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# Effective social support: Antecedents and consequences of partner support during pregnancy

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## Abstract

This longitudinal study investigated a new conceptualization of the effectiveness of social support attempts called social support effectiveness (SSE) that takes into account the quantity and quality of support attempts and the extent to which they meet the needs of recipients. SSE was assessed in a sample of 176 pregnant women with regard to their partners' social support behaviors. Potential antecedents of SSE were investigated, including individual and relationship variables. In addition, it was hypothesized that women who appraised their partner's support as more effective would have lower prenatal anxiety, both concurrently (in mid-pregnancy) and prospectively (in late pregnancy). Factor analyses confirmed that all hypothesized aspects of SSE contributed to a unitary factor of SSE. Structural equation modeling was used to test the proposed antecedents and consequences of SSE. Results revealed that women's ratings of the effectiveness of partner support were predicted by their interpersonal orientation (adult attachment, network orientation, kin individualism–collectivism, and social skills) and by characteristics of their relationships with their partners (relationship quality, emotional closeness and intimacy, and equity). Furthermore, women who perceived themselves to have more effective partner support reported less anxiety in mid-pregnancy and showed a reduction in anxiety from mid- to late pregnancy. Findings are discussed with regard to implications for advancing research on social support processes, especially within relationship contexts.

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The potent role that social relationships play in stress processes has become increasingly well understood through research on social support, social networks, and social integration (Berkman, 1995; House, Landis, & Umberson, 1988; Taylor, in press). Within this body of research, one aspect of social support of particular interest to behavioral researchers is *received social support*, that is, interpersonal transactions that involve social support attempts (House, 1981; Shumaker & Brownell, 1984). Notably, received support (sometimes referred to as *enacted support*) demonstrates inconsistent empirical associations with health and well-being. Specifically, past research reveals null (e.g., Frazier, Tix, & Barnett, 2003; Wethington & Kessler, 1986) or positive (e.g., Bolger, Zuckerman, & Kessler, 2000; Fiore, Becker, & Coppel, 1983; Krause, 1997; Lindorff, 2000) associations between

received support and adverse outcomes, although a few methodologically strong studies have documented beneficial effects of received support (e.g., Collins, Dunkel-Schetter, Lobel, & Scrimshaw, 1993; Norris & Kaniasty, 1996). Positive associations between received support and adverse outcomes such as increased distress can, in part, be accounted for by reverse causation (e.g., recipients' distress elicits others' support attempts) or the effects of a third variable (e.g., a stressor leads to both support mobilization and recipient distress; Barrera, 1986). However, these effects do not completely explain existing findings (Bolger et al., 2000).

Clearly, received support is a complex phenomenon. It involves transactions between two people, usually in an interdependent relationship, whose needs and goals in any given circumstance may or may not correspond (Coyne, Ellard, & Smith, 1990). It is perhaps not surprising, then, that received support can confer benefits, entail costs, or—most likely—both at once (Burg & Seeman, 1994; Rook, 1984). Indeed, it is not difficult to find support transactions that “backfire,” even when well intended (Dunkel-Schetter, Blasband, Feinstein, & Herbert, 1992). For instance, a person may want a sympathetic ear but receive advice instead, or a listener may “catastrophize” a relatively minor difficulty. However, there are many instances in which support transactions are genuinely helpful and are likely to be appraised as such by the recipient. We argue that the extent to which recipients appraise support attempts as effective will vary as a function of many factors, and that it is useful to recognize this variation in appraised effectiveness when conducting research on received support. Furthermore, we argue that this variation is an important determinant of whether support will have beneficial, neutral, or detrimental effects on the recipient's health and well-being (Dunkel-Schetter et al., 1992).

In this study, we first present a conceptualization of social support effectiveness (SSE) that specifies several features of social support attempts that define whether they are appraised as effective. We also present data supporting this new construct. We then test hypotheses regarding antecedents and outcomes

of SSE in a longitudinal study of maternal adjustment to pregnancy. Because pregnancy is a time-bounded life transition, it is a useful time to study social support processes and outcomes; women are coping with similar challenges, and the outcomes of their efforts can be ascertained in a relatively short time. Further, pregnancy provides a context in which opportunities for social support are both abundant and consequential, as indicated by empirical evidence linking maternal social support—particularly from the partner—with physical and psychological health during pregnancy (Dunkel-Schetter, Sagrestano, Feldman, & Killingsworth [Rini], 1996). Indeed, partner support, as compared to support provided within women's other close relationships, is unique in its ability to contribute to both better and worse prenatal adjustment. For instance, a study of 391 pregnant women (Pajulo, Savonlahti, Sourander, Helenius, & Piha, 2001) found that difficulties with partners during pregnancy were associated with higher prenatal depression, whereas partner support received during pregnancy was associated with lower prenatal depression. Although difficulties with other individuals (e.g., relatives, friends) also contributed to higher prenatal depression, only received support from partners and mothers predicted lower prenatal depression (see also Kroelinger & Oths, 2000).

#### *Conceptualizing the appraised effectiveness of received social support*

Researchers often theorize about the effectiveness of received support (e.g., Dunkel-Schetter et al., 1992; Taylor, in press). However, no measures exist that comprehensively or explicitly assess this construct. Research on social support transactions tends to focus on assessing the frequency with which recipients report that they received various types of support during some period of time (Barrera, Sandler, & Ramsay, 1981). This approach does not account for potential harmful effects of support (e.g., Dakof & Taylor, 1990; Dunkel-Schetter, 1984). Other research has examined support appraisals such as satisfaction with support received or its perceived helpfulness (e.g., Collins et al.,

1993; Cutrona, Cohen, & Igram, 1990). Although this research comes closer to measuring the effectiveness of received support, such measures are not based on an explicit or detailed conceptualization of what constitutes support effectiveness. A further issue with the existing literature is that studies rarely assess how well any support received matches that needed or desired by recipients—a characteristic of support that has been hypothesized to be important by several social support theorists (cf. Cohen & Wills, 1985; Cutrona & Russell, 1990; Dunkel-Schetter & Bennett, 1990).

We propose that a more complete understanding of received support and its effectiveness is best achieved by joint consideration of the perceived *quality* and *quantity* of support attempts by specific providers and the extent to which attempted support meets recipients' needs. The value of this approach is bolstered by existing theory and research. For example, with regard to support quantity, receiving either too much or too little support can be problematic (Coyne, Wortman, & Lehman, 1988; Stroebe & Stroebe, 1996). Equity theory (Walster, Walster, & Berscheid, 1978) focuses on the costs of perceiving oneself to be "overbenefitted" or "underbenefitted" in a relationship, with feeling underbenefitted (not receiving enough support relative to support provided) often seen as particularly problematic in past research (Kuijjer, Buunk, Ybema, & Wobbes, 2002; Sprecher, 2001; see also Gleason, Iida, Bolger, & Shrout, 2003).

With respect to support quality, both theory and research provide insight into factors related to the effectiveness of support attempts. For instance, support can be said to be of higher quality when it meets the recipient's needs in terms of its functional type or timing (Cohen & McKay, 1984; Cutrona et al., 1990; Dunkel-Schetter et al., 1992; Eckenrode & Wethington, 1990; Jacobson, 1986; Thoits, 1995). A welfare mother in New Orleans who needs food and housing after Hurricane Katrina is not assisted optimally by mere expressions of concern and empathy, whereas a grieving widow might be. The extent to which support is easily forthcoming when needed (vs. difficult to get) is also relevant to

its perceived quality (Fiore et al., 1983). Having to ask for support may violate norms related to helping in close relationships (Mills & Clark, 1982) and may be viewed as reflecting an unresponsive network or a partner who is uncaring or inattentive to one's needs (Cutrona et al.; Fisher, Goff, Nadler, & Chinsky, 1988). Such matters are critical to examining the effects of social support transactions.

Beyond these issues, research suggests that the quality of support is diminished if support is provided in a way that recipients perceive as reflecting negatively on their efficacy or worthiness (Bolger et al., 2000; Coyne et al., 1988; Fisher, Nadler, & Whitcher-Alagna, 1982), or when it implies the recipient is somehow inferior to the provider (Fisher et al., 1982; Gross, Wallston, & Piliavin, 1979). This form of ineffective support can occur even if support is well intentioned but provided unskillfully. For example, an employed man offering well-intended advice to an unemployed friend may be perceived as quite esteem threatening despite the provider's positive intent. Thus, provision of support that will be appraised as effective rests, in part, on the provider's ability to enact specific behaviors skillfully, sensitively, and thoughtfully, including providing unobtrusive help, conveying genuine concern and understanding, and offering constructive, gentle advice (Dunkel-Schetter et al., 1992). Potentially detrimental aspects of support are described in a small body of research on social undermining, conflict, or hindrance (e.g., Abbey, Abramis, & Caplan, 1985; Cranford, 2004; Rook, 1984; Vinokur & van Ryn, 1993). We view them as integral to understanding recipients' appraisals of the effectiveness of support they receive.

Guided by these premises and existing theory and research, we developed an in-depth structured interview assessing SSE. We hypothesized that SSE would be a function of a combination of factors, including the extent to which support attempts (a) match recipients' needs in terms of their quantity and quality, (b) are not perceived to be difficult to obtain or are offered spontaneously, (c) do not negatively reflect on recipients' self-concept, and (d) are perceived as having been provided

skillfully. That is, we assessed features of support attempts theorized to underlie their effectiveness. Our overarching goal was to capture the richness and complexity of pregnant women's experience of support provided by their partners. Three functional types of support were studied: task support (e.g., assistance with household chores and errands), informational support (e.g., advice or information about how to do something), and emotional support (e.g., listening to and understanding expressed concerns and feelings and showing affection and concern).

In this study, SSE was assessed from the perspective of recipients, emphasizing their needs, perceptions, and feelings. We do not mean to imply that other perspectives are unimportant (see Dunkel-Schetter et al., 1992; Shumaker & Brownell, 1984). For instance, it may prove useful to assess support providers' appraisals of the effectiveness of support they try to give to others or to assess observers' appraisals of the effectiveness of support transactions. However, support recipients' phenomenological experience of support is more likely to influence their responses to it than either providers' reported behavior or supportive behaviors visible to an observer (Dunkel-Schetter et al., 1992; Pierce, Sarason, & Sarason, 1990), which is why we selected this approach.

It is also important to differentiate between SSE and earlier concepts of received (or enacted) support and perceived availability of support. Conceptually, SSE is certainly related to both. It is related to received support in terms of their shared focus on transacted support—behaviors that have already occurred and that have implications for coping and adjustment (Barrera, 1986) as well as for relationship satisfaction and the trajectory of relationships (Cutrona, 1996). SSE is conceptually related to perceived support in terms of a shared focus on perception. A crucial difference between SSE and perceived support, however, is that SSE refers to appraisals of support that *have already occurred*, whereas perceived support refers to expectations of resources that may be *available in the future*—expectations that may or may not prove accurate. SSE, when assessed from the perspective of the recipient, may be seen as one indicator

of the extent to which expectations of available support have, in fact, been met.

#### *Antecedents of social support effectiveness*

With regard to potential antecedents of SSE, we considered factors at the individual and close relationship levels of analysis, consistent with recommendations in the literature (see Dunkel-Schetter & Skokan, 1990; House, 1981; Pierce et al., 1990). With regard to the individual level of analysis, we reasoned that recipients would have a greater likelihood of receiving effective support to the extent that their individual characteristics enhanced their ability to form supportive relationships, their willingness to access available network resources, and their ability to do so effectively (Dunkel-Schetter & Skokan). Together, these characteristics describe individual differences in the extent to which people have an *interpersonal orientation* that sets the stage for more effective support. We assessed this interpersonal orientation by measuring dimensions of participants' adult attachment style, sociocultural orientation toward familial interdependence and obligations (*kin individualism–collectivism*), orientation toward accessing support resources (*network orientation*), and several social skills relevant to mobilizing effective support in committed relationships: conflict management skills, emotional expression, and support seeking. All these individual characteristics have been associated with at least some aspects of social support in past research, including levels of perceived and received support (Cohen, Sherrod, & Clark, 1986; Riggio & Zimmerman, 1991; Triandis, Leung, Villareal, & Clack, 1985), network size (Vaux, Burda, & Stewart, 1986), satisfaction with support (Barrera & Baca, 1990; Triandis et al., 1985), interpersonal communication style (Gudykunst, Matsumoto, Ting-Toomey & Nishida, 1996; Wheeler, Reis, & Bond, 1989), and support seeking and mobilization (Collins & Feeney, 2000; Eckenrode, 1983; Florian, Mikulincer, & Bucholtz, 1995; Ognibene & Collins, 1998; Simpson, Rholes, & Nelligan, 1992). These findings highlight the importance of interpersonal orientation in both cognitive and behavioral processes

related to mobilizing and appraising social support.

In addition, *close relationship context* is increasingly recognized as a key influence on interpersonal behavior (Reis, Collins, & Berscheid, 2000), including social support behaviors (Frazier et al., 2003). The quality of one's marital or partner relationship helps determine the benefits of that relationship (Burman & Margolin, 1992; Coyne & DeLongis, 1986; Ren, 1997). Indeed, existing research suggests that relationship quality and the support exchanged within a relationship are closely related (Fincham & Bradbury, 1990). For instance, one study of Israeli women who had recently given birth found that the intimacy of a close relationship predicted greater support satisfaction (Hobfoll, Nadler, & Leiberman, 1986). A study of 846 people attending a family medical center found that the effects of intimacy on health status were mediated by social support (Reis & Franks, 1994). Likewise, relationship closeness and interdependence have been associated with positive feelings toward partners and relationship stability among college students (Berscheid, Snyder, & Omoto, 1989). Lack of equity—an imbalance of benefits given versus received—has been noted to be a major source of disappointment regarding support in relationships (Cutrona, 1996). Thus, independent of interpersonal orientation, we predicted that relationships with partners characterized by higher quality, more emotional closeness and intimacy, and greater equity would be more conducive to more effective support from the baby's father.

In this study, we have emphasized the potential for relationship characteristics to shape appraisals of support rather than the potential for appraisals of support to influence relationship outcomes, despite the fact that both processes are possible (Bradbury & Fincham, 1990; Cutrona, 1996). We assess appraisals of support occurring during a relatively short period of time, making our emphasis a reasonable one. That is, it is unlikely that the appraised effectiveness of partner support during the first trimester of pregnancy will have a strong influence on general judgments of relationship quality, closeness, and equity.

We view our approach in this study as a useful beginning point for investigating what is likely to prove a complex process.

### *Prenatal anxiety*

We further investigated the extent to which more effective support was prospectively related to better emotional adjustment among pregnant women. In this study, two measures of prenatal anxiety were outcomes of interest. Prenatal anxiety was selected because of its association with shortened gestation, preterm delivery, and low birth weight (e.g., Lobel, Dunkel-Schetter & Scrimshaw, 1992; Mancuso et al., 2004; Rini, Dunkel-Schetter, Wadhwa, & Sandman, 1999; Roesch, Dunkel-Schetter, Woo, & Hobel, 2004; also reviews by Dunkel-Schetter, 1998; Lobel, 1994; Paarlberg, Vingerhoets, Passchier, Dekker, & Van Geijn, 1995). The first measure was of *state anxiety*, an indicator of generalized distress, and the second measure was of *pregnancy anxiety*, a more contextual measure that assesses pregnancy-specific worries and concerns (e.g., Rini et al., 1999). Both state anxiety and pregnancy anxiety were assessed at two time points. We hypothesized that more effective support would predict better adjustment as indicated by reduced prenatal anxiety, both concurrently and prospectively.

## **Method**

### *Participants*

The sample was composed of 176 pregnant women participating in a collaborative study of stress in pregnancy (the Multi-Site Behavior in Pregnancy Study or MSBIPS). Participants had to be at least 18 years of age, English speaking, and pregnant with a singleton intrauterine pregnancy (vs. twins or multiple gestation). Exclusion criteria included systemic maternal disease, placental or cord abnormalities, uterine anomalies, congenital malformations, chromosomal abnormalities, and smoking, drinking, or drug use during pregnancy or in the 3 months prior to pregnancy. In addition, because biological measures were assessed in

MSBIPS, participants had to be free of any condition that could dysregulate neuroendocrine function (e.g., endocrine, hepatic, or renal disorder or the use of corticosteroid medications). Participation in the study was not restricted by ethnicity or parity (number of past births).

Participants from the larger study were included in this sample if they were enrolled in the study between 1998 and 2000 and they were in a committed relationship, defined as married to partner (78%), cohabiting (19%), or not cohabiting but planning to marry (2%). Married couples had been married for a little more than 4 years ( $M = 50$  months,  $SD = 45$  months). Cohabiting couples had been living together for just over 3 years ( $M = 39$  months,  $SD = 32$  months).

Participants were 30 years old on average ( $SD = 5.4$ ; range 18–42), and 50% were nulliparous (i.e., giving birth for the first time). Forty-six percent were Non-Hispanic White, 24% Hispanic, 13% African American or Black, 9% Asian, and 7% were another ethnicity (including bi- and multiracial). Participants' average gross annual household income fell between \$50,000 and \$70,000 (range < \$5,000 to > \$100,000), and their mean educational attainment was 14.6 years ( $SD = 2.03$ ). Fifteen percent had finished high school, 27% had completed some college, 31% had completed an undergraduate degree, and 12% had a graduate degree.

### *Procedure and measures*

Pregnant women who met eligibility criteria were recruited by research nurses at a prenatal visit early in pregnancy and enrolled in the study after completing informed consent procedures. Sixty-nine percent of eligible women approached for recruitment agreed to participate. Reasons for refusal were lack of interest, lack of time, and unstated other reasons. Data used in these analyses were collected over three prenatal appointments separated by 6-week intervals. The first assessment occurred at 18–20 weeks gestation (Time 1), the second between 24 and 26 weeks gestation (Time 2), and the third between 30 and 32 weeks gestation (Time 3). During each assessment, partic-

ipants met with a trained interviewer for a 45- to 60-min structured interview, completed questionnaires, and had an examination by an obstetrician.

Measures for this study were integrated into structured interviews and questionnaires that were part of the larger project. Study instruments were selected with the goal of being understood by persons with little formal education, and some were shortened as described below to reduce participant burden. Table 1 shows descriptive statistics for all measures and the timing of their administration, and Table 2 shows correlations among study variables.

*Social support effectiveness.* Women's appraisals of the effectiveness of their partner's support were assessed at Time 2 with a 21-item, in-depth structured interview designed for this study. Women were asked to report on support provided in the 3 months preceding the assessment (roughly the first trimester). For each of three functional types of support (emotional, informational, and task), the interviewer read a definition of the type of support and then asked a set of five questions, each assessing a different feature of that type of support. Each question was prefaced with an explanation to orient the respondent (e.g., "Sometimes when we need help from a partner, it's difficult to get. It may seem like the person doesn't want to help or is avoiding helping. When you need the baby's father's help with tasks, how often is it difficult to get?"). Questions asked each woman to rate (a) how well the quantity of support received from her partner matched the amount she wanted (e.g., "In general, when the baby's father attempts to help you with tasks, how good is the match between the amount of help he offers and the amount you want? Would you say you get ..."; 1 = *much less than you want* to 5 = *much more than you want*); (b) whether she wished the support had been different somehow (1 = *not at all different* to 4 = *very different*); (c) how good the partner was at providing this support (1 = *not good at it at all* to 4 = *very good at it*); (d) how difficult it was to get this type of support (1 = *never difficult to get* to 5 = *always difficult to get*);

**Table 1.** Descriptive statistics for study variables (*n* = 176)

Variable	Time <sup>a</sup>	<i>M</i>	<i>SD</i>	Minimum	Maximum
Social support effectiveness	T2	.04	10.94	−32.80	17.22
Emotional		.01	3.91	−11.75	6.29
Task		.00	3.54	−12.73	6.31
Informational		.00	2.26	−6.56	3.07
Negative effects		.06	4.07	−12.20	2.76
Individual-level variables					
Attachment style dimensions	T1	3.90	.69	1.82	5.00
Network orientation	T1	2.94	.37	1.84	4.00
Kin individualism–collectivism	T2	3.09	.39	1.93	4.00
Emotional expression	T1	3.01	.73	1.00	4.00
Conflict management	T1	2.43	.56	1.13	4.00
Support seeking	T1	3.28	.81	1.25	5.00
Relationship-level variables					
Quality	T1	125.5	21.08	62.00	157.00
Emotional closeness/intimacy <sup>b</sup>	T1	1.98	.77	1.00	3.00
Equity	T1	2.93	.53	1.33	4.00
Prenatal anxiety					
State anxiety	T2	19.40	6.20	10	35
State anxiety	T3	18.83	6.20	10	38
Pregnancy anxiety	T2	17.69	4.86	10	31
Pregnancy anxiety	T3	17.39	4.72	10	32

<sup>a</sup>Indicates the assessment at which each instrument was administered.

<sup>b</sup>Descriptive statistics for emotional closeness and intimacy are given for recoded scores.

and (e) whether the partner ever offered this support without being asked (1 = *never offers* to 5 = *always offers*). In addition, the interview included six questions assessing the extent to which the support had negative effects on women with regard to their self-esteem or perceived status in relation to the partner (e.g., “When the baby’s father helps you, does he ever make you feel guilty?” and “When the baby’s father helps you, does he ever make you feel helpless or inadequate?”; 1 = *never* to 5 = *always*).

A principal axis factor analysis with oblique (promax) rotation was conducted to examine the factor structure of the items. Based on eigenvalues, the scree plot, and residuals (Comrey & Lee, 1992), four factors were extracted (see Table 3): (a) emotional support effectiveness ( $\alpha = .85$ ), (b) informational support effectiveness ( $\alpha = .62$ ), (c) task support effectiveness ( $\alpha = .75$ ), and (d) negative effects of support ( $\alpha = .80$ ). Of the 21 items, two were dropped from further consideration,

one because of low loadings on all four factors ( $< .30$ ; the difficulty of getting informational support) and one because of a poor item-total correlation ( $r = .18$ ; whether informational support was offered without being asked for). To form subscales, negatively worded items on the emotional, informational, and task support subscales were reverse coded or recoded, then items were standardized and summed so that higher scores indicated greater SSE on all subscales. Because responses to the negative effects items were highly skewed (only 6% of responses indicated these effects occurred more often than “rarely”), responses on this subscale were dichotomized: Participants who reported that they never experienced a particular negative effects of support from their partners received a score of 1 for that response ( $n = 94$ ) and participants who reported any degree of a negative effect of support received a score of 0 ( $n = 82$ ). These responses were then summed and the resulting subscale score standardized, to fix its scale to be similar to the

**Table 2.** Intercorrelations among study variables ( $n = 176$ )

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. SSE/emotional	—	.51**	.49**	.43**	.19*	.22**	.09	.14 <sup>†</sup>	.19*	.19*	.45**	.40**	.37**	-.24**	-.33*	-.18*	-.20**
2. SSE/task		—	.36**	.33**	.20*	.12	.15 <sup>†</sup>	.02	.08	.03	.37**	.31**	.31**	-.20*	-.27**	-.27**	-.25**
3. SSE/informational			—	.38**	.32**	.28**	.13 <sup>†</sup>	.15 <sup>†</sup>	.20*	.19*	.43**	.30**	.33**	-.17*	-.22**	-.12	-.16*
4. SSE/negative effects				—	.42**	.28**	.08	.14 <sup>†</sup>	.08	.06	.40**	.33**	.30**	-.30**	-.37**	-.28**	-.26**
5. Attachment					—	.55**	.27**	.32**	.35**	.30**	.39**	.27**	.20**	-.48**	-.47**	-.48**	-.41**
6. Network orientation						—	.39**	.31**	.29**	.37**	.26**	.23**	.21**	-.42**	-.35**	-.30**	-.27**
7. Kin individualism–collectivism							—	.24**	.13 <sup>†</sup>	.16*	.16*	.12	.16*	-.31**	-.28**	-.18*	-.20**
8. Emotional expression								—	.26**	.32**	.23**	.20**	.10	-.24**	-.20**	-.21**	-.20**
9. Conflict management									—	.06	.29**	.19**	.03	-.30**	-.28**	-.21**	-.20**
10. Support seeking										—	.14 <sup>†</sup>	.17*	.10	-.15 <sup>†</sup>	-.02	-.12	-.07
11. Relationship quality											—	.57**	.42**	-.29**	-.34**	-.21**	-.19*
12. Relationship closeness/intimacy												—	.38**	-.16*	-.20**	-.08	-.10
13. Relationship equity													—	-.13 <sup>†</sup>	-.12	-.05	-.01
14. State anxiety at Time 2														—	.68**	.59**	.49**
15. State anxiety at Time 3															—	.52**	.55**
16. Pregnancy anxiety at Time 2																—	.83**
17. Pregnancy anxiety at Time 3																	—

Note. SSE = social support effectiveness.

<sup>†</sup> $p < .10$ . \* $p < .05$ . \*\* $p < .01$ .



**Table 3.** Factor analysis of social support effectiveness items (*n* = 176)

Item	Factors			
	I	II	III	IV
Emotional support: match between amount wanted and provided	.85			
Emotional support: offered without asking	.79			
Emotional support: (not) difficult to get	.68			
Emotional support: partner good at giving it (skill)	.41			
Emotional support: (did not) wish it was different	.40			
Informational support: (did not) wish it was different		.68		
Informational support: match between amount wanted and provided		.64		
Informational support: partner good at giving it (skill)		.48		
Task support: offered without asking			.70	
Task support: match between amount wanted and provided			.63	
Task support: (not) difficult to get			.59	
Task support: partner good at giving it (skill)			.52	
Task support: (did not) wish it was different			.38	
Negative effects: (never) indebted				.82
Negative effects: (never) guilty				.74
Negative effects: (never) dependent or inferior				.72
Negative effects: (never) unworthy or undeserving				.64
Negative effects: (never) stupid				.54
Negative effects: (never) helpless or inadequate				.48
Factor intercorrelations				
Factor I	—	.53	.48	.46
Factor II		—	.34	.54
Factor III			—	.40
Factor IV				—

Note. Only factor loadings of .38 or higher are shown.

scale of the other subscales. The high intercorrelations among subscales (see Table 2) and good internal reliability for the full scale ( $\alpha = .87$ ) indicated that all four subscales contributed to total SSE.

*Interpersonal orientation.* Five aspects of interpersonal orientation were assessed at Time 1: adult attachment style, network orientation, conflict management, emotional expression, and social support seeking. A sixth interpersonal orientation variable, kin individualism–collectivism, was assessed at Time 2.

Adult attachment was assessed with a 15-item version of a measure of three dimensions of attachment style: comfort with closeness, comfort in depending on others, and rejection anxiety (Collins, 1996; Collins & Read, 1990).

Three items from the original scale were dropped at the suggestion of one of the authors (N. Collins, personal communication, July 1, 1998) in the interest of shortening the scale. Respondents rate how they *generally* feel in romantic relationships (from 1 = *not at all characteristic of me* to 5 = *very characteristic of me*), which helps ensure assessment of attachment as an individual difference variable rather than a relationship context variable. The subscales were moderately to highly intercorrelated ( $r$ s from .47 to .60) and were therefore used to create a single index of adult attachment by reversing the scores of negatively worded items and computing the mean of all items ( $\alpha = .88$ ). Higher scores represented a more secure attachment style or greater comfort and less anxiety with closeness.

Network orientation was assessed with items from the Network Orientation Scale (Vaux, 1985; Vaux et al., 1986), which assesses beliefs about the advisability of seeking help, history of seeking help, and mistrust of help. Items were reworded to refer to seeking help from both friends and relatives (rather than one or the other). Responses were made on a scale from 1 (*strongly disagree*) to 4 (*strongly agree*). In this study, 5 of the original 20 items were excluded based on a previously published factor analysis (items 4, 6, 9, 12, and 16; Vaux), and an additional three items were dropped based on our own principal axis factor analysis, conducted to evaluate the factor structure of the measure in this multiethnic sample. Two of these items had high positive loadings on one factor and high negative loadings on a second factor (items 1 and 3), and the third item did not load on any factor (item 20). An index was formed by reversing scores as appropriate and computing the mean of the remaining 12 items. Higher scores indicated a more positive orientation toward accessing social resources ( $\alpha = .83$ ).

Conflict management was assessed using an eight-item subscale of the Interpersonal Competence Questionnaire (Buhrmester, Furman, Wittenberg, & Reis, 1988). Respondents rated how good they were at a series of conflict management skills (e.g., "Refraining from saying things that might cause a disagreement with a close companion to turn into a big fight") on a scale from 1 (*I'm poor at this*) to 5 (*I'm very good at this*). An index was formed by computing the mean of all items, with higher scores indicating better conflict management skills ( $\alpha = .82$ ).

Emotional expression was assessed with a four-item scale from Stanton's measure of emotional approach coping (see Stanton, Danoff-Burg, Cameron, & Ellis, 1994), which has been found to be unconfounded with psychopathology (Stanton et al., 1994). Responses to items such as "I let my feelings come out freely" were made on a scale from 1 (*I don't do this at all*) to 4 (*I do this a lot*). An index was formed by computing the mean of all items ( $\alpha = .90$ ).

Support seeking was assessed with a four-item scale based on the UCLA Social Support

Inventory (Dunkel-Schetter, Feinstein, & Call, 1986). Items assessed the extent to which respondents typically ask for or show their need for four types of support: two types of emotional support (being made to feel loved and cared for and having someone listen to and understand personal concerns), information, and task assistance. Responses were made on a scale from 1 (*I never ask for it or do anything to show that I need it*) to 5 (*I always ask for it or do something to show that I need it*). An index was formed by computing the mean of all items ( $\alpha = .80$ ).

Kin individualism and kin collectivism, individual-level indicators of sociocultural orientation toward family, were assessed with two measurement instruments.<sup>1</sup> Kin individualism was assessed with six items from Hui's (1988) Individualism Collectivism (INDCOL) Scale (e.g., "There is no reason for children to feel honored by their parents' success"), and kin collectivism was assessed with the 10-item Familism Scale (Gaines et al., 1997; e.g., "To this day, my parents' teachings serve as my best guide to behavior"). Responses were made on a scale from 1 (*strongly disagree*) to 4 (*strongly agree*). These constructs were treated as bipolar opposites based on evidence that they are highly negatively correlated (Rhee, Uleman, & Lee, 1996). In the present study, they were moderately negatively correlated ( $r = -.50, p < .01$ ). As a comparison, the mean item-total correlation of the 16 items in the scale was .49 (range  $r = .32$  to  $r = .67$ ). Therefore, an index was formed by reverse scoring kin individualism items and computing the mean of all items such that higher scores indicated a more collectivistic orientation toward family ( $\alpha = .86$ ).

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1. It should be noted that early in this work we conceptualized kin individualism–collectivism as a sociocultural variable and hypothesized that it would form a factor that would be separate from the individual-level variables. It later became apparent that because kin individualism–collectivism was measured at the individual level, it fit well with the other individual-level variables. It was therefore allowed to load on the interpersonal orientation factor. We believe that factors that truly reflect sociocultural context rather than individual predisposition also contribute to SSE, but they are not adequately captured in our measures.

*Relationship characteristics.* Three primary relationship characteristics were measured at Time 1. The first, relationship quality, was assessed using the 15-item Marital Adjustment Test (MAT) (Locke & Wallace, 1959). The measure was adapted for use in an interview format and items reworded to apply to both married and unmarried relationships. The traditional weighting scheme was used with the exception of two items (“When disagreements arise, they usually result in ...” and “In leisure time do you generally prefer ...?”), which were weighted as suggested by Freeston and Plechaty (1997) to avoid outdated conceptualizations underlying their original scoring. Items were then summed to create a scale with a potential range of 0–158 points, with higher scores indicating greater relationship quality ( $\alpha = .74$ ).

Second, relationship intimacy was assessed with one item created for this study based on an item on the MAT: “We are interested in how you feel about your relationship with your partner. Please select the number that best describes the degree of emotional closeness and intimacy in your relationship.” Responses were made on a scale from 1 (*almost no emotional closeness and intimacy*) to 7 (*a great deal of emotional closeness and intimacy*). The distribution of this item was negatively skewed and leptokurtotic (Tabachnick & Fidell, 2001). Because it could not be normalized using a linear transformation, it was recoded as follows: Responses 1–5 were recoded as 1, response 6 was recoded as 2, and response 7 was recoded as 3. This scheme yielded three groups of similar size ( $n_s = 54, 72,$  and  $50$ , respectively).

Third, relationship equity was assessed using three items from Vanfossen (1981) that assessed the extent to which respondents perceived their relationships to be reciprocal, as opposed to feeling underbenefitted in the relationship. Responses on items such as “My partner usually expects more help and support from me than he is willing to give back” were made on a scale from 1 (*strongly disagree*) to 4 (*strongly agree*). An index was created by computing the mean of all items such that higher scores indicated greater equity ( $\alpha = .69$ ).

*Prenatal anxiety.* Generalized anxiety and pregnancy-specific anxiety were assessed at both Time 2 and Time 3. A 10-item version of the State Anxiety Inventory (Spielberger, 1983) was used to assess the extent to which participants had experienced generalized anxiety-related symptoms during “the last few days” on 4-point scale from 1 (*not at all*) to 4 (*very much*). An index was formed by reversing scores as appropriate and summing items (Time 2 and 3  $\alpha = .90$ ).

Pregnancy anxiety was measured with 10 items assessing the frequency with which or the extent to which participants worried about their health, the health of their baby, labor and delivery, medical complications, their ability to pay for childbirth, and caring for the baby after birth (Rini et al., 1999). Responses were made on a scale from 1 (*never or not at all*) to 4 (*almost all of the time or very much*). An index was formed by reversing scores as appropriate and summing items, with higher scores indicating higher pregnancy anxiety (Time 2  $\alpha = .81$ , Time 3  $\alpha = .81$ ). Pregnancy anxiety has predicted early delivery in past research (Dunkel Schetter, 1998).

*Demographics.* The interview included items assessing a variety of maternal demographic characteristics, including age, ethnicity, education (in years), annual household income (measured with an ordinal scale from 1 [*less than \$5,000*] to 12 [*over \$100,000*]), marital status, and months living together (whether married or cohabiting). Four participants missing ethnicity data were coded as “other” ethnicity.

*Medical factors.* Medical factors related to obstetric risk were self-reported or abstracted from medical charts, including physical characteristics (e.g., body mass index), personal medical and obstetric history (e.g., renal disease, parity), family medical history (e.g., chromosomal abnormalities), and complications in the current pregnancy (e.g., threatened miscarriage). A medical risk index was created to identify women who began pregnancy at high risk for adverse birth outcomes, and a second index was created to identify women at high risk because of medical or obstetric events

during the pregnancy. These indices were used to investigate the need to control for the effects of obstetric risk on prenatal anxiety. Their exact content is available from the first author.

## Results

Data analysis proceeded in the following steps. First, the data were examined for missing variables, and the distribution of each variable was examined for outliers and normality. Because there were very few missing data points (no more than 3% of any scale and 5% of household income data), mean replacement was used. Outliers were recoded so that they maintained their relative rank but were within three standard deviations from the mean of their scales (Barnett & Lewis, 1994). There were two outliers each for network orientation and state anxiety at Time 3, and one each for pregnancy anxiety at Time 3 and attachment. Second, relations between potential sociodemographic and medical control variables and the SSE subscales were examined to identify variables that needed to be controlled in analyses. Third, structural equation modeling (SEM) was used to test two models: (a) a model of relations between the predictors and SSE and (b) a model of relations between SSE and prenatal anxiety.

### *Identification of control variables*

Correlational analyses, one-way analyses of variance, and chi-square analyses were used to examine associations between SSE subscales and sociodemographic variables (age, marital status, number of months living with partner, years of school completed, annual household income, and ethnicity). The only observed association was that White women reported marginally more effective informational support than women of other ethnicities,  $F(1,174) = 3.17, p = .08$ . Consequently, ethnicity (White = 1, other ethnicity = 0) was entered as a control variable in the model of predictors of SSE.

Next, we examined associations between indicators of prenatal anxiety and sociodemographic and medical variables (parity, medical risk indices). Married women reported mar-

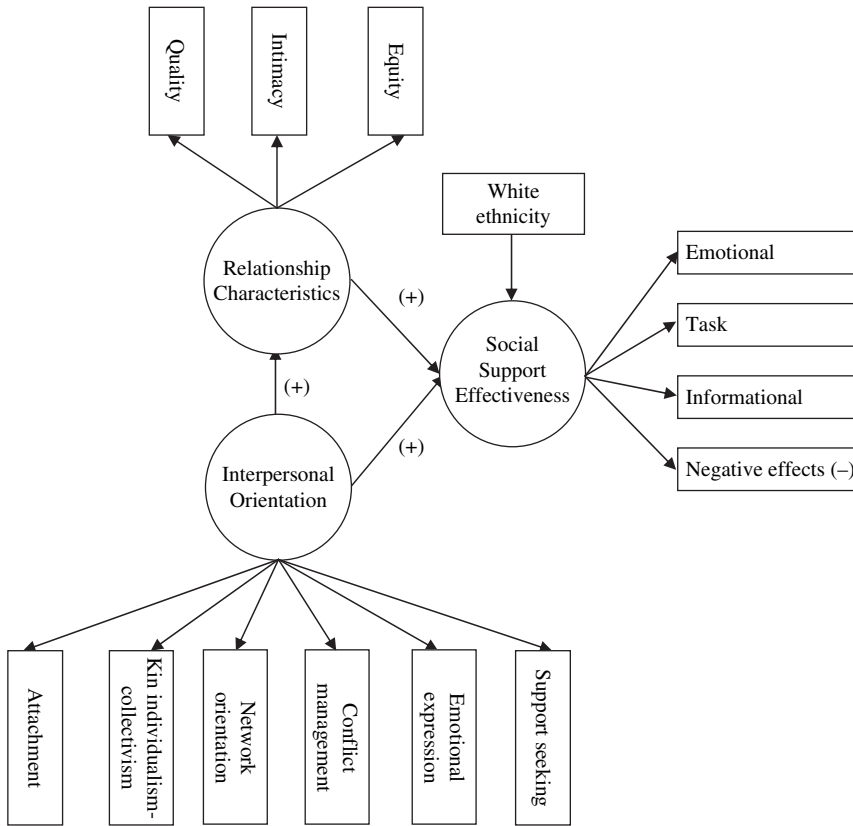
ginally less pregnancy anxiety at Time 2 than unmarried women,  $F(1,174) = 3.59, p = .06$ , and Latinas reported more pregnancy anxiety at Time 2 than White women,  $F(1,174) = 4.25, p = .04$ . Women who had not given birth previously (i.e., nulliparous women) reported more pregnancy anxiety at Time 2,  $F(1,174) = 4.30, p = .04$ , and Time 3,  $F(1,174) = 5.56, p = .02$ , than women who had given birth at least once. Women with higher income reported less state anxiety at Time 2 ( $r = -.16, p = .03$ ) and Time 3 ( $r = -.15, p = .04$ ). Accordingly, these variables (marital status, Latina ethnicity, parity, and annual household income) were entered as controls into the model of predictors of prenatal anxiety.

### *Individual- and relationship-level antecedents of SSE*

SEM permits evaluation of the plausibility of a model using correlational data. Good fit is indicated by a nonsignificant chi-square (or, for acceptable fit, a significance level between .01 and .05; Schermelleh-Engel, Moosbrugger, & Müller, 2003); a Comparative Fit Index (CFI) of .95 or greater; and a root mean square error of approximation (RMSEA) of .06 or smaller (Hu & Bentler, 1999). Modification indices (the Wald and Lagrange multiplier tests; see Chou & Bentler, 1990) were consulted for suggested modifications to improve model fit.<sup>2</sup>

Before testing the model shown in Figure 1, we tested a measurement model that included the three latent variables (SSE, relationship characteristics, and interpersonal orientation) and correlations among them. The fit of the measurement model was good with the exception of the chi-square test, which indicated acceptable fit,  $\chi^2(62) = 83.33, p = .04$ , CFI = .96, RMSEA = .04 (90% confidence interval [CI].01–.07). Furthermore, all measured

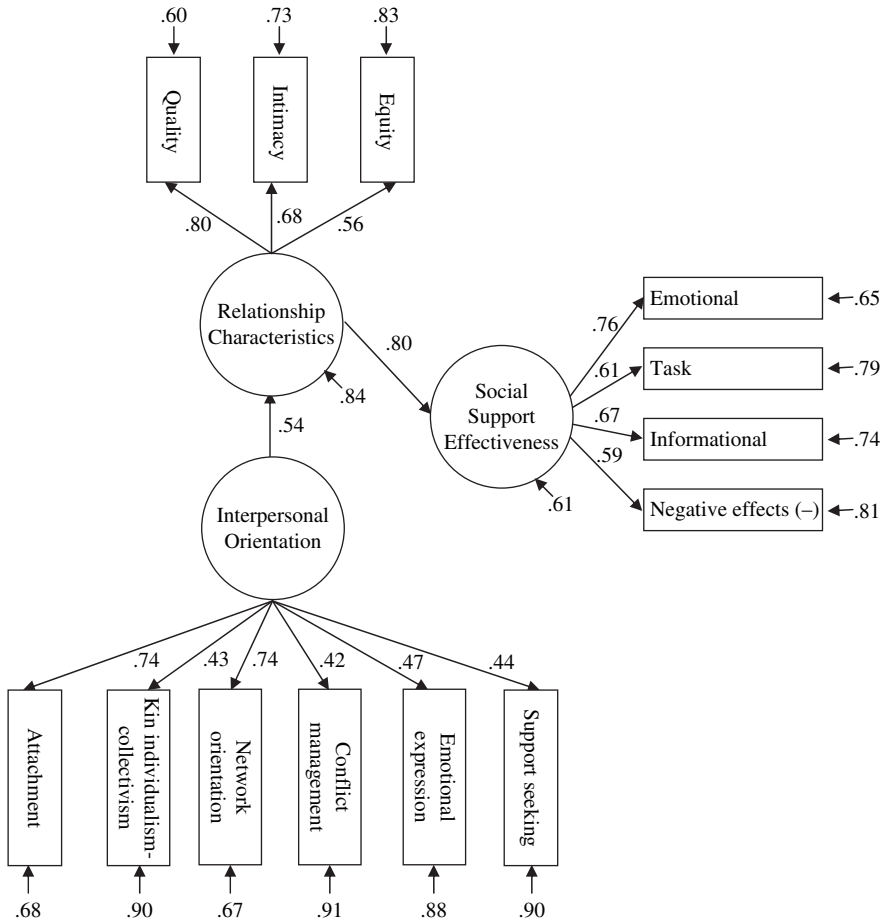
2. We recognize the potential for capitalization on chance introduced when the same dataset is used for model trimming and evaluation (MacCallum & Austin, 2000). Such a situation is difficult to avoid when using a costly longitudinal dataset gathered on a community sample. We attempted to offset this shortcoming by making only theoretically plausible and substantive modifications. Clearly, the reported results will need to be confirmed using a separate dataset.



**Figure 1.** Hypothesized model of the relations between individual- and relationship-level predictors and social support effectiveness.

variables had strong and statistically significant loadings on their latent construct (ranging from  $\beta = .43$  to  $\beta = .81$ ). Therefore, following conventional procedures (Bentler, 1992), the model in Figure 1 was specified, its parameters estimated (using maximum likelihood estimation), and its fit tested. The fit indices indicated some misspecification,  $\chi^2(74) = 130.96, p < .001, CFI = .90, RMSEA = .07$  (90% CI .05–.09). Examination of the modification indices suggested that improved model fit could be obtained by fixing two nonsignificant paths to zero: (a) the path from interpersonal orientation to SSE and (b) the path from ethnicity to SSE (removing ethnicity as a covariate). These changes resulted in a final model with good fit,  $\chi^2(63) = 82.11, p = .05, CFI = .96, RMSEA = .04$  (90% CI .01–.07; see Figure 2) that predicted approximately 63% of the variance in SSE.

According to the final model, relationship characteristics significantly and directly predicted SSE, whereas women’s interpersonal orientation was indirectly related to SSE through its direct relation with relationship characteristics. Thus, the association between women’s interpersonal orientation and SSE was mediated by their relationship context. The indirect association between interpersonal orientation and SSE was significant ( $\beta = .43, z = 4.81, p < .05$ ; Bentler), although smaller in size than the direct association between relationship characteristics and SSE ( $\beta = .80$ ). Thus, relationship characteristics played a stronger and more direct role in predicting SSE than did interpersonal orientation. In sum, the final model is consistent with a causal chain wherein pregnant women with a more adaptive interpersonal orientation were in relationships characterized by better quality,



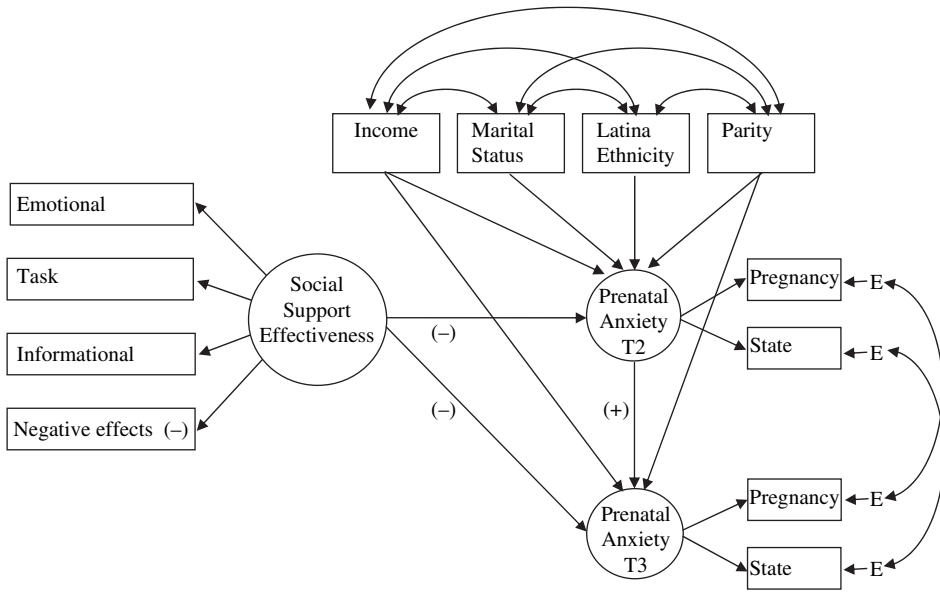
**Figure 2.** Final model of the relations between individual- and relationship-level predictors and social support effectiveness. Parameter estimates are standardized. Model fit indices:  $\chi^2(63) = 82.11, p = .05, CFI = .96, RMSEA = .04$ . All paths  $p < .05$  or better.  
 Note. CFI = Comparative Fit Index; RMSEA = root mean square error of approximation.

greater intimacy, and more equity. Women in better relationships, in turn, appraised their partners' support as more effective.

*Psychological consequences of SSE*

Next, we examined relations between SSE and prenatal anxiety. Note that the hypothesized model (Figure 3) sought to predict Time 3 prenatal anxiety controlling for Time 2 prenatal anxiety. Therefore, it investigated residualized Time 3 prenatal anxiety or change in prenatal anxiety from Time 2 to Time 3. First, a measurement model was specified with the three latent variables (SSE, Time 2 prenatal anxiety, and Time 3 prenatal anxiety) and their inter-

correlations. The model also included correlations between the error terms for Time 2 and Time 3 state anxiety and Time 2 and Time 3 pregnancy anxiety. The fit of the measurement model was good,  $\chi^2(15) = 13.94, p = .53, CFI = 1.00, RMSEA = .00$  (90% CI .00-.07), and the measured variables had strong and statistically significant loadings on their latent construct ( $\beta = .58-.86$ ). Therefore, the hypothesized model was specified as in Figure 3 and the fit of the model tested. Fit indices indicated good fit to the data,  $\chi^2(41) = 49.15, p = .18, CFI = .99, RMSEA = .03$  (90% CI .00-.06). The multivariate Wald test suggested minor modifications to covariates, including dropping nonsignificant paths between income and



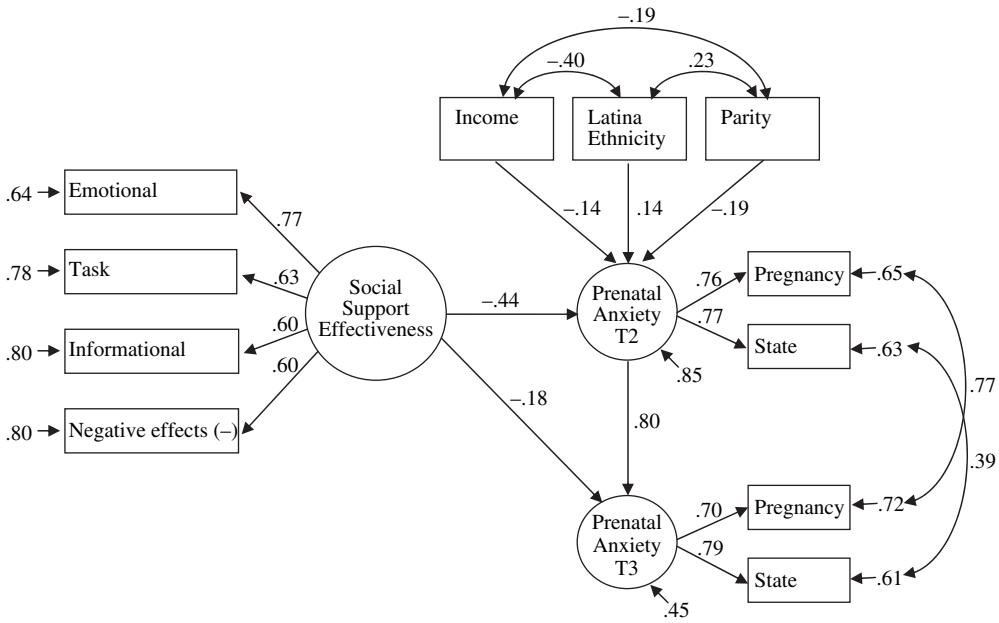
**Figure 3.** Hypothesized model of relations between social support effectiveness and prenatal anxiety (state anxiety and pregnancy anxiety).

Time 3 prenatal anxiety, parity and Time 3 prenatal anxiety, and marital status and Time 2 prenatal anxiety (eliminating marital status as a covariate as well as paths between marital status and the other covariates). These changes were made, and the resulting final model (see Figure 4) demonstrated good fit,  $\chi^2(36) = 45.00, p = .14, CFI = .99, RMSEA = .04$  (90% CI .00–.07). Greater SSE predicted lower prenatal anxiety at Time 2 (explaining 28% of the variance) in addition to predicting reduced prenatal anxiety at Time 3 (controlling for prenatal anxiety at Time 2). The final model predicted approximately 80% of the variance in Time 3 prenatal anxiety. The indirect effect of SSE on Time 3 prenatal anxiety was significant and negative ( $\beta = -.35, z = -4.10, p < .05$ ), indicating that greater SSE predicted a reduction in prenatal anxiety from Time 2 to Time 3. Thus, the model indicates the presence of both concurrent and prospective associations between SSE and prenatal anxiety. Also, having lower income, Latina ethnicity, and giving birth for the first time were all associated with greater prenatal anxiety at Time 2. Next, to examine the effect of controlling for relationship characteristics in the association between SSE and prenatal anx-

iety, we added the relationship characteristics latent variable to the model as a predictor of SSE. This procedure did not alter the concurrent or prospective relations between SSE and state anxiety—the parameter estimates remained essentially unchanged and significant—and the model maintained good fit except for the chi-square test, which indicated acceptable fit,  $\chi^2(68) = 95.88, p = .01, CFI = .97, RMSEA = .048$  (90% CI .02–.07). Thus, the appraised effectiveness of partner support predicted prenatal anxiety over and above the quality, intimacy, and equity of the relationship context.

**Discussion**

This longitudinal study examined pregnant women’s appraisals of the effectiveness of support received from their partners. SSE was conceptualized as multidimensional and was measured by women’s perceptions of both the quality and quantity of support received from the partner (including negative effects of support) and the extent to which it met their needs. We focused on partner support because the marital or partner relationship ranks among the most important in an adult’s



**Figure 4.** Final model of the relations between social support effectiveness and prenatal anxiety. Parameter estimates are standardized. Model fit indices:  $\chi^2(36) = 45.00, p = .14, CFI = .99, RMSEA = .04$ . All paths  $p < .05$  or better.

Note. CFI = Comparative Fit Index; RMSEA = root mean square error of approximation.

life, in general, and is a primary source of support in adulthood (Beach, Fincham, Katz, & Bradbury, 1996; Coyne & DeLongis, 1986; Cutrona & Suhr, 1994). The partner relationship is also of particular importance during pregnancy (Dunkel-Schetter et al., 1996). Thus, these findings focus on a key relationship for women at a very important developmental juncture.

One primary goal of this study was to test hypotheses regarding individual- and relationship-level antecedents of SSE. As hypothesized, women's ratings of the effectiveness of partner support were predicted by variables at both levels, although the strongest predictors were those related to the relationship context. That is, having a higher quality relationship with the partner, more emotional closeness and intimacy, and greater perceived equity (vs. feeling underbenefitted) were significantly associated, as a set, with a woman's perception that the support provided by her partner was more effective. Research has demonstrated that being in a high-quality romantic relationship has advantages for ad-

justment (Ross, Mirowsky, & Goldstein, 1990). Our findings are consistent with the idea that people in better quality relationships demonstrate better well-being at least in part because the support they receive from their partners is perceived to be more effective. Whether these findings extend to physical health outcomes and physiological mediators, as in some past research examining social support processes (see Kiecolt-Glaser & Newton, 2001; Robles & Kiecolt-Glaser, 2003), remains to be determined.

We believe that both cognitive and behavioral mechanisms underlie the association between relationship context and women's appraisals of the effectiveness of their partners' support. Perceptions of one's relationship and of the effectiveness of partner support obviously share a common perceptual component. That is, a woman who has a positive perception of her relationship will have positive expectations of her partner during pregnancy and will tend to perceive him and his behaviors in a more favorable light (Beach et al., 1996; Fincham & Bradbury, 1990).



Moreover, better quality marriages are characterized by interactions with higher levels of positive affect and behavior and lower levels of negative affect and behavior (Cutrona, 1996). In addition, people in distressed relationships appear to put less effort into decoding their partners' nonverbal communications and send nonverbal signals that are not as clear (Noller, 1981), which could translate into less positive appraisals of support effectiveness.

As noted earlier, relationship characteristics were investigated as predictors of SSE in this study. Our approach reflects the relatively brief period of time covered by this study and is consistent with theoretical accounts of the role played by relationship schemas and relationship characteristics (e.g., closeness) in the perception of relational events (Baldwin, 1992; Reis et al., 2000; Reis & Downey, 1999). However, it is important to note that SSE should also have effects on relationship processes in turn (i.e., reciprocal relations). Cutrona (1996) argues that a history of positive and negative interactions can contribute to the well-being of a relationship and notes that research is needed on how social support affects relationships. For example, a pregnant woman who receives effective social support from her partner in one pregnancy may enter the next pregnancy with a stronger relationship. Bradbury and Fincham (1990) similarly argue that attributions for partner behaviors are shaped by relationship characteristics and also influence relationship outcomes. As noted earlier, we view the perspective taken in this research—that relationship characteristics influence women's appraisals of the effectiveness of their partner's support in early pregnancy—as a useful starting point. Examination of social support in marriage is a relatively new focus of research, but one that promises to provide insights that are both theoretically and practically valuable.

Our prediction regarding individual-level variables was also supported: Interpersonal orientation, like relationship characteristics, contributed to the prediction of SSE. However, the association between interpersonal orientation and SSE was indirect, mediated by relationship characteristics. Recall that interpersonal orientation was conceptualized

as a set of characteristics that we believed would enhance women's ability to form and maintain supportive relationships (adult attachment, kin individualism–collectivism) and that would indicate a willingness to access available network resources (network orientation) and an ability to do so effectively (social skills relevant to mobilizing support in committed relationships). Our findings suggest that these characteristics may contribute to the development of a relationship that is conducive to more positive appraisals of the effectiveness of support. Existing research provides hints as to how a person's personality or disposition may shape his or her close relationships. These mechanisms include effects of individual-level variables on partner selection and on behavior within relationships (e.g., Collins, Cooper, Albino, & Allard, 2002), including accommodation to partners' negative behaviors (Gaines et al., 1997; Scharfe & Bartholomew, 1995) and adaptive support-seeking and emotional expression (Collins & Feeney, 2000; Florian et al., 1995). Interpersonal orientation may have influenced SSE through such relationship dynamics. These findings also pinpoint specific characteristics that may influence a person's ability to benefit from the support attempts of others. Further, the findings point to a key mechanism through which individual-level factors influence the appraised effectiveness of support attempts in intimate relationships, that is, the relationship context.

It is worthwhile to highlight findings related to kin individualism–collectivism, which reflects an individual's sociocultural orientation toward familial interdependence, duty to family, and mutual obligations among family members (Markus & Kitayama, 1991; Oyserman, Coon, & Kimmelmeier, 2002; Triandis, 1989). In this study, we found a positive relation between stronger kin collectivism (and lower kin individualism) and the other individual-level variables, specifically, more secure attachment, a positive orientation toward accessing social support, and better support-relevant social skills. Along with these other indicators of interpersonal orientation, greater kin collectivism was associated with a more positive relationship context. Consistent with our findings, a small body of

empirical evidence suggests that sociocultural orientation is associated with social behavior and relationships (Gudykunst et al., 1996; Gudykunst & Nishida, 1986; Wheeler et al., 1989), including social support (Triandis et al., 1985) and other relationship processes (Gaines, 1995). Taken together, our findings and past research highlight an understudied link between sociocultural factors and interpersonal processes and suggest the value of further research in these areas. For instance, kin collectivists' emphasis on familial duty and interdependence may make seeking support more normative and thus less likely to negatively influence the self-concept. With regard to relationship characteristics, kin collectivists' emphasis on reciprocity may mean that support is more easily mobilized and less likely to lead to feelings of indebtedness. With little empirical evidence to rely on, these relations are, by necessity, speculative. However, they are consistent with theoretical formulations of kin individualism and collectivism as well as the findings reported here.

In addition to investigating predictors of SSE, we also tested the hypothesis that appraisals of the effectiveness of partner support would predict prenatal anxiety both concurrently and over time. This hypothesis was supported, suggesting that, as the appraised effectiveness of support increases, so does the support's ability to address the stressful effects of a major life transition, in this case, pregnancy and impending parenthood. Moreover, ineffective support has the potential to add to a person's stress burden during a life transition, in part by causing strain in important relationships or by exacerbating existing relationship difficulties. These are potentially fruitful avenues for future research. Indeed, SSE, as conceptualized here, may offer insight into why received support has rarely been shown to buffer the negative effects of life stress, a role more often demonstrated for perceived support (Kessler & McLeod, 1985; Wethington & Kessler, 1986). Specifically, received support may be more likely to buffer life stress when it is perceived to be effective. This work also has the potential to shed light on inconsistent empirical associations between received support and outcomes related to

health and well-being. Such findings may reflect the fact that a key moderator—the appraised effectiveness of the support—was not assessed in past studies. We believe that our study adds to the small body of research showing salutary effects of received support because it explicitly investigates several important characteristics of support.

Our results suggest implications in three areas. First, they have implications for stress processes, which are integral to our approach. As such, this research has the potential to guide psychosocial interventions that attempt to provide or enhance social support (Lu, Lu, & Dunkel Schetter, 2005). The salutary effect of SSE could also extend to postpartum adjustment, potentially influencing a couple's adjustment to parenthood and their infant's development. Further, this research may shed some light on stress processes relevant to life transitions other than pregnancy, for instance, changes in employment status or family context (e.g., transition to an "empty nest" household). It is important to note that, in our view, SSE is not pregnancy specific, but rather implicates a general set of characteristics believed to underlie appraisals of support effectiveness. This view is bolstered by the fact that we based our conceptualization of SSE on empirical evidence reflecting a diverse set of populations and contexts (e.g., research on equity, detrimental aspects of seeking support, and negative effects of support, as presented earlier). However, replication of our findings in nonpregnant populations will be needed to confirm the generalizability of our results.

Second, and related to the prior point, these results may have implications for better understanding close relationships. Support-related transactions are a common occurrence in intimate relationships and therefore have the potential to play an integral role in healthy relationship processes. Reis and his colleagues recently advanced a compelling case for expanding research on relationship dynamics and context (Reis et al., 2000), noting that individuals are inextricably embedded in social relationships that exert a powerful influence on them. As such, understanding the relationship context of individual behavior is

necessary for gaining a complete and accurate understanding of that behavior. One contribution of the present research is that it integrates the relationship context into the study of support processes more extensively than has the majority of prior research.

Third, these findings have implications for research on partner support during pregnancy and may inform efforts to improve maternal-fetal health. Much of the existing research on partner support uses self-report measures to assess women's reports of social support received or perceived to be available from the partner. Analyses then examine the association between partner support and pregnancy outcomes (e.g., Besser, Priel, & Wiznitzer, 2002; Collins et al., 1993; Pajulo et al., 2001; Paykel, Emms, Fletcher, & Rassaby, 1980; Rubertsson, Waldenstrom, & Wickberg, 2003). Although such research provides valuable evidence for the existence of significant associations, it reveals little about features of actual support attempts and therefore provides inadequate guidance for designing interventions to improve the effectiveness of partner support. In contrast, our emphasis on features of transacted support lends itself more readily to translation to psychosocial interventions. Although the evidence presented here is relevant to interventions that target partner support, we believe that the features of transacted support that contribute to its appraised effectiveness are not specific to marital or romantic relationships, and that our findings will generalize to other types of close relationships. As with the question of whether SSE will generalize to life transitions other than pregnancy, questions regarding generalizability are empirical and will need to be investigated in future research.

More generally, the results reported here highlight the potential for SSE to provide a useful addition to existing conceptualizations of social support. The usefulness of this conceptualization would be strengthened by some indication of its discriminant validity with respect to more traditional measures of received and perceived social support. Although we did not have a traditional measure of received social support in this study, we did have a standard measure of perceived available social support. In a structural equation model in

which SSE was replaced by a measure of perceived support from the Medical Outcomes Study (Sherbourne & Stewart, 1991), perceived support predicted lower concurrent prenatal anxiety but did not predict prenatal anxiety prospectively (i.e., change in prenatal anxiety in late pregnancy). With both measures in the model, SSE remained a marginally significant predictor of lower concurrent prenatal anxiety and a significant predictor of reduction in prenatal anxiety in late pregnancy. Thus, we have some evidence of discriminant validity for SSE with respect to perceived support, but examination of its discriminant validity with respect to a traditional measure of received support would be helpful.

When interpreting these findings, it is important to note both unique features of our study and a few limitations. One limitation of this study is that it cannot provide definitive evidence of the directionality of effects. For instance, findings regarding SSE and prenatal anxiety may reflect some degree of reverse causation. That is, women experiencing high prenatal anxiety in mid-pregnancy may have appraised support received from the partner as less effective. This explanation does not account for the prospective findings, however. Although a discussion of causal relationships such as this can help build causal theories, experimental research will be critical to clarifying these processes. To offer an example, a researcher could adapt paradigms using hypothetical scenarios (e.g., Ross, Lutz, & Lakey, 1999) to manipulate features of support attempts associated with SSE and assess participants' responses. An experimental design such as this would provide more definitive evidence of a causal relation between SSE (a mediator in this example) and outcomes.

A second limitation is that this research relies solely on self-reported interview data. It would be useful to validate our findings with studies that include observed interpersonal interactions or supporting data gathered from people other than the support recipient. The interview developed here may be too detailed for some research purposes although we did interview a small sample of male partners. A shorter questionnaire version is now under development to facilitate further research.

Finally, a third limitation is that participants in this study, as in many support studies, reported a relatively high level of relationship satisfaction.<sup>3</sup> This finding may be traced in part to a tendency toward social desirability in reporting social support perceptions. Yet, our measure of SSE was designed to be very specific and rather behavioral and thus less susceptible to this bias than measures without these characteristics. However, our sample was skewed toward women whose relationships with partners were more stable and probably more satisfactory on average. Because interpersonal and support-related processes differ for distressed versus nondistressed couples (e.g., Cutrona & Suhr, 1994; see Beach et al., 1996), it may be useful to study SSE in other samples of couples in the future.

Several strengths of this study should also be noted. One was that it was a longitudinal study with three assessments, which enabled examination of prospective associations among variables. Particularly notable was evidence for a prospective relation between SSE and prenatal anxiety. A second strength was that this study investigated SSE among women who were all facing the same life transition and focused on a single uniquely important relationship—the marital or partner relationship. Of course, pregnant women also receive support from individuals other than their partners during their pregnancies, and studying the interplay between the support provided by the partner and by other individuals (e.g., mothers, sisters, friends) would be valuable. Finally, as mentioned above, this study integrated support and relationship processes, unlike most social support research (cf. Pierce, Sarason, & Sarason, 1991).

In conclusion, we have attempted to expand existing conceptualizations of received support to include careful consideration of the parameters of its appraised effectiveness. We believe that accounting for variation in appraisals of the effectiveness of received support will help clarify processes underlying complex

relations between received support and indices of health and well-being and extend the literature on social support within close relationships. Our work supports the conclusion that variations in the appraised effectiveness of received support are integral to its effect on recipients and, therefore, has significant implications for relationships and for adjustment to stressful life events and transitions.

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