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Counting on Kin: Social Networks, Social Support and Child Health Status

Shawn Malia Kanaiaupuni
Theresa Thompson-Colón
Katharine M. Donato

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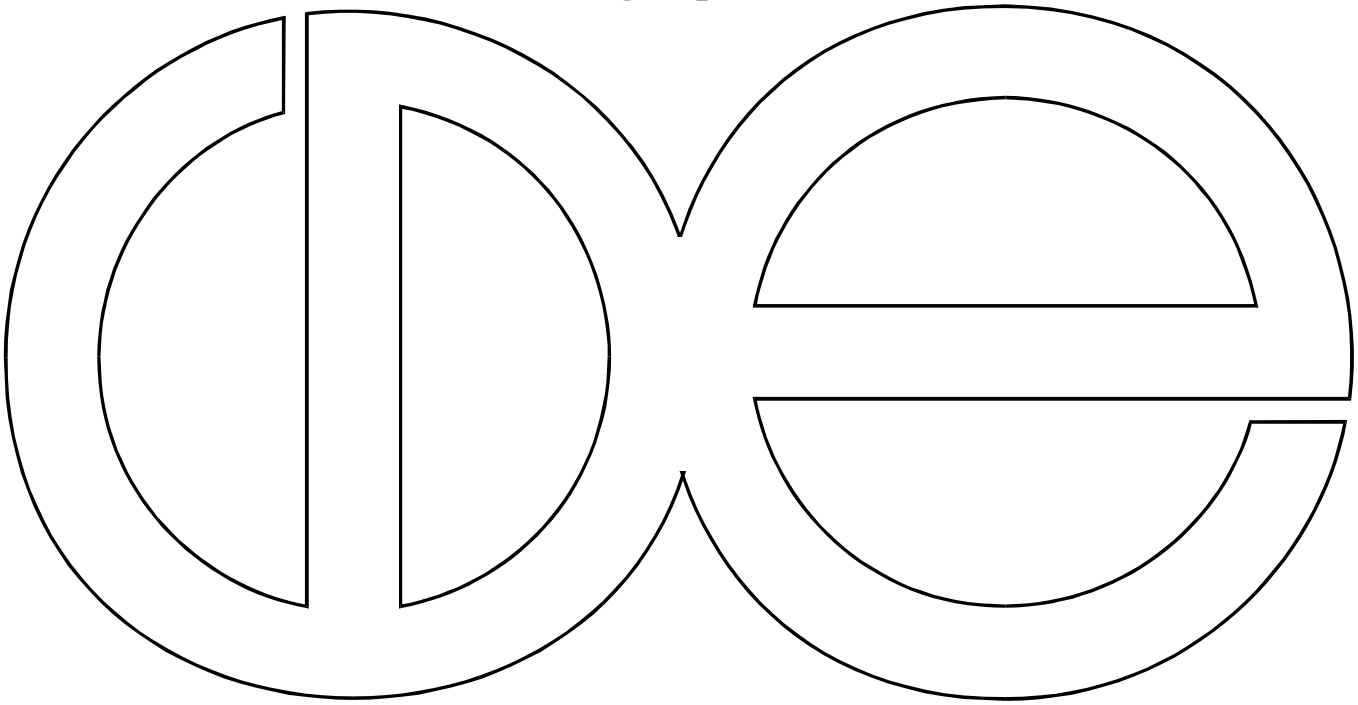

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Shawn Malia Kanaiaupuni
Department of Sociology
The University of Wisconsin-Madison
1180 Observatory Drive
Madison, Wisconsin 53706

Theresa Thompson-Colón
Department of Sociology
The University of Wisconsin-Madison
1180 Observatory Drive
Madison, Wisconsin 53706

Katharine M. Donato
Department of Sociology - MS 28
Rice University
6100 Main Street
Houston, TX 77005-1892

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ABSTRACT

This paper presents the results of new data collection in Mexico about the relationships between child well-being and social networks. Two research questions guide the analysis: first, under what conditions do networks generate greater support; and second, what kinds of networks are associated with healthier children. We explore the health status effects of several dimensions of social networks, including network size, kinship roles, interaction (proximity, contact and co-residence), and provision of financial and emotional support. Our key findings suggest that networks containing more extended kin and coresident members offer greater support to mothers with young children and that, in turn, network structures characterized by more social support and greater interaction with extended, rather than immediate, kin sustain healthier children. Together these findings attest to the importance of social networks founded on principles of reciprocity, confianza and compadrazgo to the well-being of Mexican families.

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The idea that social integration affects health is not new. Scientific research has focused on the question of how social relationships link to health for at least 100 years. But what is new is the confusion that results after reading contemporary studies documenting how social ties may both improve and worsen health. The confusion stems from a tendency to conflate social networks and social support, and from an insensitivity to the sociocultural context in which networks are analyzed. Conventional approaches have compounded these problems by relying on unidimensional conceptualizations of social support and networks in health research (Glass, Mendes de Leon, Seeman & Berkman 1997; Seeman 1996). One consequence is that explanations of how network structures influence social support and health are incomplete (Seeman & Berkman 1988; Wellman 1981).

Research on community networks and social support has paid particular attention to the social support that community members provide because it is one way in which resources are transferred.[1] Wellman and Wortley's (1990) landmark study of community ties and social support in Toronto is an important example. These authors show that networks in East York, Toronto consisted of both immediate kin, whose ties are dense and broadly supportive, and of friends, neighbors, and others, whose ties are loosely knit and offer specialized support. Together kin and nonkin offered intimacy and social support resources to community members, helping them combat physical and emotional stressors encountered in everyday life.

To address the three-way relationship between social support, social networks and child health, we draw on published studies of social networks, social support, and health found in

[1] Although good health may be a resource, it is not examined in these studies.

sociology and epidemiology. We argue that the sociocultural context in which networks are analyzed is key to understanding which ties and network attributes are more/less helpful in promoting child health. To do this, we focus on Mexico for several reasons. First, it is a nation that has been marked by sustained economic recession and growing socioeconomic inequality since 1970. Second, Mexico offers few public welfare benefits and a healthcare system that contains persistent disparities between the rich and poor (Bobadilla et al. 1993; Frenk et al. 1989). Finally, Mexico is a society known for particular social arrangements, including a system of god parenting that has insured the survival of many families.

Therefore, in this paper, we use data gathered in Mexico to examine the relationships among social support, social networks, and child health. Using these data, we analyze variation in the type of social support that mothers access given the structural attributes of their social networks. We also examine the effects of network structure and social support on child health. Although networks may provide security during times of crisis or emergency, the cumulative impact of more routine, day-to-day supportive exchanges also may convey lasting effects on child health status. We begin below by reviewing existing research about how social networks and support influence health and the social network arrangements that link Mexican families. We then follow with a discussion of our hypotheses.

Prior Research

In theory, social relationships are linked to better health in several ways. They may provide emotional benefits, which include intimacy, a sense of belonging and self-esteem. They may also offer instrumental and material benefits by providing tangible assistance, such as money, services, goods, guidance and advice (Wellman & Wortley 1990; Kaplan, Cassell & Gore 1977; Walker, MacBride & Vachon 1977; Weiss 1969).

One of the earliest studies on social networks and health dates back to Durkheim's (1951) work on social isolation and suicide. Contemporary studies also suggest that adult social relationships have health-enhancing effects. Social support and social engagement reduce mortality risks and disability (e.g., Kawachi, Colditz, Ascherio, Rimm, Giovannucci, Stampfer, & Willett 1996; Forster & Stoller 1992; Sugisawa, Liang & Liu 1994, Litwin 1998), improve disease recovery rates (Berkman 1995), and promote cognitive development and function (Fratiglioni, Wang, Ericsson, Maytan & Winblad 2000; Berkman 2000). Although biological and personality endowments may also affect social relationships, once controlled for in multivariate models, "social relationships have a predictive, arguably causal, association with health in their own right" (House, Landis & Umberson 1988: 544).

Interest in the epidemiological paradox has stimulated recent discussions about whether and how social networks and social support affect Mexican health in the United States.[2] Although strong social ties among Mexicans is offered as part of an explanation of their better health in the United States, to date most evidence on this point has been speculative. For example, a recent study on the health of immigrant children by the National Research Council reported that "healthful behaviors may be reinforced by strong family bonds among immigrant groups and communities that sustain cultural orientations that lead to healthful behavior" (1998:63). Other studies have also pointed to cultural factors (such as strong ties among Mexican families) that may diminish the deleterious effects of poor socioeconomic status on health (Cobas et al. 1996; Collins and Shay 1994; Guendelman et al. 1990; Guendelman &

[2] The epidemiological paradox refers to the better health outcomes of Mexican and other Latinos compared to their non-Latino white counterparts. For example, despite poorer socioeconomic status, Latinas have birth outcomes that are comparable to non-Hispanic whites (Guendelman 1995). Research based on the Hispanic Health and Nutrition Examination Survey (HHANES) and other data sources shows that Mexicans have better birth outcomes than other ethnic groups who are more educated and better medically served (See JAMA 1991, v. 265, 2).

Abrams 1995; Guendelman 1995; Scribner 1996; Scribner & Dwyer 1989; Zambrana et al. 1997). One recent assessment of whether Puerto Rican culture protected the birth outcomes of recently arrived mothers to the mainland supports a more complicated interpretation (Landale, Oropesa & Gorman 2000). Although their findings suggested that "a strong orientation toward Puerto Rican culture" reduced the effect of low socioeconomic status on the health of children born in the U.S. mainland, the authors found that selective migration also contributed to the better birth outcomes of recently arrived Puerto Rican women (2000: 905).

Social Arrangements in Mexico: Reciprocal Exchange, Confianza and Compadrazgo

Although few studies have examined how social support and networks affect child health in Mexico, we expect that among families that sustain strong social ties with kin and others, social networks and social support will improve child health in Mexico. This occurs both directly, by providing additional childcare, parental support, and financial assistance, and indirectly, by offering children greater access to less-tangible benefits, such as emotional support and intimacy, that derive from ties with adult family or friends. Despite sustained economic recessions, growing socioeconomic inequality, and increasing outmigration occurring in contemporary Mexico since 1970,[3] particular features of social arrangements have helped insure the survival of many families. Below we describe three salient attributes of these arrangements: reciprocal exchange, confianza, and compadrazgo.

Reciprocal exchange refers to a transfer of commodities or services between groups or individuals. Transfers occur in both directions, participants may both provide and receive. Although an exchange often begins between persons with few resources, once it occurs it forms

[3] There are many papers and books that document these events and trends in Mexico (see, for example, Massey et al. 1987; Donato, Durand & Massey 1992; Castañeda 1995; Oppenheimer 1998).

an important resource that may be used whenever needed. Using this type of exchange, households may "organize the provision of basic needs by cultivating emotional and economic reciprocity and alliances among friends, neighbors, and kin" (Kanaiaupuni 2000: 20). Therefore, social networks are vital to exchange relationships because families use them to build security (Lomnitz 1977).

Confianza is vital to the system of reciprocal exchange. More than confidence or trust, confianza occurs before any exchange takes place and forms a building block for social cohesion. It is rooted in "a mutual desire and disposition to initiate or maintain a relationship of reciprocal exchange" (Lomnitz 1977:134), and it is often described as both an honor and an obligation. Kin or not, persons "de confianza" are responsible to help others in many different ways.

Compadrazgo is different than, but related to, confianza. It is a system of designating persons as sponsors in ritual relationships celebrating life events, such as childbirth (Kay 1980).[4] In Mexico, friends are often named as godparents of newborns. Although friendship is the usual basis for confianza, only when friendships are close and intimate do they become institutionalized by compadrazgo (O'Connor 1989). With the designation of comadre or compadre is a set of responsibilities for raising children. As a result, comadres/compadres form close bonds between themselves and the child's parents. On the whole, the system of compadrazgo provides families with security during periods of economic crisis, and it insures exchange of favors and obligations throughout the child's life (Dinerman 1982; Griswold del Castillo 1984; Lomnitz 1977; Williams 1990).

[4] Note that compadrazgo is established at birth as well as at other important life events such as confirmation and marriage.

Together, these three features of social network arrangements help maintain families in contemporary Mexican society. Ideally, Mexican families comprise immediate and extended relatives and friends bound together by mutual respect and reciprocity (see Williams 1990; Roschelle 1995; Vega 1990). The practical value of these network arrangements has been critical to families that face "the disorganizing impact of rapid urbanization, on the one hand, and economic crisis on the other" (González de la Rocha 1994:17). They provide both economic and political stability to urban and rural households (Dinerman 1982; Eckstein 1977; Lomnitz 1977; Logan 1981; Kanaiaupuni 2000).

Although particular Mexican social arrangements, such as god parenting, may help families secure the resources they need, limited knowledge exists about how these relationships operate. From studies using data collected in the United States, we know that Mexican families participate in large kin networks and engage in high rates of visiting and exchanges, patterns reinforced by greater propinquity of relatives compared to non-Hispanic whites (Keefe 1984; Mindel 1980). Some suggest that these networks are more likely to provide emotional support than instrumental or material assistance (Vega 1990:1019; Golding & Burnam 1990; Griffith & Villavicencio 1985). Others (Sherraden & Barrera 1996; De Anda 1984; De Anda & Becerra 1984) have found that mothers, especially those living nearby, promoted salubrious behavior during pregnancy, such as health prenatal diet and good nutrition, by providing instrumental assistance, emotional support and a legitimate source of knowledge and guidance. Sherraden and Barrera (1997) also found that family support enhanced pregnancy outcomes among second generation Mexicans. Compared to less supportive families, more supportive families maintained greater ties to Mexico, traveling more often across the border and integrating more Mexico-resident relatives into their active social network.

Overall these findings provide some insight into how kin, extended relatives, and friends may affect health. However, they are problematic because they rely solely on data gathered from Mexicans in U.S. destinations. In this paper, we advance the literature on the social support-social network-health relationship by examining the effects of social support and social networks on child health in Mexico. By stepping back and examining the organization of social relationships and their effects on child health in Mexico, the present analysis answers some key questions about the social support and social networks of Mexican families. In addition, it provides an empirical foundation for future studies on the effects of social networks on Mexican health across both sides of the Mexico-U.S. border.[5]

Hypotheses, Data and Methods

Hypotheses. We develop a set of hypotheses about the effects of networks on social support and child well-being in Mexican households. Figure 1 maps our hypothesized relationships with a diagram that links several dimensions of network structure and well-being. On the far right of the figure are the outcomes of interest, including child health status at the time of the survey, and the receipt of emotional and financial support.

FIGURE 1 ABOUT HERE

Network size will influence health because it affects social isolation and also the degree of heterogeneity of ties and resources. Moreover, research shows a positive relationship between network size and the receipt of informal support (Wellman 1992; Seeman and Berkman

[5] Contemporary research on U.S. migration also shows that social networks are valuable to Mexican immigrant families (Portes & Bach 1985; Massey et al. 1987). Although most studies assume that networks are supportive, some evidence suggests that supportive exchanges between parents and children are fewer among families separated by the Mexico-U.S. border than in U.S.-born households (Hogan, Eggebeen & Clogg 1993). Elsewhere we have begun to address how U.S. migration mitigates the relationship between social networks and well-being (Kanaiaupuni, Donato & Thompson-Colón 2000, and Kanaiaupuni & Donato 2001).

1988). Because social networks reduce economic and emotional uncertainty, compared to those who are more socially isolated, we expect that:

H_{1a}: The larger the network, the greater the likelihood that mothers receive social support.

H_{1b}: The larger the network, the better is child health status.

We also expect that kin relationship influences health and social support. Although few have studied kin relationships and health outcomes, research consistently suggests that kin are an important source of social support (Glass et al. 1997; Hurlbert et al. 2000). Wellman and Wortley (1990) found that the parent/child bond was the relationship most likely to offer various forms of support, and Sherraden and Barrera (1996) and others have emphasized the importance of maternal support. Therefore, we expect that:

H_{2a}: Networks containing immediate kin relationships (parents and siblings) are more likely to be supportive, relative to networks with few or no immediate kin.

H_{2b}: Networks containing immediate kin relationships (parents and siblings) are associated with good child health status, compared to networks containing few or no immediate kin.

In Mexico, extended kin relationships (including compadres who may be fictive kin) will improve child health status and raise the likelihood of social support. Extended kin ties are particularly valuable for women and children. They are both symbolically meaningful, and hold practical value by providing access to resources over and above that of immediate family relatives. On the whole, we expect that extended relatives bring greater heterogeneity and resources to the networks within which individuals are embedded, and that the absence of extended kin may leave households bereft of supportive resources and assistance. Consequently, we predict that:

H_{3a}: Networks containing extended kin relationships are more likely to be supportive relative to

networks with few or no extended kin.

H_{3b}*: Networks containing extended kin relationships are associated with good child health status relative to networks containing few or no extended kin.*

The next set of hypotheses captures social interaction between network members. Our operational measures include geographic proximity, frequency of contact, and coresidence with ties. Residential proximity is a network characteristic that affects day-to-day access and opportunities for interaction among members (Wellman & Wortley 1990; Seeman and Berkman 1988). Although in some settings transportation and technological advances may reduce the significance of physical proximity, the majority of households in our Mexico sample owned neither telephone nor automobile. We predict that:

H_{4a}*: Greater geographic proximity in the networks of respondents will raise levels of social support from ties compared to geographically disperse networks.*

H_{4b}*: Greater geographic proximity in the networks of respondents will enhance well-being compared to geographically disperse networks.*

We treat coresident ties separately because, by default, they have the most interaction and greatest proximity. Shared living arrangements not only increase interaction between network members, but offer various forms of assistance including childcare to working members, help with the daily upkeep of the household, earnings, as well as other forms of emotional caregiving. Therefore, we expect that:

H_{5a}*: Coresidence with network members increases the likelihood of receiving support from networks.*

H_{5b}*: Coresidence with network members is associated with good child health.*

In addition, frequent contact between ties encourages "the provision of support by

fostering shared values, increasing mutual awareness of needs and resources, mitigating feelings of loneliness, encouraging reciprocal rounds of support, and facilitating the delivery of aid" (Wellman & Wortley 1990:568; Seeman & Berkman 1988, Marsden & Campbell 1984). More contact will promote greater emotional and financial support than more estanged ties, and for similar reasons will enhance child well-being. Therefore:

H_{6a}: The greater the interaction with ties within the network structure, the greater the likelihood of receiving support from networks, large or small.

H_{6b}: The greater the interaction with ties within the network structure, the better is child health status.

The final set of hypotheses suggests that the effects of frequent contact on social support and health vary by kin relationship. In particular, frequent contact with *extended* kin provides resources that are particularly beneficial to children's health. We expect this for at least two reasons. First, they provide a readily-accessible buffer against the economic insecurities that many Mexicans face. Second, they provide this buffer in a nation that offers few, if any, institutionalized public programs to support families during periods of economic and personal crises. This idea is consistent with case studies that reveal the importance of being able to regularly call on compadres, who may procure free medical services or medicine when children become ill (Kanaiaupuni 2000). Frequently contacted extended relatives also provide meals, small loans, or transportation, for which they receive household labor or old-age care from mothers in exchange (Logan 1981; Kanaiaupuni 1995). Therefore, we predict that:

H_{6c}: Networks containing frequently visited extended kin ties are more likely to be supportive relative to networks with less interaction with extended kin.

H_{6d}: Networks containing frequently visited extended kin ties are associated with good child

health status relative to networks containing less interaction with extended kin.

Finally, following these arguments, it is axiomatic that

H_7: Networks containing greater social support also sustain healthier children.

Data. To test these hypotheses, we use data from the Health and Migration Project, a longitudinal data collection and analysis project that examines the health consequences of Mexico-U.S. migration. We selected ten villages in the state of San Luis Potosí, Mexico to represent various types of climatic conditions, population compositions, and economic productions. In each village, we conducted interviews with a random sample of 200 households, or in smaller communities, we did a complete household enumeration.[6] For this analysis, we used data from the first wave from representative samples of households in eight communities in San Luis Potosí, Mexico (roughly 1200 total households).

The key respondent to the Health and Migration Survey (HMS) was the "senora" of the household, who was either the wife of a male household head or in a few households (about 2 percent), the head. The HMS asks women respondents about their marriage, work and fertility histories as well as household migration, labor and asset acquisitions. It also contains data on adult and child health, including histories about live births that occurred in the six years prior to the survey date, infant mortality, immunizations, breastfeeding, health service utilization and beliefs, prenatal health.

Dependent Variables. The first dependent variable is child health status based on information collected from mothers who had experienced a live birth in the six years prior to the survey. For 620 children, health status was assessed with a five-point scale ranging from very

[6] The Mexico data are complemented with data collected in two primary migrant destinations, Houston, Texas and San Diego, California (not used in this analysis).

poor to excellent, based on mother-reported overall health status at the time of the survey. Although self-reported health may be subject to reporting errors, studies have found it a surprisingly accurate predictor of subsequent morbidity and mortality (Idler & Benyamini 1997, Mare & Palloni 1988) and use of medical services (Ferraro & Farmer 1999).

The second dependent variable in our analysis is the provision of emotional and/or financial support to women. For the 373 mothers with young children in this analysis, we coded emotional support as 1, if a woman received advice or counsel from any member of the network in the last year, and 0 otherwise. Financial support was treated similarly (1 if received, 0 if not received).

Independent Variables. We examined these outcomes controlling for attributes of children, mothers and households. Child health was regressed on individual attributes including age, sex, birth order and whether he or she was breastfed. Controls for mother's characteristics include age, education and health status.[7] Other household attributes included prior infant deaths, the number of children under seven in the household, and socioeconomic status, which was measured by an index of household wealth.[8]

Social Network Measures. Our survey was designed to assess the characteristics of respondents' social networks, including size, interaction (spatial proximity, frequency of contact and coresidence), and provision of emotional or financial support by kin and nonkin members,

[7] Marital status and work experience were dropped from the final analysis after tests revealed negligible changes in the model fit and insignificant effects (86 percent of respondents were married).

[8] Each of the following assets was scored one and summed to create an index: ownership of home, property other than the home, a vehicle(s), a business(es), or five or more hectares of land (a little over 12 acres). The overall index ranged from 0 (minimum) to 5 (maximum).

such as parents, siblings, in-laws, friends and relatives.[9] With these data, we were able to evaluate existing ties to all relatives as well as support transfers involving the respondent in the year prior to the survey.

We measured the dimensions of networks as follows. Network size was the total number of ties reported by women respondents. Kin relationship referred to the woman respondent and her ties – categorized into either immediate (her siblings and parents) or extended (her other relatives, compadres, and friends) kinship relation.[10] To capture network interaction, we measured coresidence as a dummy variable indicating shared living arrangements with any network member other than spouse or children. We also measured proximity to non-coresident ties if that tie resided in the same village (equals 1), another Mexican village (equals 2), or across the U.S. border (equals 3).[11] In addition, we created a categorical variable based on the average proximity to the entire network, where 0 reflects predominantly local network structures (proximity index less than 1.5), and 1 reflects more disperse networks with higher scores.

We operationalized frequency of contact by the number of face-to-face visits. Frequent contacts included members visited on a weekly basis, whereas more estranged ties were those visited less frequently. From this information, we created a scale measuring the average number

[9] Respondents were asked closed-end questions about relationships with, and whereabouts of, specific family members, such as parents, siblings, uncles, and aunts) and other kin (such as parents/siblings in-law, and compadres). These were followed by open-ended questions prompting for other relatives or friends not already mentioned (available on request).

[10] Note that our estimates about immediate kin are conservative because available data include no more than four persons, both parents and up to two siblings. Follow-up surveys with these families will include more extensive sibling data.

[11] Although in some cases a tie living somewhere else in Mexico may actually be more geographically distant than a tie in the United States, we classify U.S. ties as the most distant because of border crossing and legal constraints that further separate families.

of frequent contacts (entailing one or more face-to-face visits per week) in the network.[12] Given prior research pointing to the importance of certain role ties over others, we also examined frequency of contact by kin relationship.

Methods. Logistic regression was used to evaluate the social support outcomes, whereas ordered probit estimates were used to predict general health status effects. Ordered probit methods allow for the rank-ordering of outcomes without making assumptions about the intervals between categories. A positive coefficient indicates that an increase in the independent variable leads to a greater likelihood of having better health. A constant term is provided for each category of the dependent variable.[13] We explore which network characteristics encourage more or less support and better or worse child health, specifically with respect to network size, kin relationship, and interaction. We also examine the influence of support on child health status, net of other network characteristics.

A Cautionary Note. The possibility that reciprocal effects link social networks and health complicates our analysis. Most prior research has looked at social networks and health in the manner hypothesized above, where strong supportive networks improve the health of individuals and communities. But poor health may conceivably alter social network transfers, especially in cases involving chronic or repeated health problems. As social capital resources are exhausted and power balances within relationships shift over time (Berkman 1984), individuals and households with extensive health problems may have selectively fewer ties and/or less support from existing ties. Although such trade-offs are possible, they are less

[12] Although other studies have considered contact between ties to be "frequent" if they occurred monthly (Seeman & Berkman 1988), given the tendency toward social cohesion in this population, we preferred a weekly measure.

[13] All regression results are estimated with STATA software and we report robust standard error estimates adjusted for clustered data within households.

problematic in our analysis because we focus on the health of young children who are less likely than adults to suffer from chronic disease. In the future, panel data that consider both the effects of genetic endowment and health experiences over the life course will permit us to examine the reciprocity in this relationship.

Another problem that affects most health research is the potential endogeneity underlying social network resources and socioeconomic status. That is, poorer households may rely on networks that have fewer resources, whereas wealthier households may have more resource-rich networks. Although we are unable to measure resources of individual ties in this analysis, we include a measure of socioeconomic status in the year prior to the survey as a partial control for social class differences.[14]

Findings

Table 1 shows that approximately two-thirds of mothers received emotional support from their networks. Roughly half received monetary assistance in the year prior to the survey. Of the infants and children in this analysis, most were reported to have good or fair health. Relatively few were in poor or excellent health, and none were reported to have very poor health.

TABLE 1 ABOUT HERE

The average network size of the women in our sample was nine individuals – approximately three immediate and six extended kin. The proximity index, or the average distance of the entire network, was 1.5, indicating that most individuals were embedded in relatively proximate network structures. Most mothers reported weekly face-to-face visits with at least two persons in their network, excluding spouse and children, and approximately nine

[14] In future analyses, we will examine the resources of network ties using the new panel data we have been collecting.

percent of the sample coresided with one or more network members.

Table 1 also shows that most children in the sample were between four and seven years, and divided fairly evenly between boys and girls. Nearly half were high parity births, and the average child had two siblings under seven years old and a mother under age 30 with six years of educational attainment. Between five and six percent of mothers reported poor or very poor health status. The number of prior infant deaths ranged from zero to three, and 12 percent of mothers reported a prior infant death. The socioeconomic index averaged 1.28, suggesting that the majority of households were quite poor and had no assets.

Table 2 presents the distribution of health and support outcomes by key network characteristics (for ease of presentation, health is presented as a dichotomous outcome in Tables 2 and 3, where good includes good to excellent and poor includes very poor to fair). The table suggests better health and support from larger networks. With respect to support, three-quarters of mothers with large networks received emotional support (versus 55 percent of mothers with smaller networks) and 56 percent received financial support (versus 41 percent of mothers with smaller networks). Coresidence also mattered. More emotional and financial support was provided to mothers when they reported coresident ties.

TABLE 2 ABOUT HERE

With respect to health, network size, proximity and support were most influential. For example, more children had good health when their mothers reported larger than average networks compared to smaller than average networks (52 vs. 43 percent, respectively). Greater network proximity also positively influenced child health in the expected direction. Approximately 56 percent of children had poor health when their mothers described their ties as being distant compared to 46 percent with local ties. Last, we see that children were more likely

to be in poor health if their mothers reportedly received no support. But of children whose mothers reported receiving both financial and emotional support, 56 percent were in good health and 44 percent in poor health.

A first look at multivariate models suggests that the type of kin relationship is important to health and support outcomes. Table 3 contains probabilities of good health and receipt of social support, adjusted only for the number and type of kinship tie. Overall, two important findings emerge. First, receipt of emotional and financial support, and good child health status, increased as the number of extended kin ties rose (observe the increasing probabilities within each column). These increases appear in all three categories of immediate kin ties. In contrast, the second finding that emerges suggests quite a different story. Going across the columns shows that only the probabilities of receiving emotional support increased steadily with more immediate kin ties. The chances of receiving financial support declined as the number of immediate kin rose. For example, for households embedded in networks containing five extended kin, the probability of financial support is .57 with one or two immediate kin, .48 with three and .43 with four immediate kin ties. The chances that mothers reported good child health status also changed little with more immediate kin.

TABLE 3 ABOUT HERE

We then examined these effects net of other relevant variables. Table 4 present results from this analysis.[15] The first column in each panel (columns 1 and 5) shows bivariate relationships between each network characteristic and the dependent variable. The second set of columns (2 and 6) presents coefficients from models controlling for all structural network

[15] A full set of coefficients for Tables 4 and 5 are available by request from the authors.

characteristics simultaneously. The third set of columns (3 and 7) controls for child and mother attributes, and the fourth adds controls for household characteristics to the respective equations. The final column (9) for child health adds indicators for the provision of emotional or financial support to the model.

The bivariate coefficients in column 1 indicate higher probabilities of emotional support with each additional immediate or extended kin tie. With respect to financial support, however, the coefficients reveal a negative relationship with immediate kin size. As immediate kin increased, the likelihood of financial support declined. However, as extended kin grew, so too did the likelihood of financial support. The only other significant effect in the support models is for coresidence. When mothers reported coresidence, they also reported greater emotional and financial support.

These results change little across models columns 2 to 4. Net of other network attributes and those related to children, mothers, and households, extended kin size and coresidence increased the likelihood of emotional and financial support. The only change in network effects was for immediate kin in the emotional support model. It lost significance after adjusting for other variables.

TABLE 4 ABOUT HERE

Note too that the magnitude of these effects become greater after controlling for child, mother and household characteristics. Whereas an odds ratio of 1.0 would indicate equal chances of receiving financial support with each additional immediate kin tie, the odds worsened from about .77 as likely in column 2 (log-odds coefficient -.261) to about .66 as likely in column 4 (log-odds coefficient -0.419). On the other hand, the odds of financial support rose 60 percent with each additional extended kin tie, relative to no additional extended kin tie. The most

impressive source of both emotional and financial support came from coresident ties, which raised the chances of receiving either type of support more than three times relative to respondents with no coresident ties.

Whereas strong effects on support emerged from greater immediate and extended kin size, a different story appears in predicting child health. The only network coefficient that is significant is for frequency of contact. Networks containing greater frequency of contact are associated with better child health status. Each one unit increase in the frequency of contact index results in a .073 to .068 adjusted log-odds increase in the likelihood of better child health. This effect remains in column 9, which controls for effects of the receipt of emotional and financial support on child health. In addition to frequency of contact effect, the only other is for the receipt of emotional and financial support. Children embedded in networks that provided both forms of support in the past year exhibited much higher likelihoods of better health status. This effect accounted for the largest increase in the chances of better child health.[16]

Are All Contacts Equal?

One of our key hypotheses about social networks and child health in Mexico is based on the argument that the effects of frequency of contact vary by kin relationship. To address this hypothesis, Table 5 presents models of the three dependent variables regressed on a full model that includes the characteristics of children, mothers, and households (described earlier), immediate and extended kin size, spatial proximity and coresidence of network ties, along with new indicators that categorize frequency of contact by kin relationship. One set distinguishes

[16] About half of the households in these data had two siblings that were included in the analysis. To check for potential problems, we ran the analysis without the penultimate children and found that though the significance levels were slightly altered due to reduced sample size, the substantive results remained unchanged.

personal networks containing no frequently visited immediate kin ties, one or two frequently visited immediate kin ties, or three or more frequently visited immediate kin ties. A second set distinguishes networks containing no frequently visited extended ties, one or two, three to five, or six or more frequently visited extended kin ties.

We begin first with the social support models. Our results indicate few significant effects stemming from the new indicators of frequency of contact by kin relationship. Net of all relevant variables, the only significant effect is for mothers reporting networks that contain one or two frequently visited extended kin. The likelihood of receiving emotional support is greater for these women compared to those with no frequently visited extended kin. Instead, both forms of support are more likely with greater numbers of extended kin and with coresident network members, net of other network characteristics and controls. Moreover, consistent with the effect in column 4 of Table 4, financial support drops substantially for mothers with more immediate kin. Finally, more disparate network structures also offer less emotional and financial support relative to those that are more proximately concentrated in the respondent's village, although statistical significance attains only for emotional support.

TABLE 5 ABOUT HERE

The remaining analysis in Table 5 supports our hypothesis that frequently visited extended kin may be more critical than others to improving child well-being. Although having frequently visited immediate kin fails to affect child health in a statistically significant way, high levels of interaction with at least six extended kin resulted in substantially better child health (compared to networks containing fewer frequently visited extended kin). This effect remained after adding other relevant variables and is independent of the effects of social support.

Despite the substantive value of looking at frequency of contact by type of kin

relationship, the last coefficient in model 5 shows that children embedded in networks that provided both emotional and financial support were more likely to be healthier. Figure 2 displays the effects of emotional and financial support from networks on the probability of good health status. Compared to children whose networks provided no support at all, the risks of good health are eight to 12 percent higher among children whose mothers received emotional advice or counsel. Being embedded in networks that provided both emotional and financial support raises the probability of good child health status by an additional five percent. Each of these young children had an approximately 55 percent chance of being in good health.

FIGURE 2 ABOUT HERE

Overall, our results suggest that extended kinship relations are vital to the well-being of households and children. We find that a critical way through which network ties influence health is by providing emotional and financial support. Such support, however, is most likely to be received by individuals embedded in networks containing coresident ties and those with larger extended kin networks rather than those with frequent contact with more extended or immediate kin ties.

Although not crucial to emotional support and financial aid, frequently contacted extended kin are particularly beneficial to child health. These findings are consistent with the idea that networks containing more extended kin, especially those frequently visited, benefit health by expanding and providing day-to-day resources available to households. Social arrangements in Mexico that emphasize reciprocity, confianza, and compadrazgo promote household ties to extended relatives and friends, who provide health-enhancing supportive resources beyond those available from immediate relatives.

DISCUSSION

This research has undertaken a multidimensional approach to examine the effects of social networks on child health. It has helped us piece together the important links that define the structural, resource and normative pathways through which social networks improve well-being. Its key findings strongly suggest that Mexican extended networks provide important resources that sustain healthier children.

Our results suggest that although networks are a source of social support, they are linked both to positive and negative outcomes. For example, rising numbers of immediate relatives had either no effect on mother's receipt of social support, or they reduced mother's receipt of financial support. These findings suggest that social support from extended kin is more often offered to mothers who have fewer immediate kin to help support them. They may also reflect stressors created by immediate family members who themselves require time, energy and support. For example, prior studies have suggested that immediate kin can raise stress levels among young mothers (Cramer and McDonald 1996), which may influence care given to young children. It is also common for Mexican families to care for elderly parents, which may mean resource and financial transfers in the opposite direction to support those kin.

In contrast, rising numbers of extended kin increased mother's receipt of emotional or financial support. Moreover, frequent contact with extended kin improved child health status. Note that our findings on social support deviate from Wellman and Wortley's (1990) Toronto study where parents and children more often exchanged financial and emotional aid, and where extended kin were the least likely to provide support.

As we have suggested earlier, our findings are consistent with existing social

arrangements in Mexico. These arrangements may be the mechanisms by which families draw on resources outside their immediate relatives. They act to protect mothers and their families from outside crises, guaranteeing resources for children. Without them, mothers and children would likely suffer from the difficult economic and social disruptions that have been common in contemporary Mexican society. One conclusion implied by the findings is that having more extended kin ties strengthens networks structurally through resource diversification (i.e., because they are "more prone to move in circles different from one's own" – Granovetter 1973:52). Therefore, although resources of immediate family relatives may more closely reflect the conditions of families in this study, extended kin networks that include compadres and other friends offer diverse resources. In short, extended kin are a critical source of emotional and financial resources and the combination is key to healthier children.

Another finding is that coresidence with network members is important to child well-being because it raises the amount of supportive exchanges between members of households. Women with coresident ties were much more likely to receive both emotional and financial support. This finding is relevant for studies of living arrangements and household structure because it suggests that pooled resources are both economically and emotionally rational, and they confer observable health benefits to children.

Finally, our findings suggest that disparate networks provide less support than do proximate networks. Greater dispersion may undermine social networks by making members less accessible for the purposes of exchange and support between families. Indirect support for this idea originates in an analysis that documented how Mexico-U.S. migration worsened the health of infants in Mexico in the short term (Kanaiaupuni & Donato 1999). Over time, however, disruptive effects diminished as communities reorganized in ways that maximized the

benefits from migration. In future analyses, we will investigate how Mexico-U.S. migration affects the three-way relationship examined here.

In conclusion, we draw attention to a point we made at the outset: that the sociocultural context in which networks are analyzed is pivotal to understanding which network characteristics are more or less helpful. Too often, research fails to state in clear terms to which populations their findings apply. On this point, Wellman and Wortley (1990) are the exception rather than the rule. They make clear that their findings represent "supportive relations in comfortable First World milieus [that] differ substantially from those in other circumstances" (1990: 583). This paper attempts to understand those relationships in another world, a Mexican one that relies on extended kin to buffer families from economic and emotional insecurity. That our findings are similar in spirit to case studies in other parts of Mexico and the United States suggests that they apply beyond the state of San Luis Potosí. For the record, however, we note that they represent just one step in our understanding of the complex interplay among social networks, social support and health among Mexicans on both sides of the border.

References

Berkman, L.1984. "Assessing the Physical Health Effects of Social networks and Social Support." Annual Review of Public Health 5: 413-432.

Berkman, L. 1995. "The Role of Social Relations in Health Promotion." Psychosomatic Medicine 57:245-254.

Berkman, Lisa. 2000. "Which Influences Cognitive Function: Living Alone or Being Alone?" The Lancet 355:1291-92.

Bobadilla, J., J. Frenk, R. Lozano, T. Frejka, and C. Stern. 1993. "The Epidemiologic transition and Health Priorities." Pp. 51-63 in Disease Control Priorities in Developing Countries, edited by D.T. Jamison, W. H. Mosley, A.R. Measham, and J.L. Bobadilla. Oxford: Oxford University Press.

Castañeda, J.G. 1995. The Mexican Shock: Its Meaning for the U.S.. New York, NY: The New Press.

Cobas, J.A., H. Balcazar, M.B. Benin, V.M. Keith, and Y. Chong. 1996. "Acculturation and Low-Birthweight Infants among Latino Women." American Journal of Public Health 86:394-96.

Collins, J.W. and D.K. Shay. 1994. "Prevalence of Low birth Weight among Hispanic Infants with United States-Born and Foreign-Born Mothers: The Effect of Urban Poverty." American Journal of Epidemiology 139: 184-92.

Cramer J. C. and K. B. McDonald. 1996. "Kin support and family stress: Two sides to early childbearing and support networks." Human Organization 2:160-169.

De Anda, D. 1984. "Informal Support Networks of Hispanic Mothers: A Comparison Across Age Groups." Journal of Social Service Research 7:89-105.

De Anda, D. and Becerra, R. M. 1984. "Support Networks For Adolescent Mothers." *Social Casework* 27:83-89.

Dinerman, I. 1982. Migrants and Stay-at-Homes: A Comparative Study of Rural Migration from Michoacán, Mexico. Monographs in U.S.-Mexican Studies, no. 5. La Jolla, CA: Program in U.S.-Mexican Studies, University of California, San Diego.

Donato, K. M., J. Durand and D. S. Massey. 1992. "Stemming The Tide? Assessing the Deterrent Effects of the Immigration Reform and Control Act." Demography 29(2): 139-57.

Durkheim, E. 1951. Suicide. New York: Free Press.

Eckstein, S. 1977. The Poverty of Revolution: The State and Urban Poor in Mexico. Princeton, N.J.: Princeton University Press.

Ferraro, K. and M. Farmer. 1999. "Utility of Health Data from Social Surveys: Is There a Gold Standard for Measuring Morbidity?" American Sociological Review 64: 303-315.

Forster, L. and E. Stoller. 1992. "The Impact of Social Support on Mortality: A Seven Year Follow Up of Older Men and Women." Journal of Applied Gerontology 11(2): 173-186.

Fratiglioni, L., H. Wang, K. Ericsson, M. Maytan, and B.Winblad. 2000. "Influence of Social Network on Occurrence of Dementia: A Community-based Longitudinal Study." The Lancet 355:1315-1319.

Glass, T., C. Mendes de Leon, T. Seeman and L. Berkman. 1997. "Beyond Single Indicators of Social Networks: A Lisrel Analysis of Social Ties among the Elderly." Social Science and Medicine 44(10): 1503-17.

Golding, J. and A. Burnam. 1990. "Stress and Social Supports as Predictors of Depressive Symptoms in Mexican Americans and Non-Hispanic Whites." Journal of Social and Clinical Psychology 9:268-86.

González de la Rocha, M. 1994. The Resources of Poverty: Women and Survival in a Mexican City, Oxford: Blackwell Press.

Granovetter, M. S. 1973. "The Strength of Weak Ties." American Journal of Sociology 78:1360-1380.

Griffith, J. and S. Villavicencio. 1985. "Relationships among Acculturation, Sociodemographic Characteristics, and Social Supports in Mexican American Adults." Hispanic Journal of Behavioral Sciences 7:75-92.

Griswold del Castillo, R. 1984. La Familia: Chicano Families in the Urban Southwest, 1848-the Present. South Bend, IN: Notre Dame University Press.

Guendelman, S. 1995. "Immigrants May Hold Clues to Protecting Health during Pregnancy: Exploring a Paradox." Wellness Lecture Series, School of Public Health, Division of Health Policy and Administration, University of California, Berkeley.

Guendelman, S. and B. Abrams. 1995. "Dietary Intake Among Mexican-American Women: Generational Differences and A Comparison With White Non-Hispanic Women." American Journal of Public Health 85 (1):2-25.

Guendelman, S., J. B. Gould and M. Hudes. 1990. "Generational Differences In Perinatal Health Among the Mexican American Population: Findings From HHANES 1982-84." American Journal of Public Health 80:61-65.

Hogan, D. , D. Eggebeen, and C. Clogg. 1993. "The Structure of Intergenerational Exchanges of American Families." American Journal of Sociology 98(6): 1428-1458.

Homans, G. 1961. Social Behavior: Its Elementary Forms. New York: Harcourt Brace Jovanovich.

House, J., K. Landis, D. Umberson. 1988. "Social Relationships and Health." Science 241: 540-545.

Hurlbert, J., V. Haines, J. Beggs. 2000. "Core Networks and Tie Activation: What Kinds of Routine Networks Allocate Resources in Nonroutine Situations?" American Sociological Review 65 (August): 598-618.

Idler, E. and Y. Benyamini. 1997. "Self-Rated Health and Mortality: A Review of Twenty-Seven Community Studies." *Journal of Health and Social Behavior* 38:21-37.

Kanaiaupuni, S. M. 1995. Women and Migration: Household Organizational Strategies of Mexican Families. PhD Dissertation, Department of Sociology, University of Chicago.

Kanaiaupuni, S. M. 2000. "Sustaining Families and Communities: Nonmigrant Women and Mexico-U.S. Migration Processes." Center for Demography and Ecology Paper #2000-13. University of Wisconsin - Madison.

Kanaiaupuni, S. M. and K. M. Donato. 1999. "Migradollars and Mortality: The Effects of Migration on Infant Survival in Mexico." Demography 36(3): 339-53.

Kanaiaupuni, S. M., K. M. Donato, and T. Thompson-Colón. 2000. "Networks that Count: Grandparents' U.S. Migration and Child Well-being." Paper presentation to the Population Association of America, Los Angeles, CA.

Kanaiaupuni, S. M. and K. M. Donato. 2001. "Social Network Structure and Social Support Activation: The Effects of Mexico-U.S. Migration." Paper to be presented at the annual meeting of the Population Association of America, Washington, DC.

Kaplan, B., J. Cassell and S. Gore. 1977. "Social Support and Health." Medical Care 15: 47-58.
Kawachi, I., G. Colditz, A. Ascherio, E. Rimm, E. Giovannucci, M. Stampfer and W. Willett. 1996. "A Prospective Study of Social Networks in Relation to Total Mortality and Cardiovascular Disease in Men in the USA." Journal of Epidemiology and Community Health 50: 245-251.
Kay, M. 1980. "Mexican, Mexican American, and Chicana Childbirth." Pp. 52-65 in M. B. Melville (ed.), Twice a Minority: Mexican American Women. St. Louis, MO: Mosby Co.
Keefe, S. 1984. "Real and Ideal Extended Families among Mexican Americans and Anglo Americans: On the Meaning of Close Family Ties." Human Organization 43:65-70.
Landale, N. S., R.S. Oropesa, and B.K. Gorman. 2000. "Migration and Infant Death: Assimilation or Selective Migration among Puerto Ricans?" American Sociological Review 65(December): 888-909.
Litwin, H. 1998. "Social Network Type and Health Status in a National Sample of Elderly Israelis." Social Science and Medicine 46: 4-5: 599-609.
Logan, K. 1981. "Getting by with Less: Economic Strategies of Lower Income Households in Guadalajara." Urban Anthropology 10(3):231-46.
Lomnitz, L. A. 1977. Networks and Marginality: Life in a Mexican Shantytown. New York: Academic Press.
Mare, R. D. and A. Palloni. 1987. "Socioeconomic Determinants of Mortality among Adults in the United States - a Couple Analysis." Population Index 53: (3):388-388.
Marsden, P. and K. Campbell. 1984. "Measuring Tie Strength." Social Forces 63: 483-501.
Massey, D., R. Alarcón, J. Durand and H. González. 1987. Return to Aztlán: The Social Process of International Migration from Western Mexico. Berkeley, CA: University of California Press.
Mindel, C. H. 1980. "Extended Familism among Urban Mexican Americans, Anglos and Blacks." Hispanic Journal of Behavioral Sciences 2:21-34.
National Research Council. 1998. From Generation to Generation: The Health and Well-being of Children in Immigrant Families. Washington, DC: National Academy Press.
O'Connor, M. 1989. "Women's networks and the Social Needs of Mexican Immigrants." Urban Anthropology 19(1-2): 81-98.
Oppenheimer, A. 1998. Bordering on Chaos: Mexico's Roller-Coaster Journey Toward Prosperity. Boston, MA: Little Brown & Company.
Portes, A. and R. Bach. 1985. Latin Journey: Cuban and Mexican Immigrants in the United States. Berkeley, CA: University of California Press.
Roschelle, A. 1995. No More Kin: Exploring Race, Class and Gender in Family Networks. Thousand Oaks, CA: Sage Publications.
Scribner, R. 1996. "A Paradox as Paradigm - The Health Outcomes of Mexican Americans." American Journal of Public Health 86:303-305.
Scribner, R. and J.H. Dwyer. 1989. "Acculturation and Low Birthweight among Latinos in the Hispanic HANES." American Journal of Public Health 79: 1263-67.
Seeman, T. 1996. "Social Ties and Health: The Benefits of Social Integration." Annals of Epidemiology 6(5): 442-451.
Seeman, T. and L. Berkman. 1988. "Structural Characteristics of Social Networks and their Relationship with Social Support in the Elderly: Who Provides Support." Social Science

and Medicine 26: 737-49.
Sherraden, M. S. and R. E. Barrera. 1996. “Maternal Support and Cultural Influences Among Mexican Immigrant Mothers.” Journal of Contemporary Human Services 77:298-313.
Sherraden, M. S. and R. E. Barrera.1997. “Family Support and Birth Outcomes among Second-Generation Mexican Immigrants.” Social Service Review 71(4):607-633.
Sugisawa, H., J. Liang and Xian Liu. 1994. “Social Networks, Social Support, and Mortality Among Older People in Japan.” Journal of Gerontology: Social Sciences 49(1): S3-S13.
Vega, W. 1990. “Hispanic Families in the 1980s: A Decade of Research.” Journal of Marriage and the Family 52:1015-1024.
Walker, K. A. MacBride and M. Vachon. 1977. “Social Support Networks and the Crisis of Bereavement.” Social Science and Medicine 11: 35-42.
Weiss, R.1969. “The Fund of Sociability.” Transaction 1: 36-43.
Wellman, B. 1981. “Applying Network Analysis to the Study of Support.” In Benjamin Gottlieb (ed.) Social Networks and Social Support, Beverly Hills, CA: Sage Publications, pp. 171-200.
Wellman, B. 1992. “Which Types of Ties and Networks Provide What Kinds of Social Support?” Advances in Group Processes 9: 207-235.
Wellman, B. and Scot Wortley. 1990. “Different Strokes from Different Folks: Community Ties and Social Support.” American Journal of Sociology 96(3): 558-88.
Williams, N. 1990. The Mexican American Family: Tradition and Change. New York: General Hall.
Zambrana, R.E., S.C.M. Scrimshaw, N. Collins, and C. Dunkel-Schetter. 1997. “Prenatal Health Behaviors and Psychosocial Risk Factors in Pregnant Women of Mexican Origin: The Role of Acculturation.” American Journal of Public Health 87: 1022-26.

Table 1. Descriptive Statistics

	Mean	SD	N
DEPENDENT VARIABLES			
Social Support (n=373 mothers)			
Emotional support received	68.9	(%)	373
Financial support received	51.5	(%)	373
Child health status (n=620 children)			
Excellent	2.7	(%)	620
Good	46.3	(%)	620
Fair	47.9	(%)	620
Poor	3.1	(%)	620
Very Poor	0	(%)	620
SOCIAL NETWORK MEASURES			
Total network size (#)	9.01	1.63	373
Network size by kin relationship			
Immediate kin size (#)	3.45	0.79	373
Extended kin size (#)	5.56	1.24	373
Interaction			
Spatial proximity (index)	1.48	.36	373
Frequency of contact (index)	2.33	1.90	373
Co-resident ties (yes/no)	8.85	(%)	373
CONTROL VARIABLES			
Attributes of Children			
Breastfed	77.8	(%)	599
0-1 years old	13.1	(%)	620
2-3 years old	24.8	(%)	620
4 plus years old	62.1	(%)	620
Sex (male = 1)	49.2	(%)	620
First birth	18.4	(%)	620
Low birth order	34.8	(%)	620
High birth order	46.8	(%)	620
Attributes of Mothers			
Age	29.55	6.55	373
Education (years)	6.53	4.01	371
Poor health (yes/no)	5.66	(%)	373
Household Characteristics			
Number of prior infant deaths	0.12	0.37	373
Number of young children at home	1.77	0.89	373
Socioeconomic index	1.37	1.05	373

Note: All tabled data based on the Health and Migration Survey, 1996

Table 2. Distribution of Health Status and Social Support by Key Network Characteristics

	Percent children whose health status is ...			Percent mothers received social support		
	Good	Poor [a]	N	Emotional [b]	Financial [c]	N
Network size						
1-8 ties	42.9	57.1*	198	55.2**	41.4*	116
9+ ties	52.0	48.0*	422	75.1**	56.0*	257
Interaction						
Spatial proximity						
Predominantly local ties	53.5	46.5*	312	70.1	53.5	187
More distant ties	44.5	55.5*	308	67.7	49.5	186
Frequency of contact						
No frequent contacts	50.0	50.0	50	60.6	39.4	33
1-3 frequent contacts	44.4	55.6	187	68.9	51.9	106
4-5 frequent contacts	47.3	52.7	146	73.3	51.1	90
6+ frequent contacts	53.6	46.4	237	68.0	54.2	144
Co-residence						
No co-resident ties	48.9	51.1	562	67.1*	49.4*	340
Some co-resident ties	50.0	50.0	58	87.9*	72.7*	33
Social support						
No support received	38.5	61.5**	169			
Emotional support only	48.9	51.1	139			
Financial support only	44.4	55.6	36			
Emotional and financial support	56.2	43.8*	276			

* p<.10; ** p<.05

[a] Chi-square test was used to test for differences by health status.

[b] Chi-square test was used to test for differences in receiving emotional support or not.

[C] Chi-square test was used to test for differences in receiving financial support or not.

Note: Good includes good to excellent health status; poor includes very poor to fair health status.

Table 3. Probabilities of Good Child Health Status and Receipt of Social Support by Kin Relationship (adjusted for number and type of kin ties)

Number of extended kin ties	Number of immediate kin ties		
	One or two [a]	Three	Four or more
	Receipt of emotional support...		
One or two	.23	.40	.45
Three	.43	.53	.58
Four	.49	.59	.64
Five	.56	.65	.69
Six	.62	.70	.74
Seven or more	.68	.75	.79
	Receipt of financial support...		
One or two	.21	.16	.13
Three	.38	.29	.25
Four	.47	.38	.34
Five	.57	.48	.43
Six	.66	.57	.53
Seven or more	.75	.67	.62
N	45	103	225
	Good child health status...		
One or two	.37	.39	.39
Three	.42	.42	.42
Four	.44	.45	.45
Five	.47	.47	.48
Six	.50	.50	.51
Seven or more	.52	.53	.53
N	76	168	376

[a] This category also includes two respondents who reported extended kin ties only (no immediate kin ties)

Note: Good health status includes good or excellent child health, relative to very poor to fair.

Table 4. Ordered Probit and Logistic Regression Coefficients Predicting Effects of Network Characteristics on Receipt of Social Support and Child Health Status

Network Characteristics	Social Support							
	(1)[a]		(2)[b]		(3)[c]		(4)[d]	
	Emotional	Financial	Emotional	Financial	Emotional	Financial	Emotional	Financial
Network size by kin relationship								
Immediate kin size	0.227**	-0.260*	0.242**	-0.261*	0.078	-0.384**	0.081	-0.419**
	(0.083)	(0.138)	(0.078)	(0.120)	(0.128)	(0.097)	(0.153)	(0.097)
Extended kin size	0.282**	0.423**	0.316**	0.467**	0.267**	0.457**	0.256**	0.466**
	(0.101)	(0.145)	(0.085)	(0.140)	(0.096)	(0.147)	(0.095)	(0.140)
Interaction								
Spatial proximity	-0.108	-0.161	-0.149	-0.277	-0.178	-0.293	-0.238	-0.355
	(0.186)	(0.283)	(0.267)	(0.302)	(0.255)	(0.282)	(0.286)	(0.306)
Frequency of contact	0.000	-0.027	-0.033	-0.077	-0.028	-0.060	-0.031	-0.053
	(0.064)	(0.059)	(0.078)	(0.067)	(0.066)	(0.070)	(0.078)	(0.083)
Co-residence	1.270*	1.004**	1.450*	1.190**	1.384**	1.161**	1.256*	1.090**
	(0.555)	(0.344)	(0.581)	(0.385)	(0.490)	(0.389)	(0.498)	(0.368)

	Child Health Status				
	(5) [a]	(6) [b]	(7) [c]	(8) [d]	(9) [d]
Network size by kin relationship					
Immediate kin size	0.060	0.063	0.061	0.070	0.073
	(0.069)	(0.070)	(0.075)	(0.078)	(0.079)
Extended kin size	0.029	0.016	0.018	0.014	-0.005
	(0.042)	(0.042)	(0.043)	(0.045)	(0.046)
Interaction					
Spatial proximity	-0.136	-0.022	-0.052	-0.102	-0.103
	(0.145)	(0.117)	(0.124)	(0.128)	(0.129)
Frequency of contact	0.073*	0.071*	0.073*	0.068*	0.068*
	(0.027)	(0.030)	(0.032)	(0.033)	(0.033)
Co-residence	0.103	0.187	0.252	0.235	0.157
	(0.189)	(0.193)	(0.185)	(0.188)	(0.189)
Receipt of Social Support					
Emotional support only	0.275*				0.231
	(0.152)				(0.167)
Financial support only	0.033				-0.023
	(0.227)				(0.276
Emotional and financial support	0.364**				0.322*
	(0.125)				(0.140)

* p<.10; ** p<.05

[a] bivariate relationships for each network characteristic; [b] effects adjusted for other network characteristics

[c] effects adjusted for child's age, sex, birth order, breastfed (these four in health model only), mother's age, education and health

[d] effects adjusted for child's age, sex, birth order, breastfed (these four in health model only), mother's age, education and health, number of young children at home, number of prior infant deaths and household socioeconomic status

Table 5. Ordered Probit and Logistic Regression Coefficients Predicting Effects of Interaction by Kinship Type on Child Health Status and Receipt of Social Support

Network Characteristics	Social Support [a]			
	(1)		(2)	
	Emotional	Financial	Emotional	Financial
Frequency of contact by kin relationship				
1 or 2 frequent immediate kin (ref = 0)	-0.018	0.054	-0.085	0.069
	(0.536)	(0.364)	(0.507)	(0.361)
3 plus frequent immediate kin	-0.172	-0.116	-0.253	0.282
	(0.396)	(0.301)	(0.408)	(0.253)
1 or 2 frequent extended kin (ref = 0)	0.623**	0.409	0.378*	0.061
	(0.233)	(0.210)	(0.226)	(0.221)
3 to 5 frequent extended kin	0.330	0.659*	-0.058	0.142
	(0.412)	(0.369)	(0.336)	(0.355)
6 plus frequent extended kin	0.413	0.473	-0.289	-0.520
	(0.623)	(0.806)	(0.659)	(0.796)
Other network characteristics				
Immediate kin size			0.134	-0.476**
			(0.182)	(0.092)
Extended kin size			0.287**	0.502**
			(0.071)	(0.119)
Spatial proximity			-0.412*	-0.239
			(0.240)	(0.317)
Co-residence			1.162**	1.164**
			(0..465)	(0.363)

	Child Health Status [b]		
	(3)	(4)	(5)
Frequency of contact by kin relationship			
1 or 2 frequent immediate kin (ref = 0)	0.041	0.032	0.052
	(0.142)	(0.150)	(0.151)
3 plus frequent immediate kin	0.111	0.058	0.065
	(0.153)	(0.193)	(0.193)
1 or 2 frequent extended kin (ref = 0)	-0.161	-0.205	-0.228
	(0.190)	(0.197)	(0.193)
3 to 5 frequent extended kin	-0.204	-0.236	-0.241
	(0.184)	(0.193)	(0.190)
6 plus frequent extended kin	0.475**	0.441*	0.461*
	(0.239)	(0.268)	(0.264)
Other network characteristics			
Immediate kin size		0.078	0.084
		(0.086)	(0.087)
Extended kin size		-0.007	-0.031
		(0.049)	(0.050)
Spatial proximity		-0.212	-0.115
		(0.136)	(0.138)
Co-residence		0.270	0.193
		(0.194)	(0.196)
Emotional support received			0.246
			(0.163)
Financial support received			-0.027
			(0.278)
Emotional and financial support received			0.349**
			(0.143)

* p <.10; ** p<.05

[a] effects adjusted for mother's age, education and health, number of young children at home, number of prior infant deaths and household socioeconomic status

[b] effects adjusted for child's age, sex, birth order, breastfed, mother's age, education and health, number of young children at home, number of prior infant deaths and household socioeconomic status

Figure 1. Diagram Relating Network Structure to Social Support and Child Health

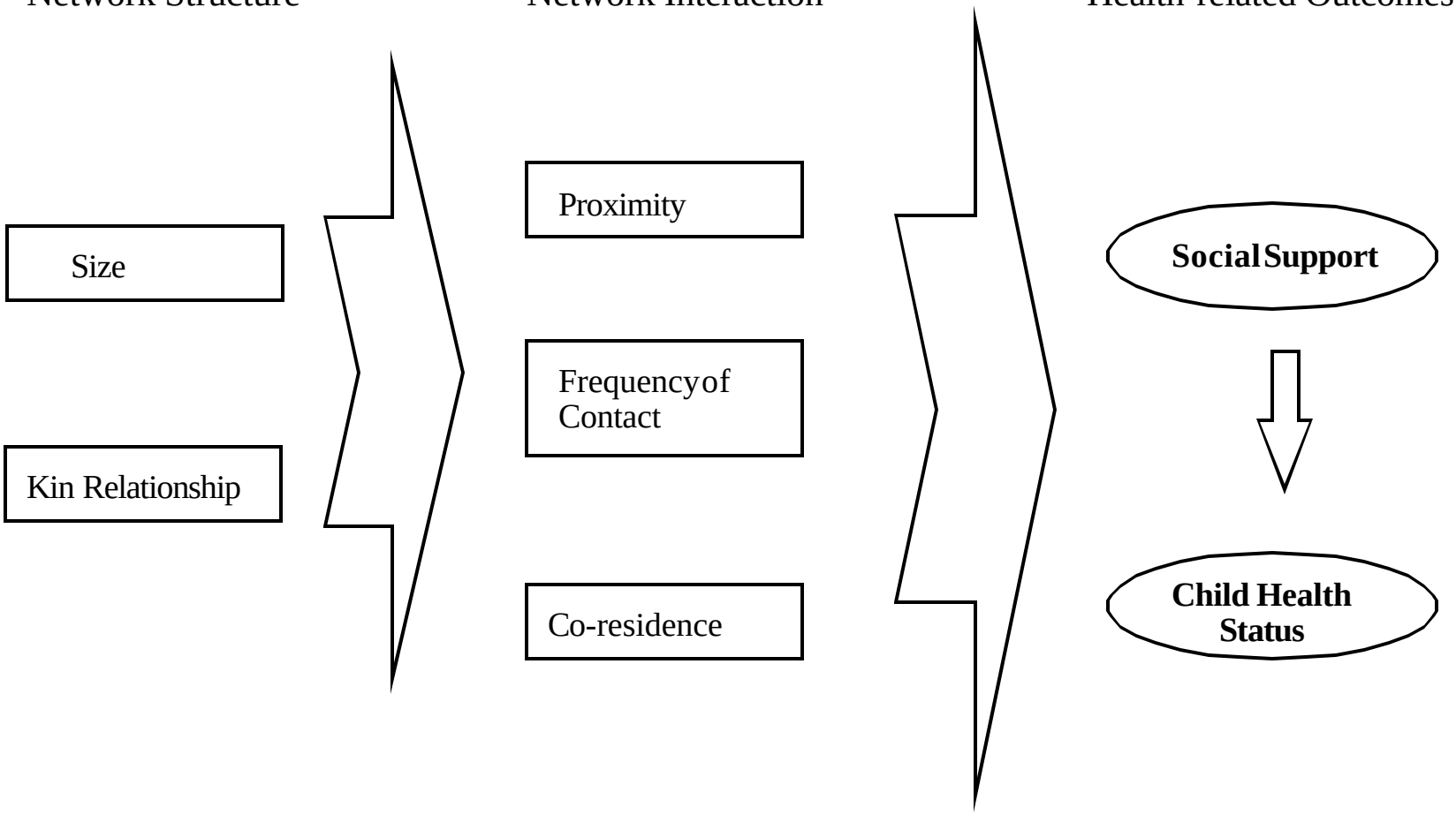
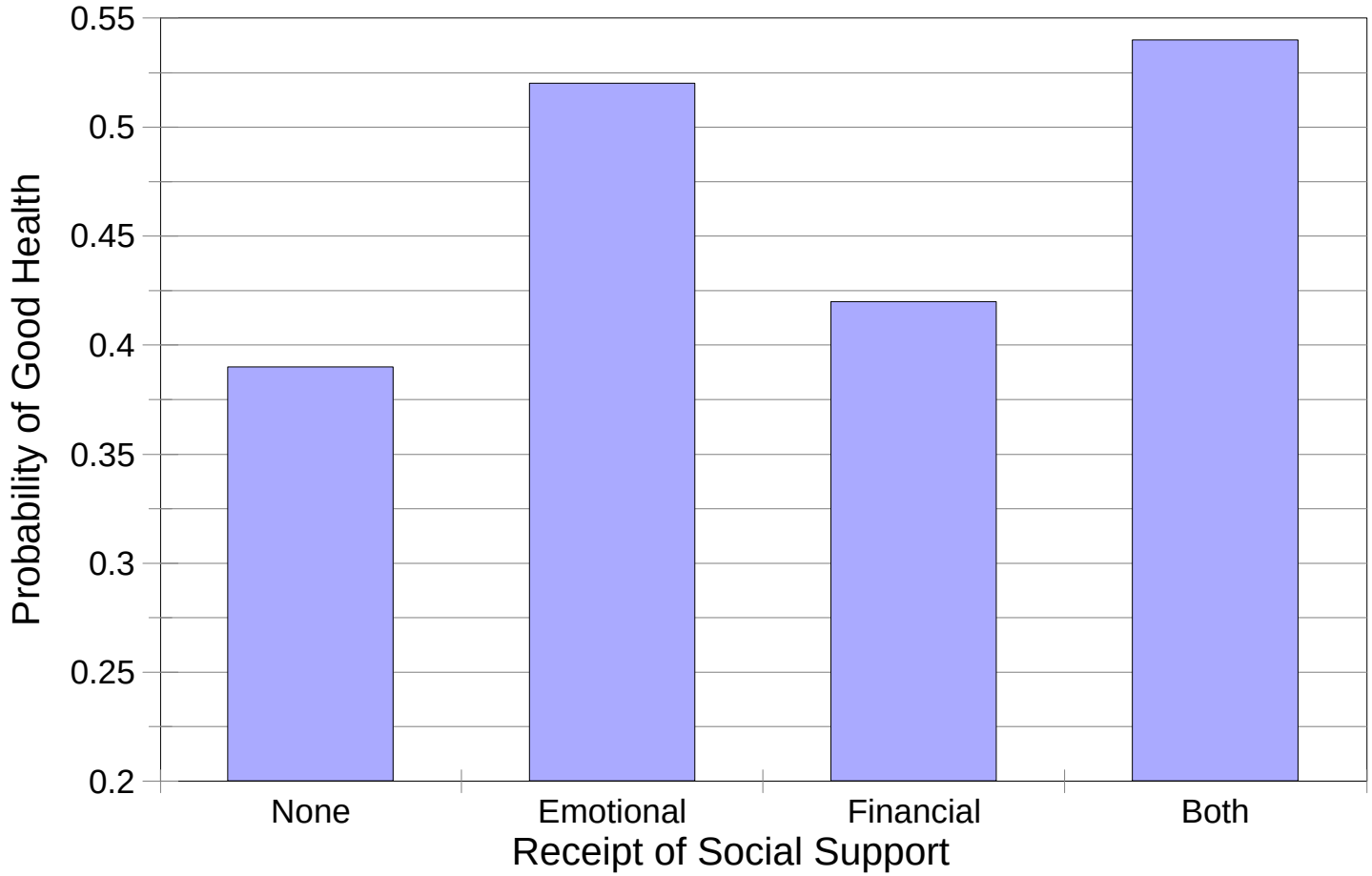


Figure 2. Probability of Good Child Health by Provision of Social Support



Note: Good health status includes good or excellent child health, relative to very poor to fair.

Center for Demography and Ecology
University of Wisconsin
1180 Observatory Drive Rm. 4412
Madison, WI 53706-1393
U.S.A.
608/262-2182
FAX 608/262-8400
comments to: skanaiau@ssc.wisc.edu
requests to: cdepubs@ssc.wisc.edu