Journal of Social &
Personal Relationships
(2000), 17(1), 5-30.

Social support and strain from partner, family, and friends: Costs and benefits for men and women in adulthood

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ABSTRACT

The goals of this study were to (i) examine the association of social support and strain with psychological well-being and health, (ii) investigate whether these associations depended on relationship-type (partner, family, friend), (iii) examine the buffering effects of support on strain (both within and across relationship-type), and (iv) test the extent to which these associations differed by age and sex. The sample contained 2,348 adults (55% male) aged 25 to 75 years (M = 46.3), who were married or cohabitating. Positive and negative social exchanges were more strongly related to psychological well-being than to health. For both sexes, partner support and strain and family support were predictive of well-being measures; partner strain was also predictive of health problems. However, family strain was predictive of well-being and health outcomes more often for women. Further, while we did find evidence that supportive networks could buffer the detrimental effects of strained interactions, friends and family served a buffering role more often for women than for men.

This research was supported in part by the John D. and Catherine T. MacArthur Research Network on Successful Midlife Development (MIDMAC) and by NIA Training Grant #T32AG00204. The data are from the Midlife in the US (MIDUS) Survey. Further information regarding MIDMAC can be obtained on the World Wide Web at: http://midmac.med.harvard.edu. We would like to thank Alice Rossi, Suzie Weaver, the Lifespan Development Lab at Brandeis University, Barbara Sarason (who served as the Action Editor on this article), and several anonymous reviewers for comments on earlier drafts.

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Finally, younger and middle-aged adults were more adversely affected by strained friend networks than were older adults. However, the percent of variance accounted for by these interaction effects was small. Overall, these results suggest that future research consider the effects of strain and how support and strain interact, differentiate among sources of support and strain, and explore variations by age and sex.

KEY WORDS ● adulthood ● social networks ● well-being

Studies of social networks frequently find a link between social support and increased psychological well-being and physical health, generally demonstrating beneficial effects (e.g., Antonucci & Jackson, 1987; Schwarzer & Leppin, 1991). However, much stands to be gained in understanding the processes involving social relationships and their effects on well-being (Sarason, Sarason, & Pierce, 1995). While several investigators have begun to address the negative side of social exchanges, referred to here as social strain (Rook, 1992), research is still inconclusive as to whether strain exerts stronger, similar, or weaker effects than support. In the present study, we examined both support and strain in relation to both positive and negative well-being and health outcomes in order to clarify the differential impact on well-being of the valence of network exchange.

Additionally, social support and strain were differentiated by partner, family, and friends. This allowed us to examine the impact of source-specific support and strain on outcomes, and to examine the joint, or buffering, effects of positive and negative social exchanges (see Okun & Keith, 1998). Past studies that have considered the buffering effects of network support on strain have typically done so within relationship type (i.e., does family support cushion the association between family strain and depression?). Few studies have examined potential cross-buffering effects, such as probing whether or not a supportive spouse can offset the ill effects of a strained family network (for exceptions, see Lepore, 1992; Okun & Keith, 1998).

Finally, social network research has produced consistent evidence regarding sex and age differences in network characteristics, yet the association of support and strain to well-being by sex and age is less studied. Because this study used data from a large, nationally representative sample, we were able to consider these effects as well. In sum, we investigated the relative contribution of social support and strain to various measures of psychological well-being and physical health, and whether these effects differed by relationship-type (i.e., family, friends, or partner). We also sought to examine how support and strain from different sources worked together to influence these outcomes (i.e., could support buffer strain?). Finally, we examined whether the pattern of results differed for men and women of varying age groups (young = 25–39 years, middle = 40–59 years, and older = 60–75 years).

Conceptualization of support and strain

How social support is defined and measured varies across studies. Definitions and measures include, for example, actual support received, perceived availability of support, density of network, frequency of network contact, and composition of network. However, most definitions include the exchange or provision of supportive behaviors that can range from emotional to instrumental (Antonucci & Jackson, 1987). In this article, social support is operationalized as one's perceived notion of the caring and understanding exhibited by the network.

Social strain also can be measured in multiple ways. Examples include network exits, problematic exchanges, network stress transmission, and failed support attempts. Rook (1992) defined social strain as actions by network members that cause a person to experience psychological distress (e.g., resentment, sadness) and at least some reservations about the relationship itself. Following this framework, we define social strain as individuals' general perception of the critical, irritating, and unreliable nature of their network.

Social support and social strain: Associations with psychological well-being and health

Both psychological and physical health have been widely studied in relation to social support (Antonucci & Jackson, 1987; Cohen & Wills, 1985). Studies examining measures of well-being (e.g., depression, overall happiness, life satisfaction) have concluded that social support is emotionally beneficial (see Cohen & Wills, 1985, for a review). Further, a relationship between supportive social networks and physical health is also well documented (see House, Landis, & Umberson, 1988, for a review). While the relationship between support and well-being is likely reciprocal, in that people who are healthy and happy may elicit positive social relations, a growing number of longitudinal studies support the concept that positive social networks lead to increased well-being and health (see, for example, Eaton, 1978; Seeman et al., 1995).

A wealth of research has focused on the positive outcomes of social networks; another avenue of study reflects the assumption that social networks have both costs and benefits. Many studies have revealed associations between strained exchanges and network satisfaction, depression, well-being, and distress (e.g., Rook, 1984; Schuster, Kessler, & Aseltine, 1990). Though less studied, there is some evidence that social strain is related to physical health measures such as cardiovascular and immune functioning (Ewart, Taylor, Kraemer, & Agras, 1991; Kiecolt-Glaser et al., 1993), even when controlling for prior depression and personality traits such as neuroticism and extraversion (Finch, Okun, Barrera, Zautra, & Reich, 1989; Pagel, Erdly, & Becker, 1987). Also, a reciprocal relationship likely exists between physical and psychological outcomes and social strain; ill health and depression may sometimes evoke negative social exchanges.

Differential effects of support and strain

Studies examining the negative aspect of social ties have often concluded that strain exerts stronger effects than support; this has been termed the 'negativity effect' (Rook, 1990, p. 176). However, some studies find stronger effects for strain, whereas others find stronger effects for support, and still others find comparable effects for both constructs (see Rook, 1992, for a review). These equivocal results are difficult to interpret, as many studies use one outcome measure (typically depression), and are often conducted on specific, restricted samples (e.g., arthritis patients, pregnant teenagers).

A recent study compared four possible models for organizing these results (Ingersoll-Dayton, Morgan, & Antonucci, 1997). The negativity effect model postulates that negative social exchanges exert stronger effects on both negative and positive affect, whereas the positivity effect model hypothesizes that positive social exchanges exert stronger effects on both types of outcomes. The domain-specific effect model posits that positive and negative social exchanges exert comparable effects, but in their respective domains, such that negative exchanges will more strongly predict negative affect, whereas positive exchanges will more strongly predict positive affect. Finally, the combined effects model is more complex because it includes all the possible relationships between social exchanges and well-being; it suggests that both types of exchanges exert comparable effects regardless of valence of well-being outcome studied. That is, negative social exchanges are positively related to negative affect and negatively related to positive affect, whereas positive exchanges are negatively related to negative affect and positively related to positive affect.

While there is evidence for all of these models, most studies are not designed to test the competing models (see Ingersoll-Dayton et al., 1997, for a review). Ingersoll-Dayton and colleagues found that both the domain-specific and combined effects models fit the data equally well, suggesting the adoption of the more efficient domain-specific model. Although the study of Ingersoll-Dayton et al. has been the most thorough to date in examining the comparable effects of support and strain, the study is limited in that the measures of support and strain were not parallel (i.e., support was measured quantitatively whereas strain was measured qualitatively), making it difficult to compare the relative effects.

Relationship between support and strain

One question that arises with regard to findings that strain is negatively related and support is positively related to well-being is whether strain is simply the inverse of support. In other words, is a perception of low support indicative of high strain? A number of studies have found that support and strain are independent of each other and are generally uncorrelated for most relationships, with the exception of the spouse, or one person who is close to the respondent (e.g., Abbey, Abramis, & Caplin, 1985; Okun & Keith, 1998). However, both positive and negative social exchanges appear to exist in networks of family and friends. This is understandable when con-

sidering that most researchers measure support and strain through mean network scores; essentially respondents 'sum up' how supportive and strained their exchanges are with their family (as a whole) and friends (as a whole). Thus, while it is possible that an individual friend or family member may be exclusively a source of support or strain, when considered in aggregate, it is plausible that support and strain for each network type would be unrelated. In fact, the assumption of such independence is necessary to test for buffering effects of support or strain.

Joint effects of support and strain

Research that has explored joint effects of support and strain has examined whether support can buffer the detrimental effects of strain on psychological well-being (typically depression). In this conceptualization, strain is seen as a 'stress' to be offset by supportive exchanges. Studies that probe this possible effect have produced inconsistent results, including no buffering effects (e.g., Davis, Brickman, & Baker, 1991; Rook, 1984), evidence for support buffering (e.g., Okun & Keith, 1998) and, finally, for a 'reverse' buffering effect, in which strain from a network is more predictive of depression as support increases (Okun & Keith, 1998; Pagel et al., 1987). The existence of a 'reverse' buffering effect may be explained by Rook's (1990) conceptualization of the differential impact of negative exchanges. She postulates that negative exchanges may be more salient when interpreted against a backdrop of positive ones. Thus, when positive social exchanges occur frequently within a network, or within a specific relationship, a negative exchange has especially detrimental effects because of its rarity.

Few studies have examined cross-domain buffering (e.g., whether support from a partner could buffer strain from the family); these studies found some support for evidence of cross-domain buffering, at least when measuring depression and psychological distress (Jackson, 1992; Lepore, 1992; Okun & Keith, 1998).

Sex differences

Sex differences are common in studies that investigate social networks and their consequences. They often find that women have larger, denser, and more diverse social networks than men (Antonucci & Akiyama, 1987; Haines & Hurlbert, 1992). Consistent with the idea that women are more profoundly affected by network events, some studies have found stronger effects on well-being for women (e.g., Antonucci & Akiyama; 1987); however, others have found no sex effects (e.g., Turner, 1994; Vinokur, Price, & Caplan, 1996).

Sex differences may depend on the source of support or strain measured. For example, support in the marital relationship has more significant psychological effects for women than for men (Gove, Hughes, & Style, 1983); strain within the partner domain has shown both comparable effects for both sexes (Schuster et al., 1990), as well as stronger effects for women (Bolger, DeLongis, Kessler, & Schilling, 1989).

Findings involving physical health outcomes and sex differences are largely inconclusive (see Shumaker & Hill, 1991, for a review). Overall, support networks can consistently predict morbidity and mortality for men and women in a wide range of populations (House et al., 1988). Yet, a number of studies indicate that more is not always better for women (e.g., Schoenbach, Kaplan, Fredman, & Kleinbaum, 1986). One explanation may be that, because women are more embedded in their networks, they are more likely to be exposed to adverse network events (e.g., supporting a member who has experienced a loss) either through the exposure to stressors via their network members, or conflicts that are experienced in intimate relationships. Finally, it is possible that, because women typically have larger networks with consequently more people to support, their personal resources are more readily depleted, which may lead to poorer health.

Social networks across the lifespan

Social support has an important influence on outcomes across the lifespan; findings that social networks are beneficial are consistently found among various age groups. However, aging tends to be associated with a shrinkage of the social network, and both support receiving and support giving have been found to decline as age increases, with the greatest amount of support being given to one's network in midlife (e.g., Antonucci, Fuhrer, & Jackson, 1990; Carstensen, 1991). Other differences are found in the composition of family and friends in networks: younger adults include fewer family members and more friends in their support networks than older adults (Levitt, Weber, & Guacci, 1993).

Less studied is the differential effect social exchanges have for varying age groups. There is evidence that the type of support (e.g., family, friend) may have differing age-dependent effects. Okun and Keith (1998) found that support from all sources (spouse, children, and other relatives/friends) was predictive of low levels of depression for older adults. Only support from one's spouse was predictive for younger adults. Additionally, Okun and Keith found that, whereas strain from the spousal relationship predicted depression for both age groups, strain from children was predictive only for older adults. This is consistent with the socio-emotional selectivity theory (Carstensen, 1991), which posits that, in later life, social exchanges function to regulate emotion. Thus, the costs and benefits of social exchanges may become more salient. This would suggest that older adults would report fewer strained exchanges, but that both types of exchanges may exert stronger effects on well-being.

Studies differentiating between networks of family and friends have shown increased importance of these networks with age, often with friend networks having more impact than family networks (Gupta & Korte, 1994). Friendships may be increasingly important to older adults' morale as support becomes less available through other avenues because of death of a spouse or family members. Also, older adults are more likely to confide in peers, and such peers are preferred sources of support for situations relat-

ing to the aging process, such as the death of a spouse. Finally, the achieved nature of friendships may have increasing importance as one ages. Such support providers are viewed as choosing to provide support; similar support provided by a family member (whose status is ascribed) may be viewed as obligatory (see Adams & Blieszner, 1994, 1995; Wood & Robertson, 1978; Wright, 1989).

Present study

Although research on social support has led to an expansive literature on supportive social networks and their relationship to beneficial outcomes, there are many unanswered questions. The present study addressed some of these by examining the joint effects of support and strain within specific relationship networks. Additionally, this study investigated sex and age differences in the relationship between social networks and well-being. Specifically, this study had four goals.

First, it examined the association between social support and strain, and both positive and negative dimensions of well-being and health to answer the question: Do support and strain exert similar or differential effects on various well-being and health outcomes?

Second, we were interested in whether or not different relationships were related to different outcomes. Specifically, we asked: Does support or strain from one's family, friends, and partner show different relationships with well-being and health? Based on past research in relationship-specific domains, we hypothesized that the partner relationship (both support and strain) would be a salient predictor for both men and women across the lifespan. We also hypothesized that family networks, especially strained ones, would affect women more than men, and that networks of friends would play a greater role for older adults.

Third, we were interested in whether support and strain exhibited joint effects in relation to the outcome measures studied. Specifically, we asked: Can support buffer the detrimental aspects of strain? Based on past research, we predicted that family support would buffer family strain when predicting negative mood (Schuster et al., 1990). We had no other specific hypotheses pertaining to this goal.

Finally, because the differential effects of support and strain by sex and age are less studied, we asked: To what extent do the associations between support and strain and outcomes differ by age and sex? We predicted that any significant interactions between the social exchange variables and sex or age would be in the direction of stronger associations for women and older adults.

Method

Sample

The sample consisted of 3,485 non-institutionalized adult participants from the Midlife in the United States Survey (MIDUS), conducted by the John D. and

Catherine T. MacArthur Foundation Research Network on Successful Midlife Development. This national probability sample was recruited using random digit dialing. Respondents were interviewed for 20–30 minutes by telephone (70% response rate) and also completed two self-administered questionnaires that they received in the mail (87% response rate). The age of the participants ranged from 25 to 75 years (M = 47.8, SD = 13.1) and 50.6 percent were female. Those who reported that they were married (n = 2,168) or cohabitating (n = 180) served as the subsample that was used in this study. This subsample (n = 2,348; M age = 46.3 years, SD = 12.9) closely resembled the larger sample: they were primarily white (90%) and educated (59% had at least some college or a higher degree). Compared with the Current Populations Survey data (Bureau of Labor Statistics, 1994), our sample was positively biased in terms of social class. The sample underrepresented minorities and those with low income and education; this is likely because of the methods used (e.g., telephone surveys and lengthy self-report questionnaires). All measures described below were drawn from the larger survey.

Measures of psychological well-being

Life satisfaction. Life satisfaction was measured with the following question: 'Using a scale from 0 to 10, where 0 means *the worst possible life overall* and 10 means *the best possible life overall*, how would you rate your life these days?'.

Positive mood. Positive mood was measured using a 6-item scale that the respondent answered by reflecting over the past 30 days. Questions were answered on a 5-point scale, ranging from *All the time* to *None of the time*, which was recoded so that a higher score indicated more positive mood. The items read: 'During the past 30 days, how much of the time did you feel: (a) cheerful, (b) in good spirits, (c) extremely happy, (d) calm and peaceful, (e) satisfied, and (f) full of life?' Cronbach's alpha for this scale was .91.

Negative mood. Negative mood was measured using a 6-item scale. The respondents indicated the extent to which they had experienced each of a number of mood states over the past 30 days on a 5-point scale, ranging from *All the time* to *None of the time*. The scale was recoded so that a higher score indicated more negative mood. The items read: 'During the past 30 days, how much of the time did you feel: (a) so sad nothing could cheer you up, (b) nervous, (c) restless or fidgety, (d) hopeless, (e) that everything was an effort, (f) worthless?' Cronbach's alpha for this scale was .86.

Measures of physical health

Subjective health. Subjective health status was measured on a 5-point scale (1 = *Poor*; 5 = *Excellent*) with the item: 'In general, would you say your physical health is …'.

Health problems. Respondents indicated whether or not they had experienced or been treated for a number of illnesses and symptoms in the past 12 months. Twenty-eight health problems were listed (e.g., asthma, high blood pressure, heart attack/heart problems, diabetes, stroke, migraine headaches, and ulcers). The score was the total number reported, with a range from 0 to 28.

Measures of predictor variables

Indicators of social support and strain. Social support and strain were examined for the following relationships: family members (not including one's spouse or partner), friends, and spouse/partner. All items were answered on 4-point Likert-type scale (support items: 1 = *a lot*; 4 = *not at all*; strain items: 1 = *often*, 4 = *never*). Items were recoded so that higher scores indicated either higher support or strain. Supportive network exchanges were measured through four items that were parallel for spouse/partner, family members, and friends. The four items were: (i) How much do they (family members, not including your spouse or partner; friends; spouse/partner) understand the way you feel about things? (ii) How much do they really care about you? (iii) How much can you rely on them for help if you have a serious problem? and (iv) How much can you open up to them if you need to talk about your worries? Strained network exchanges were also measured through four parallel items that read: (i) How often do they criticize you? (ii) How often do they make too many demands on you? (iii) How often do they let you down when you are counting on them? and (iv) How often do they get on your nerves? Similar items were used in a study conducted by Schuster et al. (1990); the items described here differ slightly in wording (e.g., How much does your family make you feel cared for? versus: How much does your family really care about you?). In addition, their scales contained four items for partner support and strain, but only two in the domains of family and friends.

For the two domains of family and friends, principle axis factor analyses were conducted using varimax rotation. In order to achieve simple structure for the partner domain, principle components analysis with oblique rotation was required. Two factors (support and strain) were extracted for all three relationships based on two eigenvalues greater than one; factor loadings ranged from .64 to .89. Cronbach's alphas were as follows: Family support (.82), Family strain (.80), Friend support (.88), Friend strain (.79), Partner support (.86), and Partner strain (.81).

Measures of control variables

Education, race, and number of children were assessed and included in the regression model because of their known relationship to physical health and psychological well-being.

Analysis strategy

MANOVAs were used in order to determine age and sex differences and age $\times$ sex interactions in the predictor and outcome variables. When significant interactions were found, post-hoc Newman–Keuls tests, using a harmonic mean for unequal sample sizes, were performed.

To determine the differential effects of support and strain on well-being and health, regression analyses utilizing the TEST method (SPSS-X, 1988) were performed. This method allows for the determination of the unique variances accounted for by each variable (in this case, groups of variables) and the significance level of that variance. It works by creating an equation with all the variables entered, then removes the variables in the first set and recomputes the variance accounted for. The difference between these two amounts of variance is the unique variance accounted for by the set. The set is then put back into the equation, the next set is removed, and the variance accounted for is recomputed. It is essentially identical to going 'forward'; the primary advantage is the

ease with which unique variances are provided; that is, it performs in a single analysis a standard step-wise regression with each set of variables entered as the last step. These unique effects describe whether the variable maintains its association with the dependent variable, while holding all others constant. For this study, we examined the unique effect of strain while holding support and the control variables constant and examined the unique effect of support while holding strain and the control variables constant.

Hierarchical regression analyses were used to answer the remaining research questions. These were conducted in five steps. Significant interactions were probed by graphing regression lines using the methods described by Aiken and West (1991) and Cohen and Cohen (1983, pp. 320–325).

On the first step, the control variables were entered, along with age (in years) and sex. On the second step, the six relationship-specific support and strain variables were entered (note that age and the social exchange variables were centered and the sex variable was dummy coded: 0 = female, 1 = male). The third step included all two-way interaction terms related to the social exchange variables and sex or age (e.g., family support × age, family support × sex). The fourth step entered all relationship-specific (e.g., family strain × family support) and cross-relationship (e.g., family strain × partner support) buffering interaction terms, with the exception of partner strain × partner support, as these variables were highly negatively correlated. The final step entered in all three-way interaction terms related to the buffering interaction terms and age or sex (e.g., family strain × family support × age).

These models were then trimmed: all two- and three-way interaction terms with a $p > .10$ were dropped from the model, with one exception. If a three-way interaction term reached a $p \leq .10$, then the lower order two-way interaction terms used to compute this term remained in the model out of statistical necessity. Note that we did not include three-way interaction terms related to social exchange variables, age, and sex (i.e., family support × age × sex). This was done for two reasons. In preliminary analyses, there was no evidence that these three-way interaction terms were significantly related to the well-being and health outcomes above and beyond main effects; additionally, inclusion of these terms would have required us to consider difficult-to-interpret fourth and fifth order interaction terms to test the joint effects of support and strain.

Finally, given the large sample size and the number of analyses conducted, the probability for significance was set at .01 for all analyses except those involving interaction terms in the regression analyses, for which the level was set at .05. This decision was made based on evidence that interactions are more difficult to detect (see McClelland & Judd, 1993).

Results

Descriptive statistics

Representativeness of the sample was increased by using a series of weights that adjusted for differences in probability of selection and differential non-response. When these weights were used, all results remained the same. Thus, analyses reported are based on unweighted data.

The relationships between the support and strain variables were such that all support variables were negatively correlated with all strain variables. Among

the relationship-specific correlations for support and strain, the lowest correlation was between friend support and friend strain ($r(2,054) = -.09$). There was a moderate correlation between family support and family strain ($r(2,053) = -.38$), and a high correlation between partner support and partner strain ($r(2,026) = -.64$). As found in past research (e.g., Schuster et al., 1990), the relationship was strongest for partner, suggesting that when support from a partner is high, strain is typically low. Correlations among all variables are presented in Table 1.

To examine the extent to which the psychological well-being and health measures differed by sex and age, a 2(sex) × 3(age group: young = 25–39 years, middle = 40–59 years, older = 60–75 years) MANOVA was performed (see Table 2). Results revealed that women, compared with men, reported more negative mood and health problems, and less positive mood. Within the age factor, those in the older group, compared with both the young and middle-aged groups, reported more life satisfaction, more positive mood, and lower subjective health. All age groups differed on reported negative mood and health problems; negative mood decreased with age, while health problems increased. There was not a significant sex × age interaction when examining the well-being and health outcome measures. While there were a number of statistically significant differences by age and sex, the effect sizes of these differences were small, with eta-squared (η^2) ranging from .004–051. Means and standard deviations for these measures are reported in Table 3 separately by sex and age group.

To examine the extent to which the social exchange variables differed by sex and age, a 2(sex) × 3(age group) MANOVA was performed (see Table 4). Women reported more family and friend support and more family and partner strain; men reported more partner support. Consistent with Carstensen's (1991) socio-emotional selectivity theory, older adults reported more family support and less family and friend strain than both younger and middle-aged adults. However, overall, the amount of friend strain reported by the sample was small. This is probably because friendships are primarily voluntary and aversive ones are likely to be terminated. Two significant interactions emerged, one within friend strain and one within partner support. The interaction found within friend strain partially qualified the main effect found for age; although older adults reported less friend strain, these effects were only present for the male respondents. The pattern of partner support by sex and age was that, although men reported more support overall, they reported less support in midlife compared with younger adults and the highest amount in later life. For women, partner support remained stable across age groups. Similar to the earlier analyses, although a number of significant differences emerged, their effect sizes were small with η^2 ranging from .003–.029. Means and standard deviations for the relationship-specific social support and strain variables are presented in Table 5 by sex and age group.

Differential associations of support and strain

The unique associations of support and strain (irrespective of relationship type) with psychological well-being and health measures were assessed via the TEST method (SPSS-X, 1988). Table 6 summarizes the results of these analyses; it reports the variance explained by support after controlling for strain and the demographic variables, the variance explained by strain after controlling for support and demographics, the amount of variance shared between support

TABLE 1
Correlations among variables (n = 1,891)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Age	—															
2. Sex	.06	—														
3. Race	.10*	−.01	—													
4. Education	−.04	.08*	.05	—												
5. # Children	.39*	−.04	−.01	−.15*	—											
6. Family sup.	.13*	−.06	.02	.04	.03	—										
7. Friend sup.	.02	−.16*	.06	.06*	−.04	.38*	—									
8. Partner sup.	.03	.15*	.05	.03	−.05	.26*	.19*	—								
9. Family stn.	−.16*	−.15*	−.05	−.04	.07*	−.39*	−.15*	−.15*	—							
10. Friend stn.	−.10*	.01	−.03	.02	−.01	−.12*	−.08*	−.09*	.44*	—						
11. Partner stn.	−.06	−.13*	−.02	−.01	.04	−.19*	−.14*	−.64*	.31*	.28*	—					
12. Life sat.	.15*	.01	.02	.06*	.00	.32*	.23*	.45*	−.23*	−.16*	−.41*	—				
13. Pos. mood	.09*	.07*	−.05	.05	−.03	.26*	.22*	.31*	−.23*	−.13*	−.31*	.50*	—			
14. Neg. mood	−.13*	−.12*	−.01	−.12*	.02	−.23*	−.15*	−.26*	.24*	.15*	.27*	−.44*	−.63*	—		
15. Health	−.13*	.02	.04	.24*	−.15*	.11*	.13*	.12*	−.12*	−.07*	−.12*	.25*	.27*	−.27*	—	
16. Hlth pbs	.24*	−.11*	.01	−.15*	.17*	−.05	−.05	−.11*	.09*	.07*	.13*	−.16*	−.24*	.33*	−.42*	—

Note. Sup. = support; Stn. = strain; Hlth pbs = health problems. Race is coded 0 = not white, 1= white. Sex is coded 0 = female, 1 = male.
* $p < .01$ (2-tailed).

TABLE 2
Results of MANOVA comparing well-being and health measures by sex and age

IV	DV	Univariate *F*	η^2
Sex	Life satisfaction	.03	.000
	Positive mood	7.59*	.004
	Negative mood	18.28*	.009
	Health	1.14	.001
	Health problems	21.90*	.011
Multivariate $F(5, 1{,}950) = 7.10, p < .01$			
Age	Life satisfaction	17.15*	.017
	Positive mood	6.85*	.007
	Negative mood	11.41*	.012
	Health	20.12*	.020
	Health problems	52.15*	.051
Multivariate $F(10, 3{,}900) = 23.08, p < .01$			
Sex × Age interaction	Life satisfaction	.37	.000
	Positive mood	1.34	.001
	Negative mood	2.30	.002
	Health	.39	.000
	Health problems	.45	.000
Multivariate $F(10, 3{,}900) = .90, p > .01$			

Note. df for Sex = 1/1,954; *df* for Age and Sex × Age = 2/1,954.
* $p < .01$.

and strain, and finally, the total amount of variance explained by the entire equation (i.e., support, strain and demographic variables together).

The results show that, in all cases with the exception of health problems, both support and strain contributed significantly, but in varying degrees, to the amount of variance explained. In answer to our first question: Does support and strain exert similar or differential effects on various well-being and health measures?, we found that the amount of variance explained by support exceeded that of strain in the cases of life satisfaction and positive mood, whereas both support and strain explained comparable amounts of variance when predicting negative mood and subjective health status. Only strain explained a significant amount of variance in health problems, and that amount was small (1%). Overall, support and strain *uniquely* accounted for ≤3 percent of the variance in outcome measures, with two exceptions. Support was uniquely able to account for 6% and 10% of the variance in life satisfaction and positive mood, respectively. As evidenced by the shared variance column (see Table 6), a large portion of the variance explained in well-being was shared between these measures. Overall, the social exchange variables predicted a substantially smaller proportion of variance in the health measures.

Support and strain from specific relationship types: Predictive value of partners, family, and friends by age and sex

In order to address the remaining goals of the study, we ran a hierarchical regression analysis for each outcome measure. Specifically, these analyses

TABLE 3
Means and standard deviations of well-being and health measures for men and women by age group

	Life satisfaction		Positive mood		Negative mood		Health		Health problems	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Male (n = 1,059)	7.92	1.38	3.47	.68	1.45	.54	3.49	.95	2.19	2.34
Female (n = 901)	7.91	1.58	3.37	.71	1.57	.62	3.45	.98	2.73	2.47
Young (n = 665)	7.67	1.49	3.37	.72	1.60	.62	3.64	.90	1.73	2.03
Middle (n = 927)	7.83	1.49	3.37	.74	1.52	.63	3.53	1.00	2.32	2.42
Old (n = 368)	8.24	1.43	3.54	.63	1.40	.48	3.25	1.01	3.26	2.70

Note. Young = 25–39 years, Middle = 40–59 years, Older = 60–75 years.

TABLE 4
Results of MANOVA comparing relationship-specific social support and strain by sex and age

IV	DV	Univariate *F*	η^2
Sex	Family support	7.03*	.003
	Friend support	42.50*	.021
	Partner support	59.76*	.029
	Family strain	30.46*	.015
	Friend strain	.07	.000
	Partner strain	39.25*	.019
Multivariate $F(6, 2{,}004) = 33.08$, $p < .01$			
Age	Family support	16.19*	.016
	Friend support	.12	.000
	Partner support	.72	.001
	Family strain	22.03*	.021
	Friend strain	7.43*	.007
	Partner strain	.45	.000
Multivariate $F(12, 4{,}008) = 5.42$, $p < .01$			
Sex × Age interaction	Family support	.09	.000
	Friend support	.50	.001
	Partner support	7.22*	.007
	Family strain	.86	.001
	Friend strain	8.00*	.008
	Partner strain	3.69	.004
Multivariate $F(12, 4{,}008) = 3.54$, $p < .01$			

Note. df for Sex = 1/2,009; *df* for Age and Sex × Age = 2/2,009.
* $p < .01$

tested whether (i) support and strain from specific relationships had different associations with the outcome measures, (ii) there was evidence of any buffering effects, and (iii) these associations varied by sex or age. Table 7, based on the trimmed models, reports these results. This table includes, for each variable, the standardized regression coefficient (β), and, for each set of variables, the R^2 and *F*-change, as well as the significance associated with these values. In an effort to conserve space, all significant interactions will be reported in the text only.

Life satisfaction. Age was the only demographic variable that significantly predicted present life satisfaction; increased age was associated with increased life satisfaction. All support variables were significantly related, with more support from family, friend, and partner related to increased satisfaction. Of the strain variables, only that related to one's partner was significant for the sample as a whole, suggesting that high perceived support and low perceived strain in the partner relationship may be fundamental to life satisfaction.

Although sex did not interact with any of the social exchange variables when predicting life satisfaction, age interacted with friend strain. The pattern of this interaction was unexpected; older adult's life satisfaction was not detrimentally affected by increased levels of friend strain. For both middle-aged and younger

TABLE 5
Means and standard deviations of relationship-specific social support and strain measures for men and women by age group

	Support variables						Strain variables					
	Family support		Friend support		Partner support		Family strain		Friend strain		Partner strain	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Male (n = 1,084)	3.44	.58	3.10	.66	3.67	.47	2.00	.57	1.90	.49	2.08	.59
Young (n = 335)	3.35	.61	3.08	.66	3.66	.46	2.08	.63	2.01	.52	2.13	.60
Middle (n = 520)	3.39	.60	3.09	.69	3.59	.54	2.05	.56	1.92	.49	2.12	.59
Older (n = 229)	3.57	.53	3.13	.64	3.76	.40	1.87	.53	1.78	.45	2.00	.58
Female (n = 931)	3.51	.55	3.31	.66	3.46	.66	2.16	.60	1.90	.51	2.27	.67
Young (n = 330)	3.44	.64	3.31	.70	3.46	.66	2.23	.68	1.88	.52	2.23	.65
Middle (n = 430)	3.47	.59	3.32	.65	3.50	.59	2.25	.60	1.95	.48	2.27	.67
Older (n = 171)	3.63	.43	3.29	.64	3.41	.74	1.99	.53	1.88	.54	2.31	.69

Note. Young = 25–39 years, Middle = 40–59 years, Older = 60–75 years.

TABLE 6
Unique, shared, and total variance explained in well-being and health measures

Measure	Unique variance			
	Support	Strain	Shared variance	Total R^2
Life satisfaction	.10*	.02*	.15*	.30*
Positive mood	.06*	.02*	.08*	.18*
Negative mood	.03*	.03*	.05*	.16*
Subjective health	.01*	.01*	.02*	.12*
Health problems	.00	.01*	.01*	.11*

Note. Total R^2 includes support, strain, and demographic variables.
* $p < .01$.

adults, as strain increased, life satisfaction decreased. However, the interaction term accounted for only 1% of the variance in life satisfaction. The final equation predicted 31% of the variance in life satisfaction.

Positive mood. Being white and older were related to more positive mood. All support variables (family, friend, and partner) were positively related, while family and partner strain were negatively related to positive mood.

None of the relationships between the variables and positive mood was dependent on sex. Interestingly, while friend strain did not predict for the sample as a whole, it did interact with age. Similar to the interaction found for life satisfaction, this finding was counterintuitive. Only younger adults showed the predicted pattern of strain being associated with decreased levels of positive mood. Middle-aged adults showed no relationship, whereas, paradoxically, older adults appeared to benefit from strained friend relations. That is, as friend strain increased, so did positive mood; however, the effect size of this interaction was small, accounting for only 1% of the variance in positive mood. Together, the variables explained 20% of the variance in positive mood.

Negative mood. Age, sex, and education significantly predicted negative mood; being older, male, and more educated were related to decreased levels of negative mood. Similar to positive mood, all support variables and both family and partner strain were significant predictors of negative mood.

However, the significant main effects of family strain and partner support were partially qualified by interactions with sex and age, respectively. Family strain interacted with sex; women's negative mood was more strongly related to family strain. In fact, for men, negative mood was stable across all levels of family strain. Partner support interacted with age such that negative mood was more strongly predicted by partner support for younger adults. This result is consistent with the recent findings by Okun and Keith (1998). They found that positive social exchanges with one's spouse were more strongly predictive of depressive symptoms for younger compared with older adults. The interactions accounted for 1.1% of the variance in negative mood; the entire equation explained 18%.

Health. Being older and having more children were related to poorer health, whereas higher levels of education were related to better perceived health.

TABLE 7
Final regression equation predicting outcomes

Variable	Outcome														
	Life satisfaction			Positive mood			Negative mood			Subjective health			Health problems		
	β	R^2 Change	*F* Change	β	R^2 Change	*F* Change	β	R^2 Change	*F* Change	β	R^2 Change	*F* Change	β	R^2 Change	*F* Change
Demographics		.03*	11.92		.02*	8.75		.05*	18.65		.08*	36.23		.09*	38.58
Sex	−.04			.01			−.08*			.01			−.09*		
Age	.13*			.08*			−.09*			−.11*			.23*		
Race	−.02			−.08*			.04			.03			−.01		
Education	.04			.03			−.11*				.22*		−.12*		
Children	−.02			−.03			.01			−.07*			.05		
Support and strain variables		.27*	125.99		.16*	64.32		.11*	44.21		.04*	12.81		.02*	7.95
Family support	.17*			.11*			−.07*			.04			−.02		
Friend support	.08*			.14*			−.07*			.08*			−.03		
Partner support	.28*			.20*			−.14*			.04			−.02		
Family strain	−.07			−.13*			.16*			−.05			.11*		
Friend strain	−.04			−.01			.04			−.04			.04		
Partner strain	−.18*			−.11*			.12*			−.06			.08*		
R^2 *for equation*	.31*			.20*			.18*			.13*			.12*		
F Statistic	$F(23, 1{,}942) = 38.74$			$F(23, 1{,}946) = 21.04$			$F(20, 1{,}949) = 21.03$			$F(22, 1{,}951) = 12.85$			$F(15, 1{,}890) = 17.38$		

Note. β = standardized regression coefficient, R^2 and *F*-change is for each set of variables. The final statistics are based on equations that included interaction terms that, when significant, are discussed in the text.
*$p < .01$.

Only friend support was significantly related to health status; those with higher levels of perceived friend support reported better health. Together, the variables explained 13% of the variance in self-reported health status.

Health problems. Being younger, male, and having more education were all associated with fewer health problems. None of the support variables were significantly related; however, similar to the pattern found for positive and negative mood, both family and partner strain were significantly related.

Family strain interacted with sex in the same way it did when predicting negative mood. That is, health problems were related to family strain for women, but not men. For this equation, the interaction explained .3% of the variance; the entire equation was able to account for 12% of the variance in health problems.

Relationship specific- and cross-buffering effects of support and strain

In the final step of the regressions, we entered interaction terms that tested for joint effects of support and strain. Extending past research, we entered in not only relationship-specific terms (e.g., family strain × family support), but also cross-relationship terms (e.g., family strain × partner support). Additionally, we tested whether joint effects differed by age or sex (e.g., family strain × partner support × sex).

Life satisfaction. When predicting life satisfaction, partner strain was buffered by friend support for women only (R^2 change = .003). That is, supportive friends offset the negative aspects of a strained partner relationship for women.

Positive mood. Partner strain was buffered by friend support, but for women only. Similar to the finding when predicting life satisfaction, only women benefited from supportive friends in the face of a strained partner relationship. Family strain interacted with family support, again for women only. That is, for women, high family support buffered the effects of strain; for men, high strain was detrimental regardless of perceived level of support. These interactions together accounted for an additional 1% of the variance in positive mood.

Negative mood. Consistent with Schuster et al. (1990), we found that family support buffered family strain when predicting negative mood. We also found two cross-relationship interactions: partner strain interacted with friend support, and family strain interacted with partner support. While partner strain was buffered by friend support, the pattern of the family strain × partner support interaction revealed that the combination of low family strain with high partner support resulted in the least negative mood; the positive effect of support diminished with higher levels of family strain. Together, these interactions accounted for 1% of the variance in negative mood.

Health. Friend support buffered friend strain when predicting health status, but only for the older adults (R^2 = .010). No buffering was evidenced for either the younger or middle-aged adults.

Health problems. Family strain interacted with friend support, but only for women. For men, high levels of friend support combined with high levels of family strain resulted in more health problems, consistent with a 'reverse'

buffering effect. This interaction accounts for 1% of the variance in health problems.

Discussion

This study explored four questions related to the social support, well-being, and health literature; each of these will be discussed in detail below.

Do support and strain exert similar or differential effects on various well-being and health outcomes?

Results suggest that the 'negativity-effect' needs to be reevaluated when considering well-being, as support exerted stronger effects than strain. However, a substantial amount of variance explained in well-being was shared by the measures of these constructs. In the case of health measures, the social exchange variables predicted only a small portion of variance; however, strain was more strongly related to health problems.

The term 'negativity effect' was developed to explain findings that social strain exerted stronger effects than social support on well-being outcomes (Rook, 1990). While some studies do find evidence for this effect, the overall results are inconsistent. Given that the majority of the studies finding support for the 'negativity effect' examined depression, negative affect, or distress, and often in specific samples, our findings (based on parallel measures of support and strain) point to the importance of both types of exchanges, at least for married adults. However, our study is limited in that the data are cross-sectional. For example, our finding that health problems were predicted only by strained exchanges could be because unhealthy individuals are more likely to induce stress in social relationships either through demands or lack of reciprocity. These results, coupled with the fact that the variance explained that was shared between support and strain was considerable, suggest that both types of exchanges deserve attention in research; however, the differential effects of support and strain need to be confirmed with longitudinal data.

Does support or strain from one's family, friends, and partner show different relationships with well-being and health?

Our findings illustrate that there is information to be gained by examining support and strain from specific sources. We found that social exchanges from one's partner were consistently a significant predictor of well-being and health. Family strain and family and friend support were also related to many of the outcome measures, but to a lesser extent. In past studies, it was not always possible to disentangle the effects of spousal support from other family members because of the use of aggregate 'family network' scores. Our finding is consistent with research that has found evidence of a threshold effect of social support such that the benefits of support are most apparent when comparing people with at least one confidant to those with none

(Kahn & Antonucci, 1980). If one's partner is a source of primary support, our results suggest that, across the lifespan, the social exchanges most related to well-being are those from a confidant. Future research could examine this possibility by measuring support and strain from not only an individual's self-reported 'closest person' but other sources, in both partnered and single adults.

Interestingly, our two measures of health had different predictors: only support from one's friend network predicted subjective health status, whereas strain from family and partner predicted health problems. Although these health measures were significantly correlated ($r = -.42$, $p < .001$), they do represent different conceptualizations of health. It may be that a supportive friend network leads one to feel better about his or her health status, while strained exchanges may be more likely to have long-term physical effects. Again, it is important to note that, because of the cross-sectional nature of our data, it is possible that people who feel healthy (regardless of health problems) may engage in more social activities with friends, while those with many health issues may elicit negative exchanges from family. Further study is warranted to examine these differential associations.

Can support buffer the detrimental aspects of strain?

While partner and family strain could occasionally be offset by support from other sources, buffering relationships were seldom significant, and when significant, the amount of variance accounted for by these interaction terms was small (although not inconsistent with previous work; see Okun & Keith, 1998, and Schuster et al., 1990).

Although studies of social strain show the importance of negative exchanges, Rook (1990) points out that understanding how the two types of exchanges work together would be more informative than two parallel lines of research. Because positive and negative aspects of relationships can occur within one network, studying how they work in tandem is a logical next step, yet is not often done.

In this study, we found some evidence for the buffering effect of support on strain. However, results suggest that if support and strain exert joint effects on outcomes, it may best be discovered by looking across relationship type. Further, had we not tested for age and sex effects, we would have found little evidence for relationship-specific buffering. These results add to growing evidence that support may moderate the negative effects of strained network exchanges (Jackson, 1992; Lepore, 1992; Okun & Keith, 1998).

One reason for the lack of significant findings may be that the correlations between the measures of support and strain in this study were moderate to large (with the exception of friend support and strain). The power to detect interactions increases with the independence of the variables studied; there was evidence of substantial overlap in this study. Because past research has found that support and strain are generally uncorrelated (e.g., Abbey et al., 1985; Okun & Keith, 1998), operationalizations of the

constructs that maintain their independence may result in the finding of additional buffering effects.

Another issue related to these results is how and under what circumstances support from one network buffers strain from another. Conceptually, we need to ask: After suffering (or perceiving) strained exchanges, are the benefits of support reaped through the seeking of support from other sources or via the simple perception of supportive others? Julien and Markman (1991) found evidence that seeking sources of support outside a troubled marriage resulted in poorer psychological health outcomes. Thus, perhaps the benefits of buffering are obtained via overall perceived quality of other sources of support and not through the seeking of additional support; however, this is an empirical question for further study.

To what extent are the associations between support and strain and outcomes contingent on age and sex?

We found some evidence for the differential effects of age and sex. Family strain predicted negative mood and health problems for women only. Friend strain predicted life satisfaction and positive mood only for younger and middle-aged adults. Finally, only younger adults' negative mood was predicted by partner support.

Because there were few sex and age differences when examining the sources of support and strain, and when they were found they explained only a small amount of variance in outcomes, results suggest that, overall, social exchange variables exert similar effects for men and women across the lifespan. Although past research has found mixed results for how men and women are differentially affected by the spousal relationship, we found that one's partner was an important predictor for well-being regardless of sex. However, we did find some differences among men and women and the relationship between social exchanges and well-being. Consistent with Schuster et al. (1990), who found that women were more affected by family strain than men when predicting depressed mood, we found that family strain was related to negative mood and health problems exclusively for women. This may be because women cast a 'wider net of concern', making themselves more vulnerable to network stress (Kessler, McLeod, & Wethington, 1985). Past research suggests that women experience a 'burden of care' in regards to social networks; they are more vulnerable to the emotional strain of network members' problems (Rook, Dooley, & Catalano, 1991). For example, women report a greater number of life events occurring to their network members and are also more negatively affected by these events (e.g., Kessler & McLeod, 1984). Additionally, it may be that depressed and physically unhealthy women elicit strained exchanges from family members.

Friend strain interacted with age; contrary to our hypotheses, younger adults were more adversely affected than older adults when predicting life satisfaction and positive mood. Based on the socio-emotional selectivity theory (Carstensen, 1991), we hypothesized that any age differences we found would be in the direction of older adults being more affected. To

examine this unexpected finding, we compared older adults in this sample who were married or cohabiting with those from the overall sample who did not have partners and were not included in the study. Interestingly, friend strain was significantly negatively correlated with life satisfaction and positive mood only for unmarried older women, but not for married older men and women, nor single older men. This suggests that the socioemotional selectivity theory (Carstensen, 1991) and theories pertaining to friendships in old age may be refined by differentiating by marital status and sex; the population that may be the most detrimentally affected by negative exchanges and that may benefit the most from supportive friends may be widowed women, who have been the major focus of past studies with older adults over the age of 75. Research that combines a longitudinal component with a qualitative study of what strained exchanges with friends mean to younger and older adults would help clarify these results.

Limitations

There were a number of limitations in this study that should be considered in concert with the findings. First, the data were cross-sectional, leaving directionality of effects undetermined. While the relationships we examined were largely consistent with growing longitudinal work that support and strain are causally related to well-being and health, the processes through which this happens could not be examined within this study. Further, our measure of life satisfaction consisted of a single item, and, although the sample was recruited via random digit dialing, it was primarily white and relatively well-educated; thus, generalizations across social class and ethnicity should be made with caution.

Conclusion

Our findings suggest that both support and strain are important predictors of well-being. Although these social exchange variables were related to health measures, their explanatory power in this domain was weak compared with other variables such as age and sex. However, physical health is an outcome that is affected by a large constellation of factors, of which interactions with one's network would admittedly play a comparably small role. That such psychosocial variables can explain any of the variance in these types of outcomes suggests social network variables are a meaningful area of study, given that such variables are prime candidates for manipulation through interventions.

The findings also raise many issues. For example, social networks consistently differ quantitatively and qualitatively by sex and age, yet overall, we found few age and sex differences, suggesting that supportive and strained exchanges may exert similar effects for both men and women across the lifespan, with some exceptions. The examination of cross-domain buffering suggests that supportive networks may prevent the detrimental effects of strained ones. While the percent of variance explained by these interaction terms was small, theory suggests that relationships

between social networks and outcomes may differ by age and sex, and that support has value in the face of stress (e.g., strained social networks). How much the relationships differ and under what circumstances support buffers strain are empirical questions. However, the results presented here suggest that, overall, social networks act in similar ways for both sexes across the lifespan and that only in specific cases does support buffer strain.

Future research that seeks to understand the differential impact of these types of social interactions would benefit from several considerations. The refinement of the conceptualization and measurement of support and strain would help move us towards understanding processes linking psychosocial variables to well-being and health. Not only could this research area benefit from comparisons of different types of measurement of strain, but also the relationship between actual strained exchanges and the perception of a strained network needs to be assessed. Finally, differentiating between chronically strained relationships and 'healthy' episodes of strained exchanges that may be an aspect of relationship intimacy is a necessary step in the conceptualization of social strain.

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