# Psychological Well-Being and Job Stress Predict Marital Support Interactions: A Naturalistic Observational Study of Dual-Earner Couples in Their Homes

Shu-wen Wang
Haverford College

Rena L. Repetti
University of California, Los Angeles

Video recordings of couples in their everyday lives at home were used to study how supportive interactions relate to psychological well-being and experiences of job stress. Thirty dual-earner, middle-class, heterosexual couples with school-age children were videotaped in their homes over 4 days and completed self-report measures of depressive symptoms, trait neuroticism, and job stress. After isolating the specific instances of marital support in the video recordings, the support role assumed by each partner (recipient vs. provider) and the method of support initiation (solicitations vs. offers) in each interaction were coded. Actor-partner interdependence models (APIMs), which accounted for interdependence within couples, tested linkages between husbands' and wives' scores on the psychological well-being and job stress variables, and husbands' and wives' supportive behavior. Analyses suggested sex differences in the way that psychological well-being and job stress influence support transactions. Wives' depressive symptoms predicted more support received from husbands, due both to more support solicitations by wives as well as more support offers by husbands. However, for husbands, it was neuroticism that predicted support receipt—both more solicitations (by husbands) and more offers (by wives). In addition, men married to women under greater job stress appeared to increase their unprompted offers of support to their wives, whereas wives did not appear to be similarly responsive to husbands' job stress. This study provides unique insights into couple support processes as they spontaneously unfold in everyday settings, and highlights the utility of naturalistic observation for better understanding social behavior in close relationships.

*Keywords:* social support, couples, depression, neuroticism, job stress

Deriving comfort and enlisting help from others is a vital component of human social experience; not surprisingly, social support is a ubiquitous concept in relationship science. Defined as "acts that communicate caring; that validate the other's words, feelings or actions; or that facilitate adaptive coping with problems through the provision of information, assistance, or tangible re-

sources" (Cutrona, 1996, p. 10), *support* can take on many forms to address the wide range of problems people face in their everyday lives. Research has documented many physiological and mental health benefits of social support, including improved immune, cardiovascular, and neuroendocrine function; positive adjustment to chronic disease; decreased depression and anxiety; and effective buffering against the negative effects of stress (Cohen, 2004; Seeman, 1996; Thoits, 1995). Simply stated, support is a uniquely important element of social relationships that has a significant impact on physical and mental well-being.

Support from a romantic partner, in particular, can play a critical role in how adults cope with stress and navigate the challenges of everyday life. Indeed, research has suggested that support from other social sources cannot compensate for a poor marital relationship (Coyne & DeLongis, 1986), and in fact, greater mobilization of support from individuals other than the spouse is associated with marital distress (Julien & Markman, 1991). Support from a spouse is also indicative of happier marital relationships. For example, individuals who either describe being in more supportive marriages (e.g., Acitelli & Antonucci, 1994; Julien & Markman, 1991) or are observed making more supportive statements to their spouses in laboratory interactions (Cutrona & Suhr, 1994) are also more satisfied in their marriages and report deeper feelings of intimacy and closeness with their partner (e.g., Belcher et al., 2011; Gleason, Iida, Shrout, & Bolger, 2008). Furthermore, neg-

ative support processes such as criticizing and blaming behavior predict future marital distress (Pasch & Bradbury, 1998) and divorce, even among couples who reported being very satisfied in their relationships as newlyweds (Lavner & Bradbury, 2012). Thus, supportive processes within marriages provide a revealing glimpse into the health of the relationship. And marriage—the central relationship for most adults and one that is closely tied to the health and well-being of each member of a couple (Kiecolt-Glaser & Newton, 2001; Robles, Slatcher, Trombello, & McGinn, 2013)—provides a prime context in which to study support as a dyadic interpersonal process.

## The Need for Observational Studies of Support Processes in Natural Settings

The couple support literature has traditionally used self-report methods, and in particular, diary designs have allowed for examination of support exchanges as they occur on a prospective and daily basis (see Laurenceau & Bolger, 2005, for a review). Diary studies have also highlighted the transactional nature of support, permitting study of both provider and recipient accounts of behavior and mood (e.g., Belcher et al., 2011; Bolger, Zuckerman, & Kessler, 2000; Gleason, Iida, Bolger, & Shrout, 2003; Gleason, Iida, Shrout, & Bolger, 2008; Iida, Seidman, Shrout, Fujita, & Bolger, 2008; Neff & Karney, 2005). Furthermore, laboratory observation techniques (see Gottman & Notarius, 2000, for a review) have extended beyond the limitations of subjective post hoc reports of support behavior (e.g., recall, response, and social desirability biases), allowing a direct and objective view of those interactions occurring in controlled researcher-directed settings. Using an approach that draws from behavioral models (Jacobson & Margolin, 1979), the coding of turn-by-turn social interactions has produced a wealth of knowledge about how couples engage with and respond to one another during supportive exchanges (Cutrona & Suhr, 1994; Cutrona, Shaffer, Wesner, & Gardner, 2007; Pasch & Bradbury, 1998; Sullivan, Pasch, Johnson, & Bradbury, 2010).

Both diary and laboratory observation methods frame social support as an interpersonal process in which the experiences and contributions of both partners are scrutinized. Although both of those designs substantially improve upon cross-sectional survey research, each has conceptual and methodological "blind spots" (Repetti, Wang, & Sears, 2013). Diary methods use intensive repeated measures to assess life as it is lived, but do so through the filtered and subjective lens of participants' retrospective self-reports. *Perceptions* of support interactions are superbly tapped by this methodology; *objective* records of support behavior are not. Scholars have lamented a psychological science steeped in self-reports rather than the study of the actual behaviors of interest (Baumeister, Vohs, & Funder, 2007).

Laboratory observations provide direct examination of supportive interactions as they take place in real time, but do so at the expense of ecological validity. For example, laboratory studies are structured so that couples engage in an interaction with a predesignated "helper" and "helpee," affording a specific view of what support interactions look like *when they are elicited in the controlled conditions of the lab.* These studies do not tell us *how much support* members of a couple spontaneously provide and receive in their ordinary interactions. Furthermore, they are arranged so that

the "helpee" discloses a problem and thereby solicits support; it is not possible to study how support is *spontaneously solicited* or a partner's *unprompted offers* of support in the absence of solicitation. Only observations of support provision and receipt in actual daily life can fully illuminate the solicitations and offers that naturally give rise to supportive interactions.

In addition, laboratory observation may be tapping a set of behaviors and processes that at worst may be specific to structured situations, but even at best, may not always map on to real-world behavior and experiences. Research suggests that mood and behavior in the laboratory are not equivalent to other more naturalistic contexts. For example, conflict discussions in the lab are less negative than home conflict discussions (e.g., Gottman, 1979; Gottman & Krokoff, 1989), and diary studies have demonstrated that emotions and behavior exhibited in public spaces (e.g., the workplace) differ from those emotions and behavior occurring in private spheres (e.g., the home; Larson, Richards, & Perry-Jenkins, 1994). Perhaps the strongest case comes from Gottman and Driver (2005), who found remarkably little evidence of behavioral consistency in a direct comparison of couples observed having conflict interactions in a traditional laboratory setting and in an apartment laboratory (a seminatural setting designed to mimic the home). The inconsistencies might only be magnified when behavior in the laboratory is compared with behavior observed in an entirely naturalistic (vs. seminatural) context.

## Psychosocial Predictors of Marital Support Behavior

Individual differences in personality, psychological distress, and stress influence cognitive, affective, and interpersonal functioning in ways that shape how people initiate, respond to, and perceive their social interactions. For example, prominent interpersonal models of mood disorders such as Coyne's (1976) interactional theory of depression and Hammen's (1991) stress generation theory suggest that depressed individuals engage in maladaptive cognitive processes and interpersonal behaviors that actively contribute to and sustain their emotional distress. Researchers have largely relied on self-reports or the reports of close others to investigate how personality traits, psychological functioning, and daily stressors are associated with social behavior; the relatively limited observational data on these processes are—to the best of our knowledge—entirely laboratory based. Below, we summarize research on three psychosocial variables that are associated with marital support behavior: depression, trait neuroticism, and experiences of job stress.

### Depression

Although the effects of depression on observed couple conflict or problem-solving interactions are well documented (for a review, see Rehman, Gollan, & Mortimer, 2008), there is a relative lack of data on how depression is linked with observed couple support behavior. Two observational studies of depression and supportive behavior documented greater negativity in how depressed individuals solicited, provided, and responded to support in interactions with spouses (Davila, Bradbury, Cohan, & Tochluk, 1997), as well as with friends and strangers (Rook, Pietromonaco, & Lewis, 1994). These findings are generally consistent with a larger marital interaction literature showing a pervasive negativity (e.g., negative

reciprocity, criticism, defensiveness, stonewalling, avoidance) and relative lack of positivity in the interactions of spouses affected by depression (i.e., Benazon & Coyne, 2000; Gotlib & Whiffen, 1989; Hautzinger, Linden, & Hoffman, 1982; Jacob & Leonard, 1992; Johnson & Jacob, 1997; Sher, Baucom, & Larus, 1990).

Coyne (1976) provided a conceptual framework for understanding how depression may influence support-seeking and support-provision behavior in marriage: Depressed individuals are more likely to seek reassurance and support than nondepressed individuals, but are simultaneously less equipped and able to respond to the needs of others. The interpersonal theory of depression is consistent with studies documenting the varied cognitive, affective, and social deficits of depression that contribute to poor interpersonal functioning (e.g., Joormann & Gotlib, 2008; Joormann & Gotlib, 2010; Youngren & Lewinsohn, 1980). Depressed people are more likely to display poorly timed self-disclosures (Jacobson & Anderson, 1982), share negative feelings and poor self-evaluations (Hautzinger et al., 1982), and generally engage in excessive reassurance seeking (Joiner, Metalsky, Katz, & Beach, 1999). Yet, studies have also revealed depressed individuals to be overly self-occupied (Hinchliffe, Hooper, Roberts, & Vaughan, 1975) and ruminative (Aldao, Nolen-Hoeksema, & Schweizer, 2010), perhaps detracting from their ability to respond adequately to their spouses. There may be a sex difference in the effect that a spouse's depressive symptoms has on marital interaction; for example, Gabriel, Beach, and Bodenmann (2010) observed that wives' depression exaggerated sex differences in distressed marital interactions, and Davila and colleagues (1997) noted that—for wives in particular—depressive symptoms were linked with more negative support behavior (e.g., criticizing, rejecting, minimizing, or exaggerating problems). Last, Jacob and Johnson (1997) have shown that families with a depressed mother were characterized by greater negativity and less positivity than families with a depressed father.

## Trait Neuroticism

*Trait neuroticism* is a global personality dimension that reflects emotional instability (John & Srivastava, 1999) and refers to a tendency to experience negative affect, such as worry or sadness, with decreased ability to cope effectively with stress or regulate emotional states (Watson, 2000). Individuals who score high on neuroticism measures generally experience greater exposure and reactivity to stressful events (e.g., Bolger & Schilling, 1991; Bolger & Zuckerman, 1995; Gunthert, Cohen, & Armeli, 1999) and adopt problematic coping strategies such as wishful thinking (Connor-Smith & Flachsbart, 2007). In their general communication (Caughlin, Huston, & Houts, 2000) as well as problem-solving (McNulty, 2008) and support interactions (Pasch, Bradbury, & Davila, 1997), high-neuroticism individuals tend to engage in more negative interpersonal behavior and hold more negative perceptions of a partner's behavior. Self-report data indicate that high-neuroticism individuals also tend to seek more emotional support (Connor-Smith & Flachsbart, 2007). In sum, the heightened distress and poor coping strategies at the core of trait neuroticism may promote support-seeking behavior and, at the same time, make it difficult for the provider of support to be helpful.

## Job Stress

Experiences at work, such as an overload of demands and negative social interactions, can be a source of daily stress that affects family social interactions (Wang, Repetti, & Campos, 2011) as well as the worker's individual health and well-being (Repetti, Wang, & Saxbe, 2009; Repetti, Wang, & Saxbe, 2011). Research has typically conceptualized support as a coping resource that buffers the effects of stress on health and well-being (e.g., Cohen, 2004; Taylor & Stanton, 2007), and studies examining economic pressure (Conger, Reuter, & Elder, 1999), stress spillover (Brock & Lawrence, 2008), and daily job stress (Repetti, 1989) have supported this framework. However, less attention has focused on understanding how daily stressors may influence the provision and receipt of social support. The limited work in this area suggests an interesting sex difference in that wives appear to be more adept at providing support when their spouses experience stress at work, for example, by doing more housework (Bolger, DeLongis, Kessler, & Wethington, 1989). Other diary research has revealed that husbands (but not wives) who reported the greatest levels of everyday life stressors also reported receiving more support from their wives (Neff & Karney, 2005), and wives (but not husbands) have been observed to provide more positive support when their spouses discussed personal problems rated higher on objective severity in a laboratory interaction (Neff & Karney, 2005). Thus, the link between stress and supportive behavior may be moderated by the sex of the support provider, with women being more responsive to the needs of their husbands.

## The Current Study

The current study capitalizes on a digital video archive of naturalistic family social interaction to investigate how depression, trait neuroticism, and job stress correlate with marital support transactions observed in the home. This novel data set presents the unique opportunity to examine marital support processes as they unfold in situ in real-life settings that are richly infused with the nuance and noise of everyday life, presenting a fly-on-the-wall perspective unaffected by self-report biases and unstructured by researchers' instructions. One limitation of prior research is the focus on support as being either received or provided, with methodological limitations preventing closer scrutiny of how the support is initiated. In the current study, we address this limitation by examining the naturally occurring *support solicitations* (i.e., requests, prompts) and *support offers* (i.e., provided in the absence of solicitations) that lead to *support receipt*, a level of detail not possible with structured and prompted laboratory interactions. Furthermore, we use actor-partner interdependence models (APIM) to tease apart the impact of husbands' and wives' depression, trait neuroticism, and job stress on their own and their partners' support behavior. Model comparisons are used to investigate sex differences in those effects.

## Hypotheses

The first set of hypotheses is based on research that has shown depressed individuals to be more likely to seek reassurance and support (e.g., Hautzinger et al., 1982; Jacobson & Anderson, 1982; Joiner et al., 1999), while also being less able to respond to the needs of others (e.g., due to excessive self-focus; Hinchliffe et al., 1975). Spouses of depressed people, however, experience added burdens in their support role and may be more attuned to their partner's needs (e.g., Benazon & Coyne, 2000). Previous research

has revealed that these effects are strengthened when the depressed partner is the wife (e.g., Davila et al., 1997; Gabriel et al., 2010).

> *Hypothesis 1:* More depressive symptoms will predict increased support received from a spouse. The association will be due to both more solicitations for support by the recipient, as well as more offers of support by the provider. In addition, more depressive symptoms will predict fewer offers of support to a spouse. We also expect that, compared with husbands, wives' depressive symptoms will have stronger effects on support behavior.

The second set of hypotheses is based on research indicating that people who score high on neuroticism measures experience greater exposure and reactivity to stressful events (e.g., Bolger & Schilling, 1991; Bolger & Zuckerman, 1995; Gunthert et al., 1999) and report a greater tendency to seek emotional support while also using maladaptive coping strategies (Connor-Smith & Flachsbart, 2007). In an observational study, high-neuroticism husbands received more positive support from their wives (Pasch et al., 1997).

> *Hypothesis 2:* Higher levels of trait neuroticism will predict more support received from a spouse. The association will be driven both by more solicitations for support by the recipient as well as more offers of support by the provider.

The third set of hypotheses derives from research indicating that daily job stress influences everyday family interactions (Repetti, 1989; Story & Repetti, 2006; Wang et al., 2011), with evidence suggesting that wives are more attuned and responsive than husbands to their partners' stress levels as demonstrated through increases in provisions of support (Bolger et al., 1989; Neff & Karney, 2005).

> *Hypothesis 3:* Higher levels of job stress will predict more support received from a spouse. The association will be driven both by more solicitations for support by the recipient as well as by more offers of support by the provider. We expect that husbands' job stress will have a stronger association with their wives' support behavior than wives' job stress will have with husbands' support behavior; in other words, wives will be more responsive to their husbands' experiences of job stress.

## Method

### Participants

Participants included 30 families headed by heterosexual couples living in the greater Los Angeles area who were recruited for a large interdisciplinary study of everyday life in dual-earner middle-class families. This study was conducted by the UCLA Center on Everyday Lives of Families (CELF) funded by the Alfred P. Sloan Foundation. Each family included (a) two cohabitating adults, both of whom worked full time (at least 30 hr per week) and (b) two to three children, one of whom was school-age (between 7 and 12 years old) at the time of the study. All families owned their homes and were paying off a mortgage, which served as our operationalization of middle-class socioeconomic status. Families were recruited through advertisements in local newspa-

pers and through schools, and were compensated $1,000 for their participation.

Of the 60 adults who are the focus of this analysis, the median age for both husbands and wives was 41 years (husbands' range = 32–58 years; wives' range = 28–50 years). The couples had been married from 3 to 18 years (*Mdn* = 13 years), and had on average 2.3 children. The median family income was $100,000 (range = $51,000–$196,000) in 2002–2005 U.S. dollars, and the majority (65%) of spouses had completed college. Couples' ethnicities included non-Hispanic White (65%), Asian (16%), Hispanic (10%), and African (9%) backgrounds. All procedures were approved by the Institutional Review Board of the University of California, Los Angeles, and couples provided consent prior to study participation.

### Procedure

The primary aim of the larger study was to capture "a week in the life" of these dual-earner middle-class families, using multiple methods that included ethnographic video recordings, self-reports, semistructured interviews, and salivary cortisol sampling (see Ochs, Graesch, Mittman, Bradbury, & Repetti, 2006; Ochs & Kremer-Sadlik, 2013). This analysis focuses on the self-report data and ethnographic video recordings.

**Naturalistic observation.** Couples were intensively videotaped by trained researchers as they went about their everyday routines across 4 days (two weekdays and two weekends).[1] Two handheld cameras were assigned to each family with husbands and wives each being targeted by one camera. Cameras were of professional quality with wide angle lenses, and wireless microphones were used to capture all dialogue. On weekdays, recording occurred in the period of time between morning wake-up and whenever family members left the house for school and work, resumed at the first contact between family members later that day, and ended after children went to bed. On weekends, cameras followed the families on Saturday and Sunday mornings as well as Sunday evenings until children went to bed.

**Organization of recordings.** Prior to coding, the recordings were organized through a process of "culling" and "slicing." First, we used specially adapted digital software to cull the continuous streams of video footage for instances in which couples appeared together on-screen for more than 10 s, which we deemed a reasonable opportunity for marital support to occur. This process reduced the over 1,200 hr of video to approximately 174 hr across the 30 couples (*M* = 5.82 hr, *SD* = 2.68 hr), which represented approximately 87 hr of unique (true) couple-time video due to common footage captured by the two cameras. To resolve the duplicate footage issue, one camera's footage was used for the first weekday and first weekend day, and the other camera's footage was used for the second weekday and second weekend day. Second, we systematically sliced the culled couple-time video into

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[1] Prior to the recording days, all participants had completed several hours of other videotaped activities for the larger study. For example, they were recorded in their homes as they participated in a series of semistructured interviews and provided narrated home tours. Thus, participants were well acquainted with the research team and with the process of being filmed prior to the naturalistic observation period. They also self-reported that they quickly adjusted to being filmed and that their behavior was natural and unfiltered as they went about their busy days.

standard units (i.e., video clips) for coding. All video clips ranged from 10 to 30 s, following a protocol that sliced couple-time video into consecutive 30-s clips and discarded remaining video that were shorter than 10 s. This slicing procedure generated a library of 10,030 total couple clips, with a mean of 335 couple clips per couple ($SD = 132$; range $= 80–480$).[2]

**Coding social support interactions.**   An observational coding system was developed to assess social support in naturally occurring daily marital interactions (Wang & Repetti, 2012). One variable identified when supportive interactions occurred. Each of those interactions were described by two additional variables: one assessed the manner in which the support was initiated and the second classified each spouse as the provider or the recipient of the supportive behavior.

**Support occurrence.**   Potentially supportive interactions were defined by the opportunity to provide tangible help with practical problems and tasks, such as assistance with chores or information to help handle a problem (instrumental and informational support).[3] Provisions of comfort, encouragement, advice, or guidance (emotional support) were also included.

**Support initiation.**   Next, the manner in which support was initiated (*solicited* or *offered*) was noted for each potentially supportive interaction. *Solicited* or *invited* support was broadly defined as any verbal or nonverbal behavior that may warrant support provision from the partner. These include explicit requests for help or assistance (e.g., "Can you wash the dishes?" "Work was so stressful today, I just need to vent"), as well as moments when a spouse provides information that is a reasonably clear draw or prompt for support (e.g., "I'm too tired to wash the dishes"; "Boy, work was crazy today"). *Offered* support by a partner was broadly defined as any verbal or nonverbal behavior that may indicate the offer of support in the absence of any observable solicitation or invitation for support (e.g., "Why don't I do the dishes tonight?"; "You look stressed. How was work?").

**Support roles.**   In each potentially supportive interaction, each member of the couple (husband and wife) was identified as playing either the role of *Provider* (i.e., the "helper") or *Recipient* (i.e., the "helpee").

Codes were developed and piloted on video from two families headed by same-sex couples that were not included in the analyses. A team of eight coders[4] was then intensively trained through a combination of instructional meetings with the lead author (SW) to discuss concepts and procedures, followed by six rounds of training on 367 clips from the two pilot families. Each round involved coding clips, submitting codes for interrater reliability analyses, and meeting with the lead author for review and feedback before moving on to the next training round. After completing training, a pair of coders was assigned to each couple's recordings, with pairings rotated among team members. Coders individually coded the data and then met with the partner to reconcile any discrepant codes, a protocol that was adopted to further enhance the accuracy of the coding. Only finalized codes approved by both members of the pair were used in the analyses. However, the interrater reliability estimates reported here were calculated prior to the reconciliation process using Cohen's kappa and percent agreement (calculated as the number of agreements over the total number of clips). According to Fleiss (1981), coders attained good to excellent levels of reliability on all three codes: Support Occurrence ($\kappa = .74$, percent agreement $= .98$), Support Initiation

($\kappa = .87$, percent agreement $= .94$), and Support Roles ($\kappa = .95$, percent agreement $= .98$).

Support clips that were part of a longer supportive interaction were marked as such, and the clip that signaled the start of the larger interaction was identified. For example, a wife may complain to her husband about a negative social interaction at work over several minutes, and in each of multiple clips, she may solicit support or the husband may offer support. However, for the current article, we focused on the initiation and support roles only for the first clip that marked the beginning of the supportive interaction given our interest in how support spontaneously arises in couples.

**Proportion variables.**   Six husband and wife proportion variables were computed and used in multilevel analyses described later in this article: *husband received support*, *wife received support*, *husband solicited support*, *wife solicited support*, *husband offered support*, and *wife offered support*. The denominator for each proportion was the total number of couple clips for that couple; thus, the proportion scores represent the rate at which support was received (or solicited or offered) by each spouse given that couples were observed together and had the opportunity to engage in a supportive interaction. It is important to note that the proportion of a spouse's received support is composed of that spouse's own solicited support as well as the partner's offered support; thus, the received support variable is not independent of the other two proportion variables.

## Self-Report Measures

Before the study week began, couples completed measures of depressive symptoms and trait neuroticism. Then, during the week of observation, couples provided diary reports of job stressors at two time points (late morning and afternoon) on three weekdays.

**Depressive symptoms.**   Couples completed the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977), a widely used measure of depressive symptoms experienced over the previous week for the general population. Spouses responded to 20 items such as "I thought my life had been a failure," "I felt sad," and "I felt that people disliked me" on a scale ranging from 0 (*rarely or none of the time*) to 3 (*most or all of the time*). Depressive symptomatology was represented by a sum score, with a possible range of $0–60$. The CES-D has been extensively used and validated, with a Cronbach's alpha of .87–.89 and adequate test–retest reliability (Hann, Winter, & Jacobsen, 1999). In this study, wives ($M = 8.40$, $SD = 6.91$, range $= 0–25$) and husbands

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[2] The number of clips per couple was restricted to 480. For the eight couples with more than the maximum number, clips were eliminated by reducing clips on days with more footage and maintaining the number of clips on days with less footage, while also preserving the continuity of events. Analyses use couple-level proportions and, therefore, would not be meaningfully changed with the addition of extra hours of recording.

[3] Unlike laboratory studies of marital support that focus primarily on prompted emotional support processes, our naturalistic observations captured the mundane activities of everyday life. For instrumental support, we focused on help provided for either meaningful or complex activities that required some imposition or burden, thus excluding simple requests such as "Please pass the peas" and simple questions such as "Where are my glasses?"

[4] One third of the assistants (4/12) who began the training process did not achieve acceptable levels of interrater reliability and did not advance to the coding team.

($M = 8.30$, $SD = 6.35$, range $= 0$–25) did not differ on their depressive symptoms, $t(29) = -.06$, $ns$. Nine of the 60 adults (four husbands, five wives) received scores above 16, which is the conventional cutoff indicating depression, suggesting that distress is indeed reflected by a subgroup of the participants.

**Trait neuroticism.** Spouses also completed the 12-item Neuroticism scale from the NEO Personality Inventory—Revised (NEO-PI–R; Costa & McCrae, 1992), designed as a general population measure of the underlying trait of neuroticism, which is defined as the tendency to experience negative emotional states and distress. Participants responded to items such as "Sometimes I feel completely worthless," "Under high stress I feel like I'm going to pieces," and "I often feel tense or jittery" on a 0 (*strongly disagree*) to 4 (*strongly agree*) scale that are summed for a final score. The NEO-PI–R has been extensively used and validated, and has been found to have a coefficient alpha of .92 (Piedmont, 1998). In this sample, wives ($M = 24.27$, $SD = 4.98$, range $= 11$–34) scored significantly higher than their husbands ($M = 15.47$, $SD = 7.81$, range $= 2$–34), $t(29) = -4.61$, $p \leq .001$, on trait neuroticism.

**Job stressors.** Husbands and wives also completed two measures about the experience of job stressors at two points (late morning and afternoon) on the three weekdays. The five-item Busy Day Scale (Repetti 1989, 1993; Repetti & Wood, 1997) inquires about the amount and pace of workload. Participants rate items such as "There were more demands on my time than usual" and "I felt like I barely had a chance to breathe" on a 1 (*completely inaccurate*) to 4 (*completely accurate*) scale. Scores correlate with objective measures of daily workload (Repetti, 1989). Wives' mean workload ($M = 2.37$, $SD = .64$) did not differ significantly from their husbands' mean workload ($M = 2.17$, $SD = .55$), $t(27) = -1.08$, $ns$.[5]

They also completed the 14-item Negative Social Interactions at Work Scale to assess negative feelings experienced at work that day during interactions with supervisors and coworkers. Participants rated seven feelings (e.g., tense, pressured, annoyed) on a 4-point scale ranging from 1 (*rarely*) to 4 (*almost always*). This scale correlates with other measures of social support at work and satisfaction with work relationships (Repetti, 1993). A marginal difference indicated that wives reported fewer negative work interactions ($M = 1.17$, $SD = .19$) than did husbands ($M = 1.26$, $SD = .23$), $t(27) = 1.96$, $p \leq .10$.

Given that our hypotheses were not specific to type of job stressor and the larger than moderate effect size correlation between the two scales, $r(58) = .37$, $p \leq .01$, a composite job stressor score was calculated by averaging the two scores across all six time points (two times on each of three weekdays), as was done in a previous analysis to indicate an overall level of stress experienced at work during the study week (Wang et al., 2011). Husbands' ($M = 1.59$, $SD = .27$) and wives' ($M = 1.68$, $SD = .33$) composite job stressor scores did not differ, $t(27) = -1.11$, $ns$.

## Results

### Preliminary Analyses

Of the 10,030 couple clips, 432 clips were coded as containing Support Occurrences; those represented *356 unique support interactions*. Thus, support was rarely observed in our study, specifically about 4% of the time that couples were captured together on-screen. Of those 356 unique support interactions, support was predominantly provided by husbands (66%) compared with wives (34%), and support interactions were more likely to be initiated by solicitations (68%) compared with offers of support (31%).

Table 1 presents the six husband and wife proportion variables used in our multilevel analyses: husband/wife received support, husband/wife solicited support, and husband/wife offered support. These proportion variables were calculated at the level of the couple (i.e., each couple's proportions were based on their total number of couple clips) and represent the rate at which support was received (or solicited or offered) by each spouse given that couples were together and there was the opportunity for a supportive interaction to occur. We note that these proportion variables are expectedly low given that the base-rate occurrence of support interactions was only 4% of couple clips. For the average couple, wives received support a greater proportion of the time ($M = 0.03$, $SD = 0.02$) compared with husbands ($M = 0.02$, $SD = 0.01$), $t(29) = -2.45$, $p \leq .05$. Furthermore, wives solicited support ($M = 0.02$, $SD = 0.02$) at higher rates than their husbands did ($M = 0.01$, $SD = 0.01$), $t(29) = -2.88$, $p \leq .01$. However, wives and husbands offered support to their spouses at similar rates ($M = 0.01$, $SD = 0.01$ for both), $t(29) = -0.39$, $ns$.

Next, we explored the associations between the psychosocial predictor variables (each spouse's depressive symptoms and levels of trait neuroticism and job stress) with a variable reflecting the rate of a couple's overall supportiveness. The *overall supportiveness* variable was the number of supportive interactions observed for each couple divided by their total number of couple clips. Overall supportiveness shared strong positive associations with wives' depressive symptoms, $r(30) = .55$, $p \leq .01$, and husbands' trait neuroticism, $r(30) = .43$, $p \leq .05$, and was also marginally correlated with wives' job stress, $r(30) = .35$, $p \leq .10$. Correlations between overall supportiveness and the other three self-report scores were nonsignificant.

### Data Analytic Strategy: APIMs

The APIM was used for all analyses in order to account for the statistical interdependence within couples and to examine the unique actor and partner associations between psychosocial predictors of support (depressive symptoms, trait neuroticism, job stress) and the six support variables (husband/wife received support, husband/wife solicited support, husband/wife offered support). We used a multilevel framework and a two-intercept approach according to Kenny, Kashy, and Cook (2006). Data were structured according to the dyadic analysis model described by Laurenceau and Bolger (2005), which is based on a model originally developed by Raudenbush, Brennan, and Barnett (1995). Models used input files that were organized with husbands' and wives' data on separate lines and nested within couple-level ID numbers. Dummy variables denoted the actor to which each row of data belonged. As indicated above, separate proportion variables were computed for the husband and wife in each couple. These multilevel models account for within-couple dependence of observations, control for both person-level and couple-level predictors, and adjust for measurement error in estimating within-couple correlations and in estimating proportions of variance explained by the model (Barnett, Brennan, Raudenbush, Pleck, & Mar-

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[5] Two husbands did not complete the daily job stressor measures.

Table 1

*Proportions of Coded Support Variables When Couples Were Observed Together On-Screen*

| Support variable proportions | $M^a$ | SD | Mdn | Minimum | Maximum |
|---|---|---|---|---|---|
| Support roles | | | | | |
| Husband received support | 0.02 | 0.01 | 0.01 | 0.00 | 0.06 |
| Wife received support | 0.03 | 0.02 | 0.02 | 0.00 | 0.07 |
| Support initiation | | | | | |
| Husband solicited | 0.01 | 0.01 | 0.01 | 0.00 | 0.04 |
| Wife solicited | 0.02 | 0.02 | 0.01 | 0.00 | 0.05 |
| Husband offered | 0.01 | 0.01 | 0.00 | 0.00 | 0.04 |
| Wife offered | 0.01 | 0.01 | 0.01 | 0.00 | 0.03 |

*Note.* Denominator is the number of couple clips for that couple. These proportions reflect the rates of support receipt, solicitations, and offers for each couple given that the couple was together.
[a] Mean of the couples' proportion scores.

shall, 1995; Gareis, Barnett, & Brennan, 2003; Raudenbush et al., 1995).

All analyses were conducted using hierarchical linear modeling (HLM) Version 7 software (Raudenbush, Bryk, & Congdon, 2011). The outcome variables (support proportion variables) were entered at Level 1, with separate intercepts for husbands and wives. These Level 1 intercepts were then modeled as outcome variables at Level 2, with husband and wife psychosocial variables modeled as Level 2 predictors in order to specify unique actor and partner effects.

Level 1 Model:

$$Y_{ij} = \beta_{1j}(\text{Husband Dummy}) + \beta_{2j}(\text{Wife Dummy}) + R_{ij}.$$

Level 2 Model:

$$\beta_{1j} = \gamma_{10} + \gamma_{11}(\text{Husband Predictor}) + \gamma_{12}(\text{Wife Predictor}) + U_{1j}$$
$$\beta_{2j} = \gamma_{20} + \gamma_{21}(\text{Husband Predictor}) + \gamma_{22}(\text{Wife Predictor}) + U_{2j},$$

where

$Y_{ij}$ = the person-level outcome variable (support proportion variables)

$R_{ij}$ = individual error

$\beta_{1j}$ = the intercept for the husband

$\beta_{2j}$ = the intercept for the wife

$\gamma_{10}$ = the average intercept across husbands

$\gamma_{11}$ = the effect of husband psychosocial predictor on the husband intercept (actor effect)

$\gamma_{12}$ = the effect of wife psychosocial predictor on the husband intercept (partner effect)

$\gamma_{20}$ = the average intercept across wives

$\gamma_{21}$ = the effect of husband psychosocial predictor on the wife intercept (partner effect)

$\gamma_{22}$ = the effect of wife psychosocial predictor on the wife intercept (actor effect)

$U_{1j}$ = the unique effect to the husband intercept associated with couple $j$

$U_{2j}$ = the unique effect to the wife intercept associated with couple $j$

All results reported here represent the final estimation of fixed effects with robust standard errors. The restricted maximum like-

lihood method of estimation was used. Level 2 predictor variables were standardized to $z$-scores prior to analyses. The Level 1 dummy variables and Level 2 predictor variables ($z$-scores) were entered uncentered.

The proportion of received support for a particular spouse is composed of that spouse's own solicited support and the partner's offered support. For each set of predictors (depressive symptoms, trait neuroticism, job stress), results for received support as the outcome variable are presented separately from results for solicited and offered support.

**Model comparisons.** We adopted a *model comparisons* approach described by Kenny, Kashy, and Cook (2006) and implemented by Schoebi, Karney, and Bradbury (2012) to test for sex differences in the effects. This approach permits comparison of the deviance statistic of a model with separate coefficients for husbands and wives with that of a model in which husbands' and wives' coefficients were constrained to be equal. The maximum likelihood method of estimation was used. Chi-square tests were then used to examine whether the constrained model fit significantly worse than the unconstrained model, which would indicate a significant sex difference.

## Depressive Symptoms as a Predictor of Observed Marital Support Behavior

The first set of hypotheses predicted that depressive symptoms would be linked with more received support from a spouse. In addition, we expected that wives' depressive symptoms would have stronger associations with support behavior compared with husbands' depressive symptoms. In three separate models (reported in Tables 2 and 3), the husband and wife support variables (received, solicited, offered) were modeled as Level 1 outcomes, with husband and wife depressive symptoms modeled as Level 2 predictor variables. The results for received support, reported in Table 2, are consistent with hypotheses; wives who reported more depressive symptoms were more likely to be the recipients of support from their husbands ($\beta = .0130$, $p \leq .001$). However, husbands' depressive symptoms did not predict more support received from their wives. A model comparison suggested that these effects differed significantly from one another, $\chi^2(1) = 9.23$, $p \leq .01$.

In the next set of models, the support that a spouse received was analyzed further by examining offers and solicitations of support as separate outcome variables. We expected the higher levels of support receipt in connection to heightened depressive symptoms to be driven by both more solicitations for support by the recipient as well as by more offers of support by the provider. Results (reported in Table 3) supported the hypotheses, but only for wives' depressive symptoms. Wives' depressive symptoms predicted higher rates of offers of support from their husbands ($\beta = .0042$, $p \leq .01$), as well as more of the wives' own support solicitations ($\beta = .0087$, $p \leq .01$). Husbands' depressive symptoms, however, were not linked with more offers of support from their wives, nor were they linked with more of the husbands' own support solicitations. Two model comparisons demonstrated that these effects for support offers, $\chi^2(1) = 4.27$, $p \leq .05$, and support solicitations, $\chi^2(1) = 6.76$, $p \leq .01$, were statistically different by sex.

We also expected that depressive symptoms would be linked with fewer offers of support to a spouse. Findings reveal that this

Table 2
*APIM of Depressive Symptoms Predicting Observed Received Support*

| Variable | Husband received support | | | Wife received support | | |
|---|---|---|---|---|---|---|
| | β estimate | SE | t | β estimate | SE | t |
| Received support[a] | | | | | | |
| Intercept | 0.016099 | 0.002477 | 6.499*** | 0.025749 | 0.002517 | 10.229*** |
| Husband depression | 0.001413 | 0.002509 | 0.563 | −0.001612 | 0.002115 | −0.762 |
| Wife depression | 0.001019 | 0.003328 | 0.306 | 0.012960 | 0.002498 | 5.188*** |

*Note.* $df = 27$. APIM = actor-partner interdependence model.
[a] The variance components for the received support random effects were as follows: $U_1 = 0.00005$, $\chi^2(27) = 36.94$, $p \leq .10$; $U_2 = 0.00006$, $\chi^2(27) = 38.15$, $p \leq .10$; and $R = .00015$.
*** $p \leq .001$.

was true only for husbands' depression predicting less likelihood of support offers to their wives (β = −0.0020, $p \leq .001$). Wives' depression, however, was not linked with fewer offers of support to their husbands. However, a model comparison determined that the effect for husbands' depression on offers of support did not differ from the effect for wives' depression, $\chi^2(1) = 1.83$, *ns*.

## Trait Neuroticism as a Predictor of Observed Marital Support Behavior

The second set of hypotheses predicted that higher levels of trait neuroticism are associated with more support received from a spouse. Our models tested husband and wife trait neuroticism as Level 2 predictors of the husband and wife support variables in three separate models for received support (see Table 4), and solicited and offered support (see Table 5). As shown in Table 4, husbands who reported higher trait neuroticism were more likely to be the recipients in supportive interactions with their wives (β = .0072, $p \leq .05$). However, there was no significant association between wives' trait neuroticism and support received from their husbands; a model comparison shows that this effect is marginally different from the effect for husbands' trait neuroticism, $\chi^2(1) = 3.70$, $p \leq .10$.

Table 5 reports the results of models testing offers and solicitations of support as separate outcome variables. We predicted that spouses of high-neuroticism individuals would initiate more offers

of support. A marginally significant result indicated a positive association between husbands' trait neuroticism and their wives' likelihood of offering support (β = .0024, $p \leq .10$). The association between wives' trait neuroticism and their husbands' offers of support was not significant, although a model comparison did not reveal a significant difference between this effect and the effect for husbands' trait neuroticism, $\chi^2(1) = 1.17$, *ns*. With respect to the expected association between trait neuroticism and one's own solicitations of support, husbands' trait neuroticism predicted an increased rate of their own support solicitations (β = .0047, $p \leq .05$); however, this association was not found for wives. A model comparison demonstrated a marginally significant difference in those effects, $\chi^2(1) = 3.12$, $p \leq .10$.

## Job Stress as a Predictor of Observed Marital Support Behavior

The third set of hypotheses predicted that husbands' and wives' job stress would be associated with own and spouse's supportive behavior. In particular, spouse support was expected to flow more to husbands than to wives who experience job stress. As shown in Table 6, husband and wife job stress variables were tested as Level 2 predictors of the Level 1 husband and wife received support variables. The results indicate that wives' job stress was linked with a greater likelihood that they would receive support during interactions with their husbands (β = .0097, $p \leq .001$). However,

Table 3
*APIMs of Depressive Symptoms Predicting Observed Offered and Solicited Support*

| Variable | Husband support behavior | | | Wife support behavior | | |
|---|---|---|---|---|---|---|
| | β estimate | SE | t | β estimate | SE | t |
| Offered support[a] | | | | | | |
| Intercept | 0.006976 | 0.001158 | 6.025*** | 0.007586 | 0.001381 | 5.494*** |
| Husband depression | −0.002030 | 0.000562 | −3.615*** | 0.000234 | 0.001349 | 0.173 |
| Wife depression | 0.004210 | 0.001438 | 2.927** | 0.000538 | 0.001606 | 0.335 |
| Solicited support[b] | | | | | | |
| Intercept | 0.008443 | 0.001580 | 5.343*** | 0.018521 | 0.002273 | 8.147*** |
| Husband depression | 0.001186 | 0.001949 | 0.608 | 0.000427 | 0.001899 | 0.225 |
| Wife depression | 0.000453 | 0.002137 | 0.212 | 0.008697 | 0.002698 | 3.223** |

*Note.* $df = 27$. APIMs = actor-partner interdependence models.
[a] The variance components for the offered support random effects were as follows: $U_1 = 0.00002$, $\chi^2(27) = 47.57$, $p \leq .01$; $U_2 = 0.00004$, $\chi^2(27) = 67.67$, $p \leq .001$; and $R = .00003$. [b] The variance components for the solicited support random effects were as follows: $U_1 = 0.00001$, $\chi^2(27) = 32.07$, *ns*; $U_2 = 0.00010$, $\chi^2(27) = 66.36$, $p \leq .001$; and $R = .00007$.
** $p \leq .01$. *** $p \leq .001$.

Table 4
*APIM of Trait Neuroticism Predicting Observed Received Support*

| | Husband received support | | | Wife received support | | |
|---|---|---|---|---|---|---|
| Variable | β estimate | SE | t | β estimate | SE | t |
| Received support[a] | | | | | | |
| Intercept | 0.016099 | 0.002128 | 7.567*** | 0.025749 | 0.003291 | 7.823*** |
| Husband neuroticism | 0.007178 | 0.003160 | 2.271* | 0.004817 | 0.003975 | 1.212 |
| Wife neuroticism | 0.004740 | 0.002850 | 1.663 | −0.000919 | 0.003092 | −0.297 |

*Note.* df = 27. APIM = actor-partner interdependence model.
[a] The variance components for the received support random effects were as follows: $U_1$ = 0.00002, $\chi^2(27)$ = 31.12, *ns*; $U_2$ = 0.00023, $\chi^2(27)$ = 74.47, $p \leq .001$; and $R$ = .00013.
* $p \leq .05$.   *** $p \leq .001$.

husbands' job stress was not associated with support received from their wives, which a model comparison suggested was marginally different from the effect for wives' job stress, $\chi^2(1)$ = 3.42, $p \leq$ .10.

It was expected that an individual's level of job stress would be associated with both more solicitations for support as well as more spouse offers of support. Results of those analyses are presented in Table 7. Wives' job stress predicted an increase in their own solicitations of support (β = .0060, $p \leq$ .001), a pattern that was not observed for husbands; yet, there was not a significant difference between these effects, $\chi^2(1)$ = 2.38, *ns*. In addition, wives' job stress predicted more offers of support from their husbands (β = .0038, $p \leq$ .01), whereas the opposite pattern of husbands' job stress predicting wives' offers of support was not found. Again, however, a model comparison did not determine that these effects were significantly different from one another, $\chi^2(1)$ = 2.31, *ns*.

## Discussion

The current study is the first in which the psychosocial predictors of naturalistic marital support interactions observed directly inside the home were tested. We capitalized on a novel ethnographic video data set of the everyday lives of 30 heterosexual, dual-earner, middle-class families with children, and modeled how spouses' depressive symptoms, trait neuroticism, and job stress

were associated with observed marital support behavior. The unstructured and unprompted nature of these naturalistic observations provided the opportunity to move beyond simple indexes of received and provided support to identify *how* social support spontaneously arises: Is it solicited, or is it offered? Furthermore, our APIMs permitted examination of husband and wife effects with regard to how depressive symptoms, trait neuroticism, and job stress are associated with own supportive behavior and the supportive behavior of one's spouse.

A couple's level of overall supportiveness (a behavioral variable derived entirely from naturalistic observations) was strongly correlated with the wife's depressive symptoms and the husband's neuroticism (both self-report variables). These correlations hint at the surprising strength of the underlying phenomena that link enacted support behaviors with emotional well-being. The APIMs further parsed those linkages, and point to sex differences in how psychological functioning influences supportive interactions in everyday family life.

### Depressive Symptoms and Naturalistic Marital Support Behavior

The most striking pattern of findings emerged from the analysis of depressive symptoms predicting naturalistic support behavior in couples. Consistent with Coyne's (1976) interpersonal theory of depression, a wife's depressive symptoms were strongly positively

Table 5
*APIMs of Trait Neuroticism Predicting Observed Offered and Solicited Support*

| | Husband support behavior | | | Wife support behavior | | |
|---|---|---|---|---|---|---|
| Variable | β estimate | SE | t | β estimate | SE | t |
| Offered support[a] | | | | | | |
| Intercept | 0.006976 | 0.001393 | 5.008*** | 0.007586 | 0.001289 | 5.887*** |
| Husband neuroticism | 0.001268 | 0.002002 | 0.633 | 0.002407 | 0.001202 | 2.003† |
| Wife neuroticism | 0.000329 | 0.001365 | 0.241 | 0.002391 | 0.001528 | 1.565 |
| Solicited support[b] | | | | | | |
| Intercept | 0.008443 | 0.001370 | 6.164*** | 0.018521 | 0.002660 | 6.962*** |
| Husband neuroticism | 0.004710 | 0.002221 | 2.120* | 0.003580 | 0.003128 | 1.145 |
| Wife nuroticism | 0.002377 | 0.001690 | 1.407 | −0.001292 | 0.002770 | −0.466 |

*Note.* df = 27. APIMs = actor-partner interdependence models.
[a] The variance components for the offered support random effects were as follows: $U_1$ = 0.00003, $\chi^2(27)$ = 53.63, $p \leq .01$; $U_2$ = 0.00002, $\chi^2(27)$ = 45.89, $p \leq .01$; and $R$ = .00003.   [b] The variance components for the solicited support random effects were as follows: $U_1$ = 0.00002, $\chi^2(27)$ = 36.96, $p \leq .10$; $U_2$ = 0.00019, $\chi^2(27)$ = 139.41, $p \leq .001$; and $R$ = .00005.
† $p \leq .10$.   * $p \leq .05$.   *** $p \leq .001$.

Table 6
*APIM of Job Stress Predicting Observed Received Support*

| Variable | Husband received support | | | Wife received support | | |
|---|---|---|---|---|---|---|
| | β estimate | SE | t | β estimate | SE | t |
| Received support[a] | | | | | | |
| Intercept | 0.016638 | 0.002629 | 6.328*** | 0.026317 | 0.002931 | 8.980*** |
| Husband job stress | 0.002103 | 0.002951 | 0.71 | 0.002973 | 0.003001 | 0.991 |
| Wife job stress | 0.002160 | 0.002092 | 1.033 | 0.009656 | 0.001987 | 4.858*** |

*Note.* df = 25. APIM = actor-partner interdependence model.
[a] The variance components for the received support random effects were as follows: $U_1$ = 0.00002, $\chi^2(25)$ = 27.22, *ns*; $U_2$ = 0.00008, $\chi^2(25)$ = 34.76, $p \leq .10$; and R = .00019.
*** $p \leq .001$.

associated with the couple's level of overall supportiveness, or the likelihood that any type of supportive interaction occurred. There were clear sex differences in line with the hypothesis that wives' depressive symptoms would have stronger linkages than husbands' depressive symptoms with couple support behavior. Specifically, using APIMs, we found that wives' depressive symptoms were associated with an increased likelihood that they would be the recipients of social support from their spouses, which reflected an increased likelihood both for the husbands to offer and for the wives to solicit support. Thus, wives who reported more symptoms of depression engaged in more support seeking, and their husbands also appeared to be more responsive to them by preemptively offering support. These findings are consistent with prior research showing that depressed individuals engage in excessive reassurance seeking (e.g., Joiner et al., 1999; Starr & Davila, 2008) and that the partners of depressed and dysphoric individuals are often cast in the supporter role in their marriages (e.g., Benazon & Coyne, 2000). Our model comparisons indicated that wives' depressive symptoms have stronger linkages with marital support behavior than do the depressive symptoms of their husbands. The association between wives' depression and their receipt of support was driven both by husbands' offers and wives' solicitations, which dovetails with research indicating that women's depression has a stronger influence on interactional processes (e.g., Gabriel et al., 2010; Jacob & Johnson, 1997). Of course, we do not have a sample of depressed couples, and thus cannot draw conclusions

about supportive behavior in the context of clinical depression. However, the fact that these patterns exist in a sample in which symptoms were predominantly subthreshold provides further insight into how even subtle levels of emotional distress may be associated with everyday marital behavior.

Interestingly, there was only one significant association between husbands' depressive symptoms and either partner's support behavior: The more symptoms a husband reported, the less likely he was to offer support. This pattern is consistent with the documented attentional and cognitive deficits of depressed individuals that detract from adept social interactions (Hinchliffe et al., 1975). For wives, however, elevated depressive symptoms did not predict the likelihood of offering support. However, given a nonsignificant model comparison, we cannot conclude that there was a sex difference in the extent to which elevated depressive symptoms may impair one's ability to initiate and offer support to a partner. Future work should address whether this may pertain more or less to husbands' versus wives' emotional well-being.

## Trait Neuroticism and Naturalistic Marital Support Behavior

The trait neuroticism analyses suggested that husbands' neuroticism was linked with the supportive behavior of both spouses, but wives' neuroticism did not appear to be a significant contributor to those same behaviors. Husbands' trait neuroticism predicted an

Table 7
*APIMs of Job Stress Predicting Observed Offered and Solicited Support*

| Variable | Husband support behavior | | | Wife support behavior | | |
|---|---|---|---|---|---|---|
| | β estimate | SE | t | β estimate | SE | t |
| Offered support[a] | | | | | | |
| Intercept | 0.007437 | 0.001362 | 5.460*** | 0.007647 | 0.001456 | 5.253*** |
| Husband job stress | 0.000043 | 0.001515 | 0.028 | 0.000729 | 0.001520 | 0.480 |
| Wife job stress | 0.003830 | 0.001348 | 2.840** | 0.001379 | 0.001246 | 1.107 |
| Solicited support[b] | | | | | | |
| Intercept | 0.008918 | 0.001695 | 5.261*** | 0.018619 | 0.002462 | 7.561*** |
| Husband job stress | 0.001216 | 0.002203 | 0.552 | 0.002692 | 0.002757 | 0.976 |
| Wife job stress | 0.000812 | 0.001616 | 0.503 | 0.005991 | 0.001482 | 4.042*** |

*Note.* df = 25. APIMs = actor-partner interdependence models.
[a] The variance components for the offered support random effects were as follows: $U_1$ = 0.00002, $\chi^2(25)$ = 40.93, $p \leq .05$; $U_2$ = 0.00003, $\chi^2(25)$ = 49.57, $p \leq .01$; and R = .00003.   [b] The variance components for the solicited support random effects were as follows: $U_1$ = 0.00002, $\chi^2(25)$ = 32.07, $p \leq .10$; $U_2$ = 0.00013, $\chi^2(25)$ = 76.78, $p \leq .001$; and R = .00006.
** $p \leq .01$.   *** $p \leq .001$.

increased likelihood that they would be the recipients during supportive interactions with their wives, due both to husbands soliciting more support from their wives as well as wives offering more support to their husbands. Consistent with prior work indicating that high-neuroticism individuals experience more objective and subjective stress (e.g., Bolger & Schilling, 1991; Gunthert et al., 1999) and tend to use more support (Connor-Smith & Flachsbart, 2007), these results suggest that men who report chronically experiencing negative emotional states require and seek more support, and they have spouses who may respond to signs of their distress with spontaneous offers of support. These findings echo the positive association between husbands' trait neuroticism and the couple's overall level of supportive behavior.

Whereas there were clear sex differences indicating that wives' depressive symptoms exerted greater influence than husbands' depressive symptoms on marital support behavior, our analyses revealed weaker evidence of sex differences in the association between neuroticism and those same support processes. Marginally significant model comparisons suggested that husbands' neuroticism was a stronger predictor than wives' neuroticism of two support behaviors: support received from wives (relative to wives' neuroticism as a predictor of support received from husbands) as well as husbands' solicitations for support (relative to wives' neuroticism as a predictor of wives' solicitations for support). Husbands' and wives' levels of neuroticism did not differ in their prediction of a partner's offers of support.

A prior analysis of the CELF video recordings provides some precedence for a pattern favoring husbands' versus wives' neuroticism as a stronger predictor of marital behavior. Husbands' neuroticism (but not wives') moderated the links between job stress and negative social engagement behavior (i.e., responsiveness, talking, and negative emotion displays) with spouse and children during the first hour home after work (Wang et al., 2011). And earlier laboratory observations have documented that highly neurotic husbands received more positive support from their wives but that the association between wives' neuroticism and husbands' supportive behavior was not significant (Pasch et al., 1997). Because women typically score higher on measures of neuroticism or emotional instability (e.g., Lynn & Martin, 1997), higher levels of neuroticism are more gender-atypical in men and may function as a stronger signal of distress in husbands than in wives. Additional research is needed to evaluate this possibility.

### Job Stress and Naturalistic Marital Support Behavior

Counter to our hypothesis, husbands in our sample appeared to adjust their supportive behavior toward wives in relation to wives' job stress, whereas no such association was found between husbands' job stress and wives' supportive behavior. Specifically, a marginally significant sex difference indicated that wives' job stress was associated with an increased likelihood that they would receive support from their husbands, relative to the effects of husbands' job stress on husbands' support receipt. Although we also found that stressed wives were more likely to solicit support and to have husbands who offered support, model comparisons did not demonstrate significant sex differences in those specific effects.

The general pattern of wives' job stress predicting more support received from husbands (compared with husbands' job stress predicting more support received from wives) runs counter to the Neff and Karney (2005) lab observation study, which concluded that wives were more sensitive and responsive in their support behavior to husbands' job stress (e.g., by providing more positive support when husbands discussed more severe stressors), as well as daily diary studies suggesting that wives increase their provisions of support on days that husbands describe as being highly stressful (Bolger et al., 1989; Neff & Karney, 2005). There are a couple of potential methodological reasons for the discrepancy in findings. Laboratory studies that prompt participants' discussions of stressors are likely to pull for emotional support processes, whereas our direct observations of naturalistic support were predominantly instrumental in nature.[6] The mundane activities, chores, and tasks of everyday family life are not accessible in the laboratory, but are substantial to the rhythm and content of daily family functioning (Bianchi, Milkie, Sayer, & Robinson, 2000; Klein, Izquierdo, & Bradbury, 2007), particularly in those families that balance career and raising young children. It may be that wives are more responsive to husbands' job stress in the specific context of discussing stressors and providing emotional support in prompted laboratory interactions, whereas the present data reveal that husbands provide more support in unprompted everyday settings that have a largely instrumental component. Furthermore, daily report studies may be tapping support that is more visible or easily recalled by spouses, whereas the support objectively observed in this study—although explicit—taps a broader class of subtler actions that may be less likely to be encoded and recalled as "support" in a self-report. In conclusion, the current data suggest that wives' job stress, in particular, influences the amount of support received from their husbands in the naturalistic setting of the home.

### Strengths and Limitations

This study is the first in which couple support interactions in everyday life contexts were observed and how they are predicted by depressive symptoms, trait neuroticism, and job stress were examined. By capitalizing on naturalistic recordings taken inside the home to assess supportive behavior, these data bring new methodological and conceptual dimensions to the marital support research literature. The study was able to avoid recall and response biases in measures of support by directly inspecting behavior as it spontaneously unfolded, unprompted and outside of the controlled environment of the laboratory. The ecological validity of the findings comes at some cost. The "noisy" data that are collected when we observe everyday life precludes the level of precision possible with self-report and laboratory observation methodologies that can structure and target specific behaviors and processes uniformly across participants. Thus, these findings add new insights to an existing robust literature documenting linkages between psychological functioning and couple support behavior.

One contribution of this research is that it capitalizes on naturalistic observation to examine how couples spontaneously initiate support transactions. In particular, by identifying and separating

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[6] We also coded for support type (instrumental/informational and emotional) in the larger coding effort, a code that was not directly relevant to the current study hypotheses and was not included in the current analysis. Our data show that 83% of the support interactions were instrumental/informational in nature, compared with the 17% that were emotional.

out support that arises because of an unprompted offer of support versus support that emerges due to a solicitation or request, we were able to explore how psychosocial variables are associated with the different ways that support can be initiated. Whereas prior research has largely focused on the behavior of the distressed person (e.g., reassurance seeking), the current study also sheds light on the contribution of the distressed individual's partner in supportive interactions. Across all three psychosocial variables studied, the finding that spouses married to more distressed persons in turn offered more support is compelling evidence for the active role played by spouses in initiating support processes.

A trade-off of the rich and resource-intensive ethnographic video-recording methodology was a small sample (30 couples), which limited statistical power to detect small effects. For example, a post hoc power analysis conducted using G*Power 3.1 software (Faul, Erdfelder, Lang, & Buchner, 2007) revealed that with a sample of $N = 30$, correlations must approach $r = .40$ in order to obtain statistical power at the .60 level, and $r = .50$ for statistical power at the .80 level. Similarly, an effect size of .37 would be needed for statistical power at the .80 level for linear multiple regressions with two predictors. However, we note that our dyadic models capitalize on the power possible with a sample of 30 couples by accounting for within-couple dependence of observations and adjusting for within-couple measurement error; thus, the gross power estimates calculated for correlation and regression models underestimate the power we actually had in our particular dyadic design. It is certainly possible that what emerged as statistically nonsignificant associations (particularly as they relate to the sex differences we examined) could have approached significance with a larger sample. Our limited power also precluded tests of theoretically relevant Actor × Partner interactions (e.g., Would husband and wife depression interact in predicting solicitations of support?) that would explore more complex connections among the psychosocial predictors and support behavior. Nonetheless, the patterns that were detected converged with specific theory-driven hypotheses and speak to the underlying strength of the phenomena, which were observed outside the structured lab setting and in the midst of the noise of everyday life. The insights derived from naturalistic observations are uniquely valuable and distinct from those possible with traditional laboratory and self-report methods.

We note that the intensive observation was limited to 4 days (two weekdays, two weekend days), and our analysis at the between-subject and between-couple levels cannot speak to changes in support behavior that take place over several days in association with changing levels of distress. In addition, our sample consisted entirely of dual-earner middle-class heterosexual couples with school-age children. Conclusions about support processes drawn from this analysis may not generalize to other groups, and further work needs to be done examining support in other household structures, demographic groups, and families at different life stages. Still, work, marriage, and children—in addition to being key sources of happiness and life satisfaction (Myers & Diener, 1995)—comprise "greedy institutions" that compete for workers' finite resources and time (Coser, 1974). The dual-earner couples with children in our sample need what scholars have termed "smooth coordination" and routine marital support to effectively navigate the tasks of everyday life (Klein et al., 2007), and thus represent an optimal context in which to study these

processes. A last limitation concerns the kinds of support that were detected by this coding scheme and the kinds of support that were not. This study was designed to identify and assess explicit support behavior, thereby missing support that may have been so skillfully provided or well routinized so as to be "invisible" (Bolger et al., 2000; Rafaeli & Gleason, 2009). Thus, the data presented here should not be considered an exhaustive examination of all support processes in everyday life.

In conclusion, in this study, we used a novel and intensive observational methodology to examine the everyday supportive behavior of husbands and wives in dual-income, middle-class couples with children. Not only did this study provide a *first* direct glimpse into couples' supportive interactions as they naturally unfold inside the home, but our examination of different psychosocial predictors for support behavior revealed an interesting and specific set of associations that inform scientific knowledge about how depressive symptoms, trait neuroticism, and job stress impact relationships via their shaping of support processes. In addition, by expanding what it means to "provide" and "receive" support, this study presents a unique vantage point on the mechanisms by which support is enacted and the specific contributions of both partners engaged in the interaction. We highlight the utility of naturalistic observation for better illuminating and clarifying the interlacing of psychosocial well-being and interpersonal behavior in close relationships, in a way that is unique from observations in the laboratory. Future research that integrates and draws on the methodological strengths of naturalistic observation, laboratory observation, and self-reports to better understand the psychosocial processes that drive everyday social experience is highly recommended.

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