event or transition (e.g., job loss, widowhood, parenthood, etc.). This strategy would reveal the extent to which the mechanisms identified in the previous chapter are general or unique to the case of mental illness. Unfortunately, these data do not allow such a comparison. However, in this chapter I do examine the effects of variations in the mental illness experience that have critical implications for selective activation processes and changes in status, social roles, and social location, and for network dynamics more broadly.

In other words, the central question addressed here is whether features of mental illness shape how people respond to the elevated needs of an ill friend or family member. Conversely, do features of mental illness result in distinct strategies of interaction on the part of people attempting to have their needs met by others? I examine the predictive power of factors like diagnosis, which clinicians tend to regard as a key indicator of

social functioning (Henderson et al. 1978; Pattison et al. 1975; Sokolovsky et al. 1978; Tolsdorf 1976). Also investigated are processes of central concern to medical sociologists, such as the function of stigma and labeling and the adoption of the sick role in shaping patterns of interaction.

VARIATION IN THE EXPERIENCE OF MENTAL ILLNESS: HYPOTHESES ON DIAGNOSIS, SYMPTOMS, COURSE, AND TREATMENT

Problems that fall under the umbrella of “mental illness” run the gamut from drug and alcohol dependence to fear of heights to catatonic schizophrenia. Some disorders are associated with diminished interest or pleasure in activities, social withdrawal, and loss of energy (Spitzer et al. 1990). Others may cause increased sociability, but also extreme irritability. Variations in symptoms, course, and functioning undoubtedly have a critical impact on the level and types of social network consequences associated with these illnesses. Importantly, this variation may provide some insight into the mechanisms underlying network dynamics in mental illness and other disruptive events.

DIAGNOSIS

To date, much of the work looking at the effects of variations in the mental illness experience focuses on psychiatric diagnosis. Some research suggests that the social networks of individuals with schizophrenia and other psychotic disorders look somewhat different from those with depression and other mood disorders, which may reflect the higher levels of stigma associated with schizophrenia (Pescosolido et al. 1999). Overall, individuals with schizophrenia and related disorders tend to have networks that are very

small and dense, consisting almost exclusively of close family members who provide a large amount and variety of unreciprocated support (Henderson et al. 1978; Pattison et al. 1975; Sokolovsky et al. 1978; Tolsdorf 1976). These patterns in the relationships of people with schizophrenia and related disorders may have implications for core/periphery dynamics. Specifically, the *Protective Core Hypothesis* (H5-1) suggests that a diagnosis of schizophrenia is associated with having few individuals entering or exiting the core network or periphery.

Alternatively, people with mood disorders, like depression, have about the same number of ties as individuals without mental illness. However, their networks are less dense, or interconnected, which may suggest that they interact with many isolated individuals rather than being integrated into a dense group of friends or family members. In fact, people with depression and other moods disorders are likely to have few close, lasting friendships, and many negative relationships within their social networks (Henderson et al. 1978; Pattison et al. 1975; Sokolovsky et al. 1978; Tolsdorf 1976). Therefore, the *Temporary Ties Hypothesis* (H5-2) suggests that because their relationships tend to be weak, temporary, and unanchored, a diagnosis of depression may be associated with high levels of activation into the core from outside the network, but also with high levels of exit.

THE SYMPTOMS OF MENTAL ILLNESS

These few studies do seem to suggest that something about the experiences of people falling within the categories of psychotic and mood disorders differentially shape the social networks of people with mental illness. However, the reliance of existing

research on broad diagnostic categories in describing complex relationships between the symptoms and course of psychiatric disorders and social networks may be problematic. Mirowsky and Ross (1989) criticize the use of diagnostic categories in social research, asserting that the application of a diagnosis to a person's experience removes information rather than adding it. The use of diagnostic categories moderates the strength and significance of relationships between psychiatric disorder and other factors because the full range of variance is obscured by a binary category. Furthermore, diagnosis ignores the structure of causal relationships among the variables on which it is based, collapsing causes, consequences, and spurious associations, and often eliminating information about the very social phenomena we are studying (Mirowsky & Ross 1989). Thus, it may be more useful to examine a set of variables that better captures a person's unique set of mental illness-related experiences.

Among the most important predictors of social network outcomes may be the number and types of symptoms that characterize the illness experience. Specifically, many psychologists have found the positive/negative symptom distinction to be a more useful way to describe mental illness and its effects than diagnosis alone. As described in Chapter 2, positive symptoms are instances of emotional, cognitive, or behavioral excess (e.g., bizarre behavior, hallucinations, acting out), while negative symptoms can be described as instances of emotional, cognitive, or behavioral deficiency (e.g., not fulfilling social obligations, being inappropriately “flat”, disengaging socially). Both positive and negative symptoms shape a person's social behavior and others' responses. Positive symptoms tend to provoke fear and discomfort (Hamilton et al. 1989; Provencher & Mueser 1997), and make it difficult to establish shared meanings and

understandings with others who do not have a mental illness (Rosenberg 1984). Some research suggests that positive symptoms, which tend to be both highly eccentric and visible, may be associated with higher levels of stigmatization and rejection by others (Crisp et al. 2000; Martin et al. 2007; Pescosolido et al. 2000). On the other hand, negative symptoms have a profound effect on the size and functioning of social networks (Hamilton et al. 1989; Provencher & Mueser 1997) because they lead to unfulfilled social obligations, interpersonal blandness, and an inability to provide resources like companionship or intimacy (Provencher & Mueser 1997). Thus, the *Unsuccessful Interaction Hypothesis* (H5-4) suggests, on the one hand, that an increasing number of positive and negative symptoms increases the likelihood that associates will exit the network.

On the other hand, the number of symptoms a person is experiencing is also indicative of the severity of their illness, which suggests an alternative hypothesis. People in crisis use their friends and family to help them cope with hardship and uncertainty (Kadushin 1981). An episode of mental illness that is particularly debilitating and which has more far-reaching consequences is likely to necessitate the mobilization of a greater number and variety of network resources (Hurlbert et al. 2000; Pescodolido 1992; Wellman 2000). Alternatively, if a friend or family member is in a state of severe and visible distress, this may motivate members of the network who are typically inactive, such as fellow church-goers or extended kin, to come to their aid. These patterns of interaction are similar to those described in Chapters 3 and 4 in relation to individuals with elevated support needs. Thus, in contrast to the *Unsuccessful Interaction Hypothesis* (H5-4), the *Drawing In Hypothesis* (H4-7) suggests that increasing numbers of positive

and negative symptoms are associated with elevated support needs, and therefore with broader tie functionality and movement into the core as network resources are mobilized.

In addition, there are particular symptoms that may have unique and important implications for social networks, and social withdrawal is one of these. Features of mental illness like loss of energy, hypersomnia, and diminished interest in formerly pleasurable activities (DSM-IV) can cause people to spend much of their time sleeping or engaged in other isolating activities. Moreover, for some, social withdrawal is a defensive response to the stigmatizing nature of psychiatric diagnosis. As individuals struggle to cope with the discrimination and loss of status associated with their new identity, they engage in strategies such as secrecy and withdrawal that exacerbate their social isolation (Link 1987; Link et al. 1989). When people withdraw, they stop participating in shared activities that bring them into contact with others, and no longer work to maintain relationships. Therefore, the *Social Withdrawal Hypothesis* (H5-5) contends that people who experience a desire to withdraw from social interaction or activities have greater numbers of people exiting the core and periphery, and fewer people entering them.

CHRONIC MENTAL ILLNESS

Finally, a person's illness history is also likely to shape their social interaction strategies, as well as others' willingness to help. We know that the excessive burden and lack of reciprocity associated with supporting individuals with mental illness can cause them to be abandoned by caregivers and confidants (Carpentier & Ducharme 2003; Pavalko & Woodbury 2000; Reinhard & Horwitz 1995; Wright 1994). It may be that the supporters and caregivers of people with *chronic* mental illness are especially prone to burnout, and

are more likely to exit the network than associates of first-timers. If this is the case, we would expect to see a pattern of network attrition in individuals who have experienced multiple episodes of mental illness, or whose current episode has lasted a significant period of time (Lish et al. 1994; Romans & McPherson 1992).

Another potential explanation, which leads to the same result, is that people with chronic mental illness may actually learn from past mistakes and disappointment when friends and family do not live up to their expectations (Perry 2007). That is, people who have experienced an episode of mental illness before might have become familiar with the social network consequences of overburdening ties, and with the limitations of their own and others' support resources. If this is true, they are likely to adjust their interpersonal strategies accordingly, and perhaps lower their requests and expectations of others. These explanations are only exploratory, but they nonetheless lead to a *Chronic Illness Hypothesis* (H5-6), which suggests that people who have experienced multiple episodes of illness, or who have been ill for a long period of time, will have fewer individuals entering the broadly functional core group, and will have increasing numbers of friends and family exiting the network or moving to the periphery.

MENTAL HEALTH TREATMENT

Finally, as with other role entrances and exits, changes in mental health treatment shape opportunities for social interaction. As mentioned above, entering treatment provides access to a variety of potential associates (Cantor & Little 1985; Carpentier & Ducharme 2003; Gans 1962; Litwak 1985). Not only might people in mental health treatment develop intimate, albeit one-sided, relationships with treatment providers, but they are

likely to meet new peers, as well. Most mental health treatment programs involve one or more group activities, including group therapy, job training, various social activities for clients, and, at community mental health centers, a “club house” where clients can spend their free time. People are likely to form both friendships and romantic or sexual relationships with fellow consumers in these types of settings (Perry & Wright 2006; Wright et al. 2007). However, when individuals are discharged or elect to stop treatment, these highly context-specific relationships are unlikely to endure.

In addition to providing access to new ties, treatment can sometimes simultaneously lead to the degradation of relationships with members of the community at large. For instance, residential treatment centers are often highly restrictive, imposing barriers and limitations on interaction with friends and family members outside of the facility. In addition, because of the stigma associated with mental health treatment, entry into the treatment system might cause the ill person to withdraw from others, or could lead to rejection by more casual friends and acquaintances in the community.

In sum, movement into and out of different mental health treatment settings is likely to shape core/periphery dynamics over time. Specifically, the *Access and Exit Hypothesis* (H5-7) suggests that changes in mental health treatment are associated with increasing numbers of new associates entering the core network, but also with high levels of exit, particularly from the periphery.

MENTAL ILLNESS AND SOCIAL INTERACTION: ANALYZING THE EFFECTS OF THE ILLNESS EXPERIENCE ON CORE/PERIPHERY DYNAMICS

The data and methods employed in this chapter of the dissertation are identical to those used in Chapter 4. Again, the three dependent variables modeled here are: 1) entry of new associates into the core network (versus the periphery); 2) Exit of existing associates from the network; and 3) Entry of existing associates into the core network (versus the periphery). However, while the models in the proceeding chapter examined predictors relating to selective activation processes and social structural location, these models explore the effects of measures of mental illness characteristics.

Several measures of respondents' mental illness behaviors and experiences are included in these analyses. These are coded using two sources from the baseline interview. The first is the Structured Clinical Interview for DSM-III-R (SCID), an extensive examination of behaviors, emotions, and cognitions symptomatic of various mental illnesses. It is designed to assist non-clinical research personnel in assessing the lifetime prevalence and incidence of psychiatric disorders for the purposes of research. The SCID was used for the purposes of determining whether potential participants met criteria for the study. In most cases, the SCID was administered to the respondent in an interview format by a trained member of the research team. However, in those cases where potential respondents could not be interviewed, the SCID was completed using clinical charts. These include notes written by psychiatrists and other mental health professionals who observed and spoke with respondents about their symptoms in the course of admission and treatment.

Measures of mental illness characteristics are also coded using transcripts of semi-structured, open-ended interviews in which respondents describe the nature and course of their mental illness. The first section of the interview schedule is designed to elicit respondents' illness narratives. Specifically, interviewers asked, "What I'd like you to do for the first ten minutes or so is to tell me in your own words what's happened to you, why you're here, when this all started, and what you've done about all of this..." Transcripts of this narrative are used to code aspects of the illness experience, particularly when data from the SCID is incomplete or missing.

INDEPENDENT VARIABLES

Psychiatric diagnosis is measured using a series of dummy variables for each disorder (major depression, bipolar disorder, schizophrenia/schizoaffective disorder, adjustment disorder, and other). Diagnoses falling into the "other" category include, for example, generalized anxiety disorder and post-traumatic stress disorder. Importantly, this measure of psychiatric disorder is a *research* diagnosis coded using the SCID rather than a *clinical* diagnosis. Thus, it is based on short responses to a guided interview or chart review rather than extensive observation and discussion. Moreover, though the research diagnosis was measured only at baseline, clinical diagnoses changed for many respondents throughout the course of the study. Therefore, it is important to conceptualize diagnosis as one dynamic indicator of a constellation of symptoms and perhaps illness severity rather than as a static and concrete definition of one's disorder.

Also, coded using items from the SCID, a positive symptom count represents the number of signs of "behavioral or ideational excess" (i.e. delusions, hallucinations,

aggression), while a negative symptom count measures the number of symptoms of “behavior or ideational deficiency” (i.e., depressed mood, flat affect, anhedonia; Walker & Lewine 1988, p. 315). A complete list of positive and negative symptoms is presented in Table 5.A.1 in the Appendix.

In addition, a binary variable (1 = yes, 0 = no) measures whether respondents had been experiencing a desire to withdraw from friends and family and/or a self-imposed decrease in social interaction and activity. This is coded using responses to a question on the guided in-depth interview schedule that asks respondents, “Can you tell me about how your family and friends have been affected? How has it affected your social life?”

The effects of respondents’ mental illness history are also examined. One variable indicates whether the current episode of mental illness is the first ever (equal to 0) or a recurring illness (equal to 1). This was coded using a question on the SCID that asks, “Is this something new or a return of something you had before?” Another variable measures the duration of the current episode of mental illness using an item on the SCID that asks, “When did this begin?” If these responses are missing, this variable is coded using a question on the in-depth interview schedule asking, “When did all of this start?” Because many of the mental illness measures were coded using multiple similar items from the SCID and transcripts, there are no missing data on any of these variables.

Finally, changes in mental health treatment are measured using a binary variable equal to 1 if a respondent has experienced any significant change in treatment (e.g., stopping or starting treatment, seeing a new provider, using a new facility, etc.) in the past year, and 0 otherwise.

ANALYTIC STRATEGY

The strategy guiding this analysis mirrors the one in Chapter 4. Because of the clustered nature of these longitudinal data, two-level variance components models are employed using Stata's (2005) xtlogit command. Odds ratios are presented in tables and text. In addition, predicted probabilities are computed in order to determine the magnitude of the effects of various independent variables. Unless otherwise noted, all results from regression models match findings from cross-tabulations and analyses of variance (ANOVA). As before, missing data across waves are dropped on a model by model basis.

CORE/PERIPHERY DYNAMICS IN MENTAL ILLNESS: FINDINGS ON VARIATIONS IN THE ILLNESS EXPERIENCE

Results from models exploring the effects of mental illness on the odds of new associates entering the core network are presented in Table 5.1. Model 1 indicates that compared to those with major depression, associates of people with bipolar disorder are two and a half times more likely to enter the core network as opposed to the periphery (OR = 2.56, $p \leq .05$). Conversely, associates of people with adjustment disorder are nearly half as likely to enter the core compared to people with depression (OR = 0.57, $p \leq .05$). As shown in Figure 5.1, people with bipolar have the largest predicted probability of recruiting friends and family into the core (0.66), followed by those with major depression (0.44), schizophrenia (0.36), other diagnoses (0.33), and adjustment disorder (0.30).

Unexpectedly, the effects of number of symptoms, social withdrawal, chronicity, and changes in mental health treatment do not achieve significance (See Models 2 and 3).

Table 5.1. Random intercept logistic regression^{1, 2} for the effects of mental illness on the odds of new associates entering the core network (N=1,020)

	Model 1	Model 2	Model 3
Diagnosis³			
Bipolar disorder	2.56* (2.08)	—	—
Schizophrenia	0.72 (-0.72)	—	—
Adjustment disorder	0.57* (-2.05)	—	—
Other disorder	0.63 (-0.81)	—	—
Mental illness characteristics			
Negative symptom count	—	1.03 (0.47)	—
Positive symptom count	—	1.11 (1.28)	—
Social withdrawal	—	1.21 (0.78)	—
Recurring problem	—	1.43 (1.50)	—
Duration of episode (months)	—	1.01 (1.18)	—
Change in mental health treatment	—	—	1.35 (1.64)
Log likelihood	-663.06	-664.91	-667.12
Wald X^2	21.62**	17.95	13.34*
Variance	0.65	0.69	0.76

¹ Table presents odds ratios; z-values in parentheses

² Models include the following control variables: female, White, age, education, and time

³ Reference category is major depression

* = $p < .05$; ** = $p < .01$

Though the effect of changes in treatment on the odds of exiting the network is significant (OR = 0.59, $p \leq .05$), this result should be interpreted cautiously since the overall model is not significant (See Table 5.A.2 in the Appendix). Among those who did enter or exit treatment, or change providers, the predicted probability that any given

associate will exit the network in the subsequent wave is 0.28. The probability among those who remain stably treated is 0.40.

Finally, contrary to expectations, Table 5.A.3 in the Appendix suggests that none of the mental illness characteristics tested here significantly affect the odds that existing associates remain in the core rather than the periphery. On the whole, variations in the mental illness experience tell us very little about what happens to our relationships when we become ill.

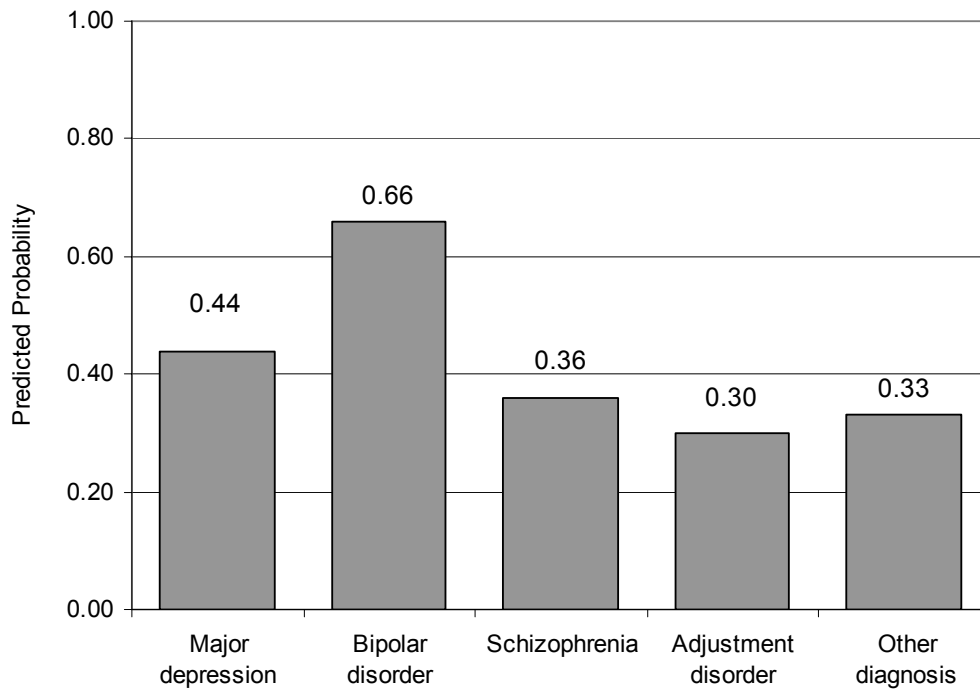


Figure 5.1. Predicted probability that associates of respondents with various psychiatric diagnoses will enter the core network versus the periphery

IMPLICATIONS: THE SICK ROLE, THE PSYCHIATRIC LABEL, AND SELECTIVE ACTIVATION PROCESSES

On the whole, variations in the mental illness experience are not as relevant as predicted, at least at the level of relationships (See Table 5.2 for a summary of hypotheses and results). These findings suggest that psychiatric diagnosis does shape core/periphery dynamics, though perhaps not for the reasons that clinicians might argue. I find that individuals with bipolar disorder have a higher level of recruitment into the core network than those with major depression, while those with adjustment disorder have a lower level. However, characteristics of mental illness like number of symptoms, which provide more detail about the illness experience than diagnostic category alone, tell us nothing about how we organize our social relationships in order to recruit help when we are sick.

The effects of diagnosis are quite interesting from the perspective of medical sociologists, with important implications for the impact of the sick role and labeling processes. I suspect that these findings may be attributable to the severity of these disorders and the degree to which they are recognized as a medical problem. Bipolar disorder is one of the most severe forms of mental illness, and is associated with an average loss of nine years of life, twelve years of normal health, and fourteen years of labor market participation for those diagnosed in their twenties (Scott 1995). Onset of bipolar disorder is likely to be accompanied by a sharp increase in need for emotional and instrumental support, but is also marked by extreme irritability and anger toward others. Moreover, for family and friends, it is one of the more recognizable mental illnesses, particularly in the manic phase when the ill person is most likely to be hospitalized (Lam & Wong 1997).

Table 5.2. Summary of hypotheses and findings in Chapter 5

	Question	Hypothesis	Corroborated?
H5-1 <i>Protective Core Hypothesis</i>	Does a person’s psychiatric diagnosis reflect their social skills and functioning, shaping the kinds of relationships they have and their stability over time?	A diagnosis of schizophrenia is associated with having few individuals entering or exiting the core network or periphery.	No
H5-2 <i>Temporary Ties Hypothesis</i>	Does a person’s psychiatric diagnosis reflect their social skills and functioning, shaping the kinds of relationships they have and their stability over time?	A diagnosis of depression may be associated with high levels of entry into and exit out of the core network.	No
H5-3 <i>Unsuccessful Interaction Hypothesis</i>	Do increasing signs and symptoms of mental illness lead to rejection by others?	Increasing number of positive and negative symptoms increase the likelihood that associates will exit the network.	No
H4-7 <i>Drawing In Hypothesis</i>	Do increasing signs and symptoms of mental illness indicate a greater need for support, and thus increasing reliance on the social network?	Increasing numbers of positive and negative symptoms are associated with broader tie functionality and movement into the core as resources are mobilized.	No
H5-4 <i>Social Withdrawal Hypothesis</i>	Does a person’s desire to withdraw from their social lives actually result in social isolation?	People who experience a desire to withdraw from social interaction or activities have greater numbers of people exiting the core and periphery, and fewer people entering them.	No
H5-5 <i>Chronic Illness Hypothesis</i>	Does chronic illness lead to social isolation?	People who have experienced multiple episodes of illness, or who have been ill for a long time, will have fewer associates entering the core network, and more exiting.	No
H5-6 <i>Access and Exit Hypothesis</i>	Does moving in and out of different treatment settings influence the kinds of relationships a person develops and how long they last?	Changes in mental health treatment are associated with increasing numbers of new associates entering the core network, but also with high levels of exit from the periphery.	No

While major depression is also often quite severe, it may be less identifiable as a mental illness by laypeople than psychiatric disorders with so-called psychotic symptoms (Martin et al. 2000). People with major depression are likely to socially withdraw rather than reach out to friends and family for help, and others may not recognize that the individual is in need of support. This may be even more true of adjustment disorder, which is relatively short-lived (no longer than six months), and occurs in response to an identifiable stressor like divorce or widowhood. In fact, it is often viewed by clinicians as a mild form of situational depression or anxiety. In sum, the patterns of core/periphery dynamics found in these data may reflect variations in friends' and family members' ability to apply the mental illness label and their willingness to allow them to enter the sick role and receive elevated levels of support (Parsons 1951).

If true, these differential social responses to bipolar disorder, major depression, and adjustment disorder are likely to have important implications for who supports us when we become ill and how much they are willing to help. In fact, research suggests that individuals are more likely to provide support when a person's stressors are "unambiguous and visibly distressing – where potential providers recognize the need, see it as legitimate, and know how to help (Kaniasty & Norris 1993: 395-96)." The visibility of bipolar disorder, and to a lesser degree major depression, increases the likelihood that it will be recognized as a mental illness by lay people and formally diagnosed by a professional. Thus, friends and family members are likely to begin providing an increasing number of support functions as the ill person enters the sick role and withdraws from social responsibilities. On the other hand, this also creates a situation wherein people with bipolar disorder are more likely to be stigmatized by others (Martin

et al. 2007). Therefore, individuals with bipolar disorder and perhaps major depression are likely to successfully recruit caregivers into their core networks, but may be less effective at maintaining weaker relationships and avoiding rejection by those outside their close circle of friends and family. Indeed, this is consistent with research suggesting that bipolar disorder is particularly destructive to weak or secondary social relationships (Romans & McPherson 1992).

For people with adjustment disorder, the opposite may be true. Because friends and family members are less likely to attribute their behavior to mental illness, they may be less willing to take on caregiving responsibilities. Therefore, despite their distress, people with adjustment disorder might find it more difficult to recruit others into their core network. However, they are probably also less likely to experience stigmatization by outsiders (Martin et al. 2007).

In short, others' responses to signs that a friend or family member is in need of support may depend, in part, on their perceived deservedness. This, in turn, relates to the definition of certain mental illnesses as legitimate medical conditions in contemporary American society. Interestingly, the lack of significant findings pertaining to other mental illness characteristics, like positive and negative symptoms and chronicity, may actually support this explanation. It suggests that the impact of mental illness on relationships may be a function of others' perceptions of and reactions to the psychiatric label rather than to specific behaviors and emotions exhibited by people with mental illness.

APPENDIX 5

Table 5.A.1. Classification of Positive and Negative Symptoms

Positive Symptoms	Negative Symptoms
Delusions	Depressed mood
Hallucinations	Anhedonia
Inappropriate affect	Fatigue or loss of energy
Incoherence	Feelings of worthlessness and guilt
Loosening of associations	Diminished ability to think or concentrate
Obsessions	Thoughts of death or suicide
Compulsions	Feelings of hopelessness
Excessive anxiety or worry	Catatonic behavior
Vigilance and scanning	Flat affect
Elevated, expansive, or irritable mood	Functional decline
Inflated self-esteem or grandiosity	
More talkative than usual	
Flight of ideas	
Increase in goal-directed activity	
Excessive involvement in pleasurable activities	

Table 5.A.2. Random intercept logistic regression^{1,2} for the effects of mental illness on the odds of existing associates exiting the network (N=3,124)

	Model 1	Model 2	Model 3³
Diagnosis⁴			
Bipolar disorder	1.46 (1.46)	—	—
Schizophrenia	1.18 (0.61)	—	—
Adjustment disorder	1.04 (0.24)	—	—
Other disorder	0.92 (-0.25)	—	—
Mental illness characteristics			
Negative symptom count	—	0.95 (-1.15)	—
Positive symptom count	—	1.03 (0.62)	—
Social withdrawal	—	1.10 (0.66)	—
Recurring problem	—	0.99 (-0.06)	—
Duration of episode (months)	—	1.001 (0.02)	—
Change in mental health treatment	—	—	0.59* (-2.19)
Log likelihood	-2053.30	-2053.32	-808.47
Wald X^2	8.73	8.73	7.07
Variance	0.34	0.34	0.65

¹ Table presents odds ratios; z-values in parentheses

² Models include the following control variables: female, White, age, education, and time

³ Because information about change in mental health treatment is available only in waves 2 and 3, Model 3 is based on a subset of 1292 cases

⁴ Reference category is major depression

* = $p < .05$

Table 5.A.3. Random intercept logistic regression^{1,2} for the effects of mental illness on the odds of existing associates being in the core (N=1,810)

	Model 1	Model 2	Model 3³
Diagnosis			
Bipolar disorder	1.59 (1.32)	—	—
Schizophrenia	0.77 (-0.77)	—	—
Adjustment disorder	1.12 (0.51)	—	—
Other disorder	0.83 (-0.46)	—	—
Mental illness characteristics			
Negative symptom count	—	0.95 (-0.98)	—
Positive symptom count	—	1.03 (0.50)	—
Social withdrawal	—	1.40 (1.86)	—
Recurring problem	—	1.05 (0.29)	—
Duration of episode (months)	—	1.004 (0.87)	—
Change in mental health treatment	—	—	1.08 (0.31)
Log likelihood	-1200.01	-1199.08	-520.29
Wald X^2	5.76	7.87	4.58
Variance	0.50	0.46	0.68

¹ Table presents odds ratios; z-values in parentheses

² Models include the following control variables: female, White, age, education, and time

³ Because information about change in mental health treatment is available only in waves 2 and 3, Model 3 is based on a subset of 793 cases

⁴ Reference category is major depression

* = $p < .05$; ** = $p < .01$; *** = $p < .001$

CHAPTER 6

MECHANISMS OF NETWORK-LEVEL DYNAMICS AND THE ROLE OF SOCIAL NETWORK DISRUPTION

Up to this point, this research has focused on membership dynamics, or people's movements into and out of the core and peripheral networks, and the mechanisms driving these. Specifically, I argue that the comings and goings of ties in and out of our core group of supporters is a goal-specific interaction strategy that helps people, particularly those with elevated support needs, obtain critical network resources. On the other hand, changes in membership are also attributable to movements in and out of various social spheres that provide opportunities for social interaction.

Though these findings contribute much to our understanding of how and why *relationships* are formed, strengthened, and often dissolved, what do they tell us about the evolution of *social networks* over time? In other words, motivated by unfulfilled needs for companionship, emotional support, and advice, individuals choose with whom and how to interact, replacing the unhelpful or burdensome people in their lives with brighter prospects. However, this process of replacement (e.g., *the revolving door*, as it is referred to in previous chapters) does not necessarily have any impact on, for example, the total number of people with whom we interact, the strength of connections between the people in our lives, or the role we may play in bridging different social groups together. The principle goal of this chapter, then, is to determine whether and how the factors that

shape movement into and out of the core and periphery affect the evolution of characteristics of the network as a whole.

Research indicates that although there is a great deal of turnover in the individuals that make up a network, the structure of the network changes very little over time (Morgan et al. 1997; Neyer et al. 1991; Sutor & Pillemar 1995; Wellman et al. 1997). Network-level characteristics like size and density generally remain about the same, even as people within the network are continually exiting and being replaced by new or formerly inactive members (Grant & Wenger 1993; Wellman et al. 1997). In other words, for people in crisis, this means that the social safety net as a whole does not change much over time. Though the individual knots that make up the safety net (e.g., relationships with specific friends and family members) are constantly breaking and being replaced, this does not jeopardize the structural integrity of the larger net, or presumably its ability to stop us from falling.

This tendency for social networks to exhibit structural stability while simultaneously undergoing membership turnover demands a multi-level approach to the study of network dynamics in which both stable and instable components of networks are examined simultaneously. We have seen very clearly in previous chapters that the core and the periphery are different on a number of dimensions. Therefore, to look at only the core network, or to combine them into a vast, one-dimensional super network profoundly disregards what we know about the organization and differentiation of social relationships. For example, while the network as a whole may stay the same size, a shrinking core and expanding periphery has very different implications for support and wellbeing than the reverse scenario. In this way, structural stability may be important

changes taking place under the surface of the network. Research of this kind is minimal, but a study of recent widows by Morgan and colleagues (1997) does suggest that the stability of aggregate-level network characteristics derives from the constancy of the core network, not from the interchangeability of ties in the peripheral network. Still, more work is needed to identify patterns like this one.

SOCIAL NETWORK DYNAMICS: MORE THAN THE SUM OF ITS DYNAMIC PARTS

Barry Wellman may have been the first to coin the phrase “a network is more than the sum of its ties” (Wellman & Gulia 1999), but this idea has been a basic principle of social network theory since the work of Durkheim (1897) and Simmel (1908) at the turn of the twentieth century. Network ties are structurally embedded in a social system, and the properties of this system as a whole influence the behavior of any one tie (Wellman & Gulia 1999). Some have even gone so far as to argue that the individuals making up a network are of no consequence. Rather, it is the pattern of relations between the various positions in the social system that persists over time and determines access to resources and other outcomes, and this operates independently of the people who occupy those positions (White 1992).

The work of White (1992) and others has critical implications for the relationship between tie-level and network-level dynamics. As noted earlier, it suggests that the comings and goings of individual friends and relatives (e.g., membership turnover and core/periphery dynamics) do not necessarily affect the overall structure or function of the network. This is particularly true if people use strategies of replacement. In other words,

network attrition may be of little consequence if lost associates are simply replaced by others who fulfill the same functions and have similar connections to others. It is not the individual that matters, but rather the role they play and their position in the network (White 1992).

On the other hand, you cannot have change at the aggregate level without change at the tie-level. For network size to decrease, individual associates must leave the network. For the functionality of the network to increase, individual friends and family members must do more, or new supporters must be recruited to pick up the slack. In short, network-level dynamics require change at the tie level, but tie-level dynamics do not necessarily result in change at the network level.

According to this logic, it can be taken for granted that change in the structure and function of the network as a whole depends upon changes in membership or tie functionality (e.g., core/periphery dynamics). However, we cannot assume that the effects of selective activation processes or shifting opportunity structures on core/periphery dynamics that were identified in Chapter 4 will necessarily have any bearing on the state of the social network more broadly. Therefore, in order to determine whether these individual-level factors might shape health and wellbeing, or other outcomes, through access to network resources, it is critical to assess their impact on changes in network-level characteristics over time.

***NETWORK SIZE, FUNCTIONALITY, AND DISRUPTION: CONSEQUENCES
FOR RESOURCE ALLOCATION***

Research described in previous chapters demonstrates that people receive different kinds of support through different kinds of *relationships* (Morgan 1989; Suito & Keeton 1997; Wellman & Frank 2001; Wellman & Wortley 1990). More relevant here is the idea that people receive different kinds of support through different kinds of *social networks*.

Properties of the network as a whole, including size, functionality, and disruption, can dictate how resources are allocated and to whom (Wellman & Gulia 1999).

Network size

There is some evidence that network size shapes resource allocation, though there is disagreement about whether larger or smaller networks provide better access (Blau 1993; Durkheim 1897; Granovetter 1973; Kemper 1972; Perry 2006; Wellman & Gulia 1999).

Some argue that large networks, which tend to be heterogeneous (Haines & Hurlbert 1992), have greater range, and therefore provide more access to diverse resources (Granovetter 1973; Wellman & Gulia 1999). Moreover, large networks that crosscut multiple identities foster cohesion because the ties within them fulfill multiple reciprocal needs (Blau 1993; Kemper 1972), thereby increasing supportiveness.

Conversely, smaller networks might provide more support because they are generally held together by common attributes, goals, and values, which fosters empathy and mutual support (Marsden 1988). Smaller networks might also provide higher quality support if fewer members translates into more time and resources to devote to each individual in the network (Wellman & Gulia 1999). In short, independent of any one tie, the size of the network as a whole can influence resource allocation.

Network functionality

The level and types of support functions provided by the complete network can have important implications for the supportive behavior of individual associates. People are profoundly influenced by the actions of their peers, and this basic tenet of sociology extends to resource allocation, as well (Palinkas et al. 1990). Networks have their own collective cultures, which include group norms that provide implicit guidelines about the amount and types of support provided to different network members, under which circumstances, and by whom (Boswell 1969; Hollingshead 1939; Palinkas et al. 1990). For example, we know that women are more supportive in networks composed largely of women, which can be attributed to the shared culture of emotive caregiving that is more pervasive and salient when a woman is among other women (Wellman & Frank 2001). Importantly, by conceptualizing social support as a characteristic of the network as a whole, it is possible to capture dyadic relationships in their social and cultural context, as they operate in everyday life (Perry 2006).

Network disruption

Though the loss of even one core relationship is enough to compromise one's wellbeing (Brown and Harris 1978; Brown, Harris, and Copeland 1977; Mueller 1980), it may be that the degree of instability in the network as a whole has a more profound effect on resource allocation and outcomes. In my research on youth in foster care, I find that ongoing and increasing levels of network disruption, or instability, are associated with less intimate and resource-rich relationships, and that this has an adverse effect on psychological wellbeing (Perry 2006). Therefore, while the replacement of any one friend or family member by another may have no perceptible impact on the structure of the

network (White 1992), there may be something about these events that disrupt the functioning of the network, particularly if there are many changes occurring simultaneously. Specifically, I propose that perhaps pervasive and ongoing disruptions are especially harmful because the network cannot recover quickly enough from its losses. That is, there is insufficient time for building and strengthening replacement ties (Perry 2006). The potential impact of network disruption suggests that it is useful to examine factors influencing the level of membership turnover in the complete network rather than just the comings and goings of particular core and peripheral associates.

MECHANISMS OF CHANGE AT THE NETWORK LEVEL: HYPOTHESES FROM A MULTI-LEVEL MODEL

For the most part, the specific hypotheses guiding this analysis mirror the arguments presented in Chapter 4, as well as the multi-level model described in Chapter 1. That is, I argue that role exits and disruptive transitions compromise the shared foundation and level of contact on which relationships depend. Any event that increases physical or social distance between a person and their friends and family is likely to initiate network change. Findings from Chapter 4 support the *Disruptive Transitions Hypothesis*, which suggests that changes in employment, housing, marital and parental status, and group membership shape tie movement into and out of the core and periphery. In this sample of people with mental illness, these events are more likely to be role exits than entrances (i.e. divorce rather than marriage; Dowdall & Goldstein 1979; Estroff 1981; Link 1987; Link et al. 1987; Munk-Jorgensen & Mortensen 1992; Rosenfield 1991; Silver et al. 2002). Therefore, the *Role Exit Hypothesis* (H6-1) suggests that disruptive transitions will

decrease the size and functionality of the network as a whole, and will increase the level of membership turnover. Further, whether these changes occur in the core or periphery will depend on the social context in which the disruptive event occurs. Changes involving marriage, children, or significant others should influence the core, whereas those pertaining to employment, housing, or group participation should affect the periphery.

Also, in Chapter 4, I present evidence that people activate sectors of their networks that are most willing and best suited to provide specific kinds of resources in times of crisis. Importantly, consistent with the *Drawing In Hypothesis* (H4-7), those with elevated support needs are likely to mobilize a greater number and variety of ties to provide support on their behalf. However, I also find that as individuals become more needy, ties are increasingly likely to exit the network. Whether these associates simply become tired of helping or are cast off when they no longer fulfill respondents' needs, this pattern suggests a *Revolving Door Hypothesis* (H6-2). Namely, as a person's support needs increase, the level of membership turnover, particularly in the functional core network, is likely to increase, as well. However, because the purpose of the revolving door strategy is to replace ties that exit with equally functional new ones, network size and functionality should remain stable as needs increase.

Also, as argued above, characteristics of the network as a whole are likely to shape the allocation of resources, including the functionality of the network as a whole. Larger networks provide access to a wider range of resources than smaller ones (Granovetter 1973; Wellman & Gulia 1999), but the average number of different resources provided by each of these heterogeneous and functionally-specific ties is likely to be limited. However, in smaller, more cohesive networks (i.e., kin-based networks),

each friend or family member probably provides a broad range of support functions. In other words, while large networks provide access to more resources as a whole, each member contributes fewer different kinds of resources compared to members of a small network. Therefore, the *Cohesive Core Hypothesis* (H6-3) suggests that in smaller core networks, the mean number of support functions provided by each associate is greater than in larger ones.

Finally, as described earlier, I contend that high levels of network disruption have a detrimental effect on social networks that exceeds the impact of losing any particular tie. The uniquely problematic nature of pervasive and ongoing network disruption likely relates to the diminished functionality of networks in constant flux. Newcomers to the network may not be willing to provide the broad range of functions that more committed, longer-standing friends and family would. Therefore, the *Network Disruption Hypothesis* (H6-4) contends that networks characterized by a higher degree of membership turnover contain ties which are less broadly functional.

ANALYZING DYNAMICS AT THE NETWORK LEVEL: CHANGE IN SIZE, FUNCTIONALITY, AND DISRUPTION

Like the previous chapters, this chapter uses data from the Indianapolis Network Mental Health Study. However, these data are somewhat different in that analyses focus on individuals' aggregate social network characteristics over time rather than on properties of particular social ties over time. The unit of analysis in this chapter, then, is occasion i on focal respondent j (See Figure 6.1). For example, while previous chapters may have examined the number of support functions provided to Jim by Sally at wave 2, this

chapter and the next look at the *average* number of support functions provided by Jim’s entire network (e.g., Sally plus six other associates).

Additionally, network characteristics are aggregated based on the core and peripheral status of ties such that changes in properties of the core and periphery, in addition to the complete network, can be examined over time. Core ties are those mentioned when respondents were asked to name “close friends,” those with whom they discuss important matters, and those with whom they discuss health matters (See Chapter 3 for a detailed description). As noted previously, only two cases at the respondent level were dropped due to missing data on independent variables, resulting in a sample size of 171 focal respondents. A description of patterns of participation across waves and sample characteristics is presented in Chapter 3.

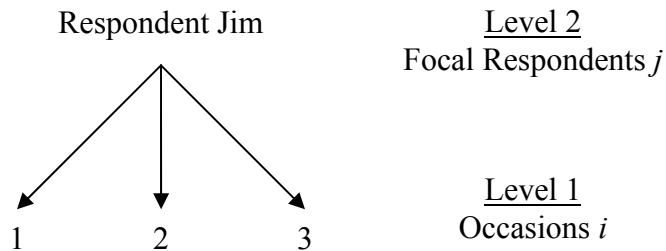


Figure 6.1. Two-level structure of longitudinal, aggregated INMHS data

AGGREGATE NETWORK CHARACTERISTICS: DEPENDENT VARIABLES

The size of the complete, core, and peripheral networks at each wave represents change in network structure over time. These variables are measured by the total number of ties mentioned by respondents, the number of ties who meet criteria for inclusion in the functional or stable core, and the number of ties who do not meet criteria for core status, respectively. As described in Chapter 3, ties were mentioned in response to a series of

name generators corresponding to thirteen domains: household members, family, romantic partnerships, work (paid and volunteer) ties, school ties, friends, acquaintances, enemies, important matters discussants, health matters discussants, people with common problems, and mental health treatment providers. The number and variety of different name generators suggests that this measure of network size constitutes a nearly complete count of associates who have at least occasional contact with respondents. Descriptive statistics on all dependent variables are presented in Table 6.A.1 in the Appendix.

Additionally, the mean number of functions performed by members of the complete, core, and peripheral networks is included as a dependent variable. The total number of support functions provided by each associate is the sum of five binary support variables (discussion partner, emotional support, information and advice, instrumental support, and financial support). These sums are averaged to give a mean for the network ranging from 1 to 5.

Finally, a measure of turnover in network membership is also included. Unlike the measures of network size and functionality, this variable is calculated using two waves of the study rather than one. It represents the percent of network members who are dropped or added from one wave to the next. It was calculated as follows: First, I determined the total number of unique network members across two consecutive waves. This can be thought of as a pool of everyone the respondent has contact with in a given time period (say, one year). Then, I calculated the total number of associates who appeared in one wave, but not the other (e.g., ties that were dropped or added). Finally, I divided the second number by the first, resulting in the percent of unstable ties across two waves.

An example might prove beneficial (See Figure 6.2). Let us suppose that a respondent had six ties at wave one. Then, in wave two, she dropped three of those original ties, and added three new ones. The percent of turnover is equal to the number of ties dropped or added (here, three plus three, or six) divided by the number of unique ties across waves one and two (here, six plus three, or nine), which is 6/9, or about 67%. Importantly, although the size of this hypothetical network (and, though not measured here, the density) is the same across waves, a substantial amount of membership turnover underlies this structural equivalence or stability.

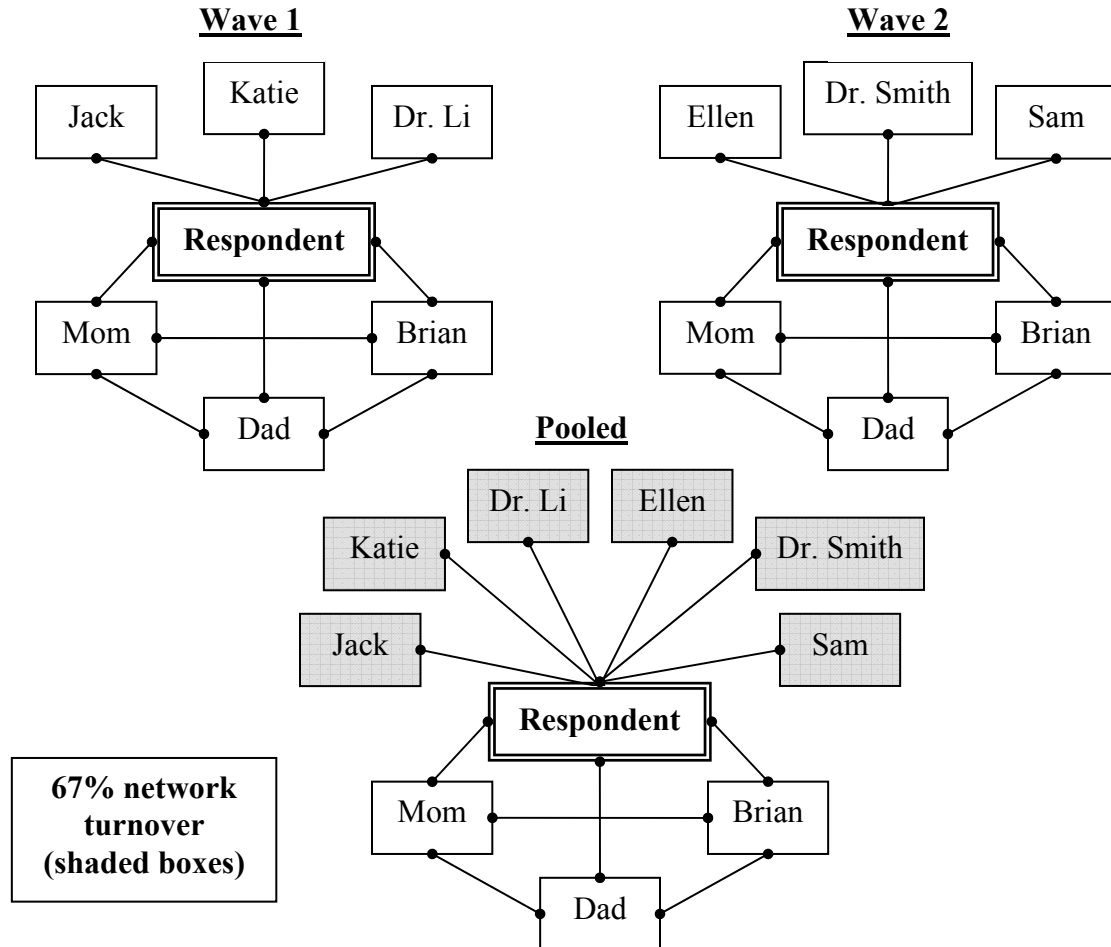


Figure 6.2. A network with structural stability, but high membership turnover

INDIVIDUAL-LEVEL PREDICTORS: INDEPENDENT VARIABLES

Changes in social structural location

Six variables measuring disruptive events that signify changes in social location are included in models of network dynamics. These include a count of number of residences and binary variables representing changes in marital status, partnership status (significant others), number of children, employment, or group membership and participation. These measures are identical to those described and analyzed in Chapter 4.

Support needs

A scalar variable measures the extent of a respondent's need for assistance in six different life domains: keeping house, employment, mental health treatment, social services, childcare, and transportation. The coding and construction of this variable is described in detail in Chapter 4.

Network size and disruption

In addition to being employed as dependent variables, network size and percent membership turnover are used as predictors of mean number of support functions provided by members of the network.

ANALYTIC STRATEGY

Analyses that explore the effects of individual-level variables on the structure, functionality, and membership turnover of respondents' social networks are based on the two-level variance components models described in Chapter 4. These models, which account for within-subject heterogeneity, are employed using Stata's (2005) `gllamm` (for ordinal logistic regression) and `xtnbreg` (for negative binomial models) commands.

Changes in network size are explored using a random intercept negative binomial regression model for count outcomes. This model adjusts for overdispersion (e.g., the conditional variance is greater than the conditional mean), which can lead to inflated z-values that overestimate the significance of independent variables (Long 1997). The log transformation used in count models makes the beta coefficients difficult to interpret, so incidence rate ratios are presented in text and tables. These represent the factor change in the expected count for a one unit change in a given independent variable.

Changes in mean number of support functions and percent turnover are examined using a random intercept ordered logistic regression model for ordinal outcomes. This model is more appropriate than the random intercept linear regression model because the distributions contain spikes at particular values of the outcome variables. For the mean number of support functions, there are about ten times as many observations at whole numbers and midpoints (e.g., 2, 2.5, 3, 3.5, etc.) than at other values. Likewise, for percent turnover, there is a large spike at 50% and 75%. To correct for uneven distributions, these measures are coded into two five-category variables and analyzed as ordinal outcomes. Odds ratios are presented in text and tables.

As in the preceding chapters, these models are nonlinear in the outcome probabilities. Therefore, plots of predicted counts and cumulative probabilities, holding all other independent variables at their means, are presented in order to interpret the magnitude of the effects. Also, unless otherwise noted, all results from regression models match findings from cross-tabulations, analyses of variance (ANOVA), and simple two-way scatter plots of independent variables by time.

In addition, to assist in interpreting results and identifying potential causal relationships, negative binomial regressions and ordinal regressions examining the effects of support needs at one wave on social network variables in the next wave (e.g., wave 1 → wave 2; wave 2 → wave 3) are conducted. Variance components models examining the effects of changes in social structural location on social networks already contain a time lag since these variables capture any changes that have occurred since the previous interview (though the length of time is unknown). However, the support needs variable captures the current level of need, so it is useful to ascertain whether evolving needs cause changes in the size, function, and instability of social networks in subsequent waves. As in the variance components models, these models control for socio-demographic variables and time. They also include controls for the level of the dependent variable at previous waves.

Also, it is important to reemphasize that the percent change measure is calculated using two consecutive waves of data. Thus, while respondents can have up to three observations on network size and functionality (one for each wave of the study), the maximum number of observations on percent turnover is two (e.g., wave 1 → 2 and wave 2 → 3). Further, if a respondent participated in only one wave of the study, the percent turnover variable is missing. Therefore, in effect, the analysis of percent turnover is based on a subset of respondents who were present in two or more waves (N=115).

Finally, in the analysis of change in mean number of support functions over time, a small number of observations (20 of 373) are dropped due to missing data on the dependent variable. Although no data is lost at the respondent level, there is missing data on some cases at the occasion level (e.g. information about support functions was not

collected in either wave 2 or 3, as described in Chapter 4) due to random interviewer error. There is no missing data on network size or percent turnover.

NETWORK-LEVEL DYNAMICS: FINDINGS ON MECHANISMS OF CHANGE

Findings on mechanisms of network-level dynamics support the contention that individual-level characteristics shape properties of networks at the aggregate level. First, results in Table 6.1 indicate that a respondent's educational attainment is predictive of network characteristics. Specifically, additional years of schooling are associated with larger core (IRR = 1.06, $p \leq .001$) and complete networks (IRR = 1.05, $p \leq .001$), and also with higher levels of membership turnover (OR = 1.26, $p \leq .01$) in the periphery. Additionally, results suggest that the peripheral social networks of White respondents are less broadly functional than those of Blacks (OR = 0.46, $p \leq .05$). However, this finding is not supported by results from a simple ANOVA.

Table 6.1. Random intercept negative binomial^{1,2} and ordinal logistic regression^{1,3} for the effects of respondent demographic characteristics on the size (N=373), mean number of support functions (N=353) and percent of membership turnover (N=202) in the core, peripheral, and complete networks

	Core Network	Peripheral Network	Complete Network
Network size			
Female	1.07 (0.87)	1.18 (1.90)	1.12 (1.85)
White	1.09 (1.12)	0.99 (-0.11)	1.05 (0.70)
Age (tens of years)	1.03 (1.03)	1.005 (0.12)	1.03 (0.98)
Education (years)	1.06 ^{***} (3.39)	1.03 (1.53)	1.05 ^{***} (3.24)
Log-likelihood	-942.02	-1058.87	-1160.73
Wald χ^2	14.59 ^{**}	36.44 ^{***}	34.98 ^{***}
Number of support functions			
Female	1.48 (1.43)	1.18 (0.59)	1.51 (1.51)
White	0.76 (-0.96)	0.46 [*] (-2.55)	0.58 (-1.87)
Age (tens of years)	0.88 (-0.99)	0.97 (-0.23)	0.87 (-1.18)
Education (years)	1.01 (0.16)	1.02 (0.33)	1.04 (0.55)
Log-likelihood	-479.29	-425.56	-474.47
Variance	0.84	0.81	0.84
Percent membership turnover			
Female	0.75 (-0.61)	1.51 (1.29)	0.78 (-0.59)
White	0.71 (0.68)	1.33 (0.90)	1.78 (1.34)
Age (tens of years)	1.17 (0.74)	1.30 (1.67)	0.98 (-0.12)
Education (years)	1.02 (0.18)	1.26 ^{**} (2.89)	1.17 (0.51)
Log-likelihood	-281.46	-255.06	-263.22
Variance	2.88	0.20	1.70

¹ Table presents incidence rate ratios and odds ratios; z-values in parentheses

² Models control for time

³ Models control for time and network size

* = $p < .05$; ** = $p < .01$; *** = $p < .001$

Also, results suggest that changes in social structural location influence network size, though not in the direction predicted (See Table 6.2). Changes in group membership or participation are associated with a 20% increase in the expected number of core ties ($p \leq .01$), a 35% increase in the number of peripheral ties ($p \leq .01$), and a 21% increase in the number of ties overall ($p \leq .01$). The predicted sizes of the core, peripheral, and complete networks for individuals who did or did not experience a change in group participation are depicted in Figure 6.3.

Table 6.2. Random intercept negative binomial regression^{1,2} for the effects of changes in social structural location on the size of the core, peripheral, and complete network (N=202)

	Core Network	Peripheral Network	Complete Network
Changes in social structural location			
Number of residences	0.92 (-1.50)	1.03 (0.32)	0.97 (-0.59)
Change in marital status	0.97 (-0.29)	0.88 (-0.77)	0.97 (-0.34)
Change in number of children	0.81 (-1.50)	0.92 (-0.39)	0.87 (-1.12)
Change in significant other	1.08 (0.87)	1.17 (1.12)	1.13 (1.44)
Change in employment	1.08 (1.13)	1.15 (1.28)	1.11 (1.66)
Change in group membership	1.20** (2.47)	1.35** (2.65)	1.21** (2.70)
Log-likelihood	-513.59	-576.33	-636.18
Wald X^2	23.05*	20.03*	27.52**

¹ Table presents incidence rate ratios; z-values in parentheses

² Models include controls for female, White, age, education, and time

* = $p < .05$; ** = $p < .01$

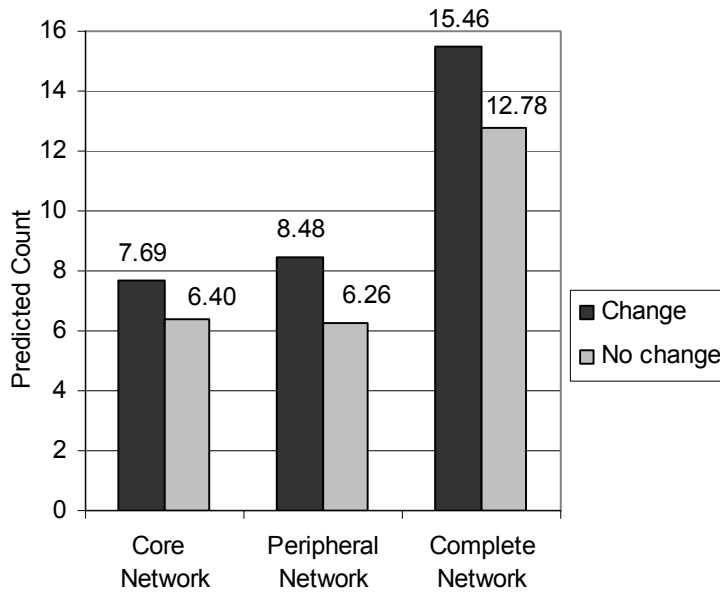


Figure 6.3. Predicted network size among those who experienced a change in group membership or participation and those who did not

Findings pertaining to the effects of social structural location on network functionality are presented in Table 6.3. These indicate that a change in parental status from non-parent to parent, or the birth of additional children, results in a decrease in the mean number of support functions provided by the core (OR = 0.11, $p \leq .01$), periphery (OR = 0.12, $p \leq .05$), and complete (OR = 0.22, $p \leq .05$) networks. However, these results are not supported by simple bivariate statistics. Cumulative probabilities for the mean number of support functions as a function of change in parental status are presented in Figure 6.4.

Table 6.3. Random intercept ordered logistic regression^{1,2} for the effects of changes in social structural location on the mean number of support functions provided by the core, peripheral, and complete network (N=184)

	Core Network	Peripheral Network	Complete Network
Changes in social structural location			
Number of residences	0.86 (-0.50)	1.29 (0.73)	0.89 (-0.43)
Change in marital status	2.67 (1.72)	2.79 (1.50)	1.59 (0.95)
Change in number of children	0.11** (-2.77)	0.12* (-2.17)	0.22* (-2.31)
Change in significant other	0.86 (-0.31)	0.48 (-1.24)	0.64 (-0.94)
Change in employment	0.59 (-1.19)	0.46 (-1.62)	0.68 (-1.01)
Change in group membership	0.54 (-1.48)	0.42 (-1.73)	0.59 (-1.40)
Log-likelihood	-229.49	-188.11	-244.64
Variance	2.73	3.44	1.87

¹ Table presents odds ratios; z-values in parentheses

² Models include controls for female, White, age, education, network size, and time

* = $p < .05$; ** = $p < .01$

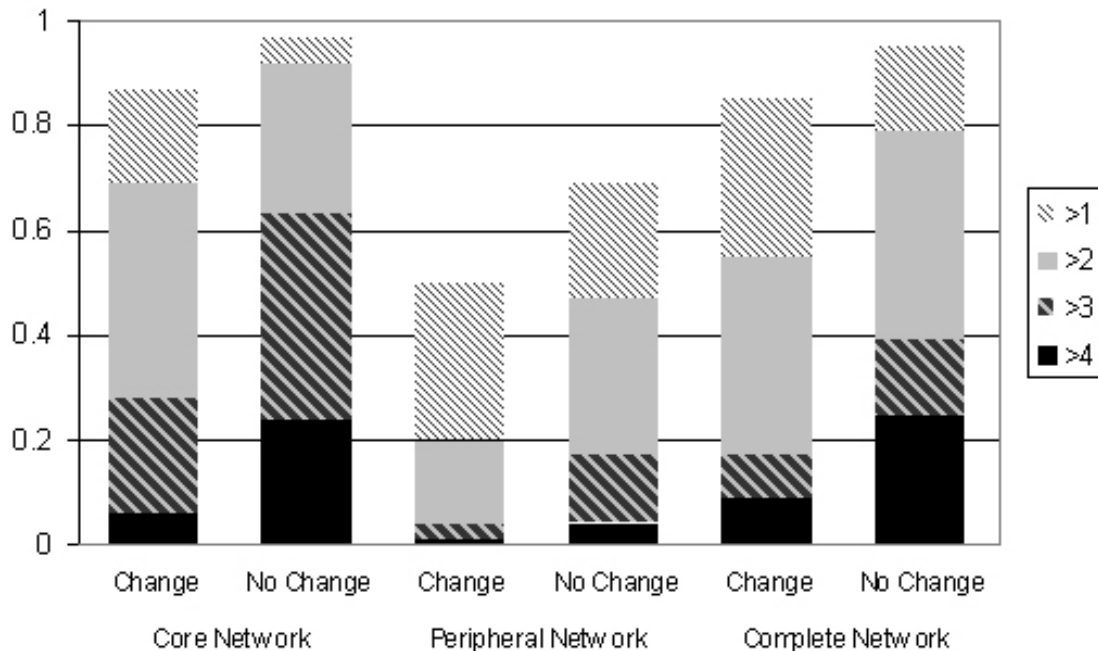


Figure 6.4. Cumulative probabilities for mean number of support functions provided by network members among those who experienced a change in parental status and those who did not

Table 6.4. Random intercept ordered logistic regression^{1,2} for the effects of changes in social structural location on percent of membership turnover in the core, peripheral, and complete network (N=202)

	Core Network	Peripheral Network	Complete Network
Changes in social structural location			
Number of residences	1.63 (1.90)	0.90 (-0.49)	1.72* (2.09)
Change in marital status	2.45 (1.75)	1.56 (1.10)	2.08 (1.53)
Change in number of children	1.38 (0.48)	1.26 (0.47)	1.11 (0.17)
Change in significant other	2.53* (2.04)	1.37 (0.90)	1.58 (1.06)
Change in employment	0.88 (-0.36)	1.06 (0.21)	1.28 (0.70)
Change in group membership	1.24 (0.57)	1.70 (1.77)	1.55 (1.22)
Log-likelihood	-276.13	-251.99	-257.65
Variance	2.30	0.01	1.66

¹ Table presents odds ratios; z-values in parentheses

² Models include controls for female, White, age, education, network size, and time

* = p < .05

Table 6.4 introduces results on the effects of social structural location on network disruption. The first column suggests that ending or beginning a romantic relationship is associated with higher levels of membership turnover in the core network (OR = 2.53, $p \leq .05$). Likewise, each additional residence a respondent lived in during the past year increases turnover in the complete network (OR = 1.72, $p \leq .05$). Cumulative probabilities for these effects are presented in Figures 6.5 and 6.6, respectively.

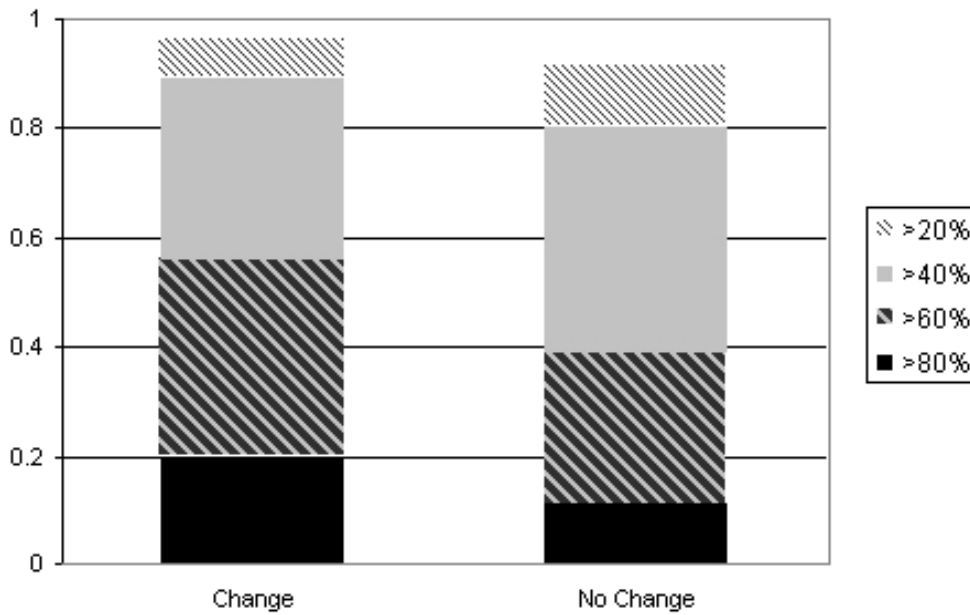


Figure 6.5. Cumulative probabilities for percent membership turnover among those who experienced a change in significant other and those who did not

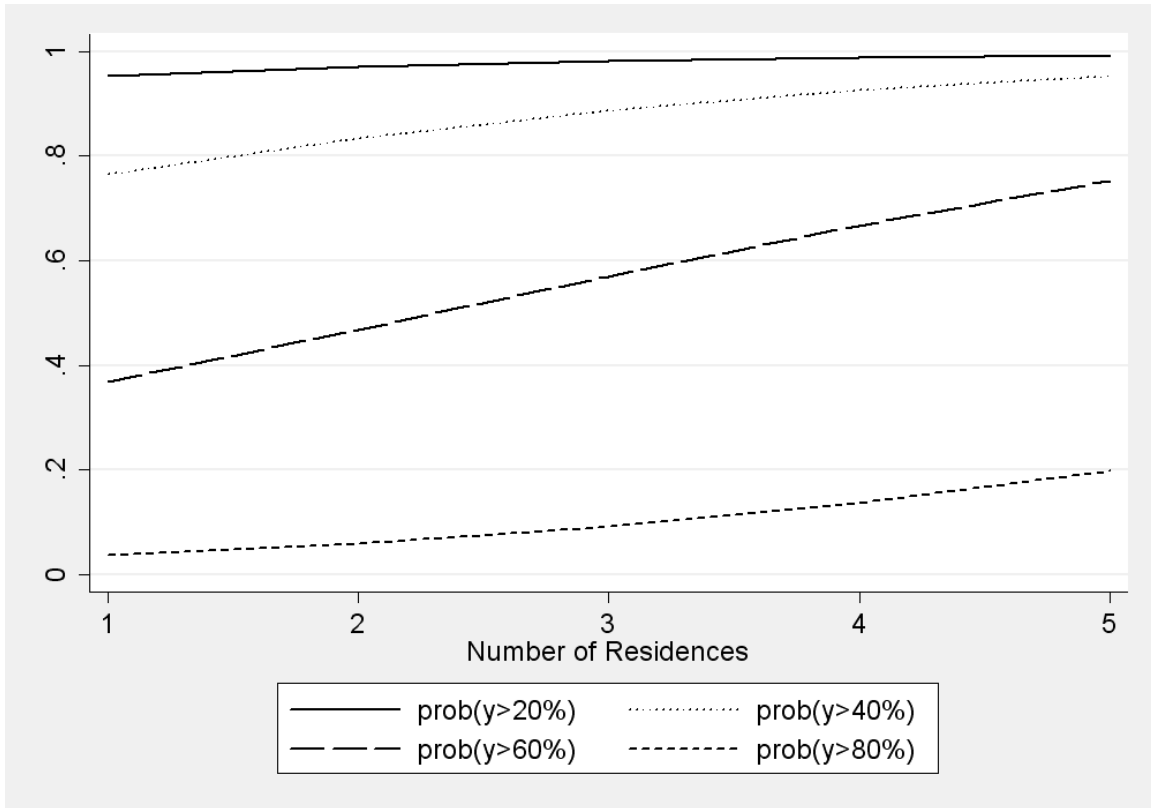


Figure 6.6. Cumulative probabilities for percent membership turnover as a function of number of residences in the past year

The relationship between respondents' support needs and network size, functionality, and disruption are presented in Table 6.5. The only significant effect is on social network disruption. More needy respondents experience a higher percentage of membership turnover in the core (OR = 4.91, $p \leq .05$). The cumulative probability that percent turnover is greater than 60% of the combined network across two waves increases from about 0.35 for the least needy respondents to 0.70 for the most needy (See Figure 6.7). This pattern is also observable in a simple plot of support needs by percent membership turnover (See Figure 6.A.1 in the Appendix).

Further, the predicted direction of this relationship is confirmed by results from regressions examining the effects of support needs in one wave on levels of disruption in subsequent waves. Findings in Table 6.A.2 in the Appendix suggest that elevated support

needs at wave 1 are associated with higher levels of membership turnover in the core (OR = 3.29, $p \leq .05$) and complete networks (OR = 4.56, $p \leq .01$) at wave 2. Similarly, support needs at wave 2 are positively related to levels of turnover in the complete network at wave 3 (OR = 10.58, $p \leq .01$). In all, this series of findings supports the existence of a powerful social network strategy in which individuals with elevated support needs essentially cycle through supporters at a higher level than those with fewer needs.

Table 6.5. Random intercept negative binomial^{1,2} and ordinal logistic regression^{1,3} for the effects of support needs on the size (N=373), mean number of support functions (N=353) and percent of membership turnover (N=202) in the core, peripheral, and complete network

	Core Network	Peripheral Network	Complete Network
Network size			
Support needs (scale)	0.98 (-0.28)	1.18 (1.71)	1.10 (1.48)
Log-likelihood	-941.98	-1057.44	-1159.65
Wald X^2	14.70*	40.30***	37.40***
Number of support functions			
Support needs (scale)	0.997 (-0.01)	1.40 (0.90)	1.14 (0.37)
Log-likelihood	-479.29	-425.15	-474.40
Variance	0.84	0.86	0.84
Percent membership turnover			
Support needs (scale)	4.91* (2.29)	0.73 (-0.60)	0.94 (-0.09)
Log-likelihood	-278.86	-254.87	-263.21
Variance	2.49	0.24	1.73

¹ Table presents incidence rate ratios and odds ratios; z-values in parentheses

² Models control for female, White, age, education, and time

³ Models control for female, White, age, education, network size, and time

* = $p < .05$; *** = $p < .001$

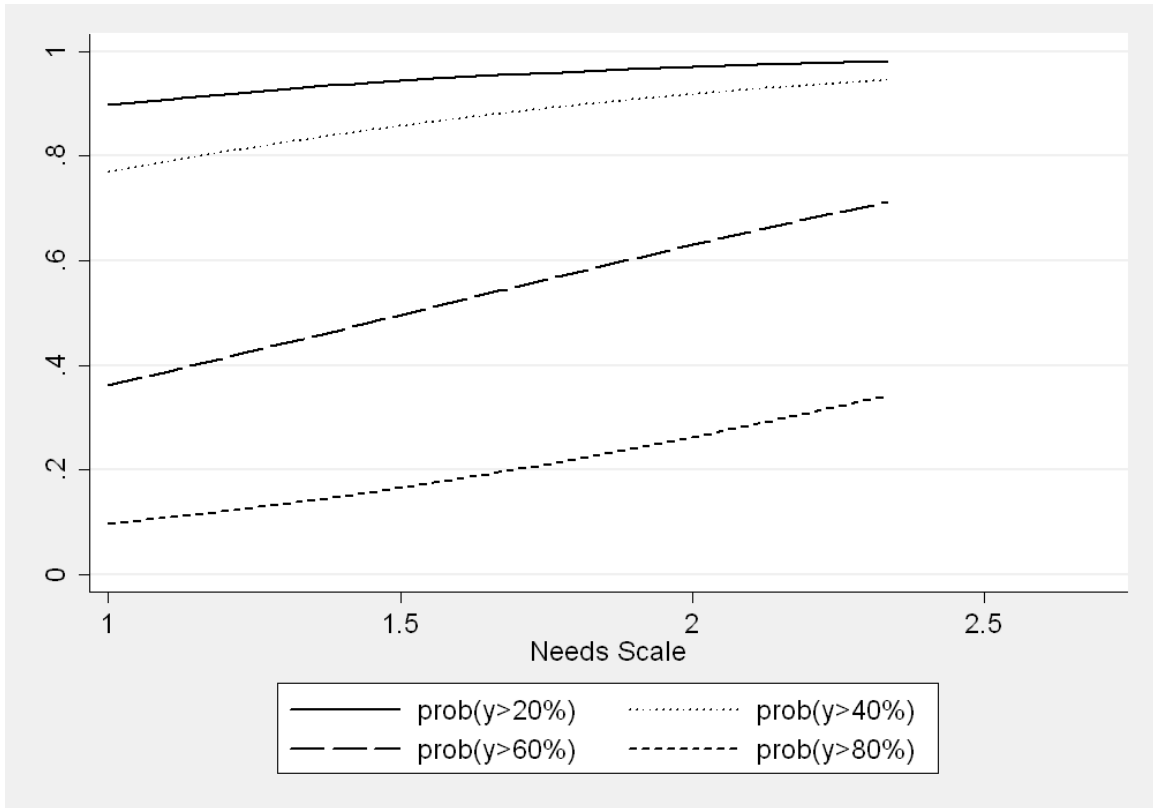


Figure 6.7. Cumulative probabilities for percent membership turnover in the core network as a function of respondents' support needs

Finally, the effects of network size and disruption on functionality can be found in Table 6.6. Results in the first and third columns suggest that in larger core (OR = 0.85, $p \leq .01$) and complete (OR = 0.92, $p \leq .01$) networks, the average number of support functions provided by each tie is smaller. Additionally, as membership turnover in the complete network increases, ties become less broadly functional, on average (OR = 0.98, $p \leq .05$). Cumulative probabilities on functionality as network size and disruption increase are depicted in Figures 6.8, 6.9, and 6.10.

Table 6.6. Random intercept ordinal logistic regression^{1,2} for the effects of network size and membership turnover on the mean number of support functions provided by the core, peripheral, and complete network (N=184)

	Core Network	Peripheral Network	Complete Network
Network size	0.85** (-3.00)	1.01 (0.25)	0.92** (-2.74)
Percent membership turnover ³	0.995 (-0.52)	0.99 (-1.06)	0.98* (-2.15)
Log-likelihood	-236.67	-194.75	-246.80
Variance	2.20	2.11	2.22

¹ Table presents odds ratios; z-values in parentheses

² Models controls for female, White, age, education, and time

³ Continuous measure rather than categorical measure used as dependent variable elsewhere

* = $p < .05$; ** = $p < .01$

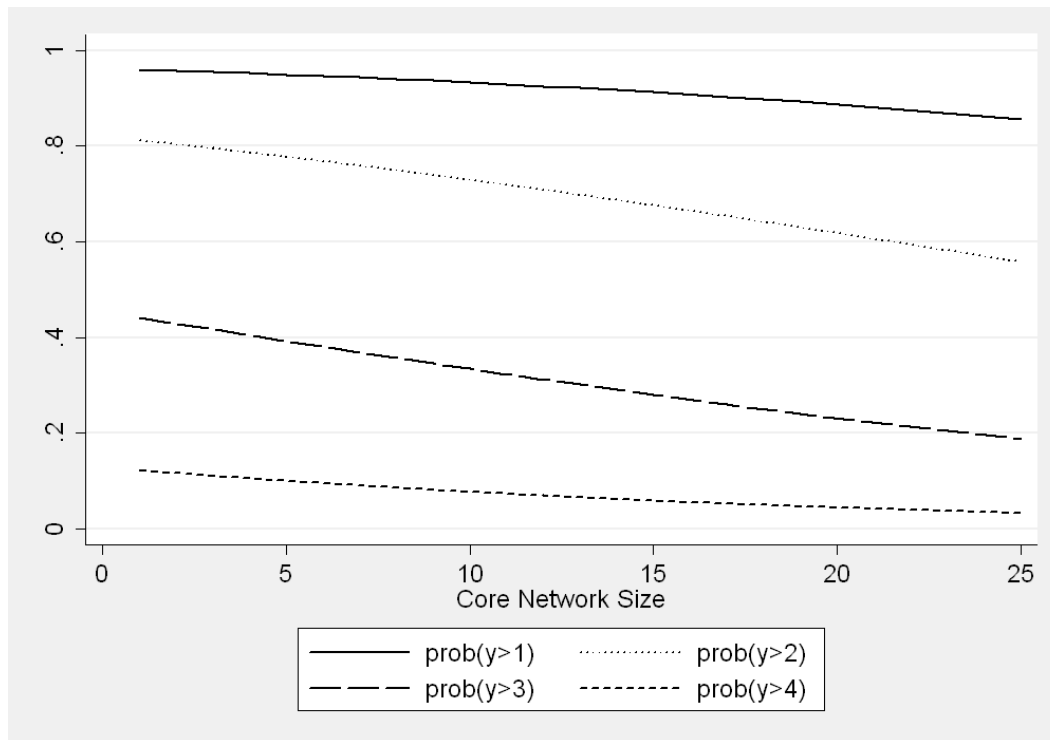


Figure 6.8. Cumulative probabilities for mean number of support functions provided by members of the core network as a function of network size

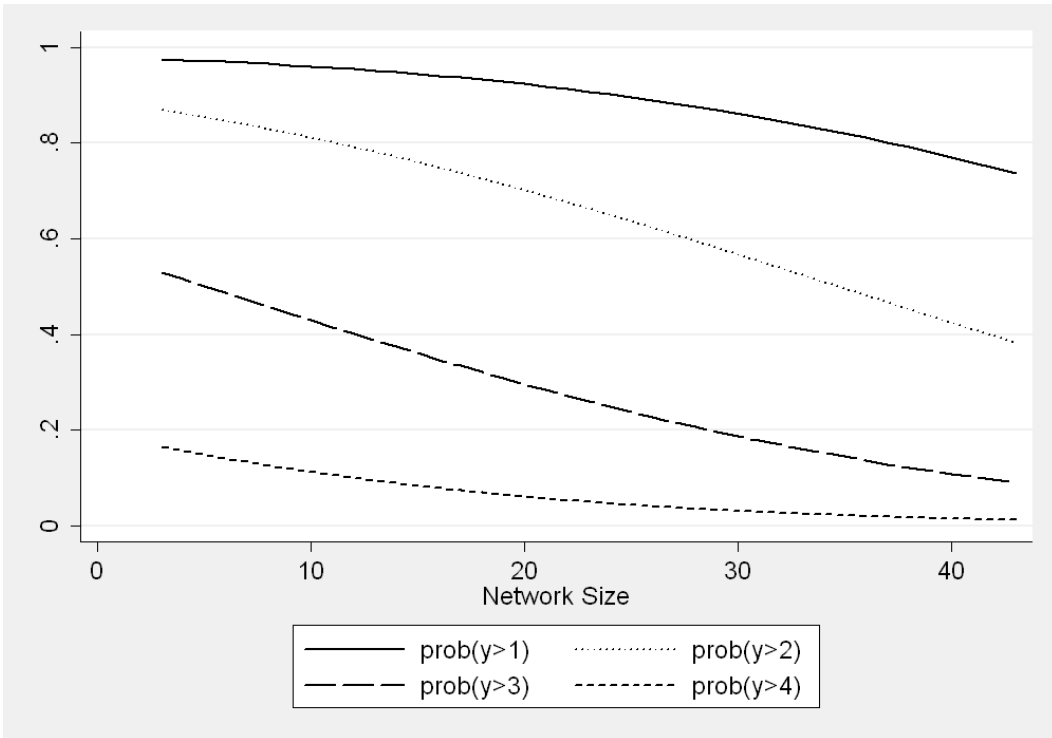


Figure 6.9. Cumulative probabilities for mean number of support functions provided by members of the complete network as a function of network size

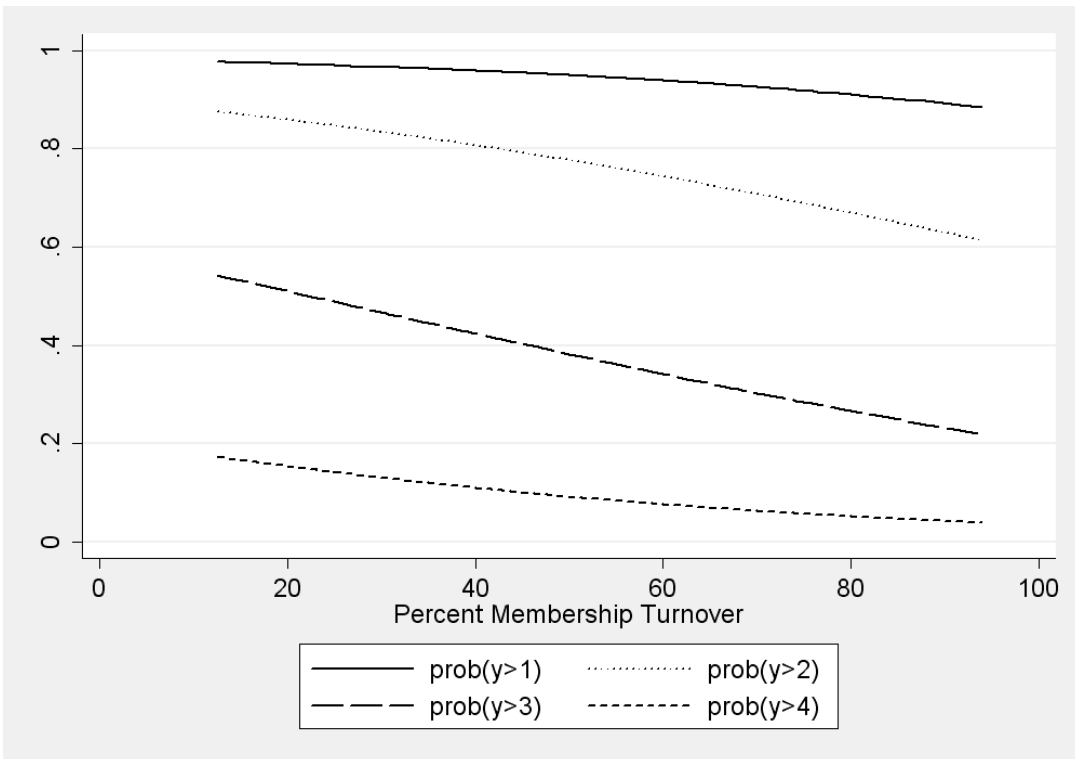


Figure 6.10. Cumulative probabilities for mean number of support functions provided by members of the complete network as a function of percent turnover

IMPLICATIONS: NETWORK DYNAMICS IN THE FACE OF CRISIS

Overall, these findings largely support my hypotheses, as well as the multi-level model described in Chapter 1 (See Table 6.7 for a summary of hypotheses and findings). I find that circumstances in the lives of individuals have a significant impact on the evolution of characteristics of the network as a whole.

First, these results suggest that individuals with higher levels of educational attainment have larger networks, and also experience more turnover in the individuals making up their peripheral networks. This is consistent with the finding by Fischer (1982) that the personal characteristic that most consistently influences peoples' networks is education, which is associated with "broader, deeper, and richer networks (p. 251)." He argues that educational attainment is important because it provides concrete resources that facilitate the development and maintenance of a large and diverse network. Moreover, higher levels of educational attainment are associated with a greater degree of social and job mobility (Boudon 1974; Hachen 1990). It seems likely that individuals with more education are vulnerable to membership turnover in their peripheral networks because they develop and lose weak ties as they move through different school and work-related contexts.

Also, as predicted by the *Role Exit Hypothesis*, change in parental status from non-parent to parent, or the birth of additional children, is associated with both strong and weak friends and family members providing fewer different kinds of support, on average. This is consistent with existing research which suggests that the transition to parenthood is a socially isolating experience, particularly for women (Gove & Geerken 1977; LeMasters 1957). Though grandparents become more involved in helping activities when

Table 6.7. Summary of hypotheses and findings in Chapter 6

	Question	Hypothesis	Corroborated?
H6-1 <i>Disruptive Transitions Hypothesis</i>	When people experience role exits — like divorce, unemployment, or moving away from a particular community — does this affect the number of people they interact with, the degree to which friends and family members are willing to help out, and the stability of relationships?	Disruptive transitions will decrease the size and functionality of the network as a whole, and will increase the level of membership turnover.	Yes
H6-2 <i>Revolving Door Hypothesis</i>	When people need more help and support than usual, how do the strategies that they use to meet their support needs influence the number of people they interact with, the degree to which friends and family members are willing to help out, and the stability of their relationships?	As a person’s support needs increase, the level of membership turnover in the core network increases, while size and functionality stay the same.	Yes
H6-3 <i>Cohesive Core Hypothesis</i>	Do friends and family in small social networks do more for fellow network members than those in larger ones?	In smaller core networks, the mean number of support functions provided by each associate is greater than in larger ones.	Yes
H6-4 <i>Network Disruption Hypothesis</i>	Do social networks made up of many new or instable ties do less for members of their network than those comprised of many long-standing ties?	Networks characterized by a higher degree of membership turnover contain less broadly functional ties.	Yes

a baby is born, women cannot count on emotional or instrumental support from their friends or husbands in the post-partum phase (Power & Parke 1984; Raush et al. 1974). Parenthood, in particular, is a status transition that radically alters a person's interests and values, as well as the way they spend their time. Becoming a parent is likely to increase the level of investment in relationships with your own parents for many reasons. In addition to the increasing level of support provided by grandparents, childbirth creates shared experiences and a common interest in the new baby. Alternatively, a woman's nearly exclusive focus on a new baby may create distance or even resentment among husbands and friends (particularly those who are not parents).

Likewise, I find that residential mobility and entering or exiting a romantic relationship predicts membership turnover in the complete and core networks, respectively. Moving to a different community is likely to jeopardize relationships with former neighbors, while simultaneously providing access to potential friends and acquaintances in the new neighborhood or building. Similarly, breaking up with a romantic or sexual partner nearly always results in reduced contact and intimacy with the ex-partner, and therefore exit from the core network. Moreover, it can also disrupt relationships with mutual friends, particularly if the former partner provided a bridge to those friendships. However, a breakup can also provide an opportunity for increasing levels of social interaction with single friends and can lead to meeting new dating partners.

I also find that changes in membership in voluntary organizations increase network size, which is inconsistent with the *Role Exit Hypothesis*. The assumption that changes in social structural location in this sample of people with mental illness typically

involve role *exits* may have been incorrect, particularly with respect to group participation. People recently diagnosed with a psychiatric disorder may be likely to become involved in support groups, volunteer organizations, as well as organizations like the National Alliance for the Mentally Ill (NAMI) that advocate on behalf of people with mental illness. Thus, access to new potential friends and acquaintances might actually increase rather than decrease when they enter the mental health treatment system, and subsequently become integrated into the various affiliated groups.

In addition, one of the most compelling results from this chapter is the confirmation of the existence of a *revolving door* phenomenon. As a person's need for different kinds of information, assistance, and emotional support increases, the level of network disruption in the core increases substantially, as well. Consistent with findings in Chapter 3, as relationships with friends and family members who are no longer willing or able to help begin to dissolve, equally supportive individuals are recruited to take their place. This finding supports the idea that people in crisis use strategies of interaction to meet their increasing needs. More broadly, it suggests that people experiencing difficult transitions may exercise a significant degree of agency in constructing their networks, making fairly calculated choices about the kinds of relationships in which to invest.

Also critical is what the *revolving door* finding tells us about the way we typically conceptualize and measure social networks and network dynamics. Importantly, because this pattern operates solely within the group of close and broadly supportive ties, it only emerges when we differentiate between the core and periphery. In other words, the impact of elevated needs on the level of turnover in the network is imperceptible when core and peripheral ties are combined into a one-dimensional super network. This clearly

underscores the theoretical and methodological value of explicitly defining distinct components of social networks.

Moreover, the *revolving door* phenomenon highlights the utility of the concept of social network disruption. Although the level of membership turnover increases as needs escalate, the structure of the network remains stable. Therefore, just as it is critical to acknowledge that a network is more than the sum of its ties, we should also keep in mind that there may be something about the comings and goings of specific individuals in our networks that is meaningful. In other words, turnover in and of itself may be disruptive, perhaps because it hinders the development of intimacy and shared history that characterizes longstanding relationships. This diverges from the idea that people who occupy the same position within a network, or who have a similar set of connections to others, are somehow interchangeable (White 1992). Though this may be true when only a few individuals are replaced, or when referring to the overall functioning of a closed network, profound disruption within personal community networks is likely to have negative consequences for the wellbeing of individuals (Perry 2006).

In fact, I do find that networks characterized by a high degree of membership turnover contain less broadly functional ties. Unstable networks have a high proportion of new members. It is likely that newcomers to the network are not willing to provide the broad range of support functions that more committed, longer-standing friends and family would. This finding corroborates the claim that there is something fundamentally different about networks in flux. Though social network disruption probably facilitates the flow of new information and opportunities, it may also minimize the number of people on whom you can rely heavily to provide help and support when you need it most.

Finally, consistent with hypotheses, these findings indicate that while larger networks may provide access to more resources overall (Wellman & Gulia 1999), each member of a large network contributes fewer different kinds of resources compared to members of a small network. Ties in small, cohesive networks are broadly functional, while those in larger networks are more functionally specific, providing a narrower range of support resources. In other words, small networks function like department stores, where everything you require is in one place. Using the same analogy, large networks are more like specialty shops. You may be able to find all the goods and services you need, but you'll likely have to shop around.

In sum, this chapter indicates that circumstances in individuals' lives can shape the overall structure, function, and level of turnover in a social network. This is significant because while there is an overwhelming amount of evidence that social networks shape the health, wellbeing, and life chances of individuals, there is comparatively little that examines the effects of people on their networks (Johnson 1991; Wellman & Wortley 1990). Importantly, people and their social networks evolve in concert, each shaping the trajectory of the other (Pescosolido 1991, 1992).

APPENDIX 6

Table 6.A.1. Descriptive statistics on dependent and independent variables

	Mean	SD	Range
Dependent Variables			
Network size			
Core	7.13	3.71	1.00-25.00
Periphery	7.56	4.99	0.00-29.00
Complete network	14.69	6.83	3.00-43.00
Mean number of support functions ¹			
Core	3.59	1.05	1.00-5.00
Periphery	2.35	1.08	1.00-5.00
Complete network	3.12	1.01	1.00-5.00
Percent membership turnover ¹			
Core	3.29	1.09	1.00-5.00
Periphery	3.94	1.09	1.00-5.00
Complete network	3.16	0.95	1.00-5.00
Independent Variables			
Changes in social structural location			
Number of residences	1.44	0.77	1.00-5.00
Change in marital status	0.14	0.35	0.00-1.00
Change in significant other	0.22	0.42	0.00-1.00
Change in number of children	0.09	0.29	0.00-1.00
Change in employment	0.32	0.47	0.00-1.00
Change in group membership	0.38	0.49	0.00-1.00
Support Needs (scale)	1.25	0.33	1.00-2.71

¹ Descriptive statistics reflect the coding of these measures into 5-category ordinal variables

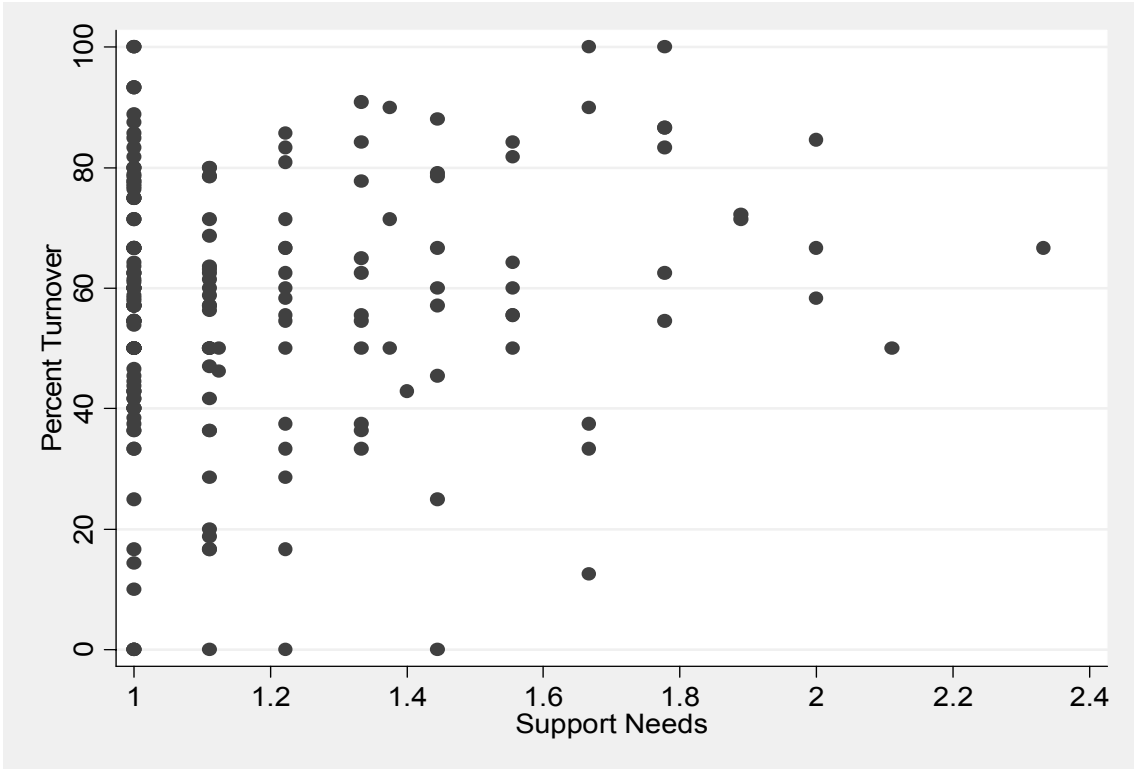


Figure 6.A.1. Simple plot of support needs by percent turnover in the core network

Table 6.A.2. Ordinal logistic regression^{1,2} for the effects of support needs in a given wave on the percent of membership turnover in the core, peripheral, and complete networks in the subsequent wave

	Core Network	Peripheral Network	Complete Network
Wave 1 → Wave 2			
Support needs at wave 1 (scale)	3.29* (2.42)	1.36 (0.65)	4.56** (2.93)
N	100	100	100
Log-likelihood	-140.11	-130.24	-127.33
χ^2	8.06	12.38	13.61*
Wave 2 → Wave 3			
Support needs at wave 2 (scale)	4.91 (1.83)	5.23 (1.78)	10.58** (2.58)
N	87	87	87
Log-likelihood	-114.64	-99.53	-103.25
χ^2	21.93**	41.59***	22.04**

¹ Table presents odds ratios; z-values in parentheses

² Models control for female, White, age, education, network size, time, and (for wave 2 → wave3) support needs at wave 1

* = p < .05; ** = p < .01; *** = p < .001

CHAPTER 7

THE LABELING PARADOX AND COMMUNITY LOST: NETWORK-LEVEL DYNAMICS IN THE ILLNESS CAREER

Chapter 6 discusses the relationship between circumstances in the lives of individuals in crisis and change in the size, functionality, and turnover of social networks. I find that mechanisms at work in relationship processes also shape the state of the network as a whole. Most relevant for this chapter is the idea that people in crisis use strategies of interaction to meet their increasing needs. Here, these selective activation processes and social network dynamics are embedded in the context of the illness experience and the illness career framework.

More specifically, I argue that coping with different facets of mental illness, and progressing through different stages of the illness career more broadly, is likely to require unique types and amounts of network resources. Increases or decreases in our support needs, as we clearly see in previous chapters, shape the evolution of the overall structure and function of the network. Therefore, by helping to identify points or stages at which needs for different kinds of resources are likely to change, examining social network dynamics through the lens of a career framework may improve our general understanding of selective activation and other strategies of interaction.

TRANSITIONS AND TURNING POINTS: SOCIAL NETWORK DYNAMICS IN THE ILLNESS CAREER

As described in Chapter 1, disruptive events and transitions can impact the structure, function, and membership of both the peripheral network and the smaller activated network at any given point in time. Indeed, findings from the previous chapter demonstrate that the transition to parenthood is one such event that reverberates through networks, profoundly shaping the level of support provided by family and friends. Whereas networks typically undergo very gradual ebbs and flows in membership, significant events like parenthood or divorce are associated with intense, rapid changes in the people making up our circle of friends and family. Unlike during periods of relative stability, these moments of crisis in network membership are likely to shape the overall state of the network in meaningful ways.

Central to this chapter is the idea that *different stages* of role transitions and coping with disruptive events may require unique types and amounts of network resources (Morgan 1989). For example, we know that widows typically benefit from small networks of close ties in the initial stages of intense grief, but later benefit more from a large network made up of weaker ties that provide access to new information, opportunities, and activities (Morgan 1989). Research on individuals with mental illness has identified similar patterns. Namely, family members are central players in the first stages of the illness career, taking on a supportive role as people cope with the acute crisis and fallout associated with the initial break, and helping them navigate entry into the mental health treatment system. However, long term intervention by medical professionals becomes more critical later in the career, as individuals with mental illness

gain some measure of independence from their caregivers (Carpentier et al. 1999).

Findings of this nature suggest a need to look to the career in order to better understand the relationship between these kinds of disruptive events and network dynamics.

The “career” has long been employed in the social sciences as a conceptual framework for explaining dynamic processes, and has been applied convincingly to various aspects of the experience of illness (Carpentier & Ducharme 2003; Clausen & Yarrow 1955; Goffman 1961; Parsons 1951; Perrucci & Targ 1982; Pescosolido 1991; Roth 1963; Suchman 1965, 1972; Twaddle & Hessler 1987). A career can be defined as “a series of related stages or phases of a given sphere of activity that a group of people goes through in a progressive fashion (that is one step follows another in a given direction) or on the way to a more or less definite and recognizable end point or goal (Roth 1963:98).” The “goal” of the illness career is health and wellness, although only a minority of people with serious mental illness ever permanently achieve full recovery.

According to the Network Episode Model (NEM), the illness career and the social network influence each other at multiple critical points such that the two evolve together and because of one another (Pescosolido 1991, 1992). Social networks may expand in times of crisis in order to respond to elevated needs (Litwak 1985). Alternatively, networks may experience "shrinkage and collapse (Grant & Wenger 1993:89)" as a result of the increasing dependency of ill people on their friends and family, and their declining ability to maintain relationships and reciprocate support. Also, transition through stages of the illness career may provoke the activation of new network ties, or those that have not been accessed in some time, as navigating each stage may require unique forms of support (Morgan 1989). For example, we may develop or rekindle a friendship with

someone who we know to have experienced similar problems. Finally, entry into treatment leads to shifts in network composition and available resources as formal caregivers (e.g. mental health professionals) replace or compliment the efforts of informal networks of family and friends (Cantor & Little 1985; Carpentier & Ducharme 2003; Litwak 1985). In other words, we may begin to rely more on our psychiatrist to listen to our problems and provide feedback about our decisions, which allows us to lean less heavily on our close confidantes, particularly if therapy is effective and our situation improves.

NETWORK-LEVEL DYNAMICS AND MENTAL ILLNESS: HYPOTHESES IN SUPPORT OF CHANGE

The illness career

Research in the general social networks literature indicates that during periods of relative stability in the lives of individuals, the structure and functionality of personal social networks change very little over time (Morgan et al. 1997; Neyer et al. 1991; Suito & Pillemar 1995; Wellman et al. 1997). Yet, work focusing on progression through stages of coping with various disruptive events or transitions, including the illness career, suggests a pattern of network dynamics rather than stability. In fact, for people coping with crisis, the most beneficial social network is one that affords access to different kinds of ties and network structures (Morgan 1989). These adaptable networks are better able to provide the specific types of support that are most needed at each distinct stage of the career. As individuals activate these specialized ties, this is likely to alter not only network membership, but also properties like size, density, composition, and

functionality. Therefore, the *Career Hypothesis* (H7-1) suggests that network-level characteristics are likely to change over time as individuals transition in and out of different stages of the illness career.

With respect to *how* networks change as people progress through the illness career, there exist at least three basic models that explain what happens to social networks following the need for informal care and entry into the mental health treatment system (Carpentier & Ducharme 2003). First, Litwak (1985) contends that increasing needs associated with illness lead to an increase in network size as both formal and informal providers of support are recruited into the network. This model is consistent with the *Drawing In Hypothesis* (H4-7) first described in Chapter 4, in which people with elevated support needs mobilize a greater number and variety of ties to provide support on their behalf. However, Litwak (1985) draws no distinction between core and peripheral ties.

The second model, as proposed by Antonucci (1985), suggests that there is no change in the structure (including the size) of the social network, but the existing members make greater care contributions. Rather than recruiting new associates, as with the *Drawing In Hypothesis*, core friends and family essentially step up their efforts in order to meet the increasing demand for assistance. Therefore, the *Increasing Contributions Hypothesis* (H7-2) contends that network size remains stable across the illness career, but the number of support functions provided by network members increases over time.

Finally, the third model (Grant & Wenger 1993) asserts that networks actually get smaller and begin to collapse over time as ill members of the network become

increasingly dependent on others. The inability of people with serious illness to reciprocate support creates an imbalance that disrupts the network and leads to a loss of ties (Lipton et al. 1981). I would add that the stigma and loss of status associated with mental illness, as well as withdrawal from social roles and activities, only exacerbates this tendency toward network attrition. Thus, the *Network Collapse Hypothesis* (H7-3) suggests that social network size decreases over time.

Variations in the illness experience

As discussed in previous chapters, the impact of mental illness on social, emotional, and cognitive functioning can vary from mild to profound. Therefore, the consequences of mental illness for social networks are likely to vary, as well, depending on factors that are indicative of divergent illness experiences. Indeed, findings from Chapter 5 suggest that psychiatric diagnosis, as well as patterns of mental health treatment utilization, do shape the movement of associates in and out of the core and peripheral networks.

More specifically, results in Chapter 5 indicate that individuals with a diagnosis of bipolar disorder are the most likely to recruit friends and family into their core networks, while those with adjustment disorder are the least likely. I attribute this pattern to the visibility of bipolar disorder as a mental illness, and the perceived legitimacy of entry into the sick role and withdrawal from social responsibility. People with adjustment disorder, however, may be perceived as trying to adopt the sick role inappropriately, and may be less successful at recruiting associates into the core network. Therefore, the *Sick Role Hypothesis* (H7-4) contends that people with a diagnosis of bipolar disorder will have larger, more broadly functional core networks, and those with adjustment disorder will have smaller, less functional core networks. Moreover, because individuals with

bipolar disorder are more apt to be labeled with a mental illness, they are also more vulnerable to stigmatization and rejection (Martin et al. 2007). Therefore, the networks of people with bipolar disorder (and schizophrenia for the same reason) are likely to be characterized by a high degree of network disruption compared to those with depression or adjustment disorder.

In Chapter 5, I argue that increasing numbers of positive and negative symptoms should increase the likelihood that associates exit the core and peripheral networks. The rationale is that these symptoms lead to unfulfilled social obligations (Provencher & Mueser 1997), and make it difficult to establish shared meanings and understandings with others who do not have a mental illness (Rosenberg 1984). However, I also propose an alternative hypothesis. Namely, because number of symptoms may be indicative of the severity of mental illness, people with more positive and negative symptoms might mobilize more network resources to support their increasing needs. Though I find no evidence in Chapter 5 to support either hypothesis, results pertaining to diagnosis are more consistent with the second argument. That is, individuals with greater numbers of symptoms are more likely to be recognized as a legitimate candidate for the sick role, and therefore worthy of increasing support. Consistent with this idea, the *Sick Role Hypothesis* (H7-4) also suggests that individuals with greater numbers of positive and negative symptoms will have larger, more supportive core networks than those with fewer symptoms. However, by the same token, because they are likely to have greater support needs, people with more positive and negative symptoms may also be vulnerable to network disruption.

In addition, though predictions relating to social withdrawal and the acute or chronic nature of one's mental illness are not substantiated with respect to core/periphery (e.g., tie-level) dynamics, it is important to explore whether these factors do have an impact on network-level dynamics. As before, I argue that because social withdrawal is characterized by reduced effort and interest in maintaining relationships, it leads to network attrition. Therefore, the *Social Withdrawal Hypothesis* (H5-4) contends that people who experience a desire to withdraw from social interaction or activities have smaller core and peripheral networks, as well as higher levels of social network disruption.

Also, individuals who have experienced multiple episodes of illness, or who have been ill for a long period of time, may be more prone to caregiver burnout than first-timers (Carpentier & Ducharme 2003; Pavalko & Woodbury 2000; Reinhard & Horwitz 1995; Wright 1994). Alternatively, people who have experienced mental illness before might engage in purposive withdrawal strategies in order to avoid burdening others. Either way, these processes suggest a pattern of network attrition. Thus, the *Chronic Illness Hypothesis* (H5-5) suggests that people with chronic or prolonged illness will have smaller networks characterized by higher levels of network disruption.

Changes in mental health treatment

Finally, contrary to expectations, Chapter 5 provides weak evidence that people who experienced changes in mental health treatment are less likely to have friends and family exit their network. If real, this pattern may be due to the ability of individuals who have exited treatment and are in recovery to better maintain their social relationships and responsibilities. This finding is surprising given the original hypothesis, which states that

changes in mental health utilization are associated with increasing numbers of new ties entering the core network, but also with high levels of exit, particularly from the periphery.

Research suggests that entry into treatment provides access to new ties, including therapeutic relationships with mental health treatment providers and friendships and romantic or sexual relationships with fellow consumers (Perry & Wright 2006; Wright et al. 2007). However, these relationships are unlikely to endure once a person exits the shared treatment context. Also, because of decreased contact and increasing levels of stigma, entry into treatment might jeopardize relationships with ties in the community. In sum, implications from the mental health literature and the finding from Chapter 5 are at odds. Therefore, analyses examining the effects of changes in mental health treatment on network-level dynamics are merely exploratory.

ANALYZING NETWORK DYNAMICS IN A CAREER FRAMEWORK

The data and methods employed in this chapter of the dissertation mirror those used in Chapter 6. Again, the network-level dependent variables modeled here correspond to changes in network size, functionality, and percent membership turnover. However, while the models in the proceeding chapter examined predictors relating to more general selective activation processes and social structural location, these models explore the case-specific effects of measures of mental illness characteristics and the illness career more generally.

The measures of mental illness included in these analyses are identical to those that appear in Chapter 5. Specifically, I examine the effects of psychiatric diagnosis,

number of positive and negative symptoms, social withdrawal, recurring illness, and duration of the episode of illness. Also, I investigate more closely the relationship between the time variable (described in Chapter 4) and social network dynamics in order to assess the impact of progression through the illness career. Descriptive statistics on dependent and independent variables are presented in the Appendix (See Table 7.A.1).

CAPTURING THE ILLNESS CAREER: LIMITATIONS OF THE INMHS

It is worth noting that in most cases the baseline interview of the INMHS does not capture entry into the illness career, but rather is the culmination of the utilization phase of the career. Typically, the first stage in the illness career is recognition (Parsons 1951; Perrucci & Targ 1982; Pescosolido 1991; Twaddle & Hessler 1987). Pescosolido and Boyer (1999) note that the recognition and definition of behaviors and cognitions as symptoms of mental illness is a complex, confusing, and distressing process that rarely follows an ordered, logical series of identifiable stages. There are many factors that contribute to the problematic nature of symptom recognition, including a poor lay understanding of mental illness, normalization of symptoms by close network ties, and the stigma of mental disorder. Nonetheless, in an episode of mental illness there comes a point at which the individual engages in behavior that is sufficiently abnormal to attract the attention of the self and/or others (Perrucci & Targ 1982).

Even when symptoms are recognized, this is unlikely to result in a direct and timely pathway to stage two, which is utilization of health services. Individuals typically have complex and layered ideas about the origins of mental illness and implications for treatment (Pescosolido & Boyer 1999). Evidence indicates that people often try to cope

with illness on their own, and/or seek advice from multiple network members, nonmedical professionals, and alternative medical practitioners before they end up in modern medical treatment (Horwitz 1977; Pescosolido et al. 1998; Pescosolido & Boyer 1999). Thus, respondents in the INMHS have likely consulted members of their social networks both in the initial phases of recognition and in making decisions about whether and where to obtain treatment. These early experiences in the illness career likely shaped, at minimum, the nature of health-related discussions with trusted others, the level of advice and emotional support provided by friends and family, and the attitudes and actions of members of the network toward the individual with symptoms of mental illness (Pescosolido et al. 1998; Pescosolido & Boyer 1999). It is important to recognize, then, that findings from this analysis of network dynamics as people progress through the illness career do not describe what happens to networks prior to utilization. Moreover, changes in networks *before* utilization may have affected whether and how networks evolve *after* first contact with the mental health treatment system.

To observe network dynamics throughout the entire illness career would require identifying and following individuals with the potential for developing mental illness, but who have not yet experienced symptoms, over a period of (in some cases) decades. Given the complexities and barriers associated with this kind of research, the INMHS represents the best possible alternative. This study *does* follow respondents through the remaining stages of the illness career. Specifically, it captures people's decision to comply with the advice of medical care providers or to terminate or use alternative sources of care (Pescosolido 1991). In many cases, the INMHS can observe the outcome of mental illness, be it recovery, permanent disability, or chronic illness, and follows people as they

make decisions about re-entering mental health treatment and adherence to long term medical advice. Importantly, all of these critical decisions, or turning points, are made in consultation with friends and family. Therefore, the illness career and the social network influence each other and evolve together as individuals pass through these latter stages of the career that are captured by the INMHS (Pescosolido 1991, 1992).

ANALYTIC STRATEGY

Analyses that explore the effects of time since entry into mental health treatment and other mental illness characteristics on the structure, functionality, and membership turnover of respondents' social networks are based on the two-level variance components models described in Chapter 3. These models, which account for within-subject heterogeneity, are employed using Stata's (2005) `gllamm` (for ordinal logistic regression models) and `xtnbreg` (for negative binomial models) commands. As before, plots of cumulative probabilities and predicted counts, holding all other independent variables at their means, are presented in order to determine the magnitude of these effects. Also, unless otherwise noted, all results from regression models match findings from analyses of variance (ANOVA) or simple two-way scatterplots.

LOOKING TO THE ILLNESS EXPERIENCE AND CAREER: FINDINGS ON NETWORK DYNAMICS IN MENTAL ILLNESS

Table 7.1 contains results from the regression of network size, functionality, and disruption on time. With each passing month in the illness career, the peripheral ($IRR = 0.98, p \leq .001$) and complete ($IRR = 0.99, p \leq .001$) networks become significantly

smaller⁵. The effects of time on the predicted size of the network are depicted in Figure 7.1. This figure suggests that the predicted size of the core remains about the same as individuals progress through the illness career. However, the size of the periphery and complete network decreases by almost four ties each over three years. These patterns are also observable in simple two-way plots of network size by time. This is an extraordinary finding, as it suggests that while people with mental illness can count on a safety net made up of their closest supporters, the rest of their networks decay over time.

Table 7.1. Random intercept negative binomial^{1,2} and ordinal logistic regression^{1,3} for the effects of months in the illness career on the size (N=373), mean number of support functions (N=353) and percent of membership turnover (N=202) in the core, peripheral, and complete networks

	Core Network	Peripheral Network	Complete Network
Network size			
Time in illness career (months)	0.999 (-0.53)	0.98 ^{***} (-5.55)	0.99 ^{***} (-4.54)
Log-likelihood	-942.02	-1058.87	-1160.73
Wald X^2	14.59 ^{**}	36.44 ^{***}	34.98 ^{***}
Number of support functions			
Time in illness career (months)	1.03 [*] (2.29)	1.01 (0.39)	1.06 ^{***} (4.99)
Log-likelihood	-479.29	-425.56	-474.47
Variance	0.84	0.81	0.84
Percent membership turnover			
Time in illness career (months)	1.03 (1.32)	0.997 (-0.18)	0.999 (-0.03)
Log-likelihood	-281.46	-255.06	-263.22
Variance	2.88	0.20	1.70

¹ Table presents incidence rate ratios and odds ratios; z-values in parentheses

² Models control for female, White, age, and education

³ Models control for female, White, age, education, and network size

* = $p < .05$; ** = $p < .01$; *** = $p < .001$

⁵ Because the variable measuring months squared is not significant in these models or any others, results from nonlinear models of change are not presented here.

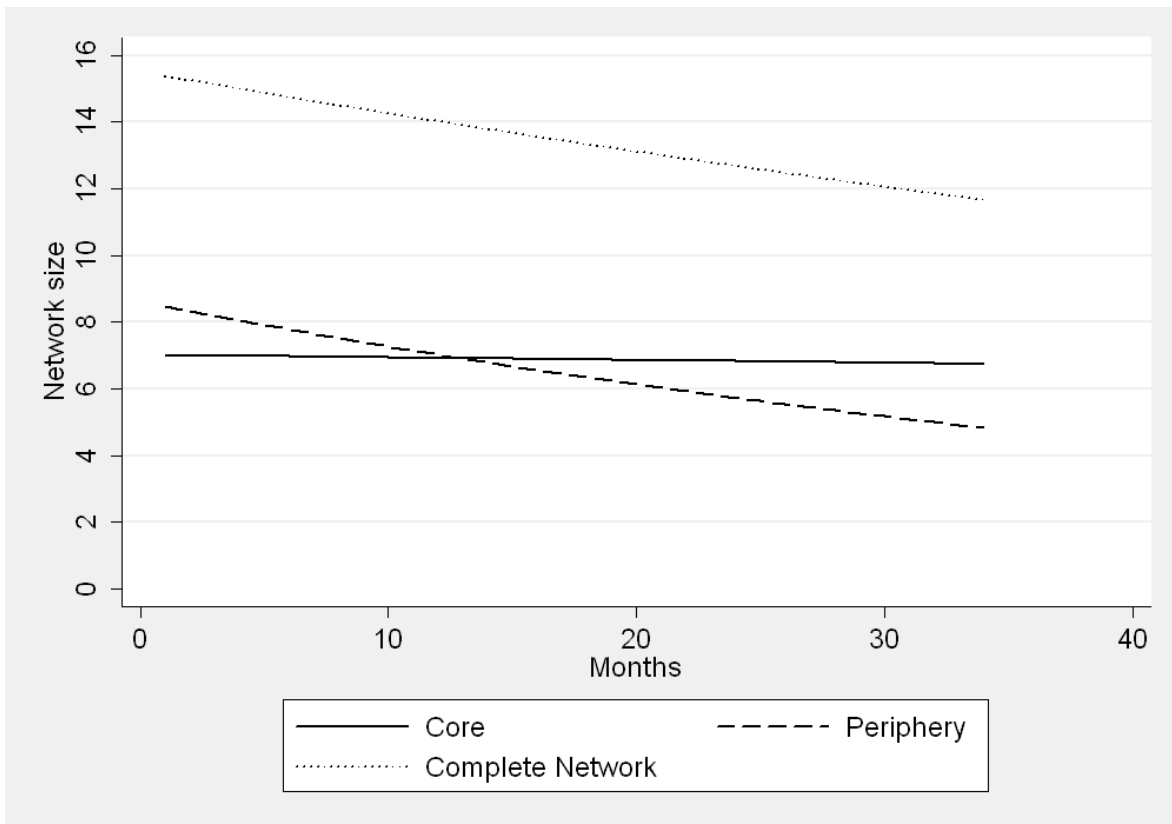


Figure 7.1. Change in the predicted size of the core, peripheral, and complete networks as a function of time

Findings on change in mean number of support functions over time are also located in Table 7.1. Findings in columns 1 and 3 (See second panel) suggest that the core (OR = 1.03, $p \leq .05$) and complete (OR = 1.06, $p \leq .001$) networks become more supportive over time. The relationship between months in treatment and the mean number of support functions provided by the core and complete networks are presented in Figures 7.2 and 7.3, respectively. Again, in combination with Figure 7.1, this provides a clear indication that people with mental illness rely more heavily on stable members of the core network as their weaker relationships dissolve. Lastly, the models in Table 7.1 suggest that there is no significant effect of time on percent turnover in the core, peripheral, or complete networks.

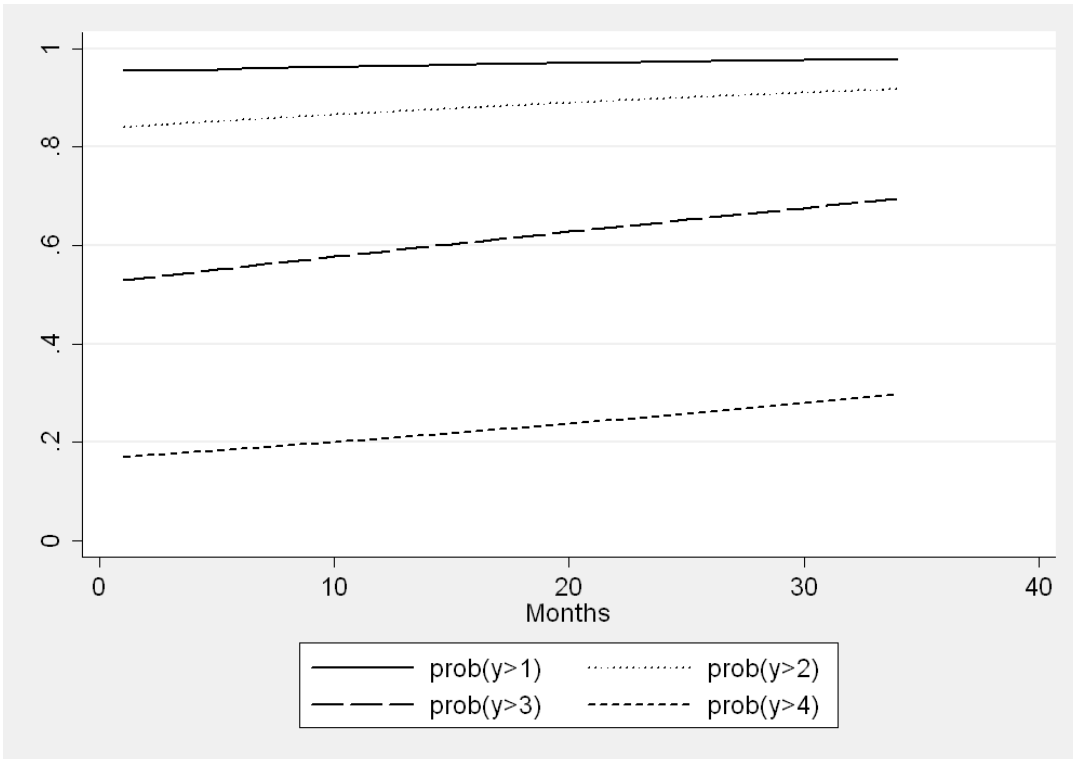


Figure 7.2. Cumulative probabilities for the mean number of support functions provided by the core network as a function of time

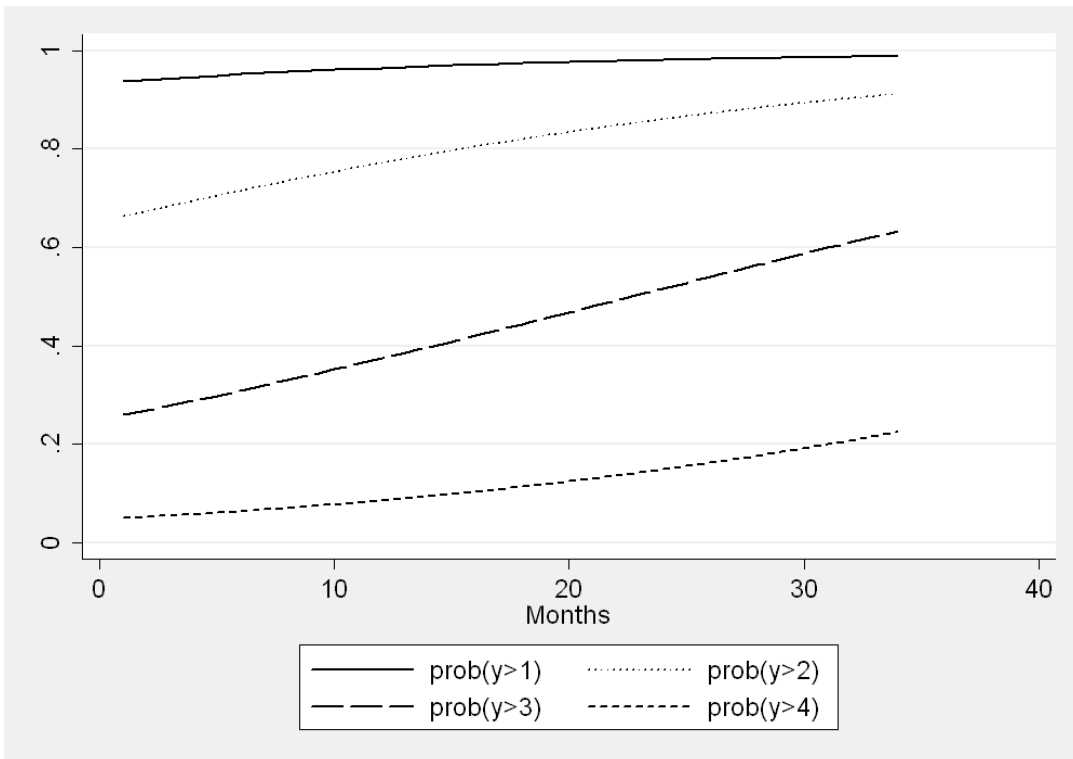


Figure 7.3. Cumulative probabilities for the mean number of support functions provided by the complete network as a function of time

Table 7.2. Random intercept negative binomial^{1,2} regression for the effects of diagnosis on the size (N=373) of the core, peripheral, and complete networks

	Core Network	Peripheral Network	Complete Network
Bipolar disorder	1.29* (2.04)	0.90 (-0.65)	1.10 (0.83)
Schizophrenia	0.91 (-0.78)	0.98 (-0.16)	0.96 (-0.46)
Adjustment disorder	0.82* (-2.46)	0.90 (-1.11)	0.86* (-2.17)
Other disorder	1.02 (0.12)	1.13 (0.63)	1.04 (0.31)
Log-likelihood	-935.74	-1057.79	-1157.49
Wald X^2	28.66***	38.68***	42.48***

¹ Table presents incidence rate ratios and odds ratios; z-values in parentheses

² Models control for time

* = $p < .05$; *** = $p < .001$

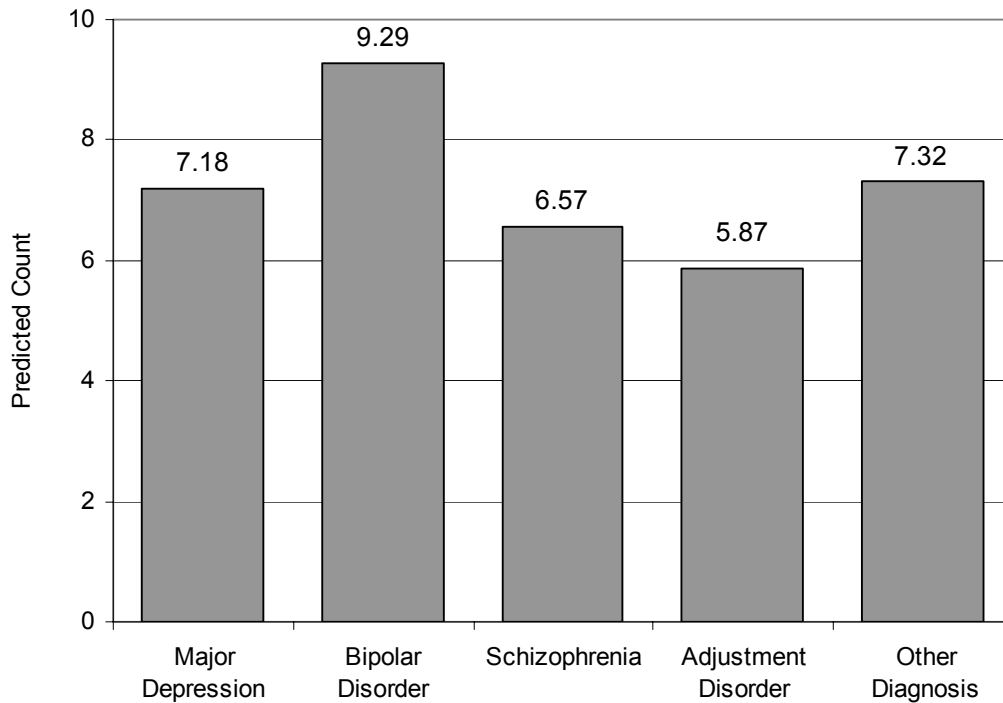


Figure 7.4. Predicted count for size of the core network as a function of diagnosis

Findings in Table 7.2 provide some support for the *Sick Role Hypothesis*. Though the effects of diagnosis on functionality and network disruption are not statistically significant (See Table 7.A.2 in the Appendix), Table 7.2 suggests that individuals with bipolar disorder have larger core networks, on average, than those with major depression (IRR = 1.29, $p \leq .05$). Conversely, people with adjustment disorder have smaller core (IRR = 0.82, $p \leq .05$) and complete networks (IRR = 0.86, $p \leq .05$). The predicted number of friends and family members in the complete network for people with major depression is 14.75, compared to 12.70 for those with adjustment disorder. Predicted counts for the core network by psychiatric diagnosis are depicted in Figure 7.4.

Findings pertaining to the effects of symptoms and chronicity on social network dynamics are located in Tables 7.3 through 7.5. According to Table 7.3, each additional positive symptom a person experiences is associated with a 4% increase in the predicted size of the core network (IRR = 1.04, $p \leq .05$), while negative symptoms are associated with a 3% increase in the complete network (IRR = 1.03, $p \leq .05$). Based on predicted counts, people with no negative symptoms have about 12.79 total ties, while those with seven have 16.03. Likewise, individuals with no positive symptoms have a predicted core network size of about 6.58, compared to 8.92 associates for those with seven symptoms.

Positive symptoms also increase the mean number of support functions provided by members of the core (OR = 1.22, $p \leq .05$) and complete networks (OR = 1.22, $p \leq .05$; See Table 7.4). Cumulative probabilities for number of support functions provided by the core and complete networks as positive symptoms increase are depicted in Figures 7.5 and 7.6, respectively. According to Table 7.A.3 in the Appendix, mental illness characteristics have no significant effects on network disruption.

Table 7.3. Random intercept negative binomial regression^{1,2} for the effects of mental illness characteristics on the size of the core, peripheral, and complete network (N=373)

	Core Network	Peripheral Network	Complete Network
Mental illness characteristics			
Negative symptom count	1.03 (1.29)	1.04 (1.83)	1.03* (2.00)
Positive symptom count	1.04* (1.96)	1.004 (0.16)	1.02 (1.27)
Social withdrawal	1.12 (1.57)	1.03 (0.41)	1.08 (1.31)
Recurring problem	1.12 (1.63)	0.95 (-0.59)	1.04 (0.67)
Duration of episode (months)	0.999 (-0.32)	0.997 (-1.19)	0.998 (-1.11)
Log-likelihood	-936.81	-1056.08	-1156.38
Wald X^2	25.90**	42.31***	44.93***

¹ Table presents incidence rate ratios; z-values in parentheses

² Models control for female, White, age, education, and time

* = $p < .05$; *** = $p < .001$

Table 7.4. Random intercept ordered logistic regression^{1,2} for the effects of mental illness characteristics on the mean number of support functions provided by the core, peripheral, and complete network (N=353)

	Core Network	Peripheral Network	Complete Network
Mental illness characteristics			
Negative symptom count	1.001 (0.01)	1.06 (0.78)	1.03 (0.38)
Positive symptom count	1.22* (2.32)	1.15 (1.62)	1.22* (2.40)
Social withdrawal	1.02 (0.07)	1.29 (0.94)	1.10 (0.36)
Recurring problem	1.24 (0.86)	0.85 (-0.62)	1.21 (0.75)
Duration of episode (months)	0.998 (-0.37)	1.004 (0.70)	1.001 (0.03)
Log-likelihood	-475.80	-423.41	-471.12
Variance	0.70	0.71	0.66

¹ Table presents odds ratios; z-values in parentheses

² Models control for female, White, age, education, network size, and time

* = $p < .05$

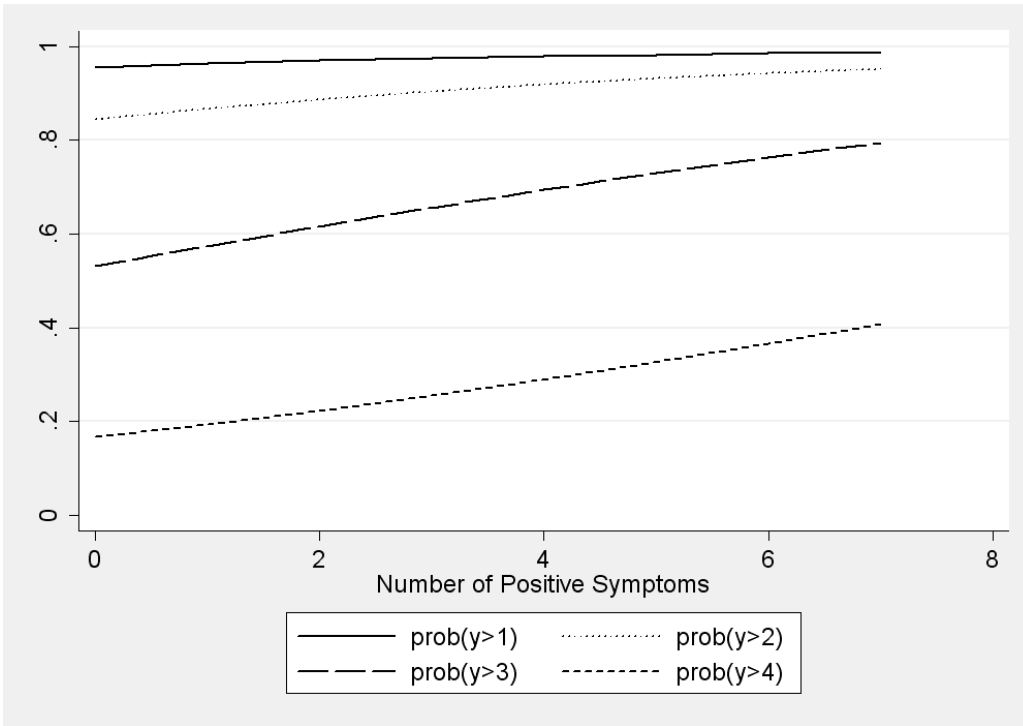


Figure 7.5. Cumulative probabilities for mean number of support functions provided by members of the core network as a function of number of positive symptoms

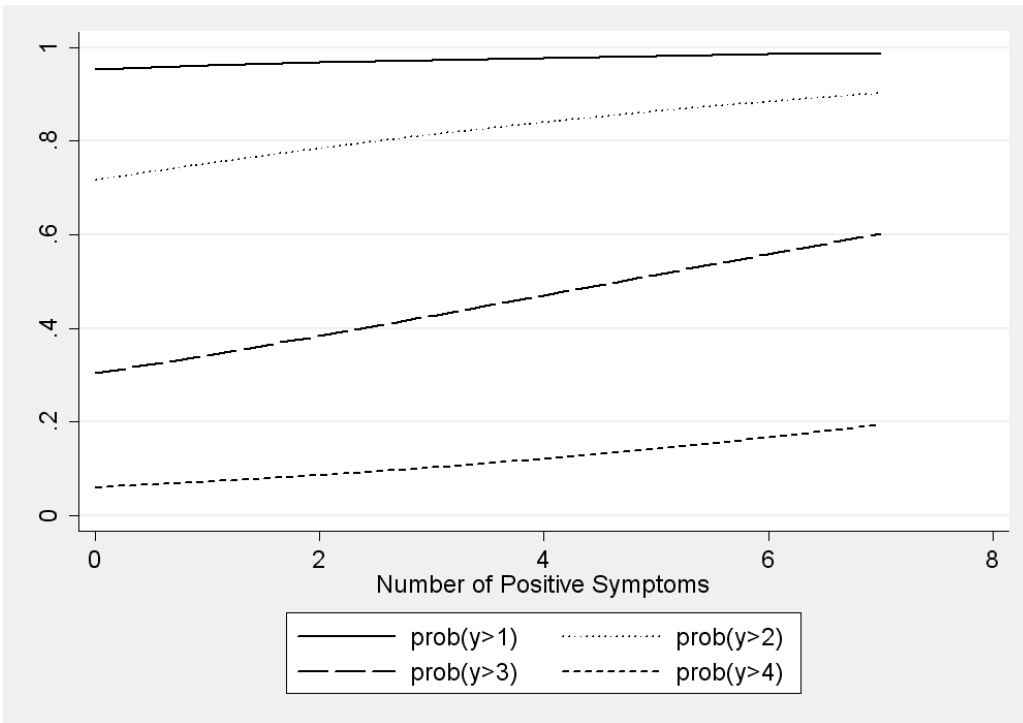


Figure 7.6. Cumulative probabilities for mean number of support functions provided by members of the complete network as a function of number of positive symptoms

Lastly, Table 7.5 presents findings for the relationship between changes in mental health treatment and network size. These indicate that respondents who either entered or exited treatment, or changed treatment providers, have smaller complete networks, on average, than those who remained stably treated (IRR = 0.89, $p \leq .05$). The predicted size of the complete network for those who experienced changes in mental health treatment is 13.05, compared to 14.70 for those who did not. However, changes in mental health treatment have no significant effect on the number of support functions or the level of disruption in social networks (See Table 7.A.4 in the Appendix).

Table 7.5. Random intercept negative binomial^{1,2} regression for the effects of change in mental health treatment on the size (N=202) of the core, peripheral, and complete network

	Core Network	Peripheral Network	Complete Network
Change in mental health treatment	0.94 (-1.03)	0.84 (-1.80)	0.89* (-2.03)
Log-likelihood	-520.00	-581.14	-642.41
Wald X^2	9.30	9.86	13.43*

¹ Table presents incidence rate ratios and odds ratios; z-values in parentheses

² Models control for female, White, age, education, and time

* = $p < .05$

Table 7.6. Summary of hypotheses and findings in Chapter 7

	Question	Hypothesis	Corroborated?
H7-1 <i>Career Hypothesis</i>	As people make key decisions about how to define and cope with mental illness, does this affect the number of people they interact with, the degree to which others are willing to help out, and the stability of relationships?	Network-level characteristics are likely to change over time as individuals transition in and out of different stages of the illness career.	Yes
H4-7 <i>Drawing In Hypothesis</i>	As people cope with different stages of their illness, are increasing numbers of laypeople and professionals recruited to help?	Network size increases as people progress through the illness career.	No
H7-2 <i>Increasing Contributions Hypothesis</i>	As people cope with different stages of their illness, do friends and family members each do more for the ill person over time?	Network size remains stable across the illness career, but the number of support functions provided by members increases over time.	Somewhat
H7-3 <i>Network Collapse Hypothesis</i>	As people cope with different stages of their illness, do their networks collapse under the pressure of stigma and elevated needs?	Social network size decreases as people progress through the illness career.	Somewhat
H7-4 <i>Sick Role Hypothesis</i>	If people with mental illness are perceived as being more sick, and thus more deserving of support, does this affect the number of people they interact with, the degree to which friends and family members are willing to help out, and the stability of relationships?	People with bipolar disorder will have larger, more broadly functional, and more instable core networks, while the opposite is true of those with adjustment disorder. Likewise, people with more symptoms of mental illness will have larger, more broadly functional networks that are also more instable.	Yes
H5-4 <i>Social Withdrawal Hypothesis</i>	Does a person's desire to withdraw from their social lives result in social isolation and instability?	People who experience a desire to withdraw from social interaction or activities have smaller core and peripheral networks, as well as higher levels of social network disruption.	No
H5-5 <i>Chronic Illness Hypothesis</i>	Does chronic illness lead to social isolation and instability?	People with chronic or prolonged illness will have smaller networks characterized by higher levels of network disruption.	No

IMPLICATIONS: STABLE SAFETY NETS, STIGMA, AND THE LOSS OF COMMUNITY ASSOCIATED WITH THE ILLNESS CAREER

Overall, these findings indicate that progression through the illness career and variations in the illness experience shape patterns of network dynamics over time (See Table 7.6 for a summary of hypotheses and findings). Consistent with the *Career Hypothesis*, I find that social network dynamics seem to mirror the changing needs and strategies for interaction that accompany transitions through different stages of the illness career. In other words, evolving structural and functional properties of networks likely reflect strategies of interaction, the entrance and exit of formal caregivers, and increasing contributions by some sectors of the network.

With respect to *how* networks change over time, the dynamic patterns observed here are remarkable. None of the three hypotheses suggested by existing research on caregiving in mental illness fully explains these results (Antonucci 1985; Grant & Wenger 1983; Lipton 1981; Litwak 1985). I find that the size of the core network remains stable following entry into mental health treatment. On the other hand, the network as a whole decreases in size — a pattern that is driven entirely by the deterioration of weaker peripheral relationships. In fact, the periphery shrinks by over forty percent over the course of a three year period.

This pattern seems to support the *Network Collapse Hypothesis*. Namely, although people with mental illness can count on the support of a stable core group as they are diagnosed and make their way through the mental health treatment system, the larger community increasingly maintains its social distance. Alternatively, the person with mental illness may withdraw voluntarily from social interaction and activities with

the members of the community at large in order to avoid stigmatization. Importantly, both of these processes are consistent with claims central to labeling theory (Link 1982, 1987; Link et al. 1989; Martin et al. 2007).

On the other hand, far from collapsing, I find that the number of support functions provided by the network increases substantially over time, and that core friends and family bear the majority of this responsibility. The probability that members of the core network fulfill more than three distinct support functions increases from about fifty to seventy percent over three years, and this probability for the network as a whole increases from twenty-five to over sixty percent. In short, as predicted by the *Increasing Contributions Hypothesis*, core friends and family become ever more broadly functional in order to meet increasing demands for assistance and support. Moreover, even as it shrinks in size, the network as a whole also becomes more functional, suggesting that less supportive and committed friends and family members are most likely the ones dropping out of the network.

Importantly, in addition to pointing to the role of escalating needs and the stigma associated with mental illness, these findings may also reflect changing systems of support as people move through different stages of the illness career. As discussed earlier, these individuals were captured at the point of initial utilization. At this early point in the illness career, mental health clients benefit from a safety net provided by a system of formal supporters (medical and mental health treatment professionals) and services. However, for most, this support system is short lived. We know that only about one third of people with mental illness who seek formal care remain in treatment longer than a few months (Kessler et al. 2005). It is likely that upon entry into the mental health

treatment system, the peripheral network swells in response to an influx of professionals and fellow consumers encountered in the treatment context. Then, when clients are later discharged or suspend treatment, the periphery shrinks to its former size. As people transition out of mental health treatment, they are likely to rely more heavily on informal sources of support. This may result in existing members of the core network providing an increasing variety of functions, as suggested by the *Increasing Contributions Hypothesis* and reinforced by findings from this chapter.

This explanation suggests a need to examine the treatment system itself as a potential source of social network instability in the lives of people with mental illness. In fact, I do find some evidence that individuals who experience changes in treatment have smaller networks, overall. Because of the timing of these interviews, and because we know that all respondents were receiving care at baseline, these changes are likely to be exits from the treatment system. This supports the idea that withdrawing from treatment leads to a loss of ties with mental health professionals and fellow consumers. More analysis is needed to explore interactions between treatment instability, types of treatment providers, and stages of the illness career, and to look separately at the influence of treatment entrance and exit.

Also, findings from previous chapters provide strong evidence that people in crisis recruit individuals from outside their network into the core to fill in the gaps left by the stable group of supporters. Importantly, results from these analyses indicate that this high level of membership turnover, referred to as the *revolving door phenomenon* in previous chapters, is sustained over a significant period of time. In fact, the level of network disruption does not change significantly as people progress through the illness

career. This implies that network instability may actually be a stable feature of these people's interaction strategies and their social lives more broadly.

With respect to the illness experience, findings presented here support the contention that people who are more easily recognizable as having a psychiatric disorder are more successful at mobilizing network resources (Kaniasty & Norris 1993). Whether this pattern is a product of their own efforts and strategies or the actions of concerned friends and family members is unknown. According to Rosenberg (1984), mental illness behavior has a negative impact on relationships because friends and family members cannot take on the role of the other. That is, they cannot understand or explain their unusual behavior. However, while bizarre behaviors may incite fear and discomfort, they also provide a clear indication that something is medically wrong. More problematic may be behaviors that lead to a violation of social norms governing interaction (i.e., reciprocity), but that do not necessarily signal the presence of mental illness to lay people (i.e., fatigue, anhedonia, etc.).

When others can successfully apply the label of mental illness, entry into the sick role becomes legitimate, and friends and family become more broadly functional in response to increasing needs (Kaniasty & Norris 1993). Conversely, if norm violation is attributed to characteristics of the individual rather than to the illness, it is likely to lead to a desire for social distance (Martin et al. 2007). In all, this implies that mental illness recognition and labeling represents a paradox. That is, while these processes likely provoke stigma and discriminatory reactions from relative outsiders, they may also lead to increasing levels of comfort and assistance, at least in the first few years, as the stable group of supporters rallies round their ill friend or family member.

APPENDIX 7

Table 7.A.1. Descriptive statistics on dependent and independent variables

	Mean	SD	Range
Dependent Variables			
Network size			
Core	7.13	3.71	1.00-25.00
Periphery	7.56	4.99	0.00-29.00
Complete network	14.69	6.83	3.00-43.00
Mean number of support functions ¹			
Core	3.59	1.05	1.00-5.00
Periphery	2.35	1.08	1.00-5.00
Complete network	3.12	1.01	1.00-5.00
Percent membership turnover ¹			
Core	3.29	1.09	1.00-5.00
Periphery	3.94	1.09	1.00-5.00
Complete network	3.16	0.95	1.00-5.00
Independent Variables			
Diagnosis			
Major depression	0.52	0.50	0.00-1.00
Bipolar disorder	0.07	0.26	0.00-1.00
Schizophrenia	0.13	0.34	0.00-1.00
Adjustment disorder	0.24	0.43	0.00-1.00
Other diagnosis	0.04	0.20	0.00-1.00
Mental illness characteristics	0.32	0.47	0.00-1.00
Positive symptom count	1.06	1.60	0.00-7.00
Negative symptom count	3.37	1.89	0.00-7.00
Social withdrawal (1=yes; 0=no)	0.39	0.49	0.00-1.00
Recurring problem (1=yes; 0=no)	0.51	0.50	0.00-1.00
Duration of episode at baseline (months)	11.45	19.19	0.00-156.00
Time (months in treatment career)	9.48	9.63	1.00-34.00

¹ Descriptive statistics reflect the coding of these measures into 5-category ordinal variables

Table 7.A.2. Random intercept ordinal logistic regression^{1, 2} for the effects of diagnosis on mean number of support functions (N=353) and percent of membership turnover (N=202) in the core, peripheral, and complete networks

	Core Network	Peripheral Network	Complete Network
Number of support functions			
Bipolar disorder	2.13 (1.43)	1.38 (0.60)	2.53 (1.78)
Schizophrenia	0.82 (-0.44)	1.64 (1.07)	1.25 (0.49)
Adjustment disorder	1.46 (1.23)	1.28 (0.76)	1.13 (0.41)
Other disorder	1.38 (0.52)	0.95 (-0.08)	1.28 (0.41)
Log-likelihood	-477.36	-424.73	-472.81
Variance	0.75	0.81	0.80
Percent membership turnover			
Bipolar disorder	1.93 (0.80)	1.56 (1.36)	2.78 (1.39)
Schizophrenia	1.94 (0.76)	1.45 (0.64)	1.50 (0.55)
Adjustment disorder	0.96 (-0.09)	1.13 (0.34)	0.84 (-0.37)
Other disorder	0.72 (-0.33)	0.83 (-0.26)	0.42 (-0.97)
Log-likelihood	-280.75	-254.75	-261.37
Variance	2.78	0.20	1.60

¹ Table presents odds ratios; z-values in parentheses

² Models control for time and network size

Table 7.A.3. Random intercept ordered logistic regression^{1,2} for the effects of mental illness characteristics on the percent of membership turnover in the core, peripheral, and complete network (N=202)

	Core Network	Peripheral Network	Complete Network
Mental illness characteristics			
Negative symptom count	1.02 (0.18)	1.06 (0.78)	0.96 (-0.35)
Positive symptom count	1.07 (0.46)	1.15 (1.62)	1.08 (0.60)
Social withdrawal	2.10 (1.70)	1.29 (0.94)	1.68 (1.37)
Recurring problem	1.47 (0.89)	0.85 (-0.62)	1.51 (1.09)
Duration of episode (months)	1.002 (0.20)	1.004 (0.70)	0.997 (-0.35)
Log-likelihood	-279.42	-423.41	-261.52
Variance	2.55	0.71	1.45

¹ Table presents odds ratios; z-values in parentheses

² Models control for female, White, age, education, network size, and time

Table 7.A.4. Random intercept ordinal logistic regression^{1,2} for the effects of change in treatment on the number of support functions (N=184) and percent of membership turnover (N=202) in the core, peripheral, and complete network

	Core Network	Peripheral Network	Complete Network
Number of support functions			
Change in mental health treatment	1.32 (0.81)	0.72 (-0.77)	1.32 (0.84)
Log-likelihood	-236.48	-195.01	-248.96
Variance	2.06	2.22	1.80
Percent membership turnover			
Change in mental health treatment	0.95 (-0.16)	0.83 (-0.67)	1.10 (0.31)
Log-likelihood	-281.45	-254.84	-263.17
Variance	2.85	0.16	1.73

¹ Table presents incidence rate ratios and odds ratios; z-values in parentheses

² Models control for female, White, age, education, network size, and time

CHAPTER 8

IN THEIR OWN WORDS: MERGING STRUCTURE AND AGENCY

To this point, I have offered evidence that social network dynamics (at both the tie and network levels) in periods of crisis and transition are influenced by two basic processes: The first is the selective activation of ties, or strategies of interaction that help people experiencing uncertainty and elevated support needs mobilize network resources. The second is the shifting opportunity structures that accompany changes in social structural location, which are often external to relationships themselves, but nonetheless constrain or facilitate interaction. Moreover, previous chapters suggest that these processes may be influenced by aspects of the illness experience and progression through the illness career.

The findings presented thus far provide preliminary support for the multi-level model of network dynamics introduced in Chapter 1. However, though grounded in existing research, the interpretations offered are based on informed speculation and assumptions about the motivations of individuals. Importantly, a qualitative approach would facilitate a more complete and accurate representation of the intentionality, meanings, and experiences underlying selective activation processes and evolving opportunities for interaction. In addition, it would help identify social patterns and non-measurable factors that may or may not support my interpretations of the data and the model more generally. In short, it is critical to now turn to the explanations of network dynamics offered by respondents *in their own words*, which will allow me to extend, revise, and validate various aspects of my own explanations.

CONFLICTING PERSPECTIVES ON SOCIAL NETWORK DYNAMICS IN MENTAL ILLNESS

Social dysfunction and labeling are the two dominant explanations of how and why mental illness shapes relationships in the social sciences. The social dysfunction perspective focuses on the impact of having a psychiatric disorder on the success of social interaction, emphasizing that factors like social withdrawal, impoverished social skills, and caregiver burden threaten the development of new relationships and the maintenance of existing ones (Coyne 1976; Henderson 1980; Hokanson et al. 1989; Youngren & Lewinsohn 1980). The labeling perspective, on the other hand, attributes social network attrition to the psychiatric label and societal reactions to the label rather than to features of the disorder itself (Cullen & Cullen 1978; Scheff 1984). In addition to being rejected by others, because labeled individuals are stigmatized and socially devalued, they engage in coping strategies that exacerbate their isolation (Link 1987; Link et al. 1989). In sum, these perspectives emphasize strained or ineffective social interaction and the destructive nature of psychiatric disorder or the mental illness label on social relationships and opportunities.

This exclusive focus on the ways in which mental illness *constrains* social interaction is somewhat at odds with findings presented in previous chapters, and with the existing work in the area of social network dynamics. Specifically, while the social networks literature normalizes instability in personal community networks, and highlights efforts by individuals to mobilize network resources, the social dysfunction and labeling approaches deemphasize any constructive agency that people with mental illness might have in shaping and maintaining their social networks. Further, though evidence suggests

that people with mental illness are vulnerable to problems like job loss, persistent unemployment, dropping out of school, and residential instability (Dowdall & Goldstein 1979; Estroff 1981; Munk-Jorgensen & Mortensen 1992; Rosenfield 1991; Silver et al. 2002), these role exits and shifts in social structural position are not considered as an independent source of network instability in this population. Though expectations loosely reflect all of these disparate approaches, as well as findings in previous chapters, the development of concrete hypotheses is inappropriate given the inductive strategy employed here.

AN IN-DEPTH LOOK AT DYNAMICS PROCESSES: ANALYZING RESPONDENTS' EXPLANATIONS OF RELATIONSHIP ATTRITION

The data used here are from interviews with 136 respondents who participated in at least two waves of the Indianapolis Network Mental Health Study. Unlike previous chapters, this analysis is limited to discussants and regulators identified using only the “important matters” and “health matters” name generators (See Table 2.A.1 in Appendix 2). This group of associates is not equivalent to the core network analyzed in previous chapters, which also includes ties mentioned in response to the friends name generator. However, there is considerable overlap, with important and health matters ties comprising about 71% of the functional core and 86% of the stable core. Further, because only the important and health matters ties are used here, I am able to take advantage of the smaller subset of network data collected in the fourth wave of the study.

This chapter analyzes open-ended responses to a single item in the interview schedule that was originally designed to check the reliability of respondents' reports

about the ties included in their network (Wright & Pescosolido 2002). In each follow-up interview, interviewers compared the ties mentioned in the current wave to ties mentioned in previous waves. If a tie that appeared in an earlier wave of the study was not mentioned, the respondent was asked, “I see you did not mention (NAME). Can you tell me why you didn’t mention them this time?” The open-ended responses to this item vary considerably in length and level of detail, ranging from a few words to several sentences. About 18% of data on this item are missing due to interviewer error or coding decisions described below.

A notable limitation of this data is that these narratives are people’s retrospective accounts of why their relationships changed or ended. As such, they do not necessarily represent what actually happened, but rather participants’ perceptions of what happened. For instance, respondents sometimes speculated about the motivations of others, which may have been inaccurate, particularly given the nature of some symptoms of mental illness (i.e., paranoia). As with all studies of personal accounts, it is important to acknowledge that what and how much participants decided to reveal about their social network processes likely affected coding decisions.

ANALYTICAL STRATEGY

In a process requiring multiple readings, open-ended responses describing why ties mentioned in previous waves had dropped out of respondents’ networks were coded twice, once in 2005 and again in 2007. During the first round of coding, eighteen distinct reasons for tie attrition were identified. During the second round, the data were recoded in order to test the accuracy of the original coding scheme. There was 98% agreement

between the two rounds of coding (685 of 702 responses were identically coded), and all discrepancies were reviewed and corrected.

Insights drawn from the 2005 pass through the data led to coding responses according to *agent* (self or other) and *level* (individual versus structural) in 2007. In other words, whether deliberate or incidental, changes in relationships are initially catalyzed by shifts in the motivations, emotions, behaviors, activities and/or physical location of either the target individual (i.e., entry into a residential treatment facility) or the tie (i.e., too busy to return phone calls). In addition, network attrition can result from individual-level events or actions that directly affect the nature of the relationship itself (i.e., interpersonal conflict), or can be due to structural-level transitions that have indirect and unintended consequences for the quality and function of particular relationships (i.e. graduating from college reduces contact with former classmates). It is important to note that “structural” here, as elsewhere in this dissertation, refers to relational structure, or patterns of interconnections between social positions, actors, and actions (in contrast to institutional structure, or cultural and normative patterns that organize social life).

While coding the *level* of change was fairly straightforward, determining the *agent* was sometimes more difficult. For example, a respondent might cite a “new job” as the reason for losing contact with a tie, without indicating whether it was she (self) or her friend (other) who had changed jobs. In these cases, other categorical variables pertaining to employment, education, housing, marital, and treatment transitions were used to make decisions about how to code (e.g., did the respondent have the same job as in previous waves of the study?). In addition, if a respondent did not give a real reason for tie attrition

(e.g., “We don’t talk anymore”), or the reason given was incomprehensible, the response was coded to missing. If a tie passed away, the response was also coded to missing.

MOTIVATIONS AND MECHANISMS: FINDINGS FROM NARRATIVE ACCOUNTS

An analysis of open-ended responses yielded eighteen distinct reasons that respondents reported when describing why ties mentioned in one wave of the study were not mentioned in subsequent ones. These codes were then organized into four broader categories suggested by combining the agent and level of change: social network strategy, social rejection, social mobility, and incidental attrition (See Figure 8.1). Each of these are described in turn below.

		Agent	
		Self	Other
Level	Individual	<p>SOCIAL NETWORK STRATEGY <i>Motivated, goal-specific interaction strategies</i></p>	<p>SOCIAL REJECTION <i>Abandonment and avoidance by others</i></p>
	Structural	<p>SOCIAL MOBILITY <i>Changes in target individuals’ social structural position</i></p>	<p>INCIDENTAL ATTRITION <i>Changes in associates’ social structural position</i></p>

Figure 8.1. Mechanisms of network dynamics identified in respondents’ narratives

SOCIAL NETWORK STRATEGY

Social network strategy refers to changes in network membership initiated by the respondent or over which the respondent had some degree of control. It involves purposive action or strategy by respondents at the level of the individual that causes the downgrading or deterioration of one or more relationships. Importantly, this often involves a change in function or decrease in status of a tie rather than the termination of the relationship. In any given wave, about 31% of respondents cited social network strategy as the reason for dropping one or more associates, which is more than any other type of network attrition identified.

Many respondents reported that although their friends or family members were still a part of their life, they no longer talked with them about health or other important matters. For some, this reflected a desire to overcome mental health obstacles without depending on others for help: “I’m going to pull this off on my own so I can pat myself on the back (Case 021, Female, Schizophrenia).” For others, their situations had improved, eliminating the need for serious discussions about health or other important matters. A man with major depression said, “I just don’t have much to talk about health-wise because I’m much healthier than I used to be (Case 348).” Eliciting health-related support from their friends and family became less important over time for many respondents, suggesting a change in the function of the network over time.

Another common strategy mentioned by respondents was pulling away in order to avoid being a burden. Some respondents stopped talking to a friend or family member about their troubles because they knew that the tie had issues of their own: “A year and a half ago she got married, and now she has her own set of problems. Her husband

physically abuses her (Case 005, Female, Major Depression).” Other respondents avoided discussing important matters with ties because they felt that it might worry or upset them. For example: “She is away at college. We discuss her problems, but not mine. I don't want her to worry about me. (Case 268, Female, Major Depression)” Another woman feared that her father could not handle hearing about her experiences in mental health treatment: “I don't want to bother or upset my dad. He doesn't have much belief in doctors. He feels we should just pray (359).” In all, respondents seemed to be fairly sensitive to others' needs, and skilled at assessing changes in the amount of time, emotional support, and other resources that members of their network had to give.

Some associates were dropped because respondents realized that they could not help them with their problems. Many respondents expressed disappointment with the quality or amount of support they had received from members of their network. As one woman with major depression noted, “I've had to lower my expectations of my family (Case 002).” Alternatively, some respondents stopped consulting ties because they had not provided useful information or council: “He doesn't have any advice that I don't already know (Case 007, Male, Bipolar Disorder).” Other respondents had sought empathy, and discovered that many friends or family members simply could not understand what they were going through. These unfulfilled needs resulted in less dependence on those who did not possess the appropriate resources.

Another social network strategy commonly cited was terminating relationships in order to avoid conflict or interpersonal problems. Respondents described character flaws that had come to light and caused them to end friendships: “She's not the type of person I thought she was...I don't socialize with her anymore. She guilt trips, and tries to use

psychology to get me to do things (Case 038, Female, Adjustment Disorder).”

Alternatively, sometimes the respondent and tie were no longer compatible. As one man with major depression noted about a former friend, “He experienced a change in his character. He leads a lifestyle that I'm not interested in (Case 444).” Finally, sometimes respondents cut off ties following the break up of a romantic or sexual relationship, particularly if it ended on bad terms. For example, a woman with major depression stated, “He got another girl pregnant. He was abusive. Our friendship is over now, basically (Case 349).”

Finally, several respondents mentioned withdrawing from their discussion networks in order to keep their mental health problems a secret. These individuals had discovered that there were negative repercussions associated with disclosing one’s mental illness status. A woman with major depression admitted, “At first I spoke with more people. This last time I didn't get as many people involved in my problems. I guess I feel like I messed up the first time around (Case 149).” Similarly, one man noted, “I haven't talked real deep about anything lately. He was there during initial hospitalization. I'm learning it is best not to run your mouth to everybody (Case 175, Major Depression).” Others were more specific about the stigma they faced when they told friends and family about their mental illness. Respondents reported that they no longer discuss their mental illness with others because they “gossip (Case 030, Male, Schizophrenia)” and “pull away when things go wrong (Case 375, Female, Adjustment Disorder).” Some confidants preferred to ignore the illness altogether: “She pretends I was never in the hospital and that nothing is wrong (Case 194, Male, Major Depression).”

In sum, social network strategy often involves strategic movement out of the core discussion network — a shift in the status or function of a relationship from one of elevated purpose or value to one of lesser importance. A mismatch between the needs of respondents and the network resources available causes them to rely less heavily on some or all ties. However, sometimes respondents end a relationship permanently, cutting off all contact. These cases are characterized by conflict or a decline in the quality of interactions that lead to relationship dissolution. In addition, as Link and colleagues (1989) contend, labeled individuals sometimes engage in withdrawal strategies in order to avoid being stigmatized, pulling away from those with whom they once openly discussed their illness.

SOCIAL REJECTION

Social rejection refers to instances in which the relationship is ended by the friend or family member, and the respondent has no agency in the situation. Again, these are individual-level changes — such as loss of interest in maintaining the relationship or outright rejection — that lead to the dissolution of a dyad. In any given wave, about 28% of respondents reported experiencing social rejection.

For various reasons, respondents' associates sometimes stopped listening to them talk about their health and important matters. For example, a woman with major depression said of her husband, "He doesn't talk to me anymore about things. He ignores me now (Case 286)." Similarly, another woman with major depression spoke of being rejected by her roommate: "During the night if I wake up and want to talk she says shut up (Case 001)." At times, the tie ended the relationship altogether. Respondents said,

“She broke off the friendship (Case 285, Female, Major Depression),” and “She told me she didn’t want to be my friend anymore (Case 268, Female, Major Depression).”

Some respondents explicitly cited their mental illness or hospitalization as the reason a relationship came to an end. For example, one man said of his ex-girlfriend, “We don’t see each other or talk now because of my hospital situation (Case 194, Major Depression).” For others, the impact of stigmatization on their social networks was more profound: “I don’t talk to them anymore. A lot of my friends aren’t there for me because I was hospitalized. They stuffed me in the back of their minds, or started rumors (Case 349, Female, Major Depression).”

A friend or family member being busy or preoccupied was another reason commonly given for being abandoned by others. These were not instances in which respondents strategically withdrew to avoid overburdening their social networks. Rather, friends or family members did not have the time or emotional resources to serve as a source of companionship or support, and had made themselves unavailable. For example, a man with adjustment disorder stated, “I can’t count on her. She’s never home. She stays too busy (Case 354).” Further, some ties could no longer cope with the burden of respondents’ important issues in light of their own troubles: “She said she has her own problems (Case 019, Female, Major Depression).”

Another type of social rejection mentioned by respondents is growing apart. While the most recognizable feature of growing apart is the absence of a discernable reason for ending the relationship, it does suggest a lack of effort or motivation to maintain correspondence on the part of the associate. Respondents made statements such as, “There’s no real reason. We’re not usually here at the same time. We don’t talk as

much (Case 126, Male, Adjustment Disorder),” or “We haven't had a talk in awhile. She's pleasant and concerned, but I haven't heard from her in awhile (Case 152, Male, Major Depression).” Internal dynamics — typically a decrease in the frequency or quality of interactions — had changed in ways that undermined the strength of the relationship.

Social rejection most closely resembles the abandonment processes described by psychologists and labeling theorists. Individuals with mental illness are sometimes cast off by the people closest to them. This may be the gradual result of a lack of time, resources, contact, or motivation to maintain the relationship, or can involve abrupt and outright rejection. These individuals' responses provide additional evidence that the stigma attached to mental illness and mental health treatment, as well as the burden placed on caregivers of people with serious mental illness, have a negative impact on social networks.

SOCIAL MOBILITY

Social mobility refers to instances in which shifts in one's social structural location, like employment status, have independent effects on social network membership. Social mobility is characterized by some degree of agency on the part of the person with mental illness, as when a person chooses to move out of their parents' house or takes a better job. In any given wave, about 19% of respondents cited social mobility as the reason for dropping associates from their discussion networks.

The most common type of social mobility leading to a loss of ties was transitions into or out of different medical or mental health treatment settings. Some respondents had experienced improvements in their mental health and discontinued treatment. For

example, a woman with major depression said, “I quit going to therapy. I got off the medicine. I felt like I was cured, so I don’t go back (Case 036).” Other respondents were dissatisfied with their treatment providers, so they sought a new provider or discontinued treatment. A woman with major depression described her problems with her therapist: “When I see her I don’t have anything to talk about...She always wants me to quit smoking. I don’t see her anymore. It was not helpful (Case 022).” Others stopped having contact with providers when they transitioned from acute hospitalization to longer-term care at a Community Mental Health Center. A man with major depression stated, “I have no contact with (that psychiatrist) because I’m not forced to. I cooperated while I was there to get out of the hospital (Case 175).” In most cases, the person or people with whom respondents lost contact were mental health treatment providers. However, some respondents dropped primary care providers or other medical professionals, and a few respondents reported losing touch with fellow patients to whom they were close while hospitalized.

Social mobility also often applies to residential transitions. Some respondents moved into independent living situations as their illness or financial status improved. Sometimes this meant acquiring and losing housemates, often parents. A woman with adjustment disorder noted, “Now that I’m not living with (my mother), I don’t rely on her as much...I don’t have to hear her bug me about important matters (Case 216).” Other respondents moved to a new community, and this made contact with former neighbors difficult: “She was a neighbor friend and I moved away. I just don’t see her anymore (Case 321, Female, Major Depression).” Some respondents relocated to a new city or state. One respondent told her interviewer, “We just don’t talk. I moved (out of state)

because my husband is in vet school and transferred to Southern University (Case 225, Adjustment Disorder).”

Respondents also mentioned employment or educational transitions as a source of social mobility. For various reasons, respondents quit working, changed jobs, or stopped going to school, and this affected their relationships with former co-workers and classmates. One woman said of several of her co-workers, “I no longer work with them. I have a new job. I basically have a whole different set of friends now (Case 222, Adjustment Disorder).” For some, just moving to a different location in the store or office was enough to disrupt relationships with co-workers: “I don’t talk to her as much since I transferred to a different department at work (Case 151, Male, Major Depression).”

Events like employment and educational transitions, relocating to a different neighborhood or city, or movement into and out of different mental health treatment settings have unintended social network consequences. One’s school or workplace, residential community, and treatment setting provide critical access to sources of companionship and support. Severing connections to these social institutions can be isolating. Changes in social structural location reduce contact with network ties and alter interpersonal dynamics in ways that jeopardize otherwise healthy relationships. Alternatively, these events may also provide opportunities for dissolving negative or burdensome ties.

INCIDENTAL ATTRITION

Incidental attrition is similar to social mobility in that it refers to social structural transitions that lead to social network loss. However, incidental attrition involves more or

less random events over which respondents have no control, such as a neighbor moving away. In any given wave, about 17% of respondents reported losing ties to incidental attrition.

One source of incidental attrition mentioned by respondents was residential transitions in the lives of their friends, family members, or treatment providers. For example, one woman with bipolar disorder noted, “We don't talk as much because she moved. She lives further away and goes to a different church (Case 051).” Other respondents were no longer close to former roommates after they stopped living together: “Since she’s moved out, we’re not on a day-to-day basis anymore... When she was living here we had intimate conversations. Now we just don’t (Case 001, Female, Major Depression).” At times, treatment providers moved away. A woman with major depression said of her psychiatrist, “I really liked her. I just don't see her anymore. She moved (Case 027).”

Additionally, relationships were sometimes affected by ties’ educational or employment transitions. Some respondents lost contact with a former co-worker when the associate left their place of mutual employment. One man said of a friend from his job: “We are no longer co-workers so I don't see her much. We are no longer close because we don't work together (Case 069, Major Depression).” For others, retirement and changes in professional affiliation were a source of instability in the provision of mental health treatment. For example, a woman receiving services for major depression noted of her therapist, “She began working at a hospital. She told me I could contact her there, but she turned all her cases over to (another provider) (Case 025).”

Incidental attrition is a source of instability in the social networks of people with mental illness and the general population alike. Events such as a friend moving away or a co-worker leaving their job are fairly random occurrences that happen to everyone. These are part of the natural ebbs and flows in membership that are characteristic of personal social networks. Without regular contact, it is difficult to maintain the intimacy that distinguishes close confidants from more peripheral members of the network.

THE “X” FACTOR: INSTITUTIONAL EXCLUSION

Some respondents were seemingly prohibited from taking part in social institutions — such as work, education, or healthcare — which then lead to social network attrition. These mechanisms were often not attributable in a straightforward way to either the self or other, or to circumstances at the individual versus the structural level. For example, being fired from a job could be the result of the illness itself, poor performance at work, individual rejection by an overburdened boss, or institutional discrimination due to the respondent’s mental illness status. Further, in any given wave “institutional exclusion” only affected about 4% of respondents. However, because it captures, to some degree, the obstacles faced by individuals with mental illness living in the community, this powerful mechanism of network attrition is worth mentioning here and merits further study in the future.

Some respondents’ relationships were weakened by involuntary exits from the workforce. A man with bipolar disorder described the effects of losing his job on his relationships with friends from work: “He was a co-worker at Walmart. I got fired from that job. I don’t see my old friends from Walmart much anymore (Case 123).”

Respondents were also forced to quit their jobs when they were imprisoned, institutionalized, or entered a group home. For example, a man with major depression lamented, “I feel estranged from people on my paper route because I don’t get a chance to get over there. I moved to a group home, so I don’t deliver papers anymore (Case 016).”

Respondents also described the effects of poverty on their relationships. Some were forced to discontinue treatment due to changes in health insurance coverage or because they no longer had any insurance at all. For example, a woman with adjustment disorder said, “He was a counselor. My insurance doesn't cover it now that I'm working, so I can't afford it (Case 204).” Others noted that they could not afford to visit or call their friends and family members who lived farther away, and some did not have a phone at all. A woman with major depression said, “I just don’t call down there anymore. I don’t have the money to call him. He lives in Kentucky (Case 006).”

In sum, institutional exclusion refers to instances in which discrimination, disability, and other events and social conditions linked to mental illness and the illness label shape the quality and quantity of interaction between two people. Although these data cannot directly attribute economic hardship or imprisonment to one’s psychiatric disorder per se, these are inexorably linked to the experience of living in the community for individuals with serious mental illness (Estroff 1981; Lamb & Weinberger 1998).

		Agent	
		Self	Other
Level	Individual	<p align="center">SOCIAL NETWORK STRATEGY</p> <ul style="list-style-type: none"> • Change in status of tie because associate cannot help • Change in function to non-discussant • Withdrawal to avoid burdening others • Withdrawal to avoid stigmatization • Respondent-initiated relationship dissolution <p align="right">31.2%</p>	<p align="center">SOCIAL REJECTION</p> <ul style="list-style-type: none"> • Associate-initiated break up/divorce • Rejection and stigmatization • Associate is too busy/preoccupied • Lack of contact/growing apart <p align="right">28.2%</p>
	Structural	<p align="center">SOCIAL MOBILITY</p> <ul style="list-style-type: none"> • Respondent's employment/schooling transitions • Respondent-initiated changes in MH treatment • Respondent's residential mobility <p align="right">18.8%</p>	<p align="center">INCIDENTAL ATTRITION</p> <ul style="list-style-type: none"> • Associate's employment/schooling transitions • Associate's residential mobility <p align="right">16.9%</p>

Figure 8.2. Summary of findings: Mechanisms of network dynamics in mental illness

IMPLICATIONS: STRIKING A BALANCE BETWEEN AGENCY AND STRUCTURAL CONSTRAINT

These findings provide important insight into the social network processes *underlying* the relationship between mental illness and impoverished networks that has regularly been reported in the mental health literature (Cook 1988; Hammer et al. 1978; Henderson 1977; Johnson 1991; Liem & Liem 1976; Roy 1978; Tausig et al. 1992). Four unique mechanisms of change were identified (See Figure 8.2 for a summary). These reflect whether the change occurred at the structural or individual level, and whether it was due to the motivations or actions of the person with mental illness or another individual or event. In all, participants' responses support the theoretical model proposed in Chapters 1 and 2.

Two types of individual-level mechanisms on network instability were identified in the narratives of people with mental illness. First, respondents mentioned social rejection. These processes most closely resemble those described by proponents of the social dysfunction and labeling perspectives (Coyne 1976; Henderson 1980; Hokanson et al. 1989; Link 1982; Scheff 1984). In addition, respondents' accounts indicate that individuals with mental illness sometimes engage in social network strategy, or purposive social withdrawal from their discussion networks.

Respondents also discussed structural mechanisms of network dynamics. Shifts in social structural position, like employment and residential transitions, in the lives of respondents or their family and friends are a significant source of network attrition. At times, people with mental illness are in control of their own social mobility, as when they exit mental health treatment or move into an independent living situation. On the other

hand, like all of us, people with mental illness experience natural ebbs and flows in social network quality and activity that correspond to structural changes in the lives of their family and friends. However, they are also sometimes excluded from social institutions that provide important opportunities for interaction. Involuntary events like losing health insurance, being fired, and being institutionalized are critically linked to mental illness, and possibly to discrimination.

In sum, explanations of social network attrition identified in respondents' talk provide additional evidence that the social networks of people with psychological disorders are shaped, in part, by instances of both individual and institutional discrimination, as well as potentially self-destructive social psychological processes. Not only are they often cast off by family, friends, employers, and even treatment providers, but people with mental illness also sometimes feel compelled to withdraw from their closest confidants in order to keep their health problems a secret and avoid stigmatization. However, these results do suggest that to assume that these strategies are always pathological, or even problematic, is short-sighted.

Moreover, these findings support my contention in Chapter 2 that existing perspectives do not provide a complete understanding of social network dynamics in mental illness. First, this research provides evidence that shifts in social structural position associated with mental illness, and probably with other significant life events and transitions as well, disrupt existing social relationships that depend on those structures. Research suggests that this population is vulnerable to downward social mobility — problems like job loss, persistent unemployment, dropping out of school, and residential instability (Dowdall & Goldstein 1979; Estroff 1981; Munk-Jorgensen &

Mortensen 1992; Rosenfield 1991; Silver et al. 2002). Individuals entering the mental health treatment system might also experience upward mobility and take steps toward independence as their functioning improves. These changes in status and group membership lead to decreased contact with former co-workers, classmates, and neighbors, which can result in a loss of ties. Evidence indicates that even small increases in physical proximity, for example, decrease the likelihood of friendship (Festinger et al. 1950). Further, a significant proportion of network attrition stems from gaps and inconsistencies in the provision of mental health treatment, which suggests a need to examine the illness career, itself, as a source of instability. Finally, individuals often lose access to network ties because of random events in the lives of others, yet these are rarely considered as a source of network instability for people with mental illness.

Second, contrary to existing perspectives, people with mental illness portray a view of network processes that underscores their own agency in shaping and maintaining their social networks. More specifically, they engage in purposive withdrawal strategies to prevent the permanent loss of valuable ties, to avoid spending time maintaining relationships that are not functional or satisfying, or simply to get rid of associates that are a negative presence in their lives. In fact, these findings suggest that people with mental illness are quite skilled at assessing both the resources that network members possess and their ability to provide support at any given time. In sum, this analysis illustrates that despite the extent to which their social networks and their lives more generally are structured by illness and disability, stigmatization, and the medical and social welfare systems, people with mental illness manage to exercise a surprising degree of social competence and agency.

CHAPTER 9

THE RIPPLE EFFECT: HOW INDIVIDUALS, TIES, AND SOCIAL NETWORKS RESPOND TO CRISIS

Two major developments provide the foundation for understanding network dynamics for persons with mental illness early in their treatment careers. First, this research merges theoretical insights and empirical findings from several substantive areas in sociology, most notably social networks, social support, medical sociology, and mental health. Second, it takes advantage of calls for methodological complexity and additional evidence that would fill important gaps in existing literatures. In doing so, this research progresses our knowledge of dense and dynamic social network processes germane to broader issues of social interaction and the organization of social life, both of which are fundamental concerns of the discipline of sociology.

This research is, in large part, a reply to nearly a decade of scholarly interest in and requests for additional work on social network change and instability (Lin & Peek 1999; McPherson et al. 2001; Moody et al. 2005; Pescosolido & Levy 2002; Rosenfield & Wenzel 1997; Sutor et al. 1997). In particular, researchers have argued for attention to “the ways in which networks evolve over time through cumulative processes of tie creation and dissolution as they are embedded in a changing community of multiplex relations (McPherson et al. 2001: 438).” Here, I respond directly to this call, demonstrating that personal community networks are highly adaptable, and sensitive to changing circumstances in the lives of individuals.

The model of network dynamics that guides this research follows a multi-level approach. On the one hand, I argue that to explain dynamic social interaction processes, we must begin by examining the most basic foundation of social life – relationships between two individuals. Thus, it is crucial to understand how and why connections between individuals are established, what motivates us to maintain relationships, and whether and why they eventually end. In other words, why, on a fundamental level, do we *need* others, and how do we structure our lives and our relationships to satisfy this need in contemporary American society?

On the other hand, individual relationships do not operate independently of one another. Rather, they are structurally embedded in a social system, and the properties of this system as a whole influence the nature of relationships and the behavior of any one person (Wellman & Gulia 1999). While it is important to examine relationship dynamics, the pattern of connections between the various positions in the social system may be fairly stable over time. It is this structure that determines access to resources and other outcomes, and some contend that it operates independently of the people who occupy any given position (White 1992). However, findings presented here that underscore the importance of social network disruption, or membership turnover, call this argument into question, at least when referring to individuals embedded in personal social networks. Therefore, identifying the link between the comings and goings of particular ties and the evolution of the social network as a whole — the number of people with whom we interact, the strength of connections between the people in our lives, or the role we may play in bridging different social groups together — constitutes a key piece of the network dynamics puzzle.

Researchers have argued that the methodological inability of many studies of social networks, support, and integration to observe two or more analytic levels simultaneously is a weakness that has constrained the explanatory power of the social network perspective (Pescosolido 2005; Pescosolido & Levy 2002; Wellman & Frank 2001). Social network processes are influenced by individual-level characteristics of the person and his or her associates, features of the relationship, the structure of the network in which individuals are embedded, and the broader neighborhood or community context in which networks operate. The multi-level approach employed in this research offers several distinct advantages and insights, most notably the ability to directly examine the effects of one level on the evolution of another. In addition, this approach demonstrates that network-level processes do not merely reflect an aggregation of tie-level effects (Wellman & Frank 2001). In other words, as I argued in Chapter 6, network dynamics is more than the sum of its dynamic ties.

In sum, the main objective of this research, and of the model of social network dynamics proposed and tested within, has been to capture the interplay between the circumstances in individuals' lives, the activation of social resources, and the evolution of networks. In other words, how does crisis reverberate through networks? Does experiencing a disruptive event alter how people use their social networks to meet their needs, and does it place structural constraints on opportunities for interaction? While the case targeted here is an episode of mental illness, new insight into mechanisms of network dynamics relevant to any major role or status transition are offered.

COPING WITH CRISIS: THE CORE/PERIPHERY STRUCTURE, SELECTIVE ACTIVATION PROCESSES, AND ELEVATED NEEDS

The first chapters of this dissertation examine the movements of different kinds of associates into and out of the core and peripheral components of networks – a necessary foundation for understanding dynamic processes at the network level. More specifically, these chapters shed light on why certain ties are more important to us at any given time than are others, and answer how and why people are recruited into the circle of close associates, and, later, whether and how they exit it.

The fundamental contribution of Chapter 3 is the finding that there are three distinct components of networks — the stable core, functional core, and periphery — each with a unique combination of functionality, relationship characteristics, and social context. Stable core associates are likely to be close female relatives, are broadly functional, and are motivated by a sense of obligation, responsibility, and long-term reciprocity. These individuals represent the first line of defense against threats to wellbeing, but this safety net comes with a price. Namely, stable core associates are more likely than others to hassle their close kin and companions, regulating their health and wellbeing even when such intervention is unwelcome.

When support needs exceed the capabilities and resources of the stable core, people in crisis turn to a secondary, less-stable group of functional core associates to close the gaps in the safety net. These “fuzzy friends” are particularly likely to provide companionship, emotional support, and advice. They are also “free-floaters,” or people who have transcended their social context and achieved friendship status, albeit temporarily.

Individuals coping with traumatic circumstances may also call on members of the functionally-specific periphery — casual associates with minimal involvement in the daily lives of respondents. These associates are more likely to come from specific social contexts related to their specialized functions, such as the workplace. However, the periphery also contains a large proportion of extended kin, who can be activated to provide emergency support when required.

Chapter 3 also identifies patterns of core-periphery dynamics. Of central importance is the finding that very little membership instability in social networks is due to friends and family moving back and forth between the core and periphery. Rather, associates are most likely to enter both the periphery and the core from outside of the network, and they exit in the same manner. In other words, newcomers to the core are not simply “upgraded” from the periphery. Though we may at times elicit certain types of context-specific support from peripheral associates, we recruit new broadly-functional supporters from outside our existing circle of acquaintances.

While Chapter 3 identifies patterns of core/periphery dynamics, Chapter 4 explores the mechanisms driving these processes. More specifically, it asks how the social demographic characteristics of individuals and their associates, the nature of relationships, as well as specific support needs and tie functions, impact friends and family members’ movement into and out of the core and periphery.

Importantly, Chapter 4 provides evidence that core/periphery dynamics are fundamentally motivated by individuals changing support needs, the ability and willingness of friends and family members to provide resources, and the match between the two. As individuals’ support needs increase, they recruit highly emotionally

supportive (but temporary) companions and counselors, who supplement the stable group of kin that provides everyday assistance. In all, this chapter contributes to a growing body of literature which suggests that stressful life events cause people to strategically activate ties that are best suited to provide specific kinds of resources (Hurlbert et al. 2000; Pescodolido 1992; Wellman 2000).

For example, findings in Chapter 6, when combined with insights from Chapter 4, provide strong support for the existence of a “revolving door” social interaction strategy among individuals in crisis. Namely, as people’s needs for different kinds of information, assistance, and emotional support increase, the level of network disruption in the core network increases, as well. Elevated needs lead to the recruitment of new supporters from outside the existing circle of friends and family. When these sympathetic newcomers are no longer willing or able to help, these relationships are dissolved, and new ties are recruited to take their place. Importantly, this cycle only emerges when we examine network disruption, and when we differentiate between core and peripheral ties. Not only do network size and the overall level of support remain stable as needs increase, but the impact of elevated needs on network disruption is undetectable in the complete network.

DISRUPTIVE EVENTS, STATUS TRANSITIONS, AND ROLE EXITS: THE IMPACT OF CHANGES IN SOCIAL STRUCTURAL LOCATION

This research also examines whether and how our social networks are constrained by the social contexts in which we participate (Blau 1977; Fisher 1982; Simmel 1955). I find that disruptive events associated with status transitions and role exits compromise the frequency and quality of our social interactions with others who share our former

structural position. In short, these events increase physical or social distance between an individual and his or her social ties, making it difficult to maintain relationships.

However, transitions into new roles can also provide access to new ties and increase opportunities for social interaction.

Changes in social structural location, such as employment and residential transitions, shape the movement of associates into and out of the core and peripheral networks (Chapter 4). Consistent with arguments made by White (1992) and others, social demographic characteristics alone do not capture this relationship. Instead, two critical factors seem to underlie this effect: 1) a reduction in the level of contact between two people that occupy different social positions; and 2) a disruption in the shared social context that provides a foundation for contact and common interests, goals, and values. Respondents' narratives lend support to this interpretation, as they attribute many instances of social network attrition to constraints imposed by changes in social location.

Findings in Chapter 6 confirm the importance of significant transitions and role exits, which also shape the evolution of characteristics at the network level. However, these events do not have uniform consequences for patterns of social interaction. Instead, some events, such as the transition to parenthood, impact the functionality of the network as a whole rather than network structure or the comings and goings of individual ties. Conversely, others have a perceptible effect only on relationships, but not on the network (i.e., employment transitions), and some events have a pervasive impact on both levels (i.e., shifts in membership in voluntary organizations). This finding underscores the importance of a multi-level approach to the study of social interaction.

SICKNESS AND SOCIAL NETWORK DYNAMICS: IMPLICATIONS FOR THE CASE OF MENTAL ILLNESS

Findings from this dissertation provide general insight into social processes and patterns of interaction that are among the most fundamental concerns of sociology as a discipline. However, by embedding selective activation processes and changes in social structural location in the stigma and labeling and illness career frameworks, this research makes important contributions to the mental illness literature, as well.

WHAT'S IN A LABEL? THE SICK ROLE AND ACCESS TO NETWORK

RESOURCES

Though stigma and labeling have devastating and pervasive effects on the lives of individuals with mental illness (Link 1982; 1987; Link et al. 1989), results presented here suggest that labeling may present a paradox. That is, there may actually be some benefits associated with the labeling process. Specifically, I find that people who are more easily recognizable as having a psychiatric disorder have greater access to a variety of network resources, at least among members of the core group of supporters. As suggested by results in Chapters 5 and 7, certain types of symptoms, as well as increasing numbers of symptoms, signal to members of the network that a person has a medical problem. When laypeople can successfully apply the label of mental illness to a member of their social network, this legitimates their entry into the sick role (Parsons 1915) and absolves them of blame. Friends and family then become more broadly functional in response to their increasing needs (Kaniasty & Norris 1993).

Conversely, mental illness behaviors that lead to a violation of the social norms of interaction, but that do not clearly indicate the presence of mental illness, may have the opposite effect. In other words, if norm violation is attributed to characteristics of the individual rather than to the illness, it is likely to lead to a desire for social distance (Martin et al. 2007) and unrequited requests for support. In sum, while labeling processes likely provoke stigma and discriminatory reactions from relative outsiders, they may also lead to increasing levels of support, at least in the first few years, as the stable core tightens up the safety net in order to protect the wellbeing of their ill friend or family member.

COMMUNITY LOST: SOCIAL NETWORK DYNAMICS AND THE ILLNESS

CAREER

One of the most exciting findings to emerge from this dissertation research is that progression through the illness career and variations in the illness experience shape patterns of network dynamics over time. Chapter 7 suggests that people with mental illness can count on a stable group of supporters to respond to elevated needs by providing an increasing variety of functions. However, though members of the core constitute a strong and permanent safety net, weaker ties with peripheral friends and family members deteriorate over time. In other words, as people with mental illness are diagnosed and enter treatment, the larger community increasingly maintains its social distance. People with mental illness may also withdraw from social interaction and activities with weaker friends and family members to avoid stigmatization. Both of these

explanations provide additional evidence that stigma and labeling matters (Link 1982, 1987; Link et al. 1989; Martin et al. 2007).

In addition to labeling processes, these patterns of social network dynamics also reflect evolving needs and systems of support as people progress through the illness career. In the early stages of utilization, mental health consumers are cushioned by a system of formal supporters (medical and mental health treatment professionals) and services, and the peripheral network swells in response to an influx of professionals and fellow consumers encountered in the treatment context. Then, when clients are discharged or suspend treatment shortly thereafter, the periphery shrinks to its former size. Without the benefits associated with participation in the mental health treatment system (and most likely the social services system, as well), people begin to rely more heavily on informal sources of emotional, instrumental, and financial support.

Findings from Chapter 8 corroborate this argument. In particular, respondents' narratives suggest that for those fortunate enough to achieve it, recovery has important implications for social network dynamics. Specifically, as the crisis of an episode of mental illness is stabilized through effective treatment strategies, people become less reliant on their friends and family. Moreover, sometimes people with psychiatric disorders change their behaviors and values in positive ways (i.e., stop drinking alcohol), which makes them incompatible with particular sectors of their networks. These social processes are characteristic of people engaging in personal growth, and show that some instances of network dynamics should be viewed as a positive step toward health and independence.

According to existing research, the outlook with respect to social networks and support for those who never achieve recovery is bleak (Carpentier & Ducharme 2003; Lish et al. 1994; Romans & McPherson 1992). I do find that people newly diagnosed with a mental illness can rely on a stable group of core supporters for at least the first three years. However, it is unclear whether and how stigma coping mechanisms and strategies of interaction more generally evolve after five years or more as individuals come to accept that their condition is chronic. Moreover, are core friends and family members willing and able to sustain high levels of support over long periods of time, particularly when they begin to lose hope that their loved one will ever recover? In other words, though these findings provide reason for optimism, the patterns of social network dynamics identified here may be unique to first-timers.

RESOLVING QUESTIONS, GENERATING NEW ONES: DIRECTIONS FOR FUTURE RESEARCH

In sum, the Indianapolis Network Mental Health Study has provided a unique opportunity to move beyond simple description and speculation in our efforts to understand interactional processes in the lives of people experiencing crisis and uncertainty, and mechanisms of social network dynamics, more generally. This research suggests a need to embed social network dynamics in the illness career and, more broadly, to provide a life course context — relating these processes to individual, interpersonal, and social structural changes that occur at different stages in these trajectories. Social network dynamics *do indeed* seem to mirror the changing needs and strategies for interaction that accompany progression through the illness career. Increases or decreases in our support

needs *shape* the evolution of the overall structure and function of the network. Therefore, by helping to identify points or stages at which needs for different kinds of resources are likely to change, examining social network dynamics through the lens of a career framework improves our general understanding of selective activation and other strategies of interaction.

Further, by addressing the classic sociological tension between structure and agency, I illustrate that individuals are not unobtrusive observers of social network instability or passive recipients of network resources. Rather, they are active and occasionally strategic agents in shaping and maintaining their social networks in ways that help them meet their needs and cope with uncertainty and crisis. Yet, people's ability to construct their networks and mobilize resources is constrained by structural factors that are often out of their control, including disruptive events and transitions into and out of different social roles, statuses, and group memberships.

Importantly, methodological limitations of the INMHS prevent a direct assessment of the level of agency involved in the entry of associates into the core network. As noted in various chapters, activation into the core could potentially be the result of recruitment processes initiated and driven by respondents, or may be attributable to associates reaching out to individuals in need. One can infer at least some degree of agency based on two key findings: First, there is clear evidence of agency in respondents' own explanations of why associates exited the network. It is unlikely that people would exercise agency in eliminating social ties, but not in acquiring them (Chapter 8). Second, elevated support needs lead to increasing levels of associates entering the core network. Because the support needs measured here (i.e., need help obtaining transportation,

childcare, job training, social services, etc.) are not likely to be perceived by others unless they are told about them, this finding suggests a disclosure tactic for getting needs met, at minimum (Chapters 4 and 6). In sum, though fairly strong *indirect* evidence of tie activation and recruitment processes is provided by this research, more work is needed to amass *direct* evidence in support of the idea that these social network processes truly reflect strategies of interaction.

The most critical challenge for future research is to refine, extend, and corroborate the multiple levels at which network dynamics operate. Though I focus on the case of mental illness, the processes identified here are more broadly applicable to instances of networks and individuals in crisis. Importantly, to the degree that other disruptive events and transitions are characterized by evolving needs, interests, and motivations, or are accompanied by changes in social location, these findings have implications for our understanding of social network dynamics associated with other key transitions in social life such as divorce, parenthood, and widowhood.

In conclusion, these findings provide evidence that crisis in the lives of individuals reverberates through the social network, initiating significant changes in network size, functionality, and level of membership turnover. When we experience crisis, our support needs increase, which shapes our interaction strategies in ways that have important implications for the stability of the network as a whole. Moreover, crisis in one life domain tends to lead to disruptive transitions in other domains, as well. These changes in social structural location, including residential and relationship instability, jeopardize existing ties and exacerbate the level of disruption in our networks. In turn, network disruption affects the functionality of the network, as new associates cannot fill

the shoes of longstanding friends and family. In short, traumatic events in the lives of individuals set into motion a ripple effect that has pervasive consequences for social networks and, undoubtedly, for health and wellbeing.

REFERENCES

- Adams, Richard E. and Richard T. Serpe. 2000. "Social Integration, Fear of Crime, and Life Satisfaction." *Sociological Perspectives* 43:605-29.
- Ajrouch, Kristin J., Toni C. Antonucci, and Mary R. Janevic. 2001. "Social Networks Among Blacks and Whites: The Interaction Between Race and Age." *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences* 56:S112-S118.
- Ambrose, Peter, John Harper, and Richard Pemberton. 1983. "Men After Divorce." *New Society* 64:464-66.
- Angell, Robert C. 1942. "The Social Integration of Selected American Cities." *The American Journal of Sociology* 47:575-92.
- Antonucci, Toni C. 1994. "A Life-Span View of Women's Social Relations." Pp. 239-69 in *Women Growing Older*, edited by Barbara F. Turner and Lillian E. Troll. Thousand Oaks, CA: Sage Publications.
- Baller, Robert D. and Kelly K. Richardson. 2002. "Social Integration, Imitation, and the Geographic Patterning of Suicide." *American Sociological Review* 67:873-888.
- Belle, Deborah. 1990. "Gender Differences in Children's Social Networks and Social Supports." Pp. 173-190. in *Children's Social Networks and Social Supports*, edited by Deborah Belle. San Francisco, CA: John Wiley and Sons.
- Berkman, Lisa F. and Thomas A. Glass. 2000. "Social Integration, Social Networks, and Health." Pp. 137-173 in *Social Epidemiology*, edited by Lisa F. Berkman and Ichiro Kawachi. New York: Oxford University Press.
- Bernard, H. Russell, Peter Killworth, and L. Sailer. 1981. "Summary of Research on Informant Accuracy in Network Data and the Reverse Small World Problem." *Connections* 4:11.
- Bernard, H. Russell, Gene A. Shelley, and Peter D. Killworth. 1987. "How Much of a Network Does the GSS and RSW Dredge Up?" *Social Networks* 9:49-61.
- Bernard, H. Russell, Eugene C. Johnsen, Peter D. Killworth, and Scott Robinson. 1989. "Estimating the Size of an Average Personal Network and of an Event Subpopulation: Some Empirical Results." *Social Science Research* 20:109-121.
- Beutel, Ann M. and Margaret Mooney Marini. 1995. "Gender and Values." *American Sociological Review* 60:436-48.
- Blau, Peter M. 1977. *Inequality and Heterogeneity*. New York: Free Press.
- Bord, Richard James. 1971. "Rejection of the Mentally Ill: Continuities and Further Developments." *Social Problems* 18:496-509.
- Boswell, D.M. 1969. "Personal Crises and the Mobilization of the Social Network. Pp. 245-96 in *Social Networks in Urban Situations*, edited by James Clyde Mitchell. Manchester: Manchester University Press.
- Boudon, Raymond. 1974. *Education, Opportunity, and Social Inequality: Changing Prospects in Western Society*. New York: Wiley-Interscience.

- Broese van Groenou, Marjolein I. and Hendrick D. Flap. 1990. "Development and Deterioration of Personal Relationships following Marital Separation: A Test of the Investment Model." International Sociological Association Meetings.
- Brown, George W. and Tirril Harris. 1978. *Social Origins of Depression: A Study of Depressive Disorder in Women*. New York: Free Press.
- Brown, George W., Tirril Harris, and John Harris. 1977. "Depression and Loss." *British Journal of Psychiatry* 130:1-18.
- Brugha, Terry S., J.K. Wing, C.R. Brewin, B. MacCarthy, and A. Lasage. 1993. "The Relationship of Social Network Deficits with Deficits in Social Functioning in Long-term Psychiatric Disorders." *Social Psychiatry and Psychiatric Epidemiology* 28:218-24.
- Buckley, Peter F., Tricia Robben, Lee Friedman, and Jodi Hyde. 1999. "Sexual Behavior in Persons with Serious Mental Illness: Patterns and Clinical Correlates." Pp. 1-20 in *Sexuality and Serious Mental Illness*, edited by P. F. Buckley. Amsterdam, The Netherlands: Harwood Academic Publishers.
- Campbell, Lori D., Ingrid A. Connidis, and Lorraine Davies. 1999. "Sibling Ties in Later Life: A Social Network Analysis." *Journal of Family Issues* 20:114-48.
- Cantor, Marjorie H. and Virginia Little. 1985. "Aging and Social Care." Pp. 745-781 in *Handbook of Aging and the Social Sciences*, edited by Robert H. Binstock and Ethel Shanas. New York: Van Nostrand Reinhold.
- Carpentier, Normande, Alain Lesage, and Deena White. 1999. "Family Influence on the First Stages of the Trajectory of Patients Diagnosed with Severe Psychiatric Disorders." *Family Relations* 48:397-403.
- Carpentier, Normand and Francine Ducharme. 2003. "Care-Giver Network Transformations: The Need for an Integrated Perspective." *Ageing and Society* 23:507-25.
- Chauncey, Robert L. 1975. "Comment on The Labelling Theory of Mental Illness" *American Sociological Review* 40:248-252.
- Clausen, John A. and M. Yarrow. 1955. "Pathways to the Mental Hospital." *Journal of Social Issues* 11:25-32.
- Cohen, Jacob and Patricia Cohen. 1983. "Missing Data." Pp. 275-300 in *Applied Multiple Regression: Correlation Analysis for the Behavioral Sciences*, edited by Jacob Cohen and Patricia Cohen. New York: Academic Press.
- Cohen, Sheldon and G. McKay. 1983. "Social Support, Stress, and the Buffering Hypothesis: A Theoretical Analysis." Pp. 253-67 in *Handbook of Psychology and Health*, Vol. 4, edited by A. Baum, S.E. Taylor, and J. Singer. Hillsdale, NJ: Erlbaum.
- Cohen, Sheldon and Leonard Syme. 1985. *Social Support and Health*. New York: Academic Press.
- Coleman, James S. 1990. *Foundations of Social Theory*. Cambridge, MA: The Belknap Press of Harvard University.
- Collins, Linda and John Horn. 1991. *Best Methods for the Analysis of Change: Recent Advances, Unanswered Questions, Future Directions*. Washington D.C.: American Psychological Association.
- Collins, Linda and Aline Sayer. 2001. *New Methods for the Analysis of Change*. Washington D.C.: American Psychological Association.

- Cook, Judith A. 1988. "Who Mothers the Chronically Mentally Ill?" *Family Relations* 37:42-49.
- Coyne, James C. 1976. "Toward an Interactional Description of Depression." *Psychiatry: Journal for the Study of Interpersonal Processes* 39:28-40.
- Coyne, James C. and Geraldine Downey. 1991. "Social Factors and Psychopathology: Stress, Social Support, and Coping Processes." *Annual Review of Psychology* 42:401-25.
- Crisp, Arthur H., Michael G. Gelder, Susannah Rix, Howard I. Meltzer, and Olwen J. Rowlands. 2000. "The Stigmatization of People with Mental Illness." *The British Journal of Psychiatry* 177:4-7.
- Cubitt, Tessa. 1973. "Network Density among Urban Families." Pp. 67-82 in *Network Analysis: Studies in Human Interaction*, ed. Jeremy Boissevain and J. Clyde Mitchell. The Hague: Moutton.
- Cullen, Francis T. and John B. Cullen. 1978. *Toward a Paradigm of Labeling Theory*. Lincoln, NE: University of Nebraska Press.
- Cutrona, Carolyn, Dan Russel, and Jayne Rose. 1986. "Social Support and Adaptation to Stress by the Elderly." *Journal of Psychology and Aging* 1:47-54.
- Dickerson, Faith B., Clayton H. Brown, Julie Kreyenbuhl, Richard W. Goldberg, Li Juan Fang, and Lisa B. Dixon. 2004. "Sexual and Reproductive Behaviors among Persons with Mental Illness." *Psychiatric Services* 55:1299-1301.
- DiMatteo, Robin and Ron D. Hays. 1981. "Social Support and Serious Illness." Pp. 117-148 in *Social Support and Social Networks*, ed. Benjamin H. Gottlieb. Beverly Hills, CA: Sage.
- Donner, Allan. 1982. "The Relative Effectiveness of Procedures Commonly Used in Multiple Regression Analysis for Dealing with Missing Data." *The American Statistician* 36:378-81.
- Dowdall George W. and M.S. Goldstein. 1984. "Occupational Problems, Unemployment and Mental Illness: How a Community Mental Health Center Deals with Job Troubles." *The Journal of Applied Social Sciences*: 37-57.
- Duck, Steven W. 1973. "Personality Similarity and Friendship Choice: Similarity of What, When?" *Journal of Personality* 41:543-58.
- Dunham, H. Warren. 1971. "Comment on Gove's Evaluation of Societal Reaction Theory as an Explanation for Mental Illness." *American Sociological Review* 36:313-14.
- Durkheim, Emile. 1987 [1951]. *Suicide: A Study in Sociology*. Glencoe, IL: Free Press. (Original work published in 1897)
- Erikson, Kai T. 1976. *Everything in Its Path: Destruction of Community in the Buffalo Creek Flood*. New York: Simon & Schuster.
- Estroff, Susan E. 1981. *Making it Crazy: An Ethnography of Psychiatric Clients in an American Community*. Berkeley, CA: University of California Press.
- Ettner, Susan L., Richard G. Frank, and Ronald C. Kessler. 1997. "The Impact of Psychiatric Disorders on Labor Market Outcomes." *Industrial and Labor Relations Review* 51:64-81.
- Farina, Amerigo, Gliha, Boudreau, Allen, and Sherman. 1971. "Mental Illness and the Impact of Believing Others Know About It." *Journal of Abnormal Psychology* 77:1-5.

- Feld, Scott. 1982. "Social Structural Determinants of Similarity among Associates." *American Sociological Review* 47:797-801.
- . 1984. "The Structured Use of Personal Associates." *Social Forces* 62:640-52.
- . 1997. "Structural Embeddedness and the Stability of Interpersonal Relations." *Social Networks* 19:91-95.
- Festinger, Leon, Stanley Schachter, and Kurt Back. 1950. *Social Pressures in Informal Groups: A Study of a Housing Community*. Palo Alto, CA: Stanford University Press
- Finch, Janet and Jennifer Mason. 1993. *Negotiating Family Responsibilities*. London: Routledge.
- Fischer, Claude. 1982. *To Dwell Among Friends: Personal Networks in Town and City*. Chicago: University of Chicago Press.
- France, Alan and Ross Homel. 2006. "Societal Access Routes and Developmental Pathways: Putting Social Structure and Young People's Voice into the Analysis of Pathways Into and Out of Crime." *Australian and New Zealand Journal of Criminology* 39:295-321.
- Frank, Richard G., and Paul Gertler. 1991. "Mental Health and Marital Stability." *International Journal of Law and Psychiatry* 14:377-86.
- Fuhrer, R. and S.A. Stansfeld. 2002. "How Gender Affects Patterns of Social Relations and their Impact on Health: A Comparison of One or Multiple Sources of Support from "Close Persons"." *Social Science and Medicine* 54:811-25.
- Gans, Herb. 1962. *The Urban Villagers*. New York: Free Press.
- Gerstel, Naomi R., Catherine K. Riessman, and Sarah Rosenfield. 1985. "Explaining the Symptomatology of Separated and Divorced Women and Men: The Role of Material Conditions and Social Networks." *Social Forces* 64:84-101.
- Goffman, Irving. 1961. *Asylums: Essays on the Social Situation of Mental Patients and Other Inmates*. Garden City, NJ: Doubleday & Co.
- . 1963. *Stigma: Notes of the Management of Spoiled Identity*. Englewood Cliffs, NJ: Prentice Hall.
- Gove, Walter R. 1970. "Societal Reaction as an Explanation of Mental Illness: An Evaluation." *American Sociological Review* 35:873-84.
- . 1975. "The Labelling Theory of Mental Illness: A Reply to Scheff" *American Sociological Review* 40:242-48.
- . 1976. "Reply to Imershein and Simons (1976) and Scheff (1975)." *American Sociological Review* 41:564-67.
- Gove, Walter and Michael R. Geerken. 1977. "The Effect of Children and Employment on the Mental Health of Married Men and Women." *Social Forces* 56:66-76.
- Grant, Gordon. 1993. "Support Networks and Transitions Over Two Years Among Adults with a Mental Handicap." *Mental Handicap Research* 6:36-55.
- Grant, Gordon, and Clare Wenger. 1993. "Dynamics of Support Networks: Differences and Similarities Between Vulnerable Groups." *The Irish Journal of Psychology* 14:79-98.
- Granovetter, Mark. 1973. "The Strength of Weak Ties." *The American Journal of Sociology* 78:1360-80.

- . 1974. *Getting a Job. A Study of Contacts and Careers*. Chicago: University of Chicago Press
- . 1982. "The Strength of Weak Ties: a Network Theory Revisited." Pp. 105-30 in *Social Structure and Network Analysis*, edited by Peter V. Marsden and Nan Lin. Beverly Hills: Sage Publications.
- Groot, Wim and Maartje Verberne. 1997. "Aging, Job Mobility, and Compensation." *Oxford Economic Papers* 49:380-403.
- Hachen, David S. 1990. "Three Models of Job Mobility in Labor Markets." *Work and Occupations* 17:320-54.
- Haines, Valerie, John J. Beggs, and Jeanne S. Hurlbert. 2002. "Exploring the Structural Contexts of the Support Process: Social Networks, Social Statuses, Social Support, and Psychological Distress." *Social Networks and Health* 8:269-92.
- Hallinan, Maureen T. and Richard A. Williams. 1987. "The Stability of Students' Interracial Friendships." *American Sociological Review* 52:653-64.
- Hamilton, N.G., C.A. Ponzoha, D.L. Cutler, and R.M. Weigel. 1989. "Social Networks and Negative versus Positive Symptoms of Schizophrenia." *Schizophrenia Bulletin* 15: 625-33.
- Hammen, Constance L., and Stephanie D. Peters. 1977. "Differential Responses to Male and Female Depressive Reactions." *Journal of Consulting and Clinical Psychology* 45:994-1001.
- Hammer, Muriel. 1983. "Core and Extended Social Networks in Relation to Health and Illness." *Social Science and Medicine* 17:405-11.
- Hammer, Muriel, S. Makiesky-Barrow, and L. Gutwirth. 1978. "Social Networks and Schizophrenia." *Schizophrenia Bulletin* 4:522-45
- Henderson, Scott. 1977. "The Social Network, Support, and Neurosis: The Function of Attachment in Adult Life." *British Journal of Psychiatry* 131:185-198.
- . 1980. "A Development in Social Psychiatry: The Systematic Study of Social Bonds." *Journal of Nervous and Mental Disease* 168:63-69.
- Henderson, Scott, P. Duncan-Jones, H. McAuley, and K. Ritchie. 1978. "The Patient's Primary Group." *British Journal of Psychiatry* 132:74-86.
- Hokanson, Jack E., Mark P. Rubert, Richard A. Welker, Glee R. Hollander, and Carla Hedeem. 1989. "Interpersonal Concomitants and Antecedents of Depression among College Students." *Journal of Abnormal Psychology* 98:209-17.
- Hollingshead, A.B. 1939. "Behavior Systems as a Field for Research." *American Sociological Review* 4:816-22.
- Horwitz, Allan. 1977. "Social Networks and Pathways to Psychiatric Treatment." *Social Forces* 56:86-105.
- House, James S., Karl R. Landis, and Debra Umberson. 1988. "Social Relationships and Health." *Science* 241:540-45.
- Howes, Mary J., and Jack E. Hokanson. 1979. "Conversational and Social Responses to Depressive Interpersonal Behavior." *Journal of Abnormal Psychology* 88:625-34.
- Huckfeldt, Robert R. 1983. "Social Contexts, Social Networks, and Urban Neighborhoods: Environmental Constraints on Friendship Choice." *The American Journal of Sociology* 89:651-69.
- Hurlbert, Jeanne S., Valerie A. Haines, and John J. Beggs. 2000. "Core Networks and Tie Activation: What Kinds of Routine Networks Allocate Resources in Nonroutine Situations?" *American Sociological Review* 65:598-618.

- Husaini, Bagar A., and April Von Frank. 1985. "Life Events, Coping Resources, and Depression: A Longitudinal Study of Direct, Buffering, and Reciprocal Effects." *Research in Community & Mental Health* 5:111-36.
- Jasny, Barbara R., and Ray, L. Bryan. 2003. "Life and the Art of Networks." *Science* 301: 1863.
- Jayakody, Rukmalie, Sheldon Danziger, and Ronald C. Kessler. 1998. "Early-Onset Psychiatric Disorders and Male Socioeconomic Status." *Social Science Research* 27:371-87.
- Johnson, Timothy P. 1991. "Mental Health, Social Relations, and Social Selection: A Longitudinal Analysis." *Journal of Health and Social Behavior* 32:408-423.
- Jones, Loring P. 1991. "Unemployment: The Effect on Social Networks, Depression, and Reemployment Opportunities." *Journal of Social Service Research* 15:1-22.
- Kadushin, Charles. 1981. "Notes on Expectations of Reward in N-Person Networks." Pp. 235-54 in *Continuities in Structural Inquiry*, edited by Peter M. Blau and Robert K. Merton. Beverly Hills: Sage Publications.
- Kaniasty, Krzysztof and Fran H. Norris. 1993. "A Test of the Social Support Deterioration Model in the Context of Natural Disaster." *Journal of Personality and Social Psychology* 64:395-408.
- Katz, Nancy; David Lazer, Holly Arrow, and Noshir Contractor. 2004. "Network Theory and Small Groups." *Small Group Research* 35:307-32.
- Kemper, Theodore D. 1972. "The Division of Labor: A Post-Durkheimian Analytical View." *American Sociological Review* 37:739-53.
- Kessler, Ronald C. and Jane D. McLeod. 1985. "Social Support and Mental Health in Community Samples." Pp. 219-40 in *Social Support and Health*, edited by Sheldon Cohen and Leonard Syme. Orlando, FL: Academic Press.
- Kessler, Ronald C., Olga Demler, Richard G. Frank, Mark Olfson, Harold Alan Pincus, Ellen E. Walters, Philip Wang, Kenneth B. Wells, and Alan M. Zaslavsky. 2005. "Prevalence and Treatment of Mental Disorders, 1990 to 2003." *The New England Journal of Medicine* 352:2515-23.
- Khaldun, Ibn. 1377 [1958] *The Muqaddimah : An introduction to history* (translated by Franz Rosenthal). New York: Princeton, NJ.
- Killworth, Peter D., Eugene C. Johnsen, Gene A. Shelley, H. Russell Bernard, and Christopher McCarty. 1990. "Estimating the Size of Personal Networks." *Social Networks* 12:289-312.
- Kirk, Stuart A. 1974. "The Impact of Labeling on Rejection of the Mentally Ill: An Experimental Study." *Journal of Health and Social Behavior* 15:108-17.
- Lam, Dominic and Grace Wong. 1997. "Prodromes, Coping Strategies, Insight and Social Functioning in Bipolar Affective Disorders." *Psychological Medicine*. 27:1091-1100.
- Lamb, H. Richard and Linda E. Weinberger. 1998. "Persons With Severe Mental Illness in Jails and Prisons: A Review." *Psychiatric Services* 49:483-92.
- Laumann, Edward O. 1994. *The Social Organization of Sexuality: Sexual Practices in the United States*. Chicago: University of Chicago Press.

- Lehman, Stanley, Virginia Joy, Dolores Kreisman, and Samuel Simmens. 1976. "Responses to Viewing Symptomatic Behaviors and Labeling of Prior Mental Illness." *Journal of Community Psychology* 4:327-34.
- Leik, Robert K. and Mary Anne Chalkey. 1997. "On the Stability of Network Relations Under Stress." *Social Networks* 19:63-74.
- LeMasters, E.E. 1957. "Parenthood as Crisis." *Marriage and Family Living* 19:352-55.
- Lewis, Melvin. 1991. "Adjustment Disorder." *Child and Adolescent Psychiatry: A Comprehensive Textbook*. Baltimore, MD: Williams and Wilkins.
- Libet, Julian M., and Peter M. Lewinsohn. 1973. "Concept of Social Skill with Special Reference to the Behavior of Depressed Persons." *Journal of Consulting and Clinical Psychology* 40:304-12.
- Liem, Joan and Ramsay Liem. 1976. "Life Events, Social Supports, and Physical and Psychological Well-being." Presented at American Psychological Association Meetings, Washington D.C.
- Lin, Nan and Kristen M. Peek. 1999. "Social Networks and Mental Health." Pp. 241-58 in *A Handbook for the Study of Mental Health*, edited by Allen V. Horwitz and Theresa Scheid. New York: Cambridge University Press.
- Linhorst, Donald M. 1990. "A Redefinition of the Problem of Homelessness among Persons with a Chronic Mental Illness." *Journal of Sociology and Social Welfare* 17:43-56.
- Link, Bruce. 1982. "Mental Patient Status, Work, and Income: An Examination of the Effects of a Psychiatric Label." *American Sociological Review* 47:202-15.
- . 1987. "Understanding Labeling Effects in the Area of Mental Disorders: An Assessment of the Effects of Expectations of Rejection." *American Sociological Review* 52:96-112.
- Link, Bruce G., Francis T. Cullen, J. Frank and J. Wozniak. 1987. "The Social Rejection of Ex-Mental Patients: Understanding Why Labels Matter." *American Journal of Sociology* 92:1461-1500.
- Link, Bruce G., Francis T. Cullen, Elmer Struening, Patrick E. Shrout and Bruce P. Dohrenwend. 1989. "A Modified Labeling Theory Approach to Mental Disorders: An Empirical Assessment." *American Sociological Review* 54:400-23.
- Link, Bruce G., Jo C. Phelan, Michaeline Bresnahan, Ann Stueve, and Bernice A. Pescosolido. 1999. "Public Conceptions of Mental Illness: Labels, Causes, Dangerousness, and Social Distance." *American Journal of Public Health* 89:1328-33.
- Link, Bruce G., Lawrence H. Yang, Jo C. Phelan, and Pamela Y. Collins. 2004. "Measuring Mental Illness Stigma." *Schizophrenia Bulletin* 30:511-41.
- Lipton, F.R., C.I. Cohen, E. Fischer, and S.E. Katz. 1981. "Schizophrenia: A Network Crisis." *Schizophrenia Bulletin* 7:144-51.
- Lish Jennifer D., Susan Dime-Meenan, Peter C. Whybrow, R. Arlen Price, and Robert Hirschfeld. 1994. "The National Depressive and Manic-Depressive Association (DMDA) Survey of Bipolar Members." *Journal of Affective Disorders* 31:281-94.
- Little, Roderick J. A. and Donald R. Rubin. 1987. *Statistical Analysis with Missing Data*. New York: Wiley.
- . 1990. "The Analysis of Social Science Data with Missing Values." *Sociological Methods and Research* 18:292-326.

- Litwak, Eugene. 1985. *Helping the Elderly: The Complementary Roles of Informal Networks and Formal Systems*. New York: The Guilford Press.
- Loman, Anthony L. and William E. Larkin. 1976. "Rejection of the Mentally Ill: An Experiment in Labeling." *The Sociological Quarterly* 17:555-60.
- Long, J. Scott. 1997. *Regression Models for Categorical and Limited Dependent Variables*. Thousand Oaks, CA: Sage Publications.
- Lopata, Helena Z. 1977. "Widows and Widowers." *The Humanist* 37:25-28.
- MacGeorge, Erina L., Seth J. Gillihan, Wendy Samter, and Ruth Anne Clark. 2003. "Skill Deficit or Differential Motivation? Testing Alternative Explanations for Gender Differences in the Provision of Emotional Support." *Communication Research* 30:272-303.
- Manning, Cressida, and Peter D. White. 1995. "Attitudes of Employers to the Mentally Ill." *Psychiatric Bulletin* 19:541-43.
- Marcotte, Dave E., and Virginia Wilcox-Gok. 2001. "Estimating the Employment and Earnings Costs of Mental Illness: Recent Developments in the United States." *Social Science and Medicine* 53:21-27.
- Marks, Nadine S. 1996. "Caregiving Across the Lifespan: National Prevalence and Predictors." *Family Relations* 45:27-36.
- Marks, Stephen R. 1994. "Intimacy in the Public Realm: The Case of the Co-Worker." *Social Forces* 72:843-58.
- Marsden, Peter V. 1987. "Core Discussion Networks of Americans." *American Sociological Review* 53:122-131.
- . 1988. "Homogeneity in Confiding Relations." *Social Networks* 10:57-76.
- . 2000. "Social Networks." Pp. 2727-2735 in *Encyclopedia of Sociology*, edited by Edgar F. Borgatta and Rhonda J. V. Montgomery. New York: Macmillan.
- Martin, Jack K., Bernice Pescosolido, and Steven A. Tuch. 2000. "Of Fear and Loathing: The Role of "Disturbing Behavior," Labels, and Causal Attributions in Shaping Public Attitudes toward People with Mental Illness." *Journal of Health and Social Behavior* 41:208-23.
- Martin, Jack K., Bernice A. Pescosolido, Sigrun Olafsdottir, and Jane D. McLeod. 2007. "The Construction of Fear: Americans' Preferences for Social Distance from Children and Adolescents with Mental Health Problems." *Journal of Health and Social Behavior* 48:50-67.
- Maurin, Judith T. and Carlene B. Boyd. 1990. "Burden of Mental Illness on the Family: A Critical Review." *Archives of Psychiatric Nursing* 4:99-107.
- McPherson, Miller, Lynn Smith-Lovin, and James M. Cook. 2001. "Birds of a Feather: Homophily in Social Networks." *Annual Review of Sociology* 27: 415-444.
- Merton, Robert. 1968. *Social Theory and Social Structure*. Glencoe, IL: Free Press.
- Metraux, Stephen. 2002. "Taking Different Ways Home: The Intersection of Mental Illness, Homelessness and Housing in New York City." Dissertation.
- Milardo, Robert M. 1987. "Changes in Social Networks of Men and Women Following Divorce." *Journal of Family Issues* 8:78-96.
- Miller, Baila and Lynda Cafasso. 1992. "Gender Differences in Caregiving: Fact or Artifact?" *The Gerontologist* 32:498-507.
- Mirowsky, John and Catherine E. Ross. 1989. "Psychiatric Diagnosis as Reified Measurement." *Journal of Health and Social Behavior* 30:11-25.

- Moody, James. 2002. "The Importance of Relationship Timing for Diffusion." *Social Forces* 81:25-56.
- Moody, James, Daniel McFarland, and Skye Bender-deMoll. 2005. "Dynamic Network Visualization." *American Journal of Sociology* 110:1206-41.
- Moore, Gwen. 1990. "Structural Determinants of Men's and Women's Personal Networks." *American Sociological Review* 55:726-35.
- Morgan, David L. 1989. "Adjusting to Widowhood: Do Social Networks Really Make It Easier?" *The Gerontologist* 29: 101-107.
- Morgan, David L., Margaret B. Neal, and Paula Carder. 1997. "The Stability of Core and Peripheral Networks over Time." *Social Networks* 19:9-25.
- Mueller, David P. 1980. "Social Networks: A Promising Direction for Research on the Relationship of the Social Environment to Psychiatric Disorder." *Social Science and Medicine* 14A:147-61.
- Munk-Jorgensen, Povl and Preben B. Mortensen. 1992. "Social Outcome in Schizophrenia: A 13-Year Follow-Up." *Social Psychiatry and Psychiatric Epidemiology*. 27:129-34.
- Murray, C. J. L. and A. D. Lopez. 1996. *The Global Burden of Disease and Injury Series, Volume 1: A Comprehensive Assessment of Mortality and Disability from Diseases, Injuries, and Risk Factors in 1990 and Projected to 2020*. Cambridge, MA: Harvard University Press.
- Neal, M.B., B. Ingersoll-Dayton, M.E. Starrels. 1997. "Gender and Relationship Differences in Caregiving Patterns and Consequences among Employed Caregivers." *The Gerontologist* 37:804-16.
- Nettler, Gwynn. 1974. "On Telling Who's Crazy." *American Sociological Review* 39:893-94.
- Newcomb, Theodore M. 1961. *The Acquaintance Process*. New York: Holt, Rinehart & Winston.
- Neyer, F., W. Bien, J. Marbach, and R. Templeton. 1991. "Obtaining Reliable Network Data about Family Life: A Methodological Examination concerning Reliability of Egocentered Networks in Survey Research." *Connections* 14:14-26.
- Olshansky, Simon, Samuel Grob, and Irene T. Malamud. 1958. "Employers' Attitudes and Practices in the Hiring of Ex-Mental Patients." *Mental Hygiene* 42:391-401.
- Page, Stewart. 1995. "Effects of the Mental Illness Label in 1993: Acceptance and Rejection in the Community." *Journal of Health and Social Policy* 7:61-68.
- Pahl, Ray and Liz Spencer. 2004. "Personal Communities: Not Simply Families of 'Fate' or 'Choice'." *Current Sociology* 52:199-221.
- Pahl, Ray and David J. Pevalin. 2005. "Between Family and Friends: A Longitudinal Study of Friendship Choice." *British Journal of Sociology* 56:433-50.
- Palinkas, Lawrence A., Deborah L. Wingard, and Elizabeth Barrett-Connor. 1990. "The Biocultural Context of Social Networks and Depression among the Elderly." *Social Science and Medicine* 30:441-47.
- Parsons, Talcott. 1951. *The Social System*. New York: The Free Press.
- Pattison, E.M., D. Defrancisco, P. Wood, H. Frazier, and J.A. Crowder. 1975. "A Psychosocial Kinship Model for Psychotherapy." *American Journal of Psychiatry* 132:1246-1251.

- Pavalko, Eliza K. and Shari Woodbury. 2000. "Social Roles as Process: Caregiving Careers and Women's Health." *Journal of Health and Social Behavior* 41:91-105.
- Pearlin, Leonard. 1985. "Social Structure and Processes of Social Support. Pp. 395-415 in *Social Support and Health*, edited by Sheldon Cohen and Leonard Syme. Orlando, FL: Academic Press.
- . 1999. "The Stress Process Revisited: Reflections on Concepts and their Interrelationships." Pp. 395-415 in *Handbook of the Sociology of Mental Health*, edited by Carol S. Aneshensel and Jo C. Phelan. New York: Kluwer Academic/Plenum.
- Pearlin, Leonard I., and Carol S. Aneshensel. 1986. "Stress, Coping, and Social Supports." Pp. 163-169 in *Perspectives in Medical Sociology*, edited by Paul Brown. Prospect Heights, IL: Waveland Press.
- Peek, Kristen M. and Gregory S. O'Neill. 2001. "Networks in Later Life: An Examination of Race Differences in Social Support Networks." *The International Journal of Aging and Human Development* 52:207-29.
- Perrucci, Robert and Dena B. Targ. 1982. *Mental Patients and Social Networks*. Boston, MA: Auburn House.
- Perry, Brea L. 2007. "Disordered Minds, Disrupted Relationships? Social Network Attrition in Serious Mental Illness." Society for the Study of Social Problems Annual Meeting.
- Perry, Brea L. and Eric R. Wright. 2006. "The Sexual Partnerships of People with Serious Mental Illness." *Journal of Sex Research* 43:174-81.
- Perry, Brea L. and Bernice A. Pescosolido. 2008. "Community Lost? Social Network Dynamics in First-Time Mental Health Treatment Clients." Unpublished Manuscript.
- Pescosolido, Bernice A. 1991. "Illness Careers and Network Ties: A Conceptual Model of Utilization and Compliance." *Advances in Medical Sociology* 2:161-84.
- . 1992. "Beyond Rational Choice: The Social Dynamics of How People Seek Help." *American Journal of Sociology* 97:1096-1134.
- . 2000. "The Role of Social Networks in the Lives of Persons with Disabilities." Pp. 468-89 in *Handbook of Disability Studies*, edited by Gary L. Albrecht, Katherine D. Seelman, and Michael Bury. Thousand Oaks, CA: Sage Publications.
- . 2006. "Of Pride and Prejudice: The Role of Sociology and Social Networks in Integrating the Health Sciences." *Journal of Health and Social Behavior* 47:189-208.
- Pescosolido, Bernice and Carol A Boyer. 1999 "How Do People Come to Use Mental Health Services? Current Knowledge and Changing Perspectives." Pp 392-411 in *Sociology of Mental Illness*, edited by Allen V. Horwitz and Theresa Scheid. Cambridge: Cambridge University Press.
- Pescosolido, Bernice A. and Judith A. Levy. 2002. "The Role of Social Networks in Health, Illness, Disease, and Healing: The Accepting Present, The Forgotten Past, and the Dangerous Potential for a Complacent Future." *Social Networks and Health* 8: 3-25.

- Pescosolido, Bernice A., Eric R. Wright, Margarita Alegria, and Mildred Vera. 1998. "Social Networks and Patterns of Use Among the Poor with Mental Health Problems in Puerto Rico." *Medical Care* 36:1057-72.
- Pescosolido, Bernice A., Carole Brooks-Gardner, and Kerri M. Lubell. 1998. "How People Get Into Mental Health Services: Stories of Choice, Coercion and "Muddling Through" From "First-Timers"." *Social Science and Medicine* 46:275-286.
- Pescosolido Bernice A, Jack K. Martin, Bruce G. Link, S. Kikuzawa, G. Burgos, R. Swindle, and Jo C. Phelan. 2000. "Americans' Views of Mental Health and Illness at Century's End: Continuity and Change. Bloomington, IN: Indiana Consortium for Mental Health Services Research.
- Pescovitz, David. 2003. "The Technology of the Year: Social Network Applications." *Business 2.0* 4:109-115.
- Phelan, Jo C. and Bruce G. Link. 1998. "The Growing Belief that People with Mental Illnesses are Violent: The Role of the Dangerousness Criterion for Civil Commitment." *Social Psychiatry & Psychiatric Epidemiology* 33:S7-S12.
- Phelan, Jo C., Bruce G. Link, Ann Steuve, and Bernice Pescosolido. 2000. "Public Conceptions of Mental Illness in 1950 and 1996: What is Mental Illness and is it to be Feared?" *Journal of Health and Social Behavior* 41:188-207.
- Pinquart, Martin and Silvia Sörensen. 2003. "Differences Between Caregivers and Noncaregivers in Psychological Health and Physical Health: A Meta-Analysis." *Psychology and Aging* 18:250-67.
- Power, Thomas G. and Ross D. Parke. 1984. "Social Network Factors and the Transition to Parenthood." *Sex Roles* 10:949-72.
- Provencher, Helene L. and Kim Mueser. 1997. "Positive and Negative Symptom Behaviors and Caregiver Burden in the Relatives of Persons with Schizophrenia." *Schizophrenia Research* 26:71 – 80.
- Raush, Harold L., William A. Barry, Richard K. Hertel, and Mary Ann Swain. 1974. *Communication, Conflict, and Marriage*. San Francisco: Jossey-Bass.
- Reinhard, Susan C., and Allen V. Horwitz. 1995. "Caregiver Burden: Differentiating the Content and Consequences of Family Caregiving." *Journal of Marriage and the Family* 57:741-50.
- Rollins, Boyd C. and Kenneth L. Cannon. 1974. "Marital Satisfaction over the Family Life Cycle: A Reevaluation." *Journal of Marriage and the Family* 36:271-82.
- Romans, Sarah and Heather McPherson. 1992. "The Social Networks of Bipolar Affective Disorder Patients." *Journal of Affective Disorders* 25:221-28.
- Rosenberg, Morris. 1984. "A Symbolic Interactionist View of Psychosis." *Journal of Health and Social Behavior* 25:289-302.
- Rosenfield, Sarah. 1991. "Homelessness and Rehospitalization: The Importance of Housing for the Chronic Mentally Ill." *Journal of Community Psychology* 19:60-69.
- Rosenfield, Sarah, and S. Wenzel. 1997. "Social Networks and Chronic Mental Illness: A Test of Four Perspectives." *Social Problems* 44: 200-216.
- Roth, Jeffrey A. 1963. *Timetables: Structuring the Passage of Time in Hospital Treatment and Other Careers*. Indianapolis: Bobbs-Merrill.

- Roth, Philip L. 1994. "Missing Data: A Conceptual Review for Applied Psychologists." *Personnel Psychology* 47:537-60.
- Roy, Alec. 1978. "Vulnerability Factors and Depression in Women." *British Journal of Psychiatry* 133:106-118.
- Ruan, Danching, Linton C. Freeman, Xinyuan Dai, Yunkang Pan and Wenhong Zhang. 1997. "On the Changing Structure of Social Networks in Urban China." *Social Networks* 19:75-89.
- Sampson, Robert J. Jeffrey D. Morenoff, and Thomas Gannon-Rowley. 2002. "Assessing "Neighborhood Effects": Social Processes and New Directions in Research." *Annual Review of Sociology* 28:443-78.
- Scheff, Thomas J. 1974. "Reply to Nettler" *American Sociological Review* 39:894-95.
- . 1975. "Reply to Chauncey and Gove" *American Sociological Review* 40:252-56.
- . 1984. *Being Mentally Ill: A Sociological Theory*. Hawthorne, NY: Gruyter.
- Scott, Jan. 1995. "Psychotherapy for Bipolar Disorder." *British Journal of Psychiatry* 167:581-88.
- Segal, Steven P. and Jane Holschuh. 1991. "The Effects of Sheltered Care Environments and Resident Characteristics on the Development of Social Networks." *Hospital and Community Psychiatry* 42:1125-31.
- Silver, Eric, Edward P. Mulvey, and Jeffrey W. Swanson. 2002. "Neighborhood Structural Characteristics and Mental Disorder: Faris and Dunham Revisited." *Social Science & Medicine* 55:1457-70.
- Silverstein, Merrill and Linda J. Waite. 1993. "Are Blacks More Likely Than Whites To Receive and Provide Social Support in Middle and Old Age? Yes, No, and Maybe So." *Journals of Gerontology* 48:S212-22.
- Simmel, Georg. 1908 [1955]. *Conflict and the Web of Group Affiliations* (translated and edited by Kurt Wolff). Glencoe, IL: Free Press
- Sokolovsky, J. J. Cohen, D. Berger, and J. Geiger. 1978. "Personal Networks of Ex-Mental Patients in a Manhattan SRO Hotel." *Human Organization* 37:5-12.
- South, Scott J. and Glenn D. Deane. 1993. "Race and Residential Mobility: Individual Determinants and Structural Constraints." *Social Forces* 72: 147-67.
- Spanier, Graham B., Robert A. Lewis, and Charles L. Cole. 1975. "Marital Adjustment over the Family Life Cycle: The Issue of Curvilinearity." *Journal of Marriage and the Family* 37:263-75.
- Spitzer, Robert L., Janet Williams, Miriam Gibbon, and Michael B. 1990. *First Structured Clinical Interview for DSM-III-R-Patient Edition (SCID-P, Version 1.0)*. Washington, DC: American Psychiatric Press.
- Strack, Stephan, and James C. Coyne. 1983. "Social Confirmation of Dysphoria: Shared and Private Reactions to Depression." *Journal of Personality and Social Psychology* 44:798-806.
- Suchman, Edward A. 1965. "Stages of Illness and Medical Care." *Journal of Health and Human Behavior* 6:114-128.
- Suitor, J. Jill, Berry Wellman, and David L. Morgan. 1997. "It's about Time: How, Why, and When Networks Change." *Social Networks* 19:1-7.
- Suitor, J. Jill and Shirley Keeton. 1997. "Once a Friend, Always a Friend? Effects of Homophily on Women's Support Networks across a Decade." *Social Networks* 19:51-62.

- Suitor, J. Jill and Karl Pillemer. 1995. "Changes in Support and Interpersonal Stress in the Networks of Married Caregiving Daughters: Findings from a 2-Year Panel Study." *American Sociological Association Annual Meetings*.
- Suitor, J. Jill, Karl Pillemer, and Shirley Keeton. 1995. "When Experience Counts: The Effects of Experiential and Structural Similarity on Patterns of Support and Interpersonal Stress." *Social Forces* 73:1573-88.
- Szasz, Thomas S. 1961. *The Myth of Mental Illness: Foundations of Theory of Personal Conduct*. New York: Hoeber-Harper.
- Tausig, Mark, Gene A. Fisher, and Richard C. Tessler. 1992. "Informal Systems of Care for the Chronically Mentally Ill." *Community Mental Health Journal* 28:413-25.
- Thoits, Peggy A. 1986. "Multiple Identities: Examining Gender and Marital Status Differences in Distress." *American Sociological Review* 51:259-72.
- Tolsdorf, Christopher C. 1976. "Social Networks, Support, and Coping: An Exploratory Study." *Family Processes* 15:407-413.
- Turner, R. Jay. 1981. "Social Support as a Contingency in Psychological Well-Being." *Journal of Health and Social Behavior* 22:357-67.
- Twaddle, Andrew D. and Richard M. Hessler. 1987. *A Sociology of Health*. London: Collier Macmillan.
- Wahl, Otto. 2000. *Telling is Risky Business*. New Brunswick, NJ: Rutgers University Press.
- Wasow, Mona. 1980. "Sexuality and the Institutionalized Mentally Ill." *Sexuality and Disability* 3:3-13.
- Wasserman, Stanley, and Katherine Faust. 1994. *Social Network Analysis*. New York: Cambridge University Press.
- Wellman, Barry. 1988. "The Community Question Re-Evaluated." Pp. 81-107 in *Power, Community, and the City*, ed. M.P. Smith. New Brunswick, NJ: Transaction Books.
- Wellman, Barry, and Barry Leighton. 1979. "Networks, Neighborhoods, and Communities." *Urban Affairs Quarterly* 14:363-90.
- Wellman, Barry and Scot Wortley. 1989. "Brothers' Keepers: Situating Kinship Relations in Broader Networks of Social Support." *Sociological Perspectives* 32:273-306.
- . 1990. "Different Strokes from Different Folks: Community Ties and Social Support." *The American Journal of Sociology* 96:558-88.
- Wellman, Barry and Kenneth Frank. 2001. "Network Capital in a Multi-Level World: Getting Support from Personal Communities." Pp. 233-73 in *Social Capital: Theory and Research*, edited by Nan Lin, Karen Cook, and Ronald Bury. Chicago, IL: Gruyter.
- Wellman, Barry and Milena Gulia. 1999. "The Network Basis of Social Support: A Network is More than the Sum of its Ties." Pp. 83-118 in *Networks in the Global Village*, edited by Barry Wellman. Boulder, CO: Westview Press.
- Wellman, Barry, Renita Yuk-lin Wong, David Tindall, and Nancy Nazer. 1997. "A Decade of Network Change: Turnover, Persistence, and Stability in Personal Communities." *Social Networks* 19:27-50.
- Wellman, Beverly. 2000. "Partners in Illness: Who Helps When You Are Sick?" Pp. 143-62 in *Complementary and Alternative Medicine: Challenge and Change*,

- edited by Merrijoy Kelner, Beverly Wellman, Bernice Pescosolido, and Mike Saks. Amsterdam, The Netherlands: Harwood Academic Publishers.
- White, Harrison C. 1992. *Identity and Control: A Structural Theory of Social Action*. Princeton, NJ: Princeton University Press.
- White, James M. and David M. Kline. 2002. *Family theories*, 2nd ed. Thousand Oaks, CA: Sage.
- Wilczynski, Ania. 1991. "Images of Women who Kill their Infants: The Mad and the Bad." *Women and Criminal Justice* 2:71-88.
- Winer, Deborah L., Thomas O. Bonner, Paul H. Blaney, and Edward J. Murray. 1981. "Depression and Social Attraction." *Motivation and Emotion* 5:153-66.
- Wolff, Geoffrey, Soumitra Pathare, Tom Craig, and Julian Leff. 1996. Community Attitudes to Mental Illness." *British Journal of Psychiatry* 168:183-90.
- Wright, Eric R. 1994. "Caring for Those Who Can't: Gender, Network Structure, and the Burden of Caring for People with Mental Illness." Dissertation 55, 2, 380-A.
- Wright, Eric R. and Bernice A. Pescosolido. 2002. "Sorry I Forgot: The Role of Recall Error in Longitudinal Personal Network Studies." Pp. 113-129 in *Advances in Medical Sociology: Social Networks and Health*, Vol. 8, edited by Judith A. Levy and Bernice A. Pescosolido. Greenwich, CT: JAI Press.
- Wright, Eric R., Dustin Wright, Brea L. Perry, and Carrie Foote-Ardah. 2006. "Stigma and the Sexual Isolation of People with Serious Mental Illness." *Social Problems* 54:73-93.
- Yee, Jennifer L. and Richard Schulz. 2000. "Gender Differences in Psychiatric Morbidity among Family Caregivers." *The Gerontologist* 40:147-64.
- Youngren, Mary A., and Peter M. Lewinsohn. 1980. "The Functional Relation Between Depression and Problematic Interpersonal Behavior." *Journal of Abnormal Psychology* 89:333-41.
- Zeggelink, Evelien. 1995. "Evolving Friendship Networks: An Individual-Oriented Approach to Implementing Similarity." *Social Networks* 17:83-110.

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 Minor in Multidisciplinary Approaches to Health and Illness
 Thesis: *The Ripple Effect: Social Network Dynamics, Social Location, and Strategies of Interaction in Mental Illness Careers*
 Committee: Bernice Pescosolido (chair), J. Scott Long, Eric R. Wright, Jane D. McLeod, and Jack K. Martin
- 2003 Qualifying Examination: Medical Sociology and Social Networks
 Committee: Bernice A. Pescosolido (chair), Jane D. McLeod, Elizabeth Armstrong
- 2002 M.A., Sociology
 Indiana University, Bloomington
 Thesis: *Breaking the Ties That Bind: Network Disruption and the Role of Changing Family Structures and Peer Relationships on Foster Care Youths' Mental Health*
 Committee: Bernice Pescosolido (chair), and Jane D. McLeod
- 1999 B.S., Psychology
 B.A., Sociology
 B.A., Biology
 B.A., French
 Indiana University, Bloomington

RESEARCH AND TEACHING INTERESTS

Social Networks
Medical Sociology
Mental Health/Illness

Genetics and Society
Longitudinal Methodology
Childhood/Adolescence

PUBLICATIONS

Perry, Brea L. "Taking the Medical Sciences Seriously: How and Why Sociological Research Should Incorporate Diverse Disciplinary Perspectives." In Bernice Pescosolido, Jack K. Martin, Jane McLeod, and Anne Rogers (Eds.) *Handbook of the Sociology of Health, Illness, and Healing*. New York: Springer Publishing. Forthcoming.

Pescosolido, Bernice, Brea L. Perry, J. Scott Long, Jack K. Martin, John I. Nurnberger Jr., John Kramer, and Victor Hesselbrock. "Under the Influence of Genetics: How Transdisciplinarity Leads Us to Rethink Social Pathways to Illness." *American Journal of Sociology*. Forthcoming.

Pescosolido, Bernice, Peter Jensen, Jack K. Martin, Brea L. Perry, Sigrun Olafsdottir, and Danielle Fettes. "Public Knowledge and Assessment of Child Mental Health Problems: Findings from the National Stigma Study-Children." *Journal of the American Academy of Child and Adolescent Psychiatry*. Forthcoming.

Perry, Brea L., Bernice Pescosolido, Jack K. Martin, Jane D. McLeod, and Peter S. Jensen. 2007. "Comparing Public Attributions, Attitudes, and Stigma in Regard to Depression among Children and Adults." *Psychiatric Services* 58:632-35.

Pescosolido, Bernice, Brea L. Perry, Jack K. Martin, Jane D. McLeod, and Peter Jensen. 2007. "Stigmatizing Attitudes and Beliefs about Treatment and Psychiatric Medications for Children with Mental Illness." *Psychiatric Services* 58:613-18.

Wright, Eric R., Dustin Wright, Brea L. Perry, and Carrie E. Foote-Ardah. 2007. "Stigma and the Sexual Isolation of People with Serious Mental Disorders." *Social Problems* 54:73-93.

Perry, Brea L. 2006. "Understanding Social Network Disruption: The Case of Youth in Foster Care." *Social Problems* 53:371-91.

Perry, Brea L., and Eric R. Wright. 2006. "The Sexual Partnerships of People with Serious Mental Illness." *Journal of Sex Research* 43:174-81.

Wright, Eric R., and Brea L. Perry. 2006. "Sexual Identity Distress, Social Support, and the Health of Gay, Lesbian, and Bisexual Youth." *Journal of Homosexuality* 51:81-109.

PAPERS IN PROGRESS

Perry, Brea L. "Disordered Minds, Disrupted Relationships? Social Network Attrition and Serious Mental Illness."

Perry, Brea L., Bernice Pescosolido, J. Scott Long, and Jack K. Martin. "Durkheim and the Role of Genetics: The Case of Youth Conduct Disorder."

Pescosolido, Bernice, Brea L. Perry, J. Scott Long, and Jack K. Martin. "Slaves to Biology? Gender, Genes, and Risk for Alcohol Dependence."

Perry, Brea L. and Bernice A. Pescosolido. "Social Network Specificity: Overlap in Health and Core Discussion Networks."

Perry, Brea L. and Bernice A. Pescosolido. "Community Lost? Social Network Dynamics across the Illness Career."

Pescosolido, Bernice and Brea L. Perry. "The Effects of Social Network Dynamics on Illness and Treatment-Related Outcomes."

HONORS, AWARDS, AND GRANTS

- | | |
|-----------|---|
| 2007 | Alfred Lindesmith-Elizabeth Ione Mullins Fellowship for Excellence in Research, Indiana University |
| 2006 | Scheussler Award for Exceptional Research, Indiana University, "Understanding Network Disruption: The Case of Youth in Foster Care" |
| 2005 | Graduate Student Paper Competition Award, Mental Health Section of the Society for the Study of Social Problems, "Disordered Minds, Disrupted Relationships? Social Network Instability and Serious Mental Illness" |
| 2005 | Junior Scholar Award, National Science Foundation/American Sociological Association Fund for the Advancement of the Discipline, Social Capital and Social Networks Conference, Ohio State University |
| 2005-2006 | Departmental Research Fellowship, Indiana University |
| 2003 | Elizabeth Craft Memorial Award for Excellence in Research, Indiana University, "Beyond the Dyad: Supportive Network Domains and Psychological Distress among Foster Care Youth" |

- 2003 North Central Sociological Association Graduate Student Paper Award, "Beyond the Dyad: Supportive Network Domains and Psychological Distress among Foster Care Youth"
- 2001-2005 National Science Foundation Graduate Fellowship
- 2000 Dean's Fellowship, Indiana University
- 2000-2001 Indiana University Tuition Scholarship

PROFESSIONAL PRESENTATIONS

Perry, Brea L. 2007. "When Sociology and Genetics Meet: Findings from the COGA Study." Presented at the ASA meetings in New York, NY.

Perry, Brea L. 2005. "Disordered Minds, Disrupted Relationships? Social Network Instability and Serious Mental Illness." Presented at the SSSP meetings in Philadelphia, PA.

Perry, Brea L. 2005. "The Columbine Effect? Public Perceptions of Adult and Child Depression." Presented at the ASA meetings in Philadelphia, PA.

Perry, Brea L. 2003. "Losing the Ties That Bind: Network Disruption and the Role of Changing Family Structures and Peer Relationships on Foster Care Youths' Mental Health." Presented at the NCSA meetings in Cincinnati, OH.

Perry, Brea L. 2003. "Beyond the Dyad: Supportive Network Domains and Psychological Distress among Youth in Foster Care." Presented at the ASA meetings in Atlanta, GA.

Perry, Brea L. (with Eric R. Wright). 2001. "Experiencing Sexuality as a Person with Severe Mental Illness." Presented at the ASA meetings in Anaheim, CA.

TEACHING EXPERIENCE

- 2003, 2005 Instructor
Department of Sociology, Indiana University
Introduction to Sociology (S100)
- 2001 Graduate Teaching Assistant
Department of Sociology, Indiana University
Work and Occupations (S315), Constructing Sexuality (S422)

RESEARCH EXPERIENCE

- 2005- Data Analyst, Author: “Collaborative Study on the Genetics of Alcoholism” (PI: John Nurnberger).
- 2005- Instrument Evaluator/Developer: “Collaborative Genomic Study of Bipolar Disorder” (PI: John Nurnberger).
- 2003-2007 Data Analyst, Author: “National Stigma Study – Children, General Social Survey 2002” (PI: Bernice Pescosolido).
- 2002- Data Analyst, Author: “Indianapolis Network Mental Health Study” (PI: Bernice Pescosolido).
- 2000-2001 Interviewer, Data Analyst, Author: “These Are My Experiences: A Study of Youth in Foster Care” (PI: Jane Mcleod).
- 1999-2006 Project Manager, Interviewer, Data Analyst, Author: “Indiana Mental Health Services and HIV Risk Study” (PI: Eric R. Wright).

SERVICE

Professional

- 2006- Reviewer, *American Journal of Sociology*, *Social Problems*, *Community Mental Health Journal*, and *Depression and Anxiety*
- 2003-2004 Student Editor, American Sociological Association Medical Sociology Section Newsletter
- 2004- Member, Society for the Study of Social Problems
- 1999- Member, American Sociological Association

Department

- 2006-2007 Member, Personnel Committee, Indiana University
- 2005-2006 Member, Graduate Affairs Committee, Indiana University
- 2004-2005 Graduate Student Mentor, Indiana University
- 2003-2006 Departmental Photographer, Indiana University
- 2003-2004 Member, Outstanding Graduate Student Mentor Committee, Indiana University
- 2002-2003 Member, Outstanding Faculty Mentor Committee, Indiana University

Community

- 2003-2006 Big Sister, Big Brothers Big Sisters of Southern Indiana
- 2003-2005 Workshop Leader and Coach, Girls Inc. of Monroe County
- 2003-2004 Panel Participant, GLBT Services
- 2001-2002 Research Consultant, Youth Services Bureau of Monroe County