

Aid and influence: Health-promoting exchanges of older married partners

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ABSTRACT

Dyadic exchanges of support and control were investigated in couples in which the husband was recently treated or assessed for heart disease. Each partner in 61 marital dyads ($N = 122$ participants) reported the frequency with which both social support and social control to promote a healthy lifestyle were provided to and received from one another. Multivariate findings demonstrated the influence of intrapersonal (or actor) and interpersonal (or partner) contributions of providing support and control to each spouse's perception of receiving such exchanges from the other. These findings reveal that marital partners' perspectives of receipt of health-related exchanges of support and control are associated not only with the behavior of the partner, but also with their own initiation of health-promoting exchanges on their partner's behalf.

KEY WORDS: dyadic analysis • marriage and health • social control • social support

Although social exchanges necessarily involve at least two partners, one to provide and the other to receive, relatively few studies involve both

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partners in dyadic exchanges. Literatures differ in which partner is studied: in the social support literature, the focus generally is on the support recipient (Stanton, Collins, & Sworowski, 2001), whereas in the family caregiving literature the focus generally is on the provider (Martire & Schulz, 2001). For most couples, however, their dyadic exchanges of aid and influence are likely more complex with each partner giving to and receiving from the other.

When it comes to their health, individuals steeped in networks of caring others make behavior choices consistent with good health more often than those lacking such ties (Berkman, 1995; Berkman & Syme, 1979; Schone & Weinick, 1998; Umberson, 1987, 1992). Although prior research has identified social integration as an important influence on individual health behavior, studies most often explore only the presence or absence of social partners (e.g., a spouse). Such research typically does not include social partners or address explicitly what these network members do to promote healthy lifestyles.

Rook and colleagues (Lewis & Rook, 1999; Rook & Ituarte, 1999; Rook, Thuras, & Lewis, 1990) investigated network function (i.e., support, control, and companionship) as health-promoting aspects of social relationships. Their work provides considerable insight into the perspective of older adults as recipients of supportive, controlling, and companionate efforts of family and friends. Few studies, however, have investigated both partners' perspectives of dyadic exchanges focused on promoting health behavior (Tucker & Anders, 2001). Thus, we explore exchanges between married partners revealing their efforts to promote one another's healthy lifestyle choices. Specifically, we investigate supportive and controlling exchanges of couples in which the husband was recently treated or assessed for heart disease.

Social exchanges and health promotion

Although exchanges between social network members can take several forms, much of the literature has focused on the positive aspects referred to as social support. Others can provide support in a myriad of ways, including instrumental assistance to directly address the need, emotional assistance to validate that the individual is cared for and loved, and informational assistance to indicate available sources of help (e.g., Cutrona & Suhr, 1994; House, Umberson, & Landis, 1988; Kahn & Antonucci, 1980). Moreover, much of this work has focused on the buffering effects of support that offset the negative health and well-being consequences of stressful circumstances (Cohen & Wills, 1985; Uchino, Uno, & Holt-Lunstad, 1999). Though health behavior modification has been identified as another pathway through which social support may influence health outcomes in addition to its stress-buffering effects, few studies have explicitly examined social support for health behavior (Uchino et al., 1999).

Social exchanges can also take the form of efforts to regulate or influence the behavior of network members, referred to as social control (Lewis & Rook, 1999; Rook & Ituarte, 1999; Rook et al., 1990; Umberson, 1987,

1992). The influence of others on individuals' decisions and actions can occur through direct attempts to control behavior and through indirect means. In a direct fashion, others can influence behavior through such acts as reminders to engage in desired behaviors or through imposing consequences for unwanted behaviors. Indirectly, others may influence behavior by their dependence on the individual or by instilling social norms of acceptable behavior for a person possessing given social roles (e.g., parent, spouse).

In contrast to social support, investigations of social control have emphasized behavior as the targeted health outcome. Findings from these studies indicate that the exertion of control over another's health behaviors can lead to decreased risk behaviors and increased protective behaviors (Lewis & Rook, 1999; Umberson, 1992). Such control strategies, however, can promote health behavior change at the cost of psychological well-being (Lewis & Rook, 1999; see also Rook & Ituarte, 1999, for an exception).

Most individuals report both support and control interactions with members of their social networks. Moreover, the same network member can be involved in supportive and controlling interactions with an individual. Older adults report that family members are sources of emotional and instrumental support more often than are friends (Rook & Ituarte, 1999). Similarly, social control attempts are made by spouses and family more often than by friends (Lewis & Rook, 1999). Thus, we explore exchanges of support and control between married partners, and we expect that each partner will report both initiating and receiving supportive and controlling exchanges.

Social exchanges in marriage

A growing body of work indicates that married individuals survive longer and enjoy better health than do unmarried individuals (for reviews see Burman & Margolin, 1992; Ross, Mirowsky, & Goldstein, 1990). Two plausible explanations of this health advantage of marital status underscore the importance of exchanges of support and control between married partners. First, research on social support demonstrates one's spouse to be an important source of support distinct from other available sources (Coyne & DeLongis, 1986). Second, responsibilities to the marital partner influence individuals' choices and behaviors to protect their health (Umberson, 1987, 1992).

Prior work exploring marital partners' supportive exchanges has revealed only a moderate relationship between the perspectives of dyad partners (Abbey, Andrews, & Halman, 1995; Vinokur, Schul, & Caplan, 1987). These studies further reveal interpersonal factors that underlie the detected divergence in partners' perceptions of their dyadic exchanges of support. Notably, one partner's provision of support was demonstrated to correspond with his or her perception of receipt of support from the other (Abbey et al., 1995). Further, the study by Vinokur et al. (1987) revealed the influence of additional intrapersonal factors (i.e., negative personality characteristics) on individuals' perspectives of receipt of support.

An observational study of supportive exchanges between marital partners further illustrates potential contributions to each individual's perspective of receipt of aid (Cutrona & Suhr, 1994). Marital partners' interactions were observed as each disclosed an important stressor to the other. Following these interactions, wives' reports of receipt of support were predicted only by supportive efforts of husbands. For husbands, however, receipt of support was predicted by their own depressed mood and satisfaction with the marriage, and was not predicted by the efforts of their wife.

The relationship between provision and receipt of social control exchanges has received less attention than supportive exchanges between marital partners. Negative interactions were investigated by Abbey et al. (1995), however, and their findings revealed a modest association between one partner's report of providing and the other's report of receiving negative exchanges. Notably, a strong association again was revealed between a given partner's provision and receipt of negative exchanges. These findings suggest that interpersonal and intrapersonal factors similar to those demonstrated for supportive interactions also may influence other forms of dyadic exchanges. Thus, we expected both the interpersonal influence of the partner's initiation of supportive and controlling exchanges and the intrapersonal influence of one's own initiation to predict perceptions of receipt of health-promoting social exchanges.

Summary of study aims and hypotheses

Our first aim was to determine the frequency of exchanges of support and control between marital partners targeting the health lifestyle of one another, and to compare the perspectives of husbands and wives regarding these health-promoting exchanges. Though the husband's health service utilization was the target of our recruitment, we expect that both partners in these older couples will be experiencing health concerns. Thus, we hypothesized that both partners will report initiating and receiving health-promoting exchanges. Moreover, we expected that the perspective of husbands and that of wives will deviate from one another.

Our second aim was to investigate intrapersonal and interpersonal contributions to receipt of supportive and controlling efforts. The association between a given partner's initiation of exchanges and his or her own perspective of receipt represents the intrapersonal contribution (or actor effect). The association between one partner's initiation and the other's perspective of receipt represents the interpersonal contribution (or partner effect). We hypothesized that both actor and partner effects will influence married partners' perspectives of receipt of support and control.

Methods

Participants

Both partners in 61 marital dyads ($N = 122$ participants) are the focus of the present investigation examining dyadic exchanges of support and control

promoting a healthy lifestyle. We primarily were interested in determining the extent and influence of spousal involvement in patient health lifestyle decisions. Taking full advantage of our dyadic study design, however, we also investigated the provision of aid and influence by the ill partner as well as the receipt of aid and influence by the spouse. Our dyadic strategy is in contrast to prior studies that often examined spousal exchanges unilaterally (i.e., reports of receiving by the ill partner or reports of providing by the spouse).

Participants were recruited from the Cardiac Catheterization Laboratory at Henry Ford Hospital, Detroit, Michigan. Eligibility criteria included: (i) The husband was a patient at the laboratory, (ii) he was aged 50 or older, (iii) his wife accompanied him to the hospital on the day of his visit, and (iv) both agreed to participate.

Upon agreeing to participate, separate questionnaires were provided for the husband and wife. Also, separate postage-paid envelopes were provided for return of each of the questionnaires. Nearly all the eligible couples (204 of 207) accepted the questionnaires. Of these, 66 male patients and 83 female spouses returned the questionnaire and comprised 62 couples (30% response rate for couples). One couple was omitted from this investigation because of missing data in reports of social exchanges.

Sample characteristics are provided in Table 1. As shown, husbands were slightly older than their wives. Husbands' ages ranged between 50 and 80 years, and their wives' ages ranged between 44 and 80 years. These male patients also endorsed more health conditions than did their wives. Nearly all husbands (95%) reported at least one condition, including hypertension (44%), diabetes (33%), or a major health problem not specified in our checklist (61%). Further, the vast majority of wives (85%) also endorsed at least one chronic condition. The most common conditions reported by wives were arthritis (53%) and hypertension (44%).

Measures

Health-promoting social exchanges. Two scales, social support and social control, were developed from a pool of 15 items assessing health-related

TABLE 1
Sample characteristics

	Husbands		Wives	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Age	64.20 ^a	8.08	62.00 ^b	8.64
Number of conditions	2.74 ^a	1.52	1.75 ^b	1.15
Activity limitation	2.84 ^a	1.14	2.11 ^b	1.17
Years of education	13.32 ^a	3.34	12.96 ^a	2.00
Years married	36.30 ^a	13.62	36.16 ^a	13.72
First marriage (%)		80		79
Employed (%)		39		39
Caucasian (%)		95		93
Median household income (\$)	40,000–59,000 (range = <7,000–100,000+)			

Note. Means for husbands and wives that do not share superscripts differ at $p < .001$.

social exchanges. These 15 items were based on previous work representing social support (Barrera, Sandler, & Ramsay, 1981; Dakof & Taylor, 1990; Rook et al., 1990; Vinokur & Vinokur-Kaplan, 1990), social control (Rook et al., 1990; Umberson, 1992), and social undermining (Dakof & Taylor, 1990; Vinokur & Vinokur-Kaplan, 1990). Items were developed to assess both partners' reports of providing and receiving health-related social exchanges. The following measures of support and control represent the best agreement between our conceptual organization of these items and empirically derived factors. A complete list of items and factor loadings from a principal components analysis with oblimin rotation can be obtained from the first author. The means, standard deviations, and internal reliabilities of the eight social exchange measures are displayed in Table 2.

Social support. How frequently in the past month (0 = *never*, 4 = *every day*) each spouse provided support to promote a healthy lifestyle of the other was assessed with six items (e.g., 'provided information to your husband about healthy living;' 'listened to your husband's concerns about protecting his health;' 'assisted your husband in taking care of his health;' 'agreed with your husband's decisions about caring for his health;' 'encouraged your husband to make choices favorable to healthy living;' 'took action to protect your husband's health'). Six parallel items assessed how frequently each spouse had received support from the other regarding her or his own health lifestyle (e.g., 'encouraged you to make choices favorable to healthy living'). Item responses were summed with higher scores representing more frequent exchanges of social support.

Social control. How frequently in the past month (0 = *never*, 4 = *every day*) each spouse provided control to promote a healthy lifestyle of the other was assessed with seven items ('told your wife that you were worried about the choices she made regarding protecting her health;' 'prompted or reminded your wife to do things to take care of her health;' 'tried to influence your wife's choices about protecting her health;' 'told your wife to take care of her health because others are depending on her;' 'gave your wife advice about protecting her health when she did not ask for it;' 'criticized your wife for not taking better

TABLE 2
Descriptive analyses of health-promoting support and control instruments

Measure	<i>M</i>	<i>SD</i>	Coefficient alpha
Wife reports:			
Initiate support of husband	16.05	4.38	.69
Receive support from husband	9.49	5.29	.82
Initiate control of husband	11.90	6.95	.89
Receive control from husband	7.70	6.56	.92
Husband reports:			
Initiate support of wife	11.80	5.36	.83
Receive support from wife	16.00	5.12	.86
Initiate control of wife	9.28	6.41	.89
Receive control from wife	14.57	7.41	.92

care of her health; 'tried to stop your wife from doing things that were not good for her health'). Seven parallel items assessed how frequently each spouse had received social control from the other regarding health lifestyle (e.g., 'prompted or reminded you to do things to take care of your health'). Item responses were summed with higher scores representing more frequent exchanges of social control.

Number of health conditions. Each partner indicated (1 = *yes*) whether any of a series of health conditions had been experienced in the previous year. The 10 conditions assessed were: arthritis, lung disease, hypertension, a heart attack, diabetes, foot problems, a stroke, serious vision problems, broken bones, and cancer. An additional item asked if 'any other major health problem' had been experienced in the prior year. The number of these conditions that were experienced was used in subsequent data analyses.

Analysis plan

We first describe the frequency of supportive and controlling exchanges between marital partners focused on promoting a positive health lifestyle each for the other. Next, paired tests of mean differences are used to compare each partner's report of initiating support and control with the other partner's report of receiving support and control. We also use correlations to test the association between partners' reports of initiating and receiving support and between their reports of initiating and receiving control.

Actor/Partner Dyadic Effects Model. Research exploring dyadic interactions requires special statistical consideration due to potential nonindependence of the data. Dyadic effects models afford simultaneous estimation of the shared and individual contributions to dyadic outcomes (Gonzalez & Griffin, 1999; Kenny, 1996). Although several conceptual models of dyad interactions are possible (see Kenny, 1996), our selection of the actor-partner framework is based on theoretical expectations derived from prior investigations of support exchanges in marriage (e.g., Abbey et al., 1995). This approach simultaneously estimates the hypothesized dyadic effects taking nonindependence into account. Furthermore, this strategy for investigating dyadic effects has been utilized in recent studies of partner personality and relationship outcomes (e.g., Caughlin, Huston, & Houts, 2000; Murray, Holmes, & Griffin, 1996a, 1996b; Robins, Caspi, & Moffitt, 2000), thus demonstrating its utility in partitioning individual perspectives into their hypothesized interpersonal and intrapersonal contributions.

In Kenny's (1996) actor-partner model presented in Figure 1, the influence of each individual's initiation on his or her receipt represents actor effects (paths a and d). The influence of a spouse's initiation on the other's receipt represents partner effects (paths b and c). Path e indicates an expected correlation between spouses' initiation of exchanges, and path f indicates an expected correlation between spouses' receipt of exchanges even after taking the initiation behaviors into account.

Two separate actor-partner models were analyzed: one for social support exchanges and one for social control exchanges. Notably, although social support and social control conceptually are distinct, partners' reports of providing and receiving support and control were moderately associated (ranging between $r = .55$ for wives give support and control and $r = .69$ for

husbands receive support and control). To analyze these two models, we used the structural equation modeling (SEM) program LISREL 8.51 (Jöreskog & Sörbom, 2001). Note that the actor-partner model as specified in Figure 1 is identical (in the sense of predicting the identical covariance values, identical chi-square fit, and identical degrees of freedom) to the latent variable model discussed in Gonzalez and Griffin (1999).

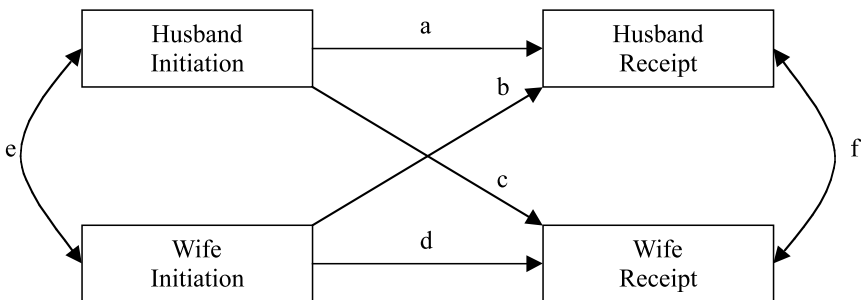
In the initial models of both support and control, we constrained the actor effects and the partner effects to be equal. In a subsequent model, we tested whether the actor effects differed for husbands and wives by removing the equality constraint on paths a and d. In a third model, we tested whether the partner effects differ for husbands and wives by removing the equality constraint on paths b and c. Of these, the model that provided the best fit to the data was selected.

Results

The frequency of exchanges of support and control between these older married partners clearly indicates a shared focus on promoting the health lifestyle of one another. For health-promoting support exchanges with their husbands, all (100%) wives reported initiating some form of support at least once or twice in the previous month, and nearly all (93%) reported receiving some form of support from their husband at least once or twice in the previous month. Likewise, all husbands (100%) reported both initiating and receiving some form of support from their wife. For health-promoting control exchanges, nearly all (93%) wives reported initiating some form of control of their husband at least once or twice in the previous month, and most (88%) reported receiving control from him. Finally, nearly all (97%) husbands reported initiating some form of control of their wife and all (100%) reported receiving control from their wife at least once or twice in the previous month.

Separate paired comparisons of means revealed both similarities and discrepancies in husbands' and wives' perspectives of support and control exchanges with one another (means are displayed in Table 2). Husbands reported initiating support more frequently than their wives reported receiving support from them ($t(60) = 3.19, p < .01$); however, no difference was found in

FIGURE 1
The actor-partner conceptual model of health-promoting exchanges.



spouses' perspectives of the support initiated by wives. The opposite pattern was detected for social control. Husbands reported receiving control more frequently than wives reported initiating control ($t(60) = -3.11, p < .01$), and no difference was found in spouses' perspectives of the control initiated by husbands. Further, wives' reported initiating more support ($t(60) = 5.28, p < .001$) and more control ($t(60) = 2.77, p < .01$), and receiving less support ($t(60) = -7.28, p < .001$) and less control ($t(60) = -5.67, p < .001$), than husbands reported.

Correlations between the partners' reports of initiating and receiving support and control are presented in Table 3. It is important to note that, in all cases, the correlations between one partner's report of initiating and the other's report of receiving both support and control were significant, albeit small to moderate in magnitude. Similarly, in all cases the correlations between one partner's initiating and his or her receipt of support and control also were significant and moderate in magnitude.

Actor-partner model of social exchanges

We now turn to our multivariate dyadic effects models. For social support, the initial model with equal actor effects and equal partner effects across spouses provided a good fit to the data; $\chi^2(2, N = 61) = 1.70$ (*ns*), GFI = .99, CFI = 1.00, NNFI = 1.02, RMSEA = 0.0. The second model relaxing the equality constraints for the actor effects did not significantly improve model fit; $\chi^2(1, N = 61) = 1.65$ (*ns*), GFI = .99, CFI = .98, NNFI = .90, RMSEA = 0.10. Likewise, the third model relaxing the equality constraints for the partner effects (with the actor effects constrained to be equal) did not significantly improve model fit; $\chi^2(1, N = 61) = 0.02$ (*ns*), GFI = 1.00, CFI = 1.00, NNFI = 1.14, RMSEA = 0.0. Thus, the initial model, with equal actor effects and equal partner effects for husbands and wives, was accepted.

As shown in the upper portion of Table 4, each partner's report of receipt of social support was significantly and positively influenced by the other's report of having initiated support exchanges (partner effects) and also by their own initiation of exchanges of support with the other (actor effects). These findings provide clear evidence for our hypothesis that receipt of social support is determined by both interpersonal and intrapersonal factors.

Finally, the correlation between each partner's initiation of support was not significant, and that between each partner's residual term for receipt of support

TABLE 3
Bivariate associations between partners' reports of initiation and receipt of health-promoting exchanges

Variables	Support	Control
Husband initiate and husband receive	.47***	.45***
Wife initiate and husband receive	.25*	.56***
Husband initiate and wife receive	.44***	.39**
Wife initiate and wife receive	.45***	.53***
Husband initiate and wife initiate	.18	.39**
Husband receive and wife receive	.10	.09

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

TABLE 4
Final correlation and path estimates for health-promoting exchanges

Effects for initiation of social exchanges	Coefficient	<i>t</i>
Social support:		
Paths a and d: Pooled actor effects	.49	4.63***
Paths b and c: Pooled partner effects	.32	3.26**
Path e: Correlation between spouses' initiation	.18	1.44
Path f: Residual correlation between spouses' receipt	-.24	-1.93+
Social control:		
Paths a and d: Pooled actor effects	.44	3.82***
Path b: Partner effect	.58	3.64***
Path c: Partner effect	.27	1.84+
Path e: Correlation between spouses' initiation	.39	3.56***
Path f: Residual correlation between spouses' receipt	-.40	-3.70***

+ $p < .10$; ** $p < .01$; *** $p < .001$.

was marginally significant. The full model predicted 28% of the variance in receipt of support for husbands and for wives. Thus, 72% of the variance was left unexplained, and may be due to factors other than both partners' initiation of support exchanges.

Initiation and receipt of social control exchanges were considered next (see lower portion of Table 4). As with support exchanges, the initial model for control exchanges imposed equality constraints on both the actor and partner effects; $\chi^2(2, N = 61) = 3.31$ (*ns*), GFI = .97, CFI = .98, NNFI = .94, RMSEA = 0.10. The second model with constraints on the partner effects but unique coefficients for the actor effects did not significantly improve the fit; $\chi^2(1, N = 61) = 2.50$ (*ns*), GFI = .98, CFI = .98, NNFI = .86, RMSEA = 0.16. However, the third model relaxing the equality constraints on the partner effects and retaining the equality constraints on the actor effects did improve model fit by reducing the RMSEA coefficient to $< .05$ (Browne & Cudeck, 1993); $\chi^2(1, N = 61) = 0.87$ (*ns*), GFI = .99, CFI = 1.00, NNFI = 1.01, RMSEA = 0.0. Thus, the third model was accepted on the basis of the improved RMSEA value even though the χ^2 difference test was not statistically significant (notably, power was limited by small sample size).

Significant actor and partner effects of initiation on receipt of control were detected. In addition, a significant association between partners' initiation of control remained and a negative association between partners' residual term for receipt emerged in the dyadic effects model. In this model, 26% of the variance in receipt of control exchanges was predicted for wives and 42% of the variance was predicted for husbands.

Again, additional factors beyond each partner's initiation of control are needed to further explain partners' receipt of these exchanges. In particular, the emergent negative residual correlation may be evidence of model misspecification wherein the endogenous variable was overpredicted or underpredicted for some spouses. We explored such possible misspecification first using bivariate associations between residuals (from regression analyses) and potential control variables. Next, based on detected bivariate associations, regression analyses controlling for wives' depression and optimism and couples' marital

duration indicated that the negative correlation between the residuals was reduced. The effects of these control variables could not be estimated reliably in the structural equation models in this study due to sample size limitations, but should be considered in future investigations of exchanges of social control between married partners.

Discussion

Our study examined supportive and controlling exchanges in the marital relationship focused on establishing behaviors that promote health and eliminating behaviors that detract from health. In accord with our first hypothesis, nearly all of the married partners reported both initiating and receiving such health-promoting exchanges. Additionally, partners' perceptions of the frequency of these exchanges were divergent as we anticipated. Our second hypothesis that partners' perspectives of receipt of exchanges would be influenced by their own and by their partner's provision of aid or influence also was supported.

Like previous work (e.g., Abbey et al., 1995; Bolger, Zuckerman, & Kessler, 2000; Vinokur et al., 1987), our findings demonstrate that each partner's receipt of support was reliably, but modestly, influenced by the other's provision of aid or influence. The major contribution of this investigation is the detection of an additional dyadic influence on spouses' perceptions of the health-promoting exchanges they receive from one another. For exchanges of support, our multivariate findings indicate that giving more support, adjusting for what one's partner gives, leads to perceptions of receiving more support from the partner. Thus, perceptions of support are not an absolute reflection of the efforts of a partner, but rather are a reflection of the exchanges of support in the dyad.

The detected actor and partner effects on receipt of health-promoting support exchanges may result from the unique way in which perceptions of balanced or reciprocal exchanges of support are created and maintained in marital dyads (e.g., Antonucci & Jackson, 1990). Such work suggests that over time spouses come to evaluate their exchanges globally rather than marking each give and take as independent events to be reciprocated in kind. As such, receipt of aid today is balanced by the recall of prior provision of aid to the partner or by the expectation of future provision of aid. Thus, this general perspective stemming from both spouses' actions toward the other and favoring reciprocity in their support interactions may be represented through both self and other contributions of initiating support on perceptions of receiving support in the marital relationship.

The influence of providing support to one's partner on perceptions of receiving support from that partner also is consistent with recent evidence revealing the survival advantage of giving support to others (Brown, Nesse, Vinokur, & Smith, 2003; see also Liang, Krause, & Bennett, 2001). It may be that health benefits previously attributed to receipt of aid from others instead are consequences of providing assistance to others. Likewise, our

findings indicate that perceptions of receiving support are in part reflections of support efforts initiated on the partner's behalf.

Our findings further reveal similar dyadic effects on receipt of control exchanges, extending prior work on spouses' perspectives of support exchanges. Each spouse's report of receiving controlling attempts from the partner was influenced by his or her own initiation of control efforts toward the partner. Notably, the influence of wives' initiation of control on husbands' perceptions of receipt was greater than that of husbands' initiation on wives' perceptions of receipt. This detected inequality in partner effects likely reflects the composition of the sample wherein husbands were experiencing an immediate threat to their health. Thus, wives' efforts to regulate the health lifestyle of their husbands may have been noticeably elevated during this time of crisis.

These findings, along with related findings from prior work (Abbey et al., 1995), suggest that the preference for balanced, reciprocal exchanges in close relationships is not limited to positive, supportive exchanges. Rather, controlling exchanges that impinge on personal control or autonomy may also become generalized to maintain perceived equity in the marital dyad. As such, spouses' perceptions of receiving control efforts also may represent established patterns of influence or regulation between marital partners.

Limitations and future directions

Although this investigation revealed the frequency as well as the complexity of married partners' health-promoting exchanges, it is limited in several aspects of study design. Foremost, we explored health-promoting exchanges in a sample of couples facing an immediate health crisis. Thus, the detected exchanges of support and control between partners in these marital dyads likely were influenced by the concurrent patient status of the husbands. Further, the marital partners in this study represented only those couples in which both partners agreed to participate and both partners returned completed questionnaires. The majority of these couples were in long-term first marriages. Thus, our findings may not generalize to spouses in marriages of shorter duration, to spouses not responding to a health crisis, or to health-promoting exchanges with other network members.

This investigation also is limited by a focus on only two forms of social exchange (i.e., support and control). Other forms of marital exchanges include overtly negative behaviors such as disapproval, disrespect, cynicism, and anger (e.g., Abbey et al., 1995; Brummett et al., 2000; Vinokur & Vinokur-Kaplan, 1990). Interpersonal contributions to the receipt of these exchanges may be even greater than for support or control given the uniqueness of such negative behaviors in a context of expected and frequent positive behaviors (Rook, 1997). Further, more subtle strategies for promoting health behaviors may include modeling desired behaviors through companionship in shared activities such as walking and preparing low-fat, nutritious meals. Additionally, the selection of married

couples wherein husbands were seeking medical care for a potential health threat limits our ability to address sex differences in the social exchanges of these married partners.

Longitudinal research is needed to determine the extent to which marital partners invested in the health outcomes of one another are a resource for cooperative health promotion and lasting behavior modification. Although married partners reported actively promoting the health behaviors of one another as we anticipated, our investigation did not include exploration of the health behaviors subsequently influenced by their supportive and controlling exchanges. Thus, further research on the consequences of dyadic interactions in promoting the health of married partners is needed to more fully understand the role of social support and of social control in benefiting the health of individuals.

Despite these limitations, our findings underscore the importance of dyadic approaches to understanding social exchanges between marital partners. Our findings revealed that marital partners' perspectives of receipt of health-promoting exchanges were influenced not only by the behavior of the partner, but also by their own engagement in health-promoting exchanges on their partner's behalf. Thus, we echo the call of others advancing the value of including both partners in investigations of dyadic interactions (e.g., Acitelli & Antonucci, 1994; Bolger et al., 2000; Cutrona & Suhr, 1994). A reliance on the individual perspective of a given partner clearly limits the understanding of dyadic exchanges by revealing only part of the collective experience.

Further, our findings of dyadic contributions to individual perceptions of receipt of health-promoting exchanges can inform future intervention research. Health promotion interventions broadened beyond the efforts of the individual alone to appropriately reflect the efforts of both marital partners (see also Berkman, 1995; Campbell & Patterson, 1995) may increase the effectiveness of future health promotion interventions.

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