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Social Support and Employee Well-Being: The Conditioning Effect of Perceived Patterns of Supportive Exchange

Inbal Nahum-Shani¹, Peter A. Bamberger^{2,3}, and Samuel B. Bacharach³

¹Institute for Social Research, University of Michigan, Ann Arbor, MI, USA

²Tel Aviv University, Tel Aviv, Israel

³Smithers Institute, School of Industrial and Labor Relations, Cornell University, Ithaca, NY, USA

Abstract

Seeking to explain divergent empirical findings regarding the direct effect of social support on well-being, the authors posit that the pattern of supportive exchange (i.e., reciprocal, under-, or over-reciprocating) determines the impact of receiving support on well-being. Findings generated on the basis of longitudinal data collected from a sample of older blue-collar workers support the authors' predictions, indicating that receiving emotional support is associated with enhanced well-being when the pattern of supportive exchange is perceived by an individual as being reciprocal (support received equals support given), with this association being weaker when the exchange of support is perceived as being under-reciprocating (support given exceeds support received). Moreover, receiving support was found to adversely affect well-being when the pattern of exchange was perceived as being over-reciprocating (support received exceeds support given). Theoretical and practical implications of these findings are discussed.

Keywords

social support; reciprocity; well-being

A growing body of literature has stressed the importance of social support in the reduction of stress and the improvement of well-being (see Sarason, Sarason, and Gurung 1997; Umberson et al. 1996). Although the beneficial effects of social support with regard to such outcomes have been well established (e.g., Lincoln, Chatters, and Taylor 2005; Song and Lin 2009), studies highlighting the absence of such positive effects are also prevalent in the literature (e.g., Bolger et al. 1996; Latkin and Curry 2003). These exceptions are both important and interesting, but they are not well understood.

One of the popular explanations for these exceptions is based on the notion that receiving social support is a phenomenon embedded in the broader context of an individual's supportive exchange relationships (e.g., Buunk et al. 1993; Väänänen et al. 2005). Research based on this explanation has focused on the degree of balance between receiving and giving

support, suggesting that the effectiveness of receiving social support may depend upon whether the exchange of support is perceived as *reciprocal* (i.e., receiving and giving equal amounts of support) or either *under-reciprocating* (i.e., giving more support than receiving) or *over-reciprocating* (i.e., receiving more support than giving; Rook 1987). However, to date, reciprocity research has aimed at understanding the main effects of alternative supportive exchange patterns (i.e., reciprocal, under-, and over-reciprocating) on people's welfare (e.g., Buunk et al. 1993), leaving unresolved the question as to whether and how these supportive exchange patterns may moderate the effect of receiving support on well-being.

Accordingly, in the current study we seek to contribute to the literature on social support by generating and testing a theory that suggests that the pattern of supportive exchange plays an important role in determining whether receiving support generates beneficial outcomes. Drawing on conservation of resources (COR) theory (Hobfoll 1989, 2002), we integrate two perspectives that are commonly used to explain the effects of supportive exchange patterns on well-being: one based on equity theory (Adams 1963; Walster, Walster, and Berscheid 1978) and the notion of reciprocity norms (Gouldner 1960) and the other on esteem-enhancement theory (Batson 1998). Our integrative framework suggests that receiving emotional support will be associated with better well-being to the extent that it is received in the context of an exchange pattern that maximizes the resource gain while minimizing the resource loss associated with being a recipient.

We begin by addressing the concept of social support and its relationship with individual well-being. Then, drawing on COR theory, we elaborate on how equity theory and esteem-enhancement theory can be integrated into a framework that explains the varying effects of receiving social support. We then clarify what we mean by supportive exchange patterns and emphasize the importance of the close network approach, which focuses on the supportive exchange pattern characterizing the entire close network of support providers. Finally, we turn our attention to the degree to which the effect of receiving emotional support on well-being may be contingent upon the pattern of supportive exchange characterizing an individual's close network of support providers.

SOCIAL SUPPORT AND SUPPORTIVE EXCHANGE PATTERNS

Social support is considered a coping resource—a social “fund” containing emotional and material resources from which people may draw when handling demanding and stressful circumstances (S. Cohen 2004; Thoits 1995). Although empirical evidence generally points to the psychological benefits of supportive relationships, research on the effect of social support has also generated inconsistent findings (Beehr et al. 2003; Thoits 1982). Moreover, in several studies, rather than being generally helpful, receiving support was paradoxically found to be associated with negative outcomes (Barrera, Sandler, and Ramsay 1981; Bolger, Zuckerman, and Kessler 2000). These results highlight the need to consider the context in which support is received and to place more emphasis on understanding the conditions governing the degree to which social support will indeed yield such beneficial psychological effects (Beehr et al. 2003).

Recent psychological research suggests, however, that the inconsistencies regarding the effect of social support may at least partially stem from the tendency of research in this area to disregard the exchange-based nature of receiving social support (Bacharach, Bamberger, and McKinney 2000). This has stimulated researchers to explore the effects of supportive exchange patterns on well-being (Rook 1987).

Based on social exchange theory (Blau 1964; Homans 1958; Walster et al. 1978), researchers have suggested that people implicitly or explicitly calculate the amount of support that they receive and the amount of support that they give in their interpersonal relationships and perceive their supportive relationships accordingly in terms of three patterns of supportive exchange: (1) reciprocal, in which an equal amount of support is received and given; (2) under-reciprocating, in which support given exceeds that received; and (3) over-reciprocating, in which support received exceeds that given (Rook 1987).

Although research in this area has widely acknowledged that the effect of receiving social support may depend upon the pattern of exchange characterizing the supportive relationships, theory and research in this area have mainly focused on exploring the degree to which the patterns of supportive exchange have differential *direct* effects with respect to well-being, without considering the variance in the level of support actually received. For example, researchers (e.g., Buunk et al. 1993; Lu 1997) examined the extent to which relationships perceived as reciprocating, under-reciprocating, or over-reciprocating differ in their impact on well-being. The measurements typically used in these studies ask participants to select the pattern of supportive exchange that best describe their relationships, without indicating the amount of support received in such relationships. Other studies of reciprocity included measurements of the amount of support received, but applied these in ways (e.g., using the difference score between support received and given, and in some cases dividing the results between three categories representing reciprocal, under-reciprocating, and over-reciprocating exchanges) such that no conclusions can be reached as to whether the effect of receiving social support varies across supportive exchange patterns (e.g., Ingersoll-Dayton and Antonucci 1988; Jou and Fukada 2002).

Moreover, research on supportive exchanges often draws on two alternative explanatory frameworks offering differential predictions (see Table 1). The first is based on equity theory (Adams 1963; Walster et al. 1978) and the notion of reciprocity norms (Gouldner 1960). This framework highlights the role of social norms as a mechanism underlying the way by which supportive exchange patterns affect the well-being of individuals. From an equity perspective social reciprocity reflects the idea that the amount of effort exerted on another's behalf should generally be proportionate to the expected return from that investment. According to Gouldner (1960), meta-norms of reciprocity govern social exchanges, with individuals generally feeling an obligation to reciprocate for the receipt of benefits. Accordingly, it has been well established that perceiving the exchange of support as under-reciprocating tends to evoke feelings of unfairness, exploitation, resentment, and burden (Rook 1987), while perceiving the exchange as over-reciprocating tends to generate feelings of indebtedness, guilt, and shame (Bowling et al. 2004). From this point of view, individuals who perceive their supportive relationships as being reciprocal are likely to have

a greater sense of well-being than those perceiving their relationships as either under- or over-reciprocating (e.g., Antonucci, Fuhrer, and Jackson 1990).

The second perspective is based on the theory of esteem enhancement (Batson 1998). This perspective highlights the role of an individual's self-evaluation as a mechanism by which the pattern of supportive exchange affects an individual's well-being. The theory of esteem enhancement (see Batson 1998) suggests that the act of giving help may, in and of itself, have positive consequences for the support provider, such as promoting a self-image grounded on a sense of being an important and valuable person (Väänänen et al. 2005). This notion is similar to the mattering principle (Rosenberg and McCullough 1981), which implies that the experience of being important to someone else is psychologically beneficial (Taylor and Turner 2001). In contrast, receiving support requires that the individual admit some limitation in the ability to independently manage a problem, and thus a self-affirmation of weakness (i.e., negative self-evaluation). Accordingly, whereas under-reciprocating supportive exchanges may be expected to contribute to one's well-being, over-reciprocating supportive exchanges may be expected to generate distress (see Liang, Krause, and Bennet 2001).

Building on COR theory (Hobfoll 1989, 2002), we seek to integrate these two perspectives into a framework that explains how the pattern of supportive exchange determines the strength and nature of the effect of receiving social support on well-being. Conservation of resources theory proposes that people's well-being is dependent upon their sense of access to resources within their ecological environment. Those in possession of more resources are less likely to encounter stressful circumstances that negatively affect their psychological and physical well-being. Superior armamentaria is also posited to increase individuals' ability to cope with stressful circumstances (Freedy, Hobfoll, and Ribbe 1994; Hobfoll 2002). However, in many cases support may be received in a context that generates psychological costs on the part of the recipient (Lee 1997; Nadler 1990). For example, it has been suggested that receiving assistance from close others may be self-threatening (i.e., admitting inadequacy) since psychologically close others serve as a frame of reference for self-evaluations and judgments (see Nadler 1990). These costs may not only detract from the ability of the person in need to restore his or his personal resources, but may even lead to further deterioration of resources (Hobfoll 2002). Accordingly, from a COR perspective, receiving social support can be seen as an effective coping resource only to the extent that support is received in a context that maximizes the resource gain and minimizes the psychological costs (i.e., resource loss) associated with being a recipient (Hobfoll 2002).

From this point of view, the equity-based perspective and the esteem enhancement-based perspective can be seen as complementary, as each highlights a different mechanism by which the pattern of supportive exchange may link the support received to the resource status of an individual. Accordingly, we propose an integrative framework assuming that support relations reflect a combination of psychological mechanisms (Stephens 1990) operating in tandem to influence the resource status of the support recipient.

We build upon this framework by examining whether the pattern of supportive exchange conditions the effect of emotional support—that form of social support focusing on the

caring, empathy, sympathy, and understanding available from others— on well-being. While relative to other support forms (e.g., instrumental support), emotional support generally has been found to have the strongest direct influence on individual psychological and emotional welfare (Bolger et al. 2000; Thoits 1995); as noted earlier, null or even negative effects have also been reported. Accordingly, we seek to demonstrate how such divergent effects of emotional support may be explained by the pattern of supportive exchange characterizing the broader social exchange relationships within which such support is received.

CLOSE NETWORK PATTERNS OF SUPPORTIVE EXCHANGE

Research on supportive exchange patterns has mainly focused on close relationships (e.g., Bolger et al. 2000; Gleason et al. 2003). Such relationships are defined as those involving mutual interdependence and interconnected activities (Kelley et al. 1983), and hence are considered the most important and effective sources of social support (Hobfoll 2002). Studies in this area have tended to explore specific dyadic relationships such as romantic partners (e.g., Gleason et al. 2003) and supervisor-subordinate relations (e.g., Buunk et al. 1993). However, since the nature of supportive relations with a particular other may be linked to the individual's supportive relations with any number of other close individuals, greater insight into the impact of supportive exchange patterns on well-being might be gained by applying a broader approach, namely, one taking into account the totality of social exchanges with those several close others in an individual's social network (Rook 1987).

Studies on social networks suggest that people often apply selection and optimization mechanisms in their social relationships in order to facilitate intellectual, physical, and social performance (see Baltes and Baltes 1990). These strategies may generate a certain degree of interdependency between exchange patterns that characterize different relationships within the close social network of an individual. For example, social network compensation (Zettel and Rook 2004) has been proposed as the mechanism used by individuals to minimize the impact of loss, deficiency, or decline in the interpersonal domain by relying on other resources in that domain. Accordingly, patterns of exchange within the close social network can be related to one another (Van Tilburg, van Sonderen, and Ormel 1991). For instance, being under-reciprocated by a colleague may lead to or may be a result of being over-reciprocated by a family member or a close friend outside of work, such that overall one may perceive his or her close network as being in balance. Accordingly, when examining the role of exchange patterns in close supportive relationships, the pattern that characterizes certain types of relationships or a specific dyad within the network may be less meaningful than the overall pattern that characterizes the close network within which it is nested. Hence, our model proposes that the direct effect of emotional support perceived to be available from the close social network on well-being is contingent upon the pattern of supportive exchange characterizing an individual's entire close social network (i.e., the handful of others with whom one feels the closest).

THE EFFECT OF SOCIAL SUPPORT CONTINGENT UPON THE PATTERN OF SUPPORTIVE EXCHANGE

Both the equity-based and the esteem enhancement-based perspectives suggest that an increase in support received in the context of a reciprocal exchange of support is likely to improve the resource status of the recipient. From an equity-based perspective, giving support in the broader context of receiving support evokes positive feelings rooted in a sense of equality and compliance with reciprocity norms (e.g., Rook 1987). From an esteem enhancement point of view, receiving high levels of support while giving the same amount in return reflects on the self-worth of the recipient, allowing him or her to display competence and independence (Väänänen et al. 2005). Accordingly, we posit that emotional support received may be associated with better well-being when the exchange of support is perceived as being reciprocal (i.e., support received is perceived to be equal to that given).

In the context of under-reciprocating exchanges, an increase in the support received is inherently coupled with giving even greater levels of support. From an esteem enhancement point of view, receiving social support in such a context may contribute to the personal resources of the recipient because the under-reciprocation of support may enhance the self-esteem (Batson 1998) of the support recipient, evoking the feeling that he or she remains the one who puts more effort in his or her close others (Mitchell and Trickett 1980). However, because under-reciprocating exchanges violate normative expectations of equity and reciprocity (Gouldner 1960), receiving social support in such a context may be associated with some degree of resource loss that may attenuate the otherwise beneficial effect of receiving emotional support on well-being.

Finally, both perspectives point to the resource loss associated with receiving social support in the context of over-reciprocating supportive exchanges. The equity-based perspective suggests that the violation of reciprocity norms may generate negative feelings on the part of the recipient. The esteem enhancement-based perspective suggests that such an exchange pattern may be deleterious for the self-perception of the recipient (Liang et al. 2001). Since such negative consequences may increase distress to the extent that support received increases (Liang et al. 2001), we posit that receiving emotional support is likely to adversely affect the health and well-being of an individual to the extent that support received is perceived as exceeding that given (see summary of theoretical arguments in Table 1). Consequently, we propose the following three hypotheses:

Hypothesis 1: Emotional support received from one's close support network is inversely associated with poor well-being when the exchange of support is perceived as being reciprocal.

Hypothesis 2: The inverse association between emotional support received from one's close support network and poor well-being is weaker when the exchange of support is perceived as being under-reciprocating.

Hypothesis 3: Emotional support received from one's close support network is positively associated with poor well-being to the extent that the exchange of support is perceived as being over-reciprocating.

METHOD

Participants

Given that the hypotheses specified previously assume variability in individuals' network supportive exchange patterns, we sought to test these hypotheses in an empirical context in which such variability could be reliably assured. Prior research (e.g., Klein Ikkink and van Tilburg 1999; Rook 1987) suggests that such variability tends to be less characteristic of younger samples. For example, younger adults tend to report that around 60 percent to 75 percent of their relationships are balanced (see Buunk et al. 1993; Buunk and Prins 1998). In contrast, Antonucci et al. (1990) reported an inverse relationship between age and perceptions of reciprocal relationships. The lack of consensus as to whether these unbalanced relationships are over-reciprocating (Dykstra 1995; Wenger 1986) or under-reciprocating (Morgan, Schuster, and Butler 1991; Tryfan 1992) further suggests heightened exchange pattern variability as people age. Moreover, prior research suggests that older employed individuals are more likely to have stable supportive relationships. Consequently, we opted for a sampling frame focused on middle-age workers (age 40 to 55) and their older colleagues (56 and older), a workforce segment that currently accounts for over 50 percent of the U.S. civilian labor force (U.S. Bureau of Labor Statistics 2009a).

Survey data were collected at two points in time (T1 and T2) through computer-assisted telephone interviewing. Time 1 interviews were conducted in 2001. Data were collected by trained interviewers employed by a computer assisted telephone interviewing center affiliated with a major research university in the northeastern United States. Phone interviews lasted between 60 and 75 minutes. The total number of respondents at T1 was 1,279 (out of a target sample of 2,812, a 46 percent overall response rate). Nonresponders were called 15 times over a period of at least two months before being classified as such. The number of respondents from each employment sector is as follows: (1) 933 from three unions in the transportation sector, (2) 178 from two unions in the manufacturing sector, and (3) 168 from four unions in the building trades or construction sector. All T1 respondents were interviewed one year after the first interview ($\pm$ two weeks). Of the 1,279 T1 respondents, 1,122 participated in the T2 survey (dropout rate: 12 percent). Of the 1,122 observations, 52 were excluded due to missing data on one or more core demographic variables or on one of the well-being measures at T1 or T2, leaving us with a final sample of 1,070 observations of which 728 (68 percent) were males and 342 (32 percent) were females (mean age = 56, SD = 4.7).

We tested for sample bias stemming from participant dropout between T1 and T2 on the basis of t tests comparing those dropped from the sample (n = 209) with those retained (n = 1,070) along all of the T1 variables of theoretical interest (i.e., depressive/somatic symptoms, emotional support received/given). These tests indicated no significant differences between the two groups.

Measures

Telephone interviewers asked participants to name those one, two, or three adults to whom they currently felt the closest and to report the amount of emotional support received from

and given to these close individuals. The decision to leave space for three individuals was based on earlier qualitative research (in which no interviewees identified more than three such individuals). This small number of close others is consistent with other studies on close relationships in work (e.g., Bacharach, Bamberger, and Vashdi 2005; Wright and Cho 1992) and nonwork environments (Klockner and Matthies 2004; Verbrugge 1983). For example, in their study of network density, Fischer and Shavit (1995) found that although on average people named 11 individuals who are important to them, they considered only 3 of these people as especially close.

Emotional support received and given (assessed at T1)—Consistent with convention, emotional support received from others was measured on the basis of the two items comprising the emotional support subscale of Caplan and colleagues' (1975) social support instrument. On the basis of these two items, participants were asked to indicate the extent to which each one of the persons named listens, shows understanding and caring, and provides advice when needed. Emotional support given to others was measured with two corresponding items asking participants to indicate the extent to which they do the same for each one of the persons named. Emotional support received and given was rated on a 4-point Likert-type scale, ranging from *not at all* (coded 1) to *a great deal* (coded 4; Cronbach alpha for both measures = .85).

We computed the total amount of emotional support available from the close network as the mean of support received from the one, two, or three close others named by the participant and total amount of social support given to the close social network as the mean of support given to the one, two, or three close others named by the participant. Given the high correlation between emotional support received and given ($r = .52, p < .001$), we conducted confirmatory factor analysis (CFA) to assess whether the measurements of emotional support received and given can be explained by a single overarching emotional support construct, rather than by two constructs, reflecting emotional support received and given. The results of this CFA indicated that a two-factor model was significantly better fitting with the data (non-normed fit [NNFI] = .91, adjusted goodness of fit index [AGFI] = .96, root mean square residual [RMR] = .001) than a single-factor model (NNFI = .80, AGFI = .80, RMR = .01; $\chi^2_{(1)} = 95, p < .0001$).

Well-being (assessed at T1 and T2)—Depressive symptoms were assessed using the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff 1977). This instrument assesses the frequency of various affective, behavioral, and interpersonal symptoms (20 items). Participants were asked to report on a scale from *never* (coded 1) to *frequently* (5), "How often you felt this way during the past month." For example: "I felt that everything I did was an effort" (Cronbach alpha = .88 for both times). Somatic symptoms were assessed using Caplan et al.'s (1975) Somatic Complaint Scale (15 items). This measurement asks participants to indicate if they have recently experienced any of the listed somatic symptoms (e.g., shortness of breath, loss of appetite). Participants responded on a scale from *never* (coded 1) to *frequently* (5) (Cronbach alpha = .83 for both times). Recognizing the high correlation between the measures of depressive and somatic symptoms ($r = .62, .66$ for T1 and T2), we conducted a CFA to assess whether the measurements of depressive and

somatic symptoms can be explained by a single overarching construct, rather than by two distinctive constructs reflecting depressive and somatic symptoms. The results of the CFA indicated that a two-factor model was significantly better fitting with the data (for T1: NNFI = .83; GFI = .89; RMR = .05; for T2: NNFI = .76; GFI = .85; RMR = .05) than a single-factor model (For T1: NNFI = .76; GFI = .85; RMR = .06; $\chi^2_{(1)} = 523, p < .0001$. For T2: NNFI = .72; GFI = .82; RMR = .07; $\chi^2_{(1)} = 449, p < .0001$).

Control variables—In testing the hypotheses, we controlled for a variety of respondents' demographic attributes, including marital status, gender, age, and household income, which may confound the link between social support and well-being. For example, research suggests that gender differences explain both depressive symptoms (see Kessler 2003) and social support (Turner 1994) and that low income may be negatively associated, while marital status may be positively associated, with both well-being and social support (Krause and Borawski-Clark 1995; Sherbourne and Hays 1990). In addition, because some of those in the sample were (or during the course of the study, became) eligible for some form of retirement or early retirement benefits, we controlled for whether the worker retired between T1 and T2. Finally, we controlled for depressive/somatic symptoms at baseline (T1) to account for any initial differences in these constructs (Rugosa 1980).

Analytical Procedure

First, we examined the extent of dependency between observations of individuals from the same union. Results of multilevel analyses indicated that in all of the models the estimated variance between unions was close to zero and nonsignificant, indicating no dependence between observations of individuals from the same union. Accordingly, we dropped the between-union variance component from all of the estimated models.

We applied polynomial regression and response surface methodology for testing the hypotheses regarding the conditioning effect of the exchange pattern of network support. Applied to this study, polynomial regression uses the measures of emotional support received and given at T1, their squares, and their product to predict well-being at T2. Thus, the regression equation is:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_1^2 + \beta_4 X_2^2 + \beta_5 X_1 X_2 + e, \quad (1)$$

where $E(Y)$, which denotes the conditional expectation of the outcome (depressive or somatic symptoms) given X_1 (support received) and X_2 (support given), is a surface in a three-dimensional space, whose plane has the coordinates (X_1, X_2) , and $E(Y)$ is the height of the surface for each point in this plane.

When aiming to examine how the effect of receiving emotional support varies as a function of whether the exchange of support is reciprocal, under-reciprocating, or over-reciprocating, the intuitive approach would be to make an inference based on the difference score between support received and support given, or the two-way interaction between these components. However, our research questions involve the examination of more complex relationships than either the difference score or the two-way interaction can represent (Edwards 2001). For example, using the polynomial regression approach allows us to model reciprocal

supportive exchanges as a line along which support received equals support given. Accordingly, we can examine whether an increase in the support received along this line (indicating a simultaneous increase in support *given*) is negatively associated with poor well-being. Such an examination cannot be done using the difference score approach, which treats all values of reciprocation as a single score (i.e., zero). Concerning the two-way interaction between support received and given, this approach imposes a linear relationship between support received/given and the outcome of interest, and hence it may involve the confounding of the interaction with the quadratic effects of support received/given (see Meilich 2006).

The interpretation of estimates in polynomial regression is different from a typical first-order linear regression. In a simple regression, the coefficient for X_1 expresses how a unit increase in X_1 relates to a change in the outcome. However, in polynomial regression, the effect of X_1 may vary as a function of the levels of X_1 and of X_2 . This can be seen by extrapolating from the aforementioned polynomial equation (1) the term $(\beta_1 + \beta_3 X_1 + \beta_5 X_2)X_1$, which expresses the effect of X_1 on the outcome. Accordingly, inference concerning the effect of X_1 (support received) based on our polynomial model can be done by estimating the derivative of $E(Y)$ with respect to X_1 . This derivative expresses the relative change in the expected value of the outcome when the change in the plane (X_1, X_2) is in the direction where support received (X_1) increases (see J. Cohen and Cohen 1983 for more information). To simplify the interpretation, we centered support received and given around the midpoints of their respective scales (Edwards 2001).

Accordingly, we estimated the slopes of the response (i.e., relative change in depressive/somatic symptoms) corresponding to our hypotheses (see A. Cohen, Nahum-Shani, and Doveh 2010 for detailed explanation concerning the vector on which these estimates were derived), as follows. Hypothesis 1 was tested by estimating three slopes along the line of reciprocity (expressing an increase in support received in the context of a reciprocal exchange pattern). The first slope, $(\beta_1 + \beta_2) - 2(\beta_3 + \beta_4 + \beta_5)$, expresses the rate of change in the outcome when moving from the point of low support received and given $(-1, -1)$, in the direction where support received (and given) increases. The second, $(\beta_1 + \beta_2)$, expresses the rate of change in the outcome when moving from midpoint $(0, 0)$ support received and given, in the direction where support received (and given) increases. The third, $(\beta_1 + \beta_2) + 2(\beta_3 + \beta_4 + \beta_5)$, expresses the rate of change in the outcome when moving from the point of high support received and given $(1, 1)$ in the direction where support received (and given) increases.

Hypothesis 2 (concerning the effect of support received under conditions of under-reciprocating exchanges), was tested by estimating two slopes along the line of imbalance between support received and given (the line along which $X_1 = -X_2$). The first slope, $(\beta_1 - \beta_2) + 2(-\beta_3 - \beta_4 + \beta_5)$, expresses the rate of change in the outcome when moving from the point of low support received and high support given $(-1, 1)$, in the direction where support received increases (while support given declines, such that the gap between support received and given declines and the pattern of exchange becomes less under-reciprocating). The second slope, $(\beta_1 + \beta_2) + 2(-\beta_3 + \beta_4)$, expresses the rate of change in the outcomes when moving from the same point $(-1, 1)$, in the direction where support received increases and

support given increases accordingly (such that the difference between support received and given, or the level of under-reciprocation, remains the same).

Hypothesis 3 (concerning the effect of support received in the context of over-reciprocating exchanges) was tested by estimating two slopes along the line of imbalance between support received and given. The first slope, $(\beta_1 - \beta_2)$, expresses the rate of change in the outcome when moving from midpoint support received and given (0, 0) in the direction where support received increases while support given declines. The second slope, $(\beta_1 - \beta_2) + 2(\beta_3 + \beta_4 - \beta_5)$, expresses the rate of change when moving from the point of high support received and low support given (1, -1) in the direction where support received increases and support given declines (such that the pattern of exchange becomes more over-reciprocating).

In addition to testing the significance of these slopes, we discuss the height of the surface (i.e., the expected outcome) in different regions relevant to our hypotheses.

RESULTS

Means, standard deviations, and correlations among the variables are displayed in Table 2. Results with respect to depressive and somatic symptoms are presented in Table 3. For each outcome, we estimated a control model (model 1), a two-way interaction model (model 2), and a polynomial model (model 3).

For both outcomes (throughout the results section we present the estimates for depressive and somatic symptoms, respectively), the results indicate that the main effects of emotional support received ($b = .02, -.03, ns$) and given ($b = -.03, -.02, ns$) as well as the two-way interaction between these constructs ($b = .05, -.02, ns$) were not significantly different from zero. However, when including the quadratic components of emotional support received and given (model 3), the first order component of emotional support given was significantly negative ($b = -.82, -1.06, p < .01$), the second order component of emotional support given was significantly positive ($b = .51, .60, p < .01$), and the interaction between emotional support received and given was found to be significantly negative ($b = -.33, -.34, p < .05$). Still, the first ($b = .29, .25, ns$) and the second order ($b = .08, .09, ns$) effects of emotional support received were not significantly different from zero.

Three-dimensional response surfaces based on the polynomial regression coefficients were plotted for depressive (Figure 1) and somatic symptoms (Figure 2). In both cases we can see that the response surface is convex and has a unique minimum that is a point of under-reciprocation (i.e., support given exceeds support received). More specifically, depressive symptoms were found to be minimal when support received is 1.1 lower than that given, while somatic symptoms were found to be minimal when support received is .35 lower than that given. From these minimal points, both surfaces are curved upward and the relative change in T2 outcomes increases in the direction of over- and under-reciprocation.

More specifically, the response declines along the line of reciprocity in the direction where emotional support received and given increase simultaneously (solid line). For example, the height of the depressive symptoms surface, which equals 2.81 under conditions of low support received and given (-1, -1), reduces to 2.01 under conditions of moderate support

received and given (0, 0), and to 1.74 under conditions of high support received and given (1, 1).

However, the response seems to increase to the extent that support received exceeds support given (i.e., the exchange is more over-reciprocating). For example, the height of the depressive symptoms surface, which equals 1.93 under conditions of (1, .5) support received and given, increases to 2.38 under conditions of (1, 0) support received and given, then further increases to 3.08 under conditions of (1, -.5) support received and given, and to 4.04 under conditions of (1, -1) support received and given.

The height of the surface seems to increase to a lesser extent when the exchange of support becomes more under-reciprocating (i.e., to the extent that support given exceeds support received). For example, the height of the depressive symptoms surface, which equals 1.69 under conditions of (.5, 1) support received and given, increases to 1.7 under conditions of (0, 1) support received and given, then to 1.74 under conditions of (-.5, 1) support received and given, and to 1.82 under conditions of (-1, 1) support received and given.

We estimated the slopes corresponding to each hypothesis based on the coefficients obtained in model 3. With respect to Hypothesis 1 (concerning the effect of support received under conditions of reciprocal exchange of support), the results indicate that the slope from the point where both support received and given are low in the direction where support received increases (and support given increases simultaneously) is significantly negative ($b = -1.05$, -1.55 , $p < .05$). This slope was found to be weaker, yet still significantly negative, from the point where both support received and given are at the midpoint of their scale ($b = -.53$; $-.83$, $p < .05$) and not significantly different from zero from the point where both support received and given are high ($b = -.01$, $-.12$, ns). In line with Hypothesis 1, these results indicate that an increase in support received is associated with lower levels of depressive/somatic symptoms when support is received in the context of reciprocal supportive exchanges. Still, the extent to which emotional support received is associated with reduced depressive/somatic symptoms becomes weaker as we move along the reciprocity line in the direction where emotional support received and given increases. For example, in the case of predicted depressive symptoms, the change from 2.81 (under low support received/given) to 2.01 (under moderate support received and given) is greater relative to the change from 2.01 (under moderate support received/given) to 1.74 (under high support received/given).

With respect to Hypothesis 2 (concerning the effect of receiving emotional support in the context of under-reciprocating exchanges), our results indicate that the slope from the point of low support received and high support given (-1, 1) in the direction where support received increases (while support given declines) is not significantly different from zero ($b = -.71$, $-.77$, ns). In addition, the slope from the same point in the direction where support received increases while support given increases simultaneously (such that the level of under-reciprocation remains the same) was found to be insignificant ($b = .33$, $.09$, ns). To make these findings more concrete, the predicted level of depressive symptoms, which was 1.82 at the (-1, 1) point, decreases to 1.69 at the point (-.5, .5), where the pattern of exchange is less under-reciprocating, but increases to 2.05 at the point (-.5, 1.5) where the level of under-reciprocation remains the same. These findings partially support Hypothesis

2, as they indicate (contrary to our hypothesis) that an increase in support received in the context of under-reciprocating supportive exchanges is not significantly related to depressive/somatic symptoms. Still (consistent with our hypothesis), they suggest a weaker negative effect of support received in such a context, relative to reciprocal supportive exchanges.

Finally, concerning Hypothesis 3 (with respect to the effect of receiving emotional support in the context of over-reciprocating exchanges), our findings indicate that the slope from the point of moderate support received and given (0, 0), in the direction where support received increases and support given declines, was positive and significant ($b = 1.11, 1.29, p < .01$). This slope was found to be stronger from the point of high support received and low support given (1, -1), in the direction where support received further increases and support given declines accordingly ($b = 2.93, 3.36, p < .01$). To make these finding more concrete, the predicted level of depressive symptoms, which equals 2.01 under (0, 0) support received/given, increases to 4.03 under (1, -1) support received/given. These findings support Hypothesis 2, suggesting that an increase in support received is associated with increased depressive and somatic symptoms to the extent that the pattern of supportive exchange is more over-reciprocating.

DISCUSSION

The aforementioned results generally support the core proposition underlying our study, namely, that the beneficial effect of perceived emotional support at T1 on well-being at T2 varies as a function of the pattern of supportive exchange characterizing an individual's close network of support providers. More specifically, we found emotional support received to be associated with better well-being when the pattern of exchange is perceived by an individual as being reciprocal, with this association being insignificant when the pattern of exchange is perceived by an individual as being under-reciprocating. Finally, emotional support was found to be associated with poor well-being to the extent that the pattern of exchange is perceived by an individual as being more over-reciprocating.

These results support the explanatory framework proposed earlier, suggesting—based on COR theory (Hobfoll 1989)—that the receipt of social support is likely to be associated with better well-being to the extent that it is provided in the context of a network supportive exchange pattern that minimizes the resource loss and maximizes the resource gain associated with receiving such support. From this point of view, we integrated two explanatory perspectives, one based on equity theory (Walster et al. 1987) and the notion of reciprocity norms (Gouldner 1960) and the other based on esteem enhancement theory (Batson 1998).

In line with this framework, the results of the current study suggest that by generating positive feelings (resulting from the sense of compliance with reciprocity norms) and enhanced esteem, reciprocal patterns of supportive exchange may augment the psychological benefits associated with being a recipient of emotional support, leading to improved well-being to the extent that emotional support received increases. However, they also suggest that under-reciprocating exchanges link the support received to both resource

gain (enhanced esteem) and resource loss (negative feelings resulting from the violation of reciprocity norms), such that emotional support received in such a context has no effect on well-being. Finally, our results suggest that over-reciprocating supportive exchanges, by generating negative feelings (as a result of the violation of reciprocity norms) and negative self-evaluation, may increase the psychological costs associated with being a support recipient, which in turn adversely affects well-being.

These findings shed new light concerning the link between supportive exchange patterns and an individual's well-being, indicating that supportive exchange patterns are primarily a mechanism by which social support exerts its effect (Buunk et al. 1993), rather than an independent construct that directly affects an individual's well-being. Moreover, these findings point to the potential value of an integrative framework that focuses on resource gain and loss in understanding the implications of supportive exchange patterns on the relationship between social support and well-being.

The results found in the current study were consistent across psychological and somatic aspects of well-being. Although researchers often suggest that emotional support mainly explains psychological rather than physiological well-being (e.g., Bloom et al. 2001), recent research indicates that positive social interactions may have positive immediate and longer term effects on the cardiovascular, immune, and neuroendocrine systems, and hence promote physiological strengthening (see Heaphy and Dutton 2008). The results of the current study are in line with these findings, indicating that receiving emotional support may be both psychologically and physically beneficial, depending on the context in which such support is received.

Finally, the results of the current study also have methodological implications for research in the area of reciprocity and supportive exchanges. While common methods for assessing supportive exchange patterns seem to disregard the variability in the level of support received (e.g., Buunk et al. 1993; Van Tilburg et al. 1991), applying polynomial regression and response surface methodology enables us to obtain a direct test of the conceptual model relevant to studying whether the effect of emotional support received is conditioned by the broader pattern of supportive exchange (see Edwards 2001).

Limitations and Implications for Future Research

Despite these advances, this study is limited in a number of respects. First, the unique nature of our sample limits the extent to which our findings are generalizable to the broader population of middle-aged and older adults. In the current study we focused on unionized, middle-aged, and older workers employed in three predominantly blue-collar sectors, namely, manufacturing, construction, and transportation. While the occupational composition of our sample of workers employed in manufacturing and construction is similar to that of the broader population, service occupations in the health care and hospitality/food preparation sectors are completely unrepresented by our sample. Our sample is also more heavily male than U.S. union membership as a whole (U.S. Bureau of Labor Statistics 2009b). In contrast to our .68 to .32 proportion, males account for 54 percent of all union members in the United States ages 45 or older. This aspect may have introduced bias into our results in that females were found to have more access to social

support (Turner 1994), while also reporting more depressive symptoms than males (see Kessler 2003). Finally, a relatively low initial response rate (46 percent of the target sample) limits the representativeness of our sample.

Second, our focus on relatively older employed individuals may have introduced bias into our results, in that older people may be more vulnerable to over-reciprocating exchanges, as it may threaten their self-perception as competent individuals while potentially “bolstering their role identities as needy dependents” (Siebert, Mutran, and Reitzes 1999). We recommend further examination of our model across different age groups.

Third, while the current study focuses on *emotional* exchanges of support, it is possible that other types of supportive exchanges (e.g., instrumental, informational) may affect well-being. This calls for future research aiming to test the extent to which the results obtained by the current study are consistent across various types of supportive exchanges and other emotional and physical outcomes.

Finally, a question arises concerning the causality implied by our models. It may be that the causal mechanism implied by our model is exactly the opposite, namely, that an individual's well-being determined the amount of support he or she received from the social network. A series of supplementary analyses in which we reversed our equations indicated that emotional support received at T2 is not significantly predicted by depressive ($b = -.01$, *ns*) and somatic symptoms at T1 ($b = .04$, *ns*). This suggests that the causal relationships proposed in the current study are more plausible than the opposite causation. Still, although we controlled for our outcomes at baseline (T1), it is possible that these measures do not capture other aspects of stress exposure or physical illnesses at baseline, which may be responsible for our findings. Although supplementary analyses in which we controlled for the number of diagnosed illnesses at T2 yielded the same results for both models, hence ruling out serious illness as an alternative explanation, additional research is needed to rule out the possible confounding of other stressors and illnesses.

Practical Implications

In recent years policy makers and service providers have given increased attention to promoting supportive environments and encouraging formal and informal helping interactions in the family, the workplace, and the broader community as a means by which to improve individuals' mental welfare (Bacharach, Bamberger, and Sonnenstuhl 2001). However, the results of the current study indicate that social support may not always be beneficial, even when it is provided by the close social network of an individual. Our findings suggest that policy makers and service program designers develop health care and work-place interventions that not only increase the availability of support to those in need, but that also generate the kind of supportive environment encouraging more equitable exchange. For instance, implementing employee support programs such as peer-based assistance programs (see Bacharach et al. 1994) or employee support foundations (see Grant, Dutton, and Rosso 2008) may increase opportunities for employees to “give back” by providing emotional and financial support to fellow employees in need.

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Biography

Inbal Nahum-Shani is a faculty research fellow at the Survey Research Center, Institute for Social Research, University of Michigan. Current research interests include peer relations and helping processes in the work-place, employee health and well-being, research methods, and experimental designs for behavioral sciences and organizational research.

Peter A. Bamberger is professor of organizational behavior and human resource management at the Recanati Graduate School of Business Administration, Tel Aviv University, and senior research scholar at the School of Industrial and Labor Relations, Cornell University. An associate editor of the *Academy of Management Journal*, Bamberger has published over 60 referred journal articles and authored three books on such topics as workplace peer relations and helping processes, employee emotional well-being, and human resources strategy.

Samuel B. Bacharach is the McKelvey-Grant Professor at the ILR School at Cornell University and the director of the school's Smithers Institute for Alcohol-Related Workplace Studies. Bacharach is the author and editor of over 20 books on management, organizational behavior, and industrial relations. His most recent book is *Keep Them on Your Side* (Adams Media, 2006) which is a companion volume to *Get Them on Your Side* (Adams Media, 2005). Both books explore the notion of proactive leadership.

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Figure 1.
Response Surface of Depressive Symptoms on Emotional Support Received and given

Figure 2.
Response Surface of Somatic Symptoms on Emotional Support Received and given

Table 1

Summary of Theoretical Arguments

Theory	Predicted Well-Being When Support Is Received in the Context of:		
	Under-reciprocating Exchanges	Reciprocal Exchanges	Over-reciprocating Exchanges
Equity theory and the notion of reciprocity norms	Low	High	Low
Esteem enhancement theory	High	Moderate	Low
Conservation of resources (COR)–based integrative perspective	Moderate	High	Low

Table 2
Means, Standard Deviations, and Pair-Wise Correlations among Study Variables ($N = 1,070$)

Variables	<i>M</i>	<i>SD</i>	Var 1	Var 2	Var 3	Var 4	Var 5	Var 6	Var 7	Var 8	Var 9	Var 10	Var 11	Var 12
Household income	10.88	1.79												
Sector (construction = 1)	.13	.34	.12***											
Sector (manufacturing = 1)	.15	.35	.06*	-.16***										
Gender (1 = female)	.32	.47	.15***	-.26***	-.09**									
Marital status (1 = married)	.78	.42	.45***	.08**	.002	-.27***								
Age	55.88	4.66	-.03	-.07*	-.24***	-.31***	.07**							
Retirement (1 = retired)	.27	.44	-.02	-.09**	.02	-.22***	.05***	.32***						
Emotional support received	3.64	.33	.04	-.02	-.01	.09**	-.05	-.04	-.04					
Emotional support given	3.68	.25	.04	-.05	-.03	.14***	-.04	-.07*	-.03	.52***				
Somatic symptoms (T1)	1.76	.57	-.12***	-.12***	.06*	.27***	-.13***	-.14***	.05***	-.10***	-.09**			
Somatic symptoms (T2)	1.69	.54	-.13***	-.13***	.01	.27***	-.14***	-.08**	.01*	-.06*	-.05***	.66***		
Depressive symptoms (T1)	1.63	.55	-.16***	-.11***	.08**	.14***	-.16***	-.07**	.02***	-.14***	-.12**	.62***	.52***	
Depressive symptoms (T2)	1.67	.55	-.14***	-.14***	-.01	.27***	-.17***	-.10**	-.06*	-.06*	-.05***	.50***	.66***	.64***

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 3
Polynomial Regressions of Depressive and Somatic Symptoms on Emotional Support Received and Emotional Support Given

Effect	Depressive Symptoms (N = 1,070)						Somatic Symptoms (N = 1,070)					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
	b	SE	b	SE	b	SE	b	SE	b	SE	b	SE
Intercept	.62 [*]	.22	.67 ^{***}	.24	.83 ^{***}	.24	.59 ^{**}	.22	.56 ^{**}	.23	.96 ^{***}	.30
Household income	.001	.008	.001	.01	.003	.008	-.004	.008	-.004	.01	-.003	.01
Sector: Construction (vs. transportation)	-.07	.04	-.07	.04	-.07	.04	-.05	.04	-.05	.04	-.05	.04
Sector: Manufacturing (vs. transportation)	-.08 [*]	.04	-.08 [*]	.04	-.09 [*]	.04	-.01	.04	-.01	.04	-.01	.04
Gender (female)	.17 ^{***}	.03	.17 ^{***}	.03	.17 ^{***}	.03	.10 ^{**}	.03	.10 ^{**}	.03	.10 ^{**}	.03
Marital status (married)	-.03	.03	-.03	.03	-.04	.03	-.01	.03	-.01	.03	-.01	.03
Somatic symptoms							.60 ^{***}	.02	.60 ^{***}	.02	.60 ^{***}	.02
Age	-.0002	.003	-.0002	.003	-.001	.003	.003	.003	.002	.003	.002	.003
Retirement (retired between Time 1 to 2)	-.06 [*]	.03	-.06 [*]	.03	-.06 [*]	.03	-.02	.02	-.01	.03	-.01	.03
Depressive symptoms (Time 1)	.62 ^{***}	.02	.62 ^{***}	.02	.62 ^{***}	.02						
Emotional support received	.02	.04	-.04	.13	.29	.20	-.03	.04	-.01	.13	.25	.15
Emotional support given	-.03	.06	-.07	.09	-.82 ^{**}	.28	-.02	.06	-.004	.11	-1.06 ^{**}	.44
Emotional received × emotional given			.05	.10	-.33 [*]	.16			-.02	.10	-.34 [*]	.17
Emotional support received ²					.08	.09					.09	.08
Emotional support given ²					.51 ^{**}	.16					.60 ^{**}	.22
R ²	.45		.45		.47		.45		.45		.48	
Reciprocal: Slope from low received and given					-1.05 [*]	.49					-1.55 [*]	.76
Reciprocal: Slope from midpoint received and given					-.53 [*]	.25					-.83 [*]	.41
Reciprocal: Slope from high received and given					-.01	.05					-.12	.07
Over-reciprocating: Slope from midpoint received and given					1.11 ^{**}	.42					1.29 ^{**}	.52
Over-reciprocating: Slope from high received low given					2.93 ^{**}	.97					3.36 ^{**}	1.19
Under-reciprocating: Slope in direction that reduces the gap					-.71	.54					-.77	.50

Effect	Depressive Symptoms (N = 1,070)						Somatic Symptoms (N = 1,070)					
	Model 1			Model 2			Model 1			Model 2		
	b	SE	b	SE	b	SE	b	SE	b	SE	b	SE
Under-reciprocating: Slope in direction that maintains the gap							.33	.34			.09	.34

* p .05.
** p .01.
*** p .001.