THE NETWORK BASES OF SPOUSAL SUPPORT:

WHY SOCIALLY EMBEDDED SPOUSES ARE MORE SUPPORTIVE

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Abstract

This paper examines whether the flow of social support between older married adults is associated with their joint connectedness to third parties, which could enhance their capacities to coordinate and provide support to each other. I examine data from 1,490 older married adults between the ages of 57-85 from the National Social Life, Health, and Aging Project (NSHAP). Analyses reveal that, when one's spouse has more frequent contact with one's other network members, one is more likely to: 1) view one's spouse as a reliable source of support; 2) open up to one's spouse about personal worries; and 3) discuss health problems and medical treatment decisions with him or her. These associations do not vary by gender. I close by considering important limitations of the data and analysis, and by discussing the need for further research on the link between older adults' social networks and social support processes.

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Social support is a dynamic process that involves the provision of coping resources, including companionship, emotional sustenance, information, and other forms of aid (e.g., see Kahn & Antonucci, 1980; Thoits, 1995; Wellman & Wortley, 1990). Because it increases self-esteem, buffers against the stresses of negative life events, and yields access to valuable instrumental resources, social support is associated with a variety of positive physical and mental health outcomes (Cobb, 1976; House, Umberson, & Landis, 1988; Lin, Ye, & Ensel, 1999; Thoits, 1995). Spouses are usually regarded as particularly reliable sources of support, especially as the need for support grows in later life (Cantor, 1979; Cantor & Brennan, 2000; Dehle, Larsen, & Landers, 2001; Levitt, 1991). The spouse is the most close-at-hand contact and therefore the most able to deliver support when it is called for. Spouses have unparalleled knowledge of each other's specific support needs because of frequent mutual exposure and the (usually) open exchange of information that occurs in marital relationships. Furthermore, some forms of support (e.g., help with embarrassing problems) fall far outside of the boundaries of other, weaker relationships (Allan, 1986; Hamon & Blieszner, 1990; Rosow, 1970; Wood & Robertson, 1978).

However, research suggests that several factors condition the flow of support between spouses. The most widely studied of these is gender. Flows of support within marital relationships are asymmetrical in the sense that, on average, husbands receive more (beneficial) support from their wives than women receive from their husbands (Antonucci & Akiyama, 1987b; Cutrona, 1996; Schwarzer & Gutiérrez-Doña, 2005; Windsor and Butterworth, 2010; c.f., Neff & Karney, 2005; Turner & Marino, 1994; Verhofstadt, Buysse, & Ickes, 2007). Relationship quality is another important factor. The amount of time spouses spend together, their happiness and satisfaction with each other, and other aspects of relationship strength are all central to mutual supportiveness (Dehle, Larsen, & Landers, 2001). The aim of this report is to expand on this work by exploring another potentially important condition that has not been examined in the literature on social support – spouses' network connections.

The main idea being tested here is that the flow of support within older married couples is associated with the structure of the broader social network in which they are embedded. Specifically, spouses' abilities to provide support to each other depend on their embeddedness in each other's networks. There are several reasons for this. First, well-connected people are better able to supplement their own resources with the resources of other contacts, especially friends and family (e.g., see Lin 2001). Beyond this, spouses are unique in that the informal social connections they can draw on to help each other are usually from overlapping pools of contacts. Strong relationships are frequently embedded within joint networks, and the spouse is usually the one person who is the most closely tied to one's other contacts (Kalmijn, 2003; Kalmijn & Bernasco, 2001; Kearns & Leonard, 2004).

-- Figure 1 about here --

A spouse who maintains open lines of contact with one's other network members – as illustrated in Panel A of Figure 1 – is in a particularly advantageous position in terms of support provision. I refer to this situation as *spousal embeddedness*. Because other network members (e.g., close relatives) are directly connected not only to the support provider (i.e., the spouse) but also to the support recipient, those network members may be especially receptive to appeals for help when it is needed. Second, having connections with one's spouse's network contacts makes it easier to compare notes about specific concerns and support needs and to coordinate support when the need arises. It is only when one's spouse achieves such embeddedness with one's other network members that the broader network can realize its potential as a support system. Spouses' embeddedness in a joint network also increases the couple's shared social capital by increasing capacities to exercise informal control over behavior, such as indirect monitoring of adherence to medical prescriptions (Coleman, 1988; Hansen, Fallon, & Novotny, 1991; Julien & Markman, 1991; Milardo, 1987; Umberson, 1987, 1992). The concept of a social support "convoy" (Antonucci & Akiyama, 1987a; Kahn & Antonucci, 1980) is useful in these respects because it conceptualizes support as operating not within dyads, but as a process that involves cooperation within a larger group. This is also consistent with research on caregiving which stresses the broader environment

or context in which caregivers are embedded as a factor that affects their ability to execute caregiving duties and other caregiver outcomes (see Dilworth-Anderson , Williams, & Cooper 1999).

In this light, spousal embeddedness may be particularly important for older adults, who are more likely to rely on their spouses for support through a variety of trying life transitions. Research suggests that, as with other marital qualities, spousal network overlap changes substantially over the life course. Most importantly, spouses' social networks tend to converge throughout the life course, such that older couples have greater network overlap. Research points to couples' increasing investment in each other and in each other's social circles as a means of demonstrating mutual commitment and reinforcing a sense of "couplehood" (Johnson & Leslie, 1982; Kalmijn, 2003; Milardo, 1982; Stein et al., 1992). Socioemotional selectivity theory (Carstensen, 1992) also suggests that older adults develop increasing preferences for close, emotionally rewarding contacts, which leaves them with a disproportionate number of kin and close contacts who are likely to be acquainted with their spouse. In addition, later-life events like health decline and retirement often bring about a loss of weaker social ties, leading to denser social networks in which spouses have stronger connections (Cornwell, 2009; Litwin, 2003).

Unfortunately, there has been no direct examination of the link between spousal embeddedness and spousal support – that is, how the spouse's connections to one's other network members conditions their support contributions – in older adult samples or elsewhere. The goal of this paper is to determine whether there is a link between the embeddedness of older adults' spouses in their networks and their access to different forms of spousal support, to assess the magnitude of these associations, and to determine whether it holds net of other key factors. Examining whether spousal network embeddedness is related to older adults' access to social support may help to clarify the conditions that make marriage (and other close relationships) so beneficial in terms of physical and mental well-being.

DATA AND METHOD

I use data from the National Social Life, Health, and Aging Project (NSHAP), a nationally representative, population-based study funded by the National Institutes on Health and conducted by the National

Opinion Research Center (NORC) between autumn 2005 and spring 2006. The study consists of interviews with 3,005 non-institutionalized older adults (ages 57-85) about their health and social relationships. The sample was selected from a multi-stage area probability design screened by the Institute for Social Research (ISR). NSHAP identified 4,400 potential respondents in the desired age range. The design oversampled by race/ethnicity. NSHAP retained this design and also oversampled by age and gender to produce approximately equal cell sizes by gender across three age categories (see O'Muircheartaigh, Eckman, & Smith, 2009). All analyses take into account NSHAP's complex sampling design. The final response rate for the entire sample is 75.5%.

Spousal Support

Because perceived social support may be especially important in buffering the effects of negative life events (Wethington & Kessler, 1986), I measure social support in terms of respondents' cognitive appraisal of support availability (Turner, Frankel, & Levin, 1983). Unfortunately, NSHAP does not include a complete partner support scale (e.g., Cutrona, Hessling, & Suhr 1997), which would be ideal for evaluating how network embeddedness relates to different forms of support. However, NSHAP does include measures which index general access to instrumental, emotional, and informational dimensions of support (see House, 1981; Seeman & Berkman, 1988), which are especially important for older adults (see Krause & Markides, 1990).

First, NSHAP asked respondents: "How often can you rely on [spouse's/partner's name] for help if you have a problem? Would you say hardly ever, some of the time, or often?" Only 45 respondents (about 3% of the final sample) answered "hardly ever or never," this category is collapsed with "sometimes." Respondents were also asked: "How often can you open up to [spouse's/partner's name] if you need to talk about your worries? Would you say hardly ever, some of the time, or often?" Only 62 respondents (about 4% of the sample) responded "hardly ever or never." As above, this category is collapsed with "sometimes." When studying older adults, it is also important to capture health-specific information and emotional support. In this vein, following Antonucci & Akiyama (1987b), respondents were asked:

"Suppose you had a health problem that you were concerned about, or needed to make an important decision about your own medical treatment. How likely is it that you would talk with [name] about this: would you say very likely, somewhat likely, or not likely?" NSHAP asked this question with respect to each of the respondents' network members. All but 93% of respondents answered that they were "very likely" to talk to their spouse specifically about health problems. The univariate properties of these support measures and other variables described in this section are displayed in Table 1.

-- Table 1 about here --

Spousal Network Embeddedness

NSHAP collected basic information about respondents' egocentric networks. Following the General Social Survey, interviewers asked respondents the following:

> From time to time, most people discuss things that are important to them with others. For example, these may include good or bad things that happen to you, problems you are having, or important concerns you may have. Looking back over the last 12 months, who are the people with whom you most often discussed things that were important to you?

This question usually elicits names of strong, frequently accessed, long-term contacts (Burt, 1984; Marin, 2004; Ruan, 1998) – ties through which social influence is likely to operate and which are thought to be particularly important to older adults (Cornwell, Laumann, & Schumm, 2008). Network members who were named in response to this question were enumerated in roster A. Respondents could name up to five such confidants. Information about the nature of their relationship with the respondent (e.g., child, friend) was recorded. In some cases, married respondents did not include the spouse among the confidants listed in roster A. In these cases, NSHAP interviewers recorded this person in roster B for future reference.

Respondents were asked how often they interact with each of their confidants, as well as how frequently each of their confidants interacts with each of their other confidants (including their spouse, if applicable). Each respondent ("ego") reported frequency on a nine-level scale, ranging from 0 (= "*have never spoken to each other*") to 8 (= they have contact "*every day*"). NSHAP did not ask respondents about spouses' overall network connectedness or what spouses' networks are like, but it did ask

respondents about spouses' connections to respondents' other confidants. The main measure of spousal embeddedness used here is a straightforward average of a respondent's ordinal assessments of how often the spouse interacts with the other confidants. This measure is negatively associated with the number of non-spouse confidants (r = -.125, p < .001). Egocentric network measures can be unreliable when they are calculated for people who have small networks (see Marsden 1993). Therefore, I also use a second measure of spousal embeddedness – an indicator of whether the respondent's spouse interacts with any confidant more than once a week. This reduces the sensitivity of the measure to respondents' abilities to accurately estimate the frequency with which spouses interact with confidants, and this measure has the opposite association (positive) with network size (r = .131, p < .001). Analyses are conducted using both measures as a sensitivity check. Results for the latter are reported in Appendix Table A1.

Other Social Resources

The association between spousal embeddedness and support may be affected by the availability of other social resources. Therefore, I control for the number of non-spouse confidants a respondent reports having. (Note that the number of non-spouse confidants may be artificially higher for respondents who did not list their spouse until roster B. Including an indicator of this situation does not change the results.) I also calculate the average assessment of how often one interacts with one's confidants. This captures both one's frequency of access to other social resources and the likelihood that one's spouse has frequent contact with them. I also consider the availability of support itself outside of the martial relationship. NSHAP asked respondents to what extent they can rely on (1) other family members and (2) friends for support when they need help, and also how often they can open up to these people. These items are scored the same way as the parallel spousal support items described above (ranging from "rarely/never" to "often"). To obtain a rough measure of access to other reliable sources of support, I create a dichotomous indicator of whether the respondent reported that they could often rely on either their family members or friends for support. For the model predicting ability to open up to one's spouse, I calculate a similar measure indicating whether one could often open up to either family members or friends as well.

Finally, respondents were also asked about their likelihood of discussing health with all of their confidants, so the proportion of non-spouse confidants with which one is "very likely" to discuss health is used as a control in the model predicting likelihood of discussing health with one's spouse.

Marital Relationship Quality

Spousal network embeddedness may index other aspects of relationship quality (e.g., see Widmer et al., 2009). After all, the degree to which two people are embedded in closed triads varies with the strength of the tie between them (Granovetter, 1973). Thus, I include several measures of relationship quality. One is a measure of the number of years respondents have been married to their spouses. Second, NSHAP asked respondents: "Some couples like to spend their free time doing things together, while others like to do different things in their free time. What about you and [spouse/partner name]? Do you like to spend free time doing things together, or doing things separately?" Possible responses include: "together," "some together, some different," and "different/separate things." I include these responses as dummy variables.

Respondents also indicated how close they feel to each of their network members. Responses range from 1 (= "*not very close*") to 4 (= "*extremely close*"). I average these ratings across all non-spouse confidants, then subtract this average from the ordinal rating for closeness to the spouse. The resulting variable ranges from -3 to 3, with positive values meaning that the respondent feels closer to the spouse than to his or her other confidants, on average. Finally, respondents reported how often their spouses "make too many demands" on them (in three levels, from "rarely/never" to "often"). I include this ordinal assessment as a rough proxy for asymmetry in spouses' expectations of each other, with the expectation that those whose spouses make excessive demands are likely to be regarded as less supportive overall.

Health

Health is important to consider for a number of reasons. For one, health problems increase the demand for and provision of support. At the same time, chronic health problems lead to more restricted social networks (Haas, Schaefer, & Kornienko, 2010). Among older adults, health problems commonly lead to

smaller, disproportionately kin-centered networks, which are more conducive to spousal embeddedness (Cornwell, 2009). I include an ordinal measure of self-reported health, as well as an index of functional health that gauges respondents' abilities to complete activities of daily living like getting dressed (α =.87). Psychological well-being could also affect (the perception of) social support. I use a modified depressive symptoms scale that does not include the item on loneliness that is included in the normal CES-D, which would create additional problems with endogeneity in this analysis (Cacioppo et al., 2006).

Other Covariates

As with respondents' health, one's spouse's health is also relevant. A spouse who is experiencing serious health problems is more likely to be a recipient than a provider of social support. NSHAP asked respondents to rate their spouses' overall health and "emotional or mental" health on 5-point ordinal scales, both ranging from 1 (= "*poor*") to 5 (= "*excellent*"). For both measures, the "poor" and "fair" categories are collapsed into a single category due to low frequencies in the "poor" category.

Age is included in the model as years of age (divided by 10), as it is likely to be related to both spousal embeddedness and spousal support. Several other factors may affect access to support, including employment status. People who are still working may have more access to weak ties may also spend less time with their spouses. People who are not working because they are disabled might rely on their spouses more for support. These factors are incorporated into the analysis as dummy variables.

Analysis

The measures of social support are dichotomous and are therefore analyzed using logistic regression analysis. (Analyses which preserve the ordinal nature of the outcome variables yield the same substantive results.) An important analytic issue in any study of spousal support is that it often operates differently for men and women. Research reveals gender differences in spousal support and marital quality (Antonucci & Akiyama, 1987b), as well as in measures of spousal network embeddedness (Kalmijn, 2003) and a variety of other network characteristics (Moore, 1990). Because the relationship between spousal support

and embeddedness (and other variables) could vary by gender, I use Chow tests to determine whether it is necessary to specify separate models for men and women, as indicated by the presence of unequal coefficients in separately specified models (Chow, 1960). These tests suggest that, with the exception of the measure of how open respondents can be with friends and family (only in the model predicting ability to open up to one's spouse), the equations do not differ significantly for men and women. Therefore, I specify pooled models that include both men and women, but I incorporate an interaction between gender and openness with friends and family in the model predicting respondents' abilities to open up to their spouses. This maximizes the power of the statistical analyses and reduces the likelihood of Type II errors. The squared correlation between the predicted probability and the observed outcome is reported as a pseudo R^2 value (Fleiss, Williams, and Dubro 1986).

Selection Issues

These analyses pertain only to those respondents who are married (N = 1,801) and who have non-spouse confidants (N = 2,758). It is acceptable to restrict the analysis to the subsample that is created by these joint conditions (N = 1,496). However, several factors which may be related to both spousal embeddedness and support could affect the composition of the sample. For example, as discussed above, research suggests that both spousal embeddedness and support increase with age, and yet it is the oldest adults in our sample who are the most likely to be widowed and therefore to be excluded from the analysis. To adjust for potential selection, I employ a complete-case weighting form of missing data adjustment (Morgan & Todd, 2008). I begin by calculating each respondent's probability of inclusion in the main analysis (i.e., the probability that s/he is currently married, has at least one other confidant, and has no missing data on covariates). Predictors in this first-stage logit model include age, gender, race/ethnicity, education, employment status, health, and indicators of whether respondents were randomly assigned to answer questions about non-spousal support resources on a leave-behind questionnaire instead of in person. (One-third of the sample was randomly selected to answer questions about non-spousal support (i.e., support from other family members and friends) on a leave-behind

questionnaire.) I take the inverse of the predicted probability that is derived from this first-stage model, multiply it by the supplied NSHAP survey weight, and use the product as the person-weight in the relevant model. This procedure effectively gives disproportionate weight to cases that were least likely to be observed in the final models, thus helping to reduce bias caused by selection. The results presented here do *not* depend on this adjustment. Models with the original NSHAP weights yield similar results.

RESULTS

The central issue being addressed in this report is the extent to which spouses provide support to each other. The perception of spousal support is high in this sample of older adults. Most see their spouses as highly reliable sources of support. About 85.6% indicated that they could often rely on their spouses for support if they needed help, 75.3% said that they could often open up to their spouses about their worries, and 92.6% reported that they would be "very likely" to discuss any health problems or medical treatment decisions with their spouses.

Spouses are also fairly well-connected to each other's close social network members. The overall average ordinal rating of spouses' frequency of contact with network members is 5.51, which falls between the "several times a month" and "weekly" contact categories. The median average frequency of contact between spouses and a given confidant is "weekly." There are several other ways to parse the network contact data. A vast majority of older adults' spouses (81.8%) interact with at least one confidant on at least a weekly basis, most (61.9%) report that their spouses interact with at least one confidant at least several times a week, and about one third of respondents (31.0%) have spouses who have daily contact with a confidant.

It is worth noting that there are significant gender differences in spousal support. More men than women (89.4% versus 82.0%) reported that they could rely on their spouses for help if needed ($F = 11.54$, $p < .01$). Men were more likely to report that they could discuss health/medical issues with their wives than vice versa (94.9% versus 90.4%; $F = 11.69$, $p < .01$). Men may also have been slightly more likely than women (76.8% versus 73.9%) to report that they could open up to their spouses about their worries,

but this is not a statistically significant difference ($F = 1.48$, $p = .23$). At first glance, however, it does not appear that these differences are closely related to any gender differences in spousal embeddedness. Men and women reported statistically similar levels of overall average spousal embeddedness ($F = .16$, $p = .69$). Women were slightly more likely than men (84.2% versus 79.4%) to report that their spouses had at least weekly contact with a confidant ($F = 5.28$, $p < .05$), but they had statistically similar likelihoods of reporting that their spouses had contact with confidants several times a week ($F = .00$, $p = .97$) or daily ($F = .07$, $p = .79$).

Highly Embedded Spouses are More Supportive

More to the main point of this paper, the data reveal substantial associations between spousal network embeddedness and different forms of spousal support. In a preliminary bivariate analysis, I categorized each spouse's typical frequency of contact with confidants as being approximately monthly or less, weekly, or daily. To do this, I took the respondent's assessments of the spouse's frequency of contact with confidants, calculated the median value, then categorized this value as being ≤ monthly, weekly, or daily. When I do this, I find that 79.1% of respondents whose spouses interact with their other confidants about once a month or less indicated that they can often rely on their spouses for support. Conversely, 91.4% of those whose spouses have daily contact with their confidants said that they can often rely on their spouses for support ($F = 10.71$, $p < .001$). Similarly, 69.5% of respondents whose spouses interact with their other confidants once a month or less indicated that they can often open up to their spouses about their worries, compared to 79.1% of those whose spouses have daily contact with their confidants ($F = 4.70$, $p < .05$). There is a similar trend in the relationship between spousal embeddedness and likelihood of discussing health with one's spouse, but it is not statistically significant ($F = 2.33$, $p = .11$).

Multivariate Analysis

The association between spousal embeddedness and support could be due to a number of confounding factors, such as health problems or relationship quality. Table 2 displays odds ratios from multivariate

logistic regression analyses predicting the three forms of spousal support. Age (controlling for years married) is negatively associated with the frequency with which one opens up to one's spouse about concerns. Neither overall self-reported health nor functional health (not shown in the table) are significantly associated with perceived support, but depressive symptoms are negatively associated with the tendency to open up to one's spouse.

-- Table 2 about here --

Measures that concern the spouse are more consistent predictors of spousal support. Older adults who spend their free time apart from their spouse tend to report lower levels of spousal support than those who spend their free time with their spouses. For example, they are only 37.3% as likely to report that they can often rely on their spouses for support (95% CI: .202, .688). Likewise, older adults who feel especially close to their spouses are significantly more likely to report all three forms of spousal support. On the other hand, spouses who are demanding are regarded as less reliable sources of support. Spouses' overall health is not associated with support, but spouses who have better mental health are seen as more supportive across all dimensions. There is a positive association between older adults' access to other sources of support of a given type (from friends and family) and their access to that same form of support from one's spouse. Finally, model 2 shows an interaction between gender and ability to open up to other family/friends about one's worries, suggesting that men's access to spousal support benefits more from their access to other forms of support than women's.

.*Spousal Network Embeddedness.* Of greatest interest here, one of the most consistent findings across models is that spousal embeddedness is positively associated with spousal support. One whose spouse has more frequent contact with one's confidants is significantly more likely to report that s/he can often rely on his or her spouse for support (*OR* = 1.229, 95% CI: 1.052, 1.436), that s/he can open up to his or her spouse about concerns (*OR* = 1.165, 95% CI: 1.041, 1.303), and that s/he can talk to his or her spouse about health issues (*OR* = 1.345, 95% CI: 1.124, 1.609). These associations do not vary by gender.

-- Figure 2 about here –

To aid in interpretation, Figure 2 displays the predicted probabilities that respondents report the highest levels of spousal support of a given type – for example, that they are "very likely" to discuss health issues with their spouses, or that they can "often" rely on their spouses for help. These values are plotted against the average ordinal assessment of spouses' frequency of contact with one's confidants. The figure reflects the positive associations between spousal embeddedness and different forms of support. For example, respondents who report an average frequency of contact of 2.0 (i.e., spouses have contact with confidants "*once a year*," on average) have a predicted probability of about .80 of often being able to rely on their spouses for help, a probability of about .70 of often being able to open up to their spouses, and a probability of about .87 of reporting that they are "very likely" to talk to their spouses about health issues. These compare to higher predicted probabilities of .90, .81, and .96, respectively, when spouses have an average frequency of contact with confidants of 8.0 (i.e., spouses have contact with confidants "*once a week*," on average).

Results are similar when the alternative operationalization of spousal embeddedness is used (see Appendix Table A1). Spouses are coded as being highly embedded if they have contact with at least one confidant on more than a weekly basis. Older adults whose spouses have such frequent contact with a confidant are 2.197 times as likely to report that they can often rely on their spouse for help if needed, as those whose spouses do not have such frequent contact with any confidant (95% CI: 1.312, 3.678). Those whose spouses have more than weekly contact with a confidant are 41.5% more likely to report that they can open up to their spouses about their worries. This association is only marginally significant at $p = .053$ (95% CI: .996, 2.010). Finally, older adults whose spouses have such frequent contact with a confidant are 2.092 times as likely to be very likely to talk with their spouses about health or medical issues (95% CI: 1.172, 3.735).

CONCLUSION

The main hypothesis that was explored in this report is that older adults' access to social support from their spouses depends, in part, on their spouses' embeddedness in their social networks. This idea was

tested using data from a nationally representative sample of older adults between the ages of 57-85. Results suggest that, within this age group, older adults' whose spouses have more frequent contact with their other confidants are significantly more likely to report being able to often rely on their spouses for help when they need it and to open up to their spouse about their worries, and are also more likely to talk to their spouses about health problems or medical treatment decisions. These associations hold in multivariate analyses that control for a variety of control for respondents' characteristics, health, relationship quality, and access to social support from other sources. The relationship between spousal network embeddedness and spousal support is statistically similar for older men and older women.

Data limitations could affect the findings. This report uses a limited set of measures of social support which focus on non-specific reliability of spouses and on openness to spouses. It is unclear to what extent spousal embeddedness relates to other aspects of spousal support, like instrumental aid. A study like this could also benefit greatly from more detailed network data. We do not know anything about spouses' own confidants, for example – such as how supportive they are or if they have certain resources. Furthermore, what I have referred to as spousal embeddedness may partly index degree of overlap in both spouses' networks, including the extent to which one interacts with one's spouse's confidants. This may be more relevant than spousal embeddedness to spouses' abilities to summon and coordinate support. Research also suggests that network overlap enhances partners' sense of "couplehood," decreases role strain, and increases the costs of dissolving the relationship (Julien, Chartrand & Bégin 1999; Kalmijn & Bernasco 2001; Stein et al. 1992), all of which could shape perceptions of spousal support. Knowing something about external network ties that are maintained by one's spouse may be especially useful for understanding the role of networks in the availability of spousal support among older adults who are not included in this analysis because they have no confidants.

Simultaneity is a potential issue as well. Spousal support could affect older adults' likelihood of maintaining joint network ties. Spousal support could increase spousal embeddedness as spouses' efforts to provide support place them in greater contact with one's other confidants. A series of supplementary regression analyses predicting the three measures of spousal embeddedness using the pooled sample (not

shown) suggest that, net of other factors, spousal support is consistently positively associated with spousal embeddedness. Highly reliable spouses interact with confidants more frequently than less reliable spouses, regardless of how spousal embeddedness is measured. It is important to note, however, that dual causation is not inconsistent with the theoretical argument made at the beginning of this paper. Spouses' greater embeddedness in each other's networks is likely to augment support capacity, regardless of whether it initially stems from spouses' efforts to provide support to each other in the first place.

Finally, causal inference is hampered by the cross-sectional nature of the data. Despite efforts to attenuate it, sample selection bias may affect the results. For one, this report offers little insight into the spousal support of married individuals who do not maintain many external network connections. This could inflate the influence of young-old respondents who have yet to experience the loss of confidants due to severe health problems. The findings might also reflect disproportionate selection into highly supportive relationships by older adults who have few friends. It is possible that people who select supportive spouses are also more likely to adopt their spouses' confidants as their own. One might also expect relationships in which there is high spousal embeddedness and yet low levels of spousal support to be more likely to dissolve.

Despite these limitations, the contribution of this paper is the evidence it provides for the idea that the supportiveness of older adults' spouses depends on their embeddedness in each other's networks. This idea has been implied in existing research on the operation of older adults' support convoys (Antonucci & Akiyama, 1987a), but never tested directly. The fact that the association being explored in this report is strong, persists in bivariate and multivariate analyses, and holds across different operationalizations of spousal embeddedness and support provides some measure of confidence. Hopefully this report will encourage further work on the relationship between older married couples' social networks and the support processes that operate within them. Analyses of how different types of spousal support relate to different aspects of spouses' (or couples' joint) networks are badly needed. This work could provide some important insight into conditions under which marriage does not yield viable sources of support for some individuals during a period of key life transitions.

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Table 1. Descriptions of Selected Variables Used in the Main Analyses (N = 1,490)[a]

Variable		Weighted Mean	Standard Deviation
Spousal support			
Reliability	R can "often" rely on spouse for support {1 = *Yes* , 0 = *No* }	.856	.331
Openness	R can "often" open to spouse about worries {1 = *Yes* , 0 = *No* }	.753	.428
Health discussion	R is "very likely" to talk about health problem or decision about medical treatment with spouse {1 = *Yes* , 0 = *No* }	.926	.262
Spousal embeddedness			
Ordinal average	R's average ordinal rating of frequency of contact between spouse and confidants (0 = *have never spoken* to 8 = *every day*)	5.507	1.569
Dichotomous	Whether R's spouse has > weekly contact with at least one confidant	.619	.485
Age	R's age in years (divided by 10). Range: 5.7 to 8.5.	6.803	.739
Female	R is female {1 = *Yes* , 0 = *No* }	.510	.496
Working	R is currently employed {1 = *Yes* , 0 = *No* }	.352	.480
Disabled	R is disabled {1 = *Yes* , 0 = *No* }	.100	.270
Self-rated health	R's ordinal rating of their his/her overall health, ranging in five levels from "poor" to "exellent." Range: 1 to 5.	3.268	1.079
Functional health	Average of 7 standardized ordinal items assessing R's ability to complete ADLs (α = .86). Range -6.575 to .348.	.039	.653
Depression	Average of standardized responses to 10 ordinal items from the CES-D scale assessing depressive symptoms, minus loneliness. Range: -.602 to 2.832.	-.021	.535
Time together	*Ref*: R and spouse spend free time together {1 = *Yes* , 0 = *No* }	.490	.500
	R and spouse sometimes spend free time together {1 = *Yes* , 0 = *No* }	.389	.491
	R and spouse usually spend free time apart {1 = *Yes* , 0 = *No* }	.121	.313
Years of marriage	Years R and spouse have been married (div. by 10). Range: 0 to 6.8.	3.815	1.534
Closeness to spouse	R's rating of how close R is to spouse (range 1 to 4), minus R's rating of how close R is to confidants, on average. Range: -3 to 3.	.585	.764
Spousal demands	R's rating of how often R makes "too many demands" on him/her, ranging from "hardly ever/never" to "often". Range: 1 to 3.	1.513	.689
Spouse's overall health	R's ordinal rating of his/her spouse's overall health, ranging in four levels from "poor/fair" to "exellent." Range: 1 to 4.	2.267	1.014
Spouse's mental health	R's ordinal rating of his/her spouse's mental health, ranging in four levels from "poor/fair" to "exellent." Range: 1 to 4.	2.674	.991
Other support sources			
Reliability	Whether R can rely on either other relatives or friends for support if R needs help {1 = *Yes* , 0 = *No* }	.682	.465
Openness	Whether R can open to either other relatives or friends about worries {1 = *Yes* , 0 = *No* }	.458	.496
Health discussion	Proportion of non-spouse confidants with whom R is "very likely" to discuss health problem or treatment decision. Range: 0 to 1.	.610	.386
Number of confidants	Number of non-spouse confidants in the network. Range: 1 to 5.	3.058	1.205
Proportion kin	Proportion of non-spouse confidants who are kin. Range: 0 to 1.	.622	.364

[a] Means are estimated using NSHAP person-level weights, with post-stratification adjustments for non-response and adjustments for probability of inclusion in the main analysis. Estimates are calculated for all cases for which data are available on all key variables in the multivariate analysis.

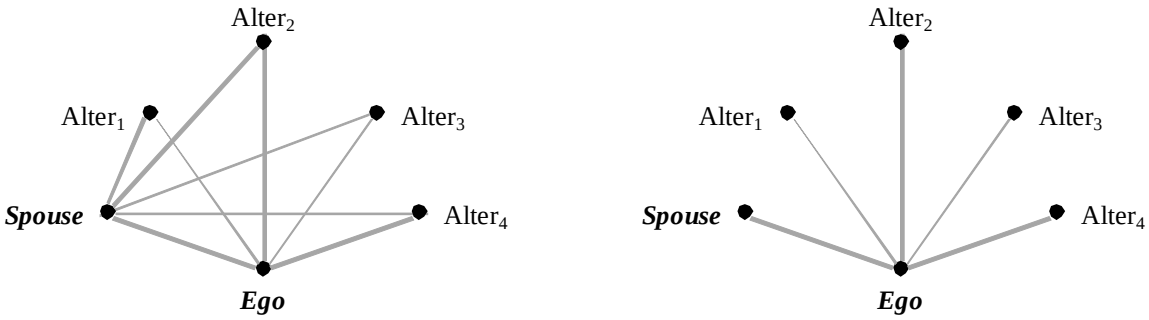
Table 2. Odds Ratios from Logistic Regression Models Predicting Spousal Support (N = 1,490)[a]

	Dimension of spousal support being predicted:		
Predictor	Reliability	Openness	Health discussion
Spousal embeddedness (ordinal average)	1.229*	1.165**	1.345**
	(.095)	(.065)	(.120)
Age (divided by 10)	.816	.657**	.794
	(.153)	(.075)	(.161)
Female	.716	1.333	.781
	(.151)	(.290)	(.182)
Depression	.769	.630**	.706
	(.109)	(.098)	(.127)
R spends some free time w/ spouse	.833	.675*	.690
	(.207)	(.130)	(.221)
R spends free time apart from spouse	.373**	.345***	.422*
	(.114)	(.073)	(.178)
Years of marriage (divided by 10)	1.018	1.018	1.101
	(.094)	(.060)	(.125)
Closeness to spouse	1.770**	1.965***	1.818**
	(.375)	(.206)	(.297)
Spousal demands	.617**	.866	.986
	(.083)	(.097)	(.170)
Spouse's mental health	1.723***	1.541***	1.491**
	(.233)	(.143)	(.185)
Other support sources			
Reliability	1.768*	--	--
	(.451)		
Openness	--	4.204***	--
		(1.031)	
Health discussion	--	--	2.107*
			(.618)
Female x other sources of openness	--	.470*	--
		(.136)	
F	7.59***	8.68***	6.45***
(d.f.)	(19, 32)	(20, 31)	(19, 32)
Pseudo R^2	.233	.185	.144

* p < .05, ** p < .01, *** p < .001 (two-tailed tests)

[a] Estimates are weighted to adjust for probability of inclusion in the analysis and differential non-response. All models are survey-adjusted. Labor force status, spouse's overall health, self-reported health, functional health, number of confidants, proportion kin, and frequency of contact with them are included in these models, but not shown due to space constraints. All but the last of these were not significant.

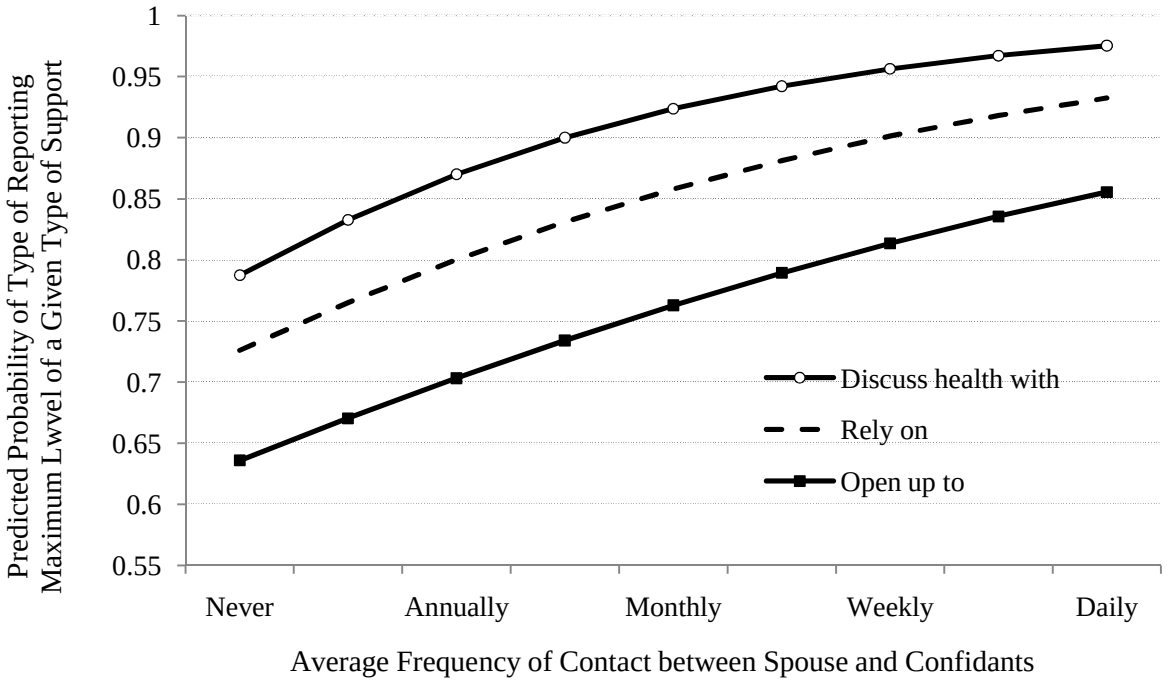
Figure 1. Hypothetical Networks Reflecting High and Low Spousal Embeddedness



Panel A: High Spousal Embeddedness

Panel B: Low Spousal Embeddedness

Figure 2. Predicted Probabilities of Reporting the Highest Levels of Three Different Types of Spousal Support, Given Different Average Frequencies of Contact between One's Spouse and One's Confidants



Note: Predicted probabilities are derived from the models presented in Table 2. Covariates are held at their means. Gender is coded as female, and any relevant interactions are treated accordingly.

Appendix Table A1. Odds Ratios from Logistic Regression Models Predicting Spousal Support, Using the Dichotomous Indicator of Spousal Embeddedness (N = 1,490)[a]

	Dimension of spousal support being predicted:		
Predictor	Reliability	Openness	Health discussion
Spousal embeddedness (dichotomous indicator)	2.197**	1.415	2.092*
	(.564)	(.247)	(.604)
Age (divided by 10)	.820	.657**	.789
	(.154)	(.077)	(.170)
Female	.719	1.288	.758
	(.156)	(.280)	(.182)
Depression	.769	.630**	.704
	(.105)	(.097)	(.127)
R spends some free time w/ spouse	.849	.674*	.694
	(.208)	(.132)	(.222)
R spends free time apart from spouse	.344**	.326***	.378*
	(.105)	(.071)	(.170)
Years of marriage (divided by 10)	1.030	1.031	1.132
	(.094)	(.059)	(.127)
Closeness to spouse	1.707*	1.915***	1.761**
	(.340)	(.203)	(.300)
Spousal demands	.604**	.859	.968
	(.083)	(.096)	(.167)
Spouse's mental health	1.740***	1.555***	1.518**
	(.236)	(.144)	(.193)
Other support sources			
Reliability	1.775*	--	--
	(.455)		
Openness	--	4.128***	--
		(1.033)	
Health discussion	--	--	2.263**
			(.668)
Female x spousal demands	--	.481*	--
		(.141)	
F	7.90***	9.06***	8.64***
(d.f.)	(19, 32)	(20, 31)	(19, 32)
Pseudo R^2	.236	.184	.149

* p < .05, ** p < .01, *** p < .001 (two-tailed tests)

[a] Estimates are weighted to adjust for probability of inclusion in the analysis and differential non-response. All models are survey-adjusted. Labor force status, spouse's overall health, self-reported health, functional health, number of confidants, proportion kin, and frequency of contact with them are included in these models, but not shown due to space constraints. All but the last of these were not significant.