

Unraveling the Daily Stress Crossover Between Unemployed Individuals and Their Employed Spouses

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This study examined the dynamic relationship of distress levels between spouses when one is unemployed (and looking for a job) while the other is engaged in full-time employment. Using the diary survey method, we sampled 100 couples in China for 10 days and tested a model comprising three stress crossover mechanisms: the direct crossover, the mediating crossover, and the common stressor mechanisms. Results supported the direct crossover and common stressor mechanisms. Other stressors (e.g., work–family conflict and negative job search experience) were also related to distress of the unemployed individuals and their employed spouses. Additionally, we found a three-way interaction involving gender, marital satisfaction, and distress levels of employed spouses. We discuss how the study contributes to the unemployment and stress crossover literatures.

Keywords: stress, crossover, diary survey, unemployment, work–family interface

Research on unemployment provides compelling evidence of the adverse impact of job loss on the unemployed individual that goes beyond income deprivation and employment benefits (Fryer, 1995) to include increased levels of distress and depression (Catalano, 1991; Hamilton, Hoffman, Broman, & Rauma, 1993; McKee-Ryan, Song, Wanberg, & Kinicki, 2005). Studies also have revealed that the consequence of job loss extend beyond these individuals to include their families (Broman, Hamilton, & Hoffman, 1990; Dooley, Fielding, & Levi, 1996; Howe, Levy, & Caplan, 2004; J. H. Larson, 1984; Vinokur, Price, & Caplan, 1996; Westman, Etzion, & Horovitz, 2004). Researchers have suggested that people respond to stressful situations in the context of relationships with significant others (Bodenmann, 1997; Giunta & Compas, 1993), such as spousal relationships, often regarded as among the most important relationships (Howe, Caplan, Foster, Lockshin, & McGrath,

1995). Despite spousal influences on one's experiences, with a few notable exceptions (e.g., Vinokur & Caplan, 1987; Vinokur et al., 1996), most unemployment studies have neglected these influences. Little is known about how unemployed individuals influence their spouses' stress levels and vice versa.

Because unemployment is a shared life event affecting unemployed persons and their spouses, researchers should examine the reciprocal influences and experiences of both spouses to understand how the family, as a system, responds to stress during unemployment. We proposed and tested a model to explain couples' distress when one spouse is unemployed and looking for a job while the other spouse is working full-time. Such a family situation can be plagued with a variety of stressors. Specifically, stress reactions can occur when the stress experienced by one person influences the stress experienced by another person, the so-called *crossover process* (Westman, 2001). We tested three stress crossover mechanisms, namely, the direct crossover, the mediating crossover, and the common stressor mechanisms. We also included in our model the stressors originating from each spouse's specific life situations, such as work–family conflict of the employed spouse and job-search experiences of the unemployed spouse. By taking into account different types of stressors, our study sheds light on the dyadic-level stress dynamics among married couples during unemployment and on the interplay of unemployment experiences and shared experiences between spouses. Moreover, our study also examined how gender may play a role in the stress crossover process. Traditional gender role theories postulate that because men and women undertake different social roles, they should have different response patterns toward their work, family responsibilities, unemployment, and their spouses' stress. We tested gender differences of stress reactions and distress crossover in the post hoc analyses and found asym-

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metrical moderating effects of marital satisfaction on crossover for men and women.

We also contribute to the stress crossover literature in responding to calls to include minor day-to-day stressors, instead of merely focusing on major life events (Helms & Demo, 2005). The stress research has reoriented from an exclusive focus on major life events toward appreciating the effects of minor day-to-day stressors. As minor stressors tend to occur regularly, they sometimes have greater impact on individuals than do major life events (Helms & Demo, 2005; Lazarus & Folkman, 1984). Past crossover studies, which used mostly cross-sectional designs (e.g., Howe et al., 2004) or longitudinal surveys with two to three waves (e.g., Vinokur et al., 1996; Westman et al., 2004), are well suited to understanding major life events but are limited in their ability to capture daily stressors that “fill most of our working time and occupy the vast majority of our conscious attention” (Wheeler & Reis, 1991, p. 340). Our study used the diary methodology to overcome the limitations of traditional research designs, as this method captures daily life experiences and thus allowed us to determine whether and how an individual’s daily stress fluctuations relate to the partner’s corresponding stress levels (Bolger, Davis, & Rafaeli, 2003). The diary method has several other advantages over traditional cross-sectional and longitudinal methods, including reducing retrospective reporting biases, as work and family experiences are assessed close to the time they occur. Furthermore, the method reduces social desirability by asking participants to focus on discrete behaviors in a daily context instead of answering questions about typical/frequent behaviors (Bolger et al., 2003; Schulz, Cowan, Cowan, & Brennan, 2004). In the next section, we explain the stress transfer mechanisms. Following that, we review stressors originating from unemployment and employment and gender differences in stress experiences.

Mechanisms of Stress Crossover Between Spouses

Crossover is the transfer of affective experiences across individuals (Westman, 2001). A meta-analysis of 36 studies shows that exposure to distress can lead to the crossover of depressive symptoms and mood between friends, couples, roommates, and even strangers (Joiner & Katz, 1999). Various models are proposed to explain stress crossover (e.g., Hobfoll, 1998; Riley & Eckenrode, 1986; Rook, Dooley, & Catalano, 1991; Westman, 2001; Westman & Vinokur, 1998). Westman (2001) summarized these into three crossover models: direct transmission, transmission through a mediator (e.g., social support and communication), and shared factors through common stressors. These mechanisms are not mutually exclusive and may operate simultaneously (Westman & Vinokur, 1998). Findings from cross-sectional studies (Demerouti, Bakker, & Schaufeli, 2005; Westman & Etzion, 2005) and two-wave longitudinal studies (Westman & Vinokur, 1998; Westman et al., 2004) support these crossover models.

Direct Crossover

At its simplest level within the family domain, direct stress crossover depicts a dyadic process whereby the psychological distress of one spouse is transmitted to, and caught by, the other

spouse (Rook et al., 1991). Crossover can occur by emotion contagion or the transfer of emotions from one person to another (Hatfield, Cacioppo, & Rapson, 1994) which stems from mechanisms such as the empathic process where people can feel other peoples’ feelings (O’Connor, Berry, Lewis, Mulherin, & Crisostomo, 2007; Song, Foo, & Uy, 2008) and mimicry of another person’s emotional expressions, whereby individuals unconsciously imitate the facial and postural expressions of those with whom they interact (e.g., Duclos et al., 1989). Contagion can enhance synchrony of attention, emotion, and behavior, which has certain adaptive utility (Hatfield et al., 1994). For example, a person who catches the fear of another and flees can avoid harm if the source of fear is a dangerous situation.

Empirically, direct stress crossover is indicated by a correlation between the stress reported by one person and the strain indicated by another. For example, Rook et al. (1991) demonstrated that husbands’ work stressors were associated with their wives’ distress. Crossover can also be demonstrated by intradyadic correlations in stressful reactions. For example, Howe, Levy, and Caplan (2004) found depressive symptoms of unemployed job seekers and their spouses to be significantly correlated. Other studies have also found links between the affective experiences of both spouses, such as anxiety (Westman et al., 2004), depression (Tower & Kasl, 1995), exhaustion (Demerouti et al., 2005), burnout (Bakker & Schaufeli, 2000; Westman & Etzion, 1995), work–family conflict (Westman & Etzion, 2005), and distress (Barnett, Raudenbush, Brennan, Pleck, & Marshall, 1995). On the basis of the findings described above, we predicted the following for spousal stress crossover:

Hypothesis 1: End-of-day distress of the employed spouse will relate positively to end-of-day distress of the unemployed spouse.

Indirect Crossover Through Daily Marital Support

Stress crossover can also be explained by interpersonal exchanges (Westman et al., 2004). Among spouses, marital support level can mediate the couple’s distress levels, as the spouse is often the first person from whom assistance is sought (Burke & Weir, 1977; Cutrona, 1996). Marital support is the tendency to encourage partners through positive behavioral gestures, such as listening and responding to expressed concerns in a cooperative and helpful manner, showing sensitivity to their viewpoints, and conveying approval of their characteristics and qualities (Conger, Rueter, & Elder, 1999). Marital support is an important resource that maintains an individual’s mental and physical health (Hobfoll, 2002; House, 1981), as it can reduce the impact of financial pressure on the couple’s distress levels (Conger et al., 1999; Westman et al., 2004).

However, spouses may show less marital support if they experience distress. Instead, distressed spouses may display more hostile gestures and less supportive behaviors (Cutrona & Suhr, 1994; Matthews, Conger, & Wickrama, 1996). The lack of marital support can, in turn, increase spouses’ distress levels (Westman, 2001). Thus, marital support may mediate the stress crossover process.

Hypothesis 2: Perceived daily marital support will mediate the relationship between end-of-day distress of the employed spouse and end-of-day distress of the unemployed spouse.

Common Factor of Daily Family Hassles

The common stressors mechanism suggests simultaneous demands in a shared environment (Vinokur et al., 1996; Westman & Vinokur, 1998). For instance, problems with other family members (e.g., sick child) can contribute to the synchronization of distress levels between spouses. *Daily hassles*—defined as annoyances arising from daily routine activities such as home maintenance and community activities (Helms & Demo, 2005)—represent a significant source of concurrent demands for spouses. Although daily hassles are mostly minor events, they happen frequently and can sometimes produce greater pressures than major life events (Helms & Demo, 2005; Lazarus & Folkman, 1984). In fact, daily hassles and major life stressors are linked (Hinkle, 1974; Pillow, Zautra, & Sandler, 1996; Zautra, Reich, & Guarnaccia, 1990); major life events can disrupt daily routine and consequently generate minor stressors, which account for ongoing distress. For instance, Pillow et al. (1996) found major life events (e.g., divorce, bereavement, child with asthma) to influence distress directly and indirectly through minor stressors. Many stressors can simultaneously influence both individuals in a dyad (Hobfoll & London, 1986). Westman and Vinokur (1998) reported that common life events for husbands and wives affected the crossover process by increasing each spouse's depression. Because home is the shared life domain for husbands and wives, daily negative life events at home, such as extra family demands and conflict among family members, are likely to have simultaneous influences on both spouses (Westman, 2001). We thus proposed the following:

Hypothesis 3: Daily family hassles shared by spouses will be related to end-of-day distress of both spouses.

Stressors Originating From Unemployment and Employment

Unemployed spouses may experience other stressors originating from job loss, and employed spouses may experience additional stressors from work-related experiences. These stressors may cross over from one spouse to influence the other spouse. In the following sections, we explain these situations in greater detail.

Unemployment-Related Stressors for the Spouse Without Job

Unemployment is a stressful experience. The most evident reason is income loss (e.g., Rowley & Feather, 1987; Ullah, 1990; Warr & Jackson, 1984; Whelan, 1992); other reasons include loss of employment benefits and time structure (Jahoda, 1982; Kinicki, Prussia, & McKee-Ryan, 2000; Wanberg, Griffiths, & Gavin, 1997) and negative job search experiences (Caplan, Vinokur, Price, & van Ryn, 1989; Waters & Moore, 2002).

According to Fryer's (1998) agency restriction theory, the loss of employment could bring about "psychologically corrosive experienced poverty," (p. 222), which disengages people from a promising future and consequently causes distress. Financial strain

not only deprives people of material benefits but also leads to a sense of loss of control and independence (Fryer & Payne, 1986). Lack of time structure is another psychological burden (Jahoda, 1982), leading to higher distress and depression levels (Bond & Feather, 1988; Creed & Macintyre, 2001; Feather & Bond, 1983; Hepworth, 1980). Moreover, job search experiences can result in anxiety, frustration, setbacks, rejections, and future uncertainty (Barber, Daly, Giannantonio, & Phillips, 1994; Caplan et al., 1989; Rynes, Bretz, & Gerhart, 1991; Stumpf, Colarelli, & Hartman, 1983). A recent meta-analysis shows that job search and distress correlate positively (McKee-Ryan et al., 2005). Although job seekers can have positive and negative job search experiences (Borgen & Amundson, 1984), the negative experiences, including setbacks and obstacles encountered during job search—more so than the positive experiences—influence daily distress levels (Song & Sun, 2008). Given the reasons stated above, we hypothesized the following:

Hypothesis 4: (a) Daily financial strain, (b) daily deprivation of time structure, and (c) daily negative search experience will be positively related to distress experienced by the unemployed spouse.

Work-Related Stressors of the Employed Spouse

Because work is an important life domain, stress at work can carry over to the family domain, as studies indicate a link between work stressors and home distress (e.g., Bolger, DeLongis, Kessler, & Schilling, 1989; Williams & Alliger, 1994). According to the job demands–resources model (Bakker, Demerouti, Taris, & Schreurs, 2003), an employee's well-being is negatively affected by work stressors, such as excessive work demand and interpersonal conflict at work. Moreover, employed spouses juggle work and family roles, and inter-role conflict can occur and heighten daily distress levels (Williams & Alliger, 1994). Inter-role conflict can result from work interference with family (work–family conflict) and family interference with work (family–work conflict; Frone, Russell, & Cooper, 1992). In two separate meta-analyses, Byron (2005) and Mesmer-Magnus and Viswesvaran (2005) demonstrated that although measures of work–family conflict and family–work conflict overlap, they have discriminant validity, and each factor independently contributes to explaining outcomes such as physical and mental health. Thus, we hypothesized the following:

Hypothesis 5: (a) Daily work stress, (b) daily work–family conflict, and (c) daily family–work conflict will be positively related to end-of-day distress of the employed spouse.

Moderating Effect of Marital Satisfaction

Marriages are not equally vulnerable to stress crossover (Rook et al., 1991). The extent of stress transfer can depend on *marital satisfaction*, defined as a global evaluation of how married couples feel about their relationship (Glenn, 1990). There are two views on the role of marital satisfaction in the crossover process (Rook et al., 1991). One viewpoint suggests a stronger crossover for more satisfied marriages, as spouses in these marriages may show more concern and sympathy for their partners than those in less satisfied

marriages (Berscheid, 1983). Consequently, those in satisfied marriages, compared with those in less satisfied marriages, may be more adversely affected by their spouses' hardships (Rook et al., 1991). However, another viewpoint suggests that individuals in satisfied marriages should be less affected by their partners' distress, as they have more coping resources. In comparison, spouses in troubled marriages may be more cynical toward their spouses and are more strongly influenced by their partners' negative emotional expressions (Coyne & DeLongis, 1986; DeLongis, Folkman, & Lazarus, 1988; Rook et al., 1991). Moreover, Larson and Richards (1994) suggested that unsatisfied marriages create a climate of suspicion that intensifies and prolongs the couples' negative attitudes toward each other.

Although these two lines of thinking suggest opposite crossover directions, each has gained some empirical support. Some studies found that stress crossed over more in satisfied couples (e.g., Lavee & Ben-Ari, 2007; Rook et al., 1991). Other studies, reported stronger stress crossover in less satisfied marriages (e.g., DeLongis, Capreol, Holtzman, O'Brien, & Campbell, 2004; Jacobson, Follette, & McDonald, 1982; R. W. Larson & Richards, 1994). Although empirical results of the impact of marital satisfaction on stress crossover are mixed, past studies have not used samples in which participants are under chronic stress. Under conditions of chronic stress caused by unemployment, unsatisfied couples should be particularly susceptible to stress crossover that results from the extra family burden. When job loss and unsatisfied marriage come together, individuals may have even fewer personal resources to cope with negative life events. In these circumstances, the mutually reinforcing effects of stressors internal and external to the marriage can intensify stress crossover between spouses (Rook et al., 1991). We thus hypothesized the following:

Hypothesis 6: Marital satisfaction will moderate the stress crossover between spouses. Specifically, distress crossover between spouses will be stronger in unsatisfied than in satisfied marriages.

Hypotheses 1 through 6 are summarized in Figure 1.

Potential Roles of Gender

Differential Moderating Effects of Marital Satisfaction on Crossover for Men and Women

We now turn to potential gender influences on the moderating effects of marital satisfaction. Gender research suggests that men and women have different behavioral patterns and emotional responses to stress. In general, men tend to withdraw from marital interactions emotionally and behaviorally, whereas women tend to confront and vent anger toward their spouses (Christensen & Heavey, 1990; Gottman & Levenson, 1988; Notarius & Johnson, 1982; Taylor, 2002). These gender differences are more likely to be apparent under stress (Parker & Griffin, 2002). Schulz et al. (2004) found that men who experienced greater marital satisfaction reduced angry behaviors toward their wives after stressful workdays, whereas women who were more satisfied with their marriages expressed angry behaviors toward their husbands after a stressful workday.

Although we did not directly measure hostile marital interactions in the current study, the abovementioned gender differences in response to stress suggest differential moderating effects of marital satisfaction on stress crossover for men and women. Because husbands tend to reduce angry interactions with their wives after a stressful workday to a greater degree in more satisfied marriages than in less satisfied marriages, distress experiences of husbands in satisfied marriages should be less likely to cross over to their wives. In contrast, because wives tend to increase their angry interactions with their husbands after stressful workdays to a greater degree in more satisfied marriages than in less satisfied marriages, distress experiences of wives in satisfied marriages should more likely cross over to their husbands. Thus, extending Hypothesis 6, we expected that there might be a three-way interaction involving gender, marital satisfaction, and distress levels of employed spouse. Specifically, the moderating effect of marital satisfaction on distress crossover from employed husbands to unemployed wives could be weaker than the moderating effect of marital satisfaction on distress crossover from employed wives to

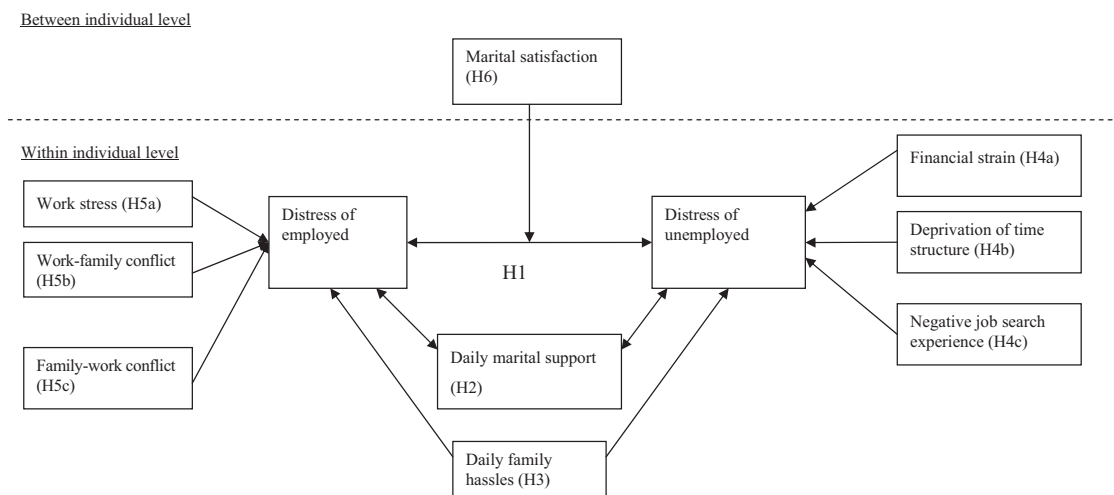


Figure 1. Theoretical model of distress crossover mechanisms between employed and unemployed spouses.

unemployed husbands. Because this proposed interaction is based only on anecdotal evidences rather than on strong theoretical foundations, we tested it using an exploratory and post hoc approach.

Beyond the abovementioned three-way interaction, gender can have pervasive influences on many of the relationships examined in the study. Below we highlight some theoretical arguments and empirical findings that are pertinent to gender and reactions to unemployment and employment for married couples.

Gender, Work–Family Roles, Unemployment, and Stress Crossover

The traditional beliefs about relationships between gender, work, and family highlight sex segregation, gender asymmetry, and fixed patterns in work and family for men and women (Barnett & Hyde, 2001). According to these traditional beliefs, men are considered primary wage earners in the family. Work has historically been seen as more central for men, whereas home has been perceived as more central for women (Kaufman & Fetters, 1980). These views were developed in the 1950s (e.g., Parsons & Bales, 1955) and continue today in some family studies and in corporate and public policies (Barnett & Hyde, 2001). On the basis of traditional gender roles, job loss is considered more detrimental for men than for women.

Findings of gender differences on the psychological impact of unemployment are mixed (Winefield, 1995). Most studies have found no differences between men and women (Banks & Jackson, 1982; Leana & Feldman, 1991; Perrucci, Perrucci, & Targ, 1997). Although some studies (e.g., Clark, 2003; Lai & Chan, 2002; Paul & Moser, 2009; Warr, Jackson, & Banks, 1982) found that unemployed men suffered greater distress than did unemployed women, other studies reported opposite findings (e.g., Harris, Heller, & Braddock, 1988; McKee-Ryan et al., 2005; Warr & Payne, 1983).

On the basis of the traditional views of gender roles, Pleck (1977) proposed that one feature of the work–family role system is the “asymmetrically permeable boundaries between work and family roles for both men and women” (p. 423). According to Pleck, women’s family demands interfere with their work demands, whereas for men, the asymmetry of boundary permeability is in the other direction, that is, their work role tends to impinge on their family role. Evidence of this moderating effect of gender on work–family conflict is mixed, and there is no firm conclusion about the direction or magnitude of the gender moderating effect based on existing literature (Bedeian, Burke, & Moffett, 1988; Duxbury & Higgins, 1991; Rice, Frone, & McFarlin, 1992; Schulz, Cowan, Cowan, & Brennan, 2004; Williams & Alliger, 1994).

The traditional gender role view is also discussed in crossover studies. As Westman (2001) argued, because women compared with men are more involved in the family, they become more sensitive to other family members’ stressful events and are more likely influenced by their experiences (Westman, 2001). However, empirical findings are mixed. Some studies indicate that women are more sensitive than men to the events happening to their spouses (Kessler, 1979; Kessler & McLeod, 1984) and are thus more vulnerable to emotional transmission (Haviland & Malatesta, 1981). On the contrary, Parasuraman, Greenhaus, and Granrose (1992) did not find women’s family satisfaction to be affected by their husbands’ work and family stressors and work–family con-

flict. In Westman’s (2001) review on gender differences in crossover effects, four out of six articles revealed similar levels of both husband-to-wife and wife-to-husband crossover effects.

In sum, the above literature review suggests that there is not a strong a priori position on which gender would influence unemployed individuals’ vulnerability to stress originating from unemployment, job, and housework or from their spouses. However, given the importance of gender issues in marital relationships, we used the post hoc approach to explore potential differences between men and women. These post hoc analyses could guide future research on gender reactions to unemployment.

Method

Sample and Procedures

Participants were 100 unemployed job seekers and their employed spouses from nine community centers¹ in the Tiexi District of Shenyang, a city in Northeast China, which was once the nation’s industrial heartland. With a heavy concentration of state-owned factories, the city experienced massive layoffs in the mid-1990s, when the Chinese government restructured state-owned enterprises. In the late 1990s, the Tiexi District became an area of abandoned factories.² By 2002 a third of the 300,000 workers were laid off. In 2006, however, the year this study was conducted, the economic situation in Tiexi had drastically improved. Most factories had relocated to the adjacent industrial park, and the old Tiexi district had been transformed into a vibrant residential and commercial area. Many laid-off factory workers had found jobs in the newly developed service industry.

The study was part of a larger effort to examine daily family dynamics for unemployed job seekers and their employed spouses.³ Community center employees assisted in recruiting and surveying participants. To qualify as participants for the current study, one of the spouses had to be unemployed, actively looking for a job in the past two weeks, and intending to seek employment in the next two weeks. The other spouse was required to have a full-time job. Both spouses attended an orientation session held in their respective community centers to become familiar with the study’s purpose and procedures. At the end of the orientation session, both spouses completed baseline surveys. Two researchers and 14 applied psychology postgraduate research assistants from a local university led these sessions.

Each participant was asked to complete a survey for 14 consecutive days. Because the current article examines work experiences of employed spouses, in the analyses, we only included surveys for the 10 workdays. The daily survey included measures of stress

¹ The community or neighborhood is the lowest level of urban administrative division in mainland China. It typically encompasses 2,000 to 10,000 families. Each of the communities has a neighborhood committee, including one or two employment workers, to assist the unemployed in the community.

² The city and the dreadful life of its residents were featured in the multiaward winning documentary *Tie Xi Qu: West of the Tracks*, produced in 2003 by Bing Wang.

³ Another article based on the same data set reported the reciprocal relationship between job search effort and distress for unemployed job seekers (Song, Uy, Zhang, & Shi, 2009).

experience, daily stressful events, and perceived spousal support. Participants were requested to complete the daily surveys at home before going to bed. They returned the completed surveys to their community centers the next morning and collected another set of surveys (to be completed and returned the following day). All participants lived within walking distance from the community centers. Every afternoon, research assistants visited the community centers to collect the completed surveys. These procedures were used to encourage participation and to avoid limitations of paper-and-pencil diary methods, such as forgetfulness and retrospective recall error (Bolger et al., 2003). Of the 1,000 sets of surveys distributed, the matched completed pairs of surveys from both spouses totaled 984, representing a 98.4% response rate across couples and time. Among the 100 unemployed participants, 73 were women. Their ages ranged from 29 to 54 with a mean of 42.0 years. Most had secondary or high school education (82.6%). Only 15.3% had completed higher education. More than half (57.0%) previously held jobs in production, transportation, and commerce. The rest were in professional (16.9%), administrative support (11.2%), managerial (6.7%), and in the "other" category (7.9%). On average, they had been unemployed for 2.53 years ($SD = 2.66$). For the employed spouses, the mean age was 42.9 years, with a range of 27 to 58. About 69.7% had secondary or high school education, and the rest had completed higher education. Some 30.1% were working in production and transportation industries, 22.6% in administrative support, 21.5% in professional positions, 15.1% in commercial work, 5.4% in managerial positions, and 5.4% in other employment.

Measures

All measures were based on previously developed scales as elaborated below.

Daily distress. Daily distress was measured with the Chinese version of the six-item Kessler Psychological Distress Scale (K6; Kessler et al., 2002). The K6 scale was developed for the U.S. National Health Interview Survey and used in several national health surveys in the United States, Australia, and Canada. The K6 inventory asks participants to report how often they had felt "nervous," "hopeless," "restless and fidgety," "so depressed that nothing could cheer you up," "everything was an effort," and "worthless" in the past 30 days. A longer version of the scale—K10—was used in an unemployment study in Norway (Halvorsen, 1998) to examine the impact of reemployment on psychological stress. Mroczek and Almeida (2004) measured daily psychological distress or negative affect in a stress and coping study that required participants to evaluate their feelings over the past 24 hr. Participants reported the extent to which they experienced each of the feelings during the day on a scale ranging from 0 (*none of the time*) to 4 (*all of the time*). The alpha coefficients in this study were .81 and .75 for unemployed and employed participants, respectively.

Daily marital support. The perceived marital support from spouses was measured by a four-item scale, which was based on the subscale of the 12-item spousal social support inventory developed by Westman et al. (2004). The original inventory assesses support from three sources: spouse, extended family, and friends. In the current study, participants were asked to indicate how much "encouragement," "care," "useful information," and "direct help" they had received from their spouses during the past 24 hr. Par-

ticipants responded to these questions on a 5-point scale ranging from 1 (*very little*) to 5 (*very much*). The alpha coefficients for the marital support measure were .85 and .86 for the unemployed and employed samples, respectively.

Daily family hassles. Daily family hassles were measured with a checklist of 13 daily events related to family lives (e.g., "a lot of work at home" and "financial problem"). These family events were selected from the checklist of 21 events used by Bolger et al. (1989). There was high interspouse correlation ($r = .74, p < .01$) for the daily family hassle reports, and we averaged the scores of husband and wife for each day to form a daily family hassles score.⁴

Daily unemployment stressors. Financial strain, deprivation of time structure, and negative job search experience were measured with items from the Unemployment Stressor Inventory (Zhang, Sun, Uy, Song, & Shi, 2008), which captures different facets of stressors from job loss. Items were reworded to fit the diary format of the current study. Financial strain was measured by two items (e.g., "I feel the financial pressure of family expenditures today"). Deprivation of time structure was measured by three items (e.g., "I had too much spare time today"). Negative search experience was measured by two items (e.g., "I encountered difficulties today in my job search"). The alpha coefficients for these measures were .88, .65, and .85, respectively, in the current study. We used confirmatory factor analyses (CFAs) to compare measurement models with these three factors versus a single factor using the first wave of diary reports. Chi-square difference test demonstrated a better fit for the three-factor model than for the single-factor model, $\Delta\chi^2(3, N = 85) = 48.14, p < .01$, which indicates that the three-factor model provides a better fit than does the single-factor model.

Daily work stress. Daily work stress was measured with a list of four work-related events (e.g., "a lot of work at job" and "argument with coworker") from the 21-item checklist used by Bolger et al. (1989). Responses to these items were aggregated to form a work stress score. Bolger et al.'s (1989) scale consisted of home-related events, which we used to measure daily family hassles, and work-related events, which we used to measure daily work stress. Four items in that checklist were not used as they did not seem relevant to either the family or the work domain (e.g., transportation problem and argument with other people).

Work-family conflict and family-work conflict. We selected six items from the scale developed by Gutek, Searle, and Klepa (1991) measuring work interference with family and family interference with work. Three items covered work-family conflict (e.g., "Today I came home too tired to do some of the things I'd like to do"), and three items covered family-work conflict (e.g., "My personal life takes up time that I'd like to spend at work"). The alpha coefficients were .61 for work-family conflict and .74 for family-work conflict. The two-factor CFA model with work-family conflict and family-work conflict separately specified provided a better fit than the single-factor model combining work-

⁴ We also modeled husbands' and wives' reports separately. This strategy generated essentially the same set of results as averaging their scores. We report models using average scores so that our findings can be compared with those of past studies.

family conflict and family–work conflict, $\Delta\chi^2(1, N = 84) = 5.97$, $p < .05$.

Marital satisfaction. During the orientation, participants completed the baseline survey that included measures of demographics and marriage quality. The quality of the marital relationship was measured by the Marital Satisfaction subscale of the Chinese version of the ENRICH (Evaluating and Nurturing Relationship Issues, Communication, and Happiness) marital inventory (Olson, Fournier, & Druckman, 1982). The Marital Satisfaction subscale contains 10 satisfaction items on 10 marital functions (e.g., conflict resolution, dealing with financial issues, and child rearing). The alpha coefficients for the marital satisfaction survey were .74 and .75 for the unemployed and employed spouses, respectively.

Analysis

We used multilevel structural equation modeling (MSEM; Muthén & Satorra, 1989) to test the model presented in Figure 1. There are two major reasons for using MSEM. First, a multilevel modeling method accommodates the hierarchical data structure with multiple observations nested within each individual (Raudenbush, Brennan, & Barnett, 1995). Second, a major purpose of the study was to test the three mechanisms explaining distress crossover between partners. These mechanisms can be simultaneously tested using structural equation modeling (SEM; Jöreskog, 1977). MSEM combines the strengths of multilevel modeling and structural equation modeling (SEM), avoiding potential model misspecifications (Kaplan, 1998; B. O. Muthén & Satorra, 1989). We used Mplus 5.1 (Muthén & Muthén, 2007) to create the MSEM models. However, whereas Mplus is well suited for MSEM, it provides only limited information on effect sizes. Thus, in some cases we also calculated the R^2 values to examine the extent to which the variables in our model explained variance in distress. To simplify model estimations, all of the MSEM analyses were conducted without including measurement models (i.e., multilevel path analysis; Kaplan, 1998). All variables were formed by computing average scale scores. This strategy has been used in other MSEM studies (e.g., Kaplan & Elliott, 1997).

To test the model in Figure 1, we adopted a nested model comparison procedure (James, Mulaik, & Brett, 1982). We first tested the full model in Figure 1. We also tested three alternative models nested within the full model: (a) the direct effect only model, which restricted the path coefficients of marital support and daily family hassles to zero; (b) the direct plus common stressor effects model, which restricted the path coefficients of marital support to zero; and (c) the direct plus indirect effects model, which restricted the path coefficients of daily family hassles to zero. Mplus 5.1 provided log-likelihood indices for all models. We examined the significance of the changes in fit indices between the full model and alternative models using log-likelihood ratio (LR) tests. The LR test approximately follows a chi-square distribution (Huelsenbeck & Crandall, 1997). A nonsignificant chi-square test between two models indicates that the more restricted models are preferred to the full model because greater parsimony is achieved. Because Mplus does not permit nonrecursive models, we conducted separate analyses to test bidirectional relationships between daily distresses of spouses with distress of the unemployed participants and distress of the employed participants as outcomes,

respectively. Except for causal directions between daily distress of spouses and the directionality of the relationship between marital support and distress, other model specifications are exactly the same. Model A examines distress of the employed spouse as the final outcome; Model B examines distress of the unemployed spouse as the final outcome. After identification of the best fit models, path coefficients were used to test the hypotheses. We used the multiple-group SEM analysis to test whether the moderating effects of marital satisfaction on distress crossover differ across male and female groups.

All variables in the model (Figure 1) were measured repeatedly, except for marital satisfaction, which was reported by spouses in the baseline survey and assumed to be constant during the two-week research period. We used reported marital satisfaction of the employed spouses as the cross-level moderator in Model A (i.e., employed spouses are the distress receivers in the distress crossover process) and reported marital satisfaction of the unemployed spouses as the cross-level moderator in Model B (i.e., unemployed spouses are the distress receivers in the distress crossover process). All daily measures were specified at the within-individual level and group mean centered in estimating model parameters. In the analyses, we used grand-mean centering for marital satisfaction. The correlation of marital satisfaction for the unemployed individuals and their employed spouses was significant ($r = .40$, $p < .01$). A paired t test showed that the difference between marital satisfaction reported by unemployed spouses and that reported by employed spouses was not significant: $M_{\text{unemployed}} = 3.60$, $M_{\text{employed}} = 3.53$, $t(99) = 1.26$, ns . To test Hypothesis 6 (that marital satisfaction moderates the within-couple level distress crossover), we set slopes of the regression involving distress measures of both couples as random and regressed on marital satisfaction.

We followed procedures in the analysis of longitudinal dyadic data (Kenny, Kashy, & Cook, 2006; Raudenbush, Brennan, & Barnett, 1995). Specifically, in arranging the data sets and matching partners accordingly, we aligned each variable score of couple partners from the same day in the same row to form matched pairs and arranged the daily measure scores of each matched pair into multiple rows.

Results

Table 1 provides the means, standard deviations, intraclass correlations (ICC1 and ICC2, described below), and intercorrelations among the study variables at both the between-couple and within-couple level of analysis. The between-couple (i.e., average) correlation between distress levels of couple partners across 10 days was .75. The within-couple correlation between distress levels of couple partners across 10 days was .35. These two figures preliminarily indicated strong crossover effects of distress. Unemployed spouses had significantly higher daily distress than did their employed partners, $M_{\text{unemployed}} = 9.38$, $M_{\text{employed}} = 8.74$, $t(99) = 7.14$, $p < .01$.

We reported two ICC types (Bliese, 2000; James, 1982; McGraw & Wong, 1996). ICC1 indicates the extent by which a measure varies between units compared with within units, with a range between 0 and 1 (Klein & Kozlowski, 2000). In this study, ICC1 indicates the percentage of variance in each daily measured variable explained by between-individual differences. The ICC1 values suggest that for daily financial strains, work stress, work–

Table 1
Descriptive Statistics and Between-Couple and Within-Couple Correlations Among Variables

Variable	<i>M</i>	<i>SD</i>	ICC1	ICC2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
1. Daily distress of unemployed	9.38	2.50	0.58	0.93	—	.32*	.07*	.04	.21*	.11*	.08*	.21*	.03	.06	.10*								
2. Daily distress of employed	8.74	2.23	0.54	0.92	.78*	—	.11*	.04	.18*	.06	.08*	.07*	.06	.14*	.12*								
3. Daily marital support from employed	10.24	3.51	0.67	0.95	-.08	-.03	—	.28*	.08*	-.09*	.01	-.05	-.01	-.01	-.06								
4. Daily marital support from unemployed	10.96	3.73	0.69	0.96	.00	-.06	.81*	—	-.03	-.11*	.01	-.01*	.01	.00	-.03								
5. Daily hassles	2.14	1.20	0.68	0.95	.44*	.50*	.08	.05	—	.06*	.08*	.05	.09	.04	.09*								
6. Daily financial strain	4.27	0.99	0.35	0.84	.40*	.24*	.00	.07	.15	—	.16*	.17*	-.04	.05	.11*								
7. Daily deprivation of time structure	7.69	1.67	0.54	0.92	.37*	.20	-.05	.10	.06	.47*	—	.13*	.02	.05	.10*								
8. Daily negative job search experience	6.85	1.43	0.50	0.91	.51*	.45*	-.04	-.04	.18	.61*	.30*	—	.04	.05	.11								
9. Daily work stress	0.82	0.40	0.42	0.87	.03	.07	.11	-.06	.35*	-.06	-.05	-.02	—	.03	.00								
10. Daily work–family conflict	8.71	1.58	0.41	0.87	.04	.01	.05	.08	.05	.24*	.33*	.22*	.15	—	.17*								
11. Daily family–work conflict	5.94	1.26	0.46	0.89	.23*	.39*	.23*	.22*	.31*	.08	.27*	.09	-.09	.34*	—								
12. Marital satisfaction of unemployed	3.60	0.44			-.27*	-.30*	.32*	.15	-.08	-.20*	-.31*	-.23*	.06	.03	-.13	—							
13. Marital satisfaction of employed	3.53	0.55			-.26*	-.27*	.22*	.27*	-.09	-.26*	-.38*	-.23*	.05	-.26*	-.04	.40*	—						
14. Gender	1.73	0.44			-.06	.03	.28*	-.01	-.09	-.20*	-.26*	.06	-.20	-.17	.00	-.07	.06	—					
15. Job type of unemployed	0.24	0.42			.20	.08	-.08	-.07	-.06	.02	.22*	.17	-.02	.22*	-.08	.03	-.10	.00	—				
16. Job type of employed	0.27	0.44			-.03	.05	.05	.05	-.05	-.01	.00	-.03	-.00	.03	-.05	.02	.14	.04	.25*	—			
17. Education level of unemployed	0.15	0.36			-.01	-.06	-.13	-.04	-.07	.10	.14	.09	-.02	.11	-.12	.07	.04	.11	.12	.24*	—		
18. Education level of employed	0.30	0.46			-.08	-.06	-.22*	-.06	-.15	.03	.03	-.05	-.06	-.13	-.22*	.19*	-.02	.24*	.06	.12	.30*	—	
19. Duration of unemployment in years	2.53	2.65			.14	-.10	.16*	.11	.11	.14	.19	.20	-.08	-.02	.03	.08*	-.01*	.10	.01*	.10	.08	.01	

Note. ICC = intraclass correlation. See Results section for description of ICC1 and ICC2. Within-couple correlations are presented above the diagonal ($N = 984$), and between-couple correlations are presented below the diagonal ($N = 100$). Gender (1 = male, 2 = female), job type (1 = professional/managerial, 0 = other jobs), and education level (1 = higher education, 0 = without higher education) are dummy variables.

* $p < .05$.

family conflicts, and family–work conflicts, larger proportions of variance were due to within-individual differences. For the other variables measured daily, variances were explained almost equally by within-individual and between-individual differences. Particularly, variances in daily distress were equally explained by daily dynamic factors and stable person-level factors. In comparison, ICC2 indicates the reliability of the individual mean of each variable when the values are aggregated to the individual level (Klein & Kozlowski, 2000). In our repeated measures study, ICC2 refers to the reliability of the aggregated means of multiple-day measures.

Table 1 also provides between-couple and within-couple correlations. High ICC1 values (closer to 1) indicate that the between-couple correlations (i.e., aggregated, see values below the diagonal in Table 1) more appropriately describe the relationship, whereas low ICC1 values indicate that the within-couple correlations (values above the diagonal) are more appropriate for the analyses. The moderate ICC1 values of repeated variables (between .35 and .59) supported the use of multilevel modeling.

As indicated in the analysis section, we first tested the full model, followed by three alternative models, and compared these with the full model (Models A and B were separately reported). The fit indices of these alternative models and the log-likelihood ratio tests are presented in Table 2.⁵ As indicated in Model A of Table 2, our results suggest that the full model was more appropriate to explain the crossover mechanisms from unemployed to employed spouse than was the direct effect only model, $\chi^2(4, N = 979) = 51.94, p < .01$, the direct plus common stressor effects model, $\chi^2(2, N = 979) = 10.12, p < .01$, or the direct plus indirect effects model, $\chi^2(2, N = 979) = 40.84, p < .01$. Results in Model B of Table 2 indicate that the direct plus common stressor effects model was as good a fit as the full model, $\chi^2(2, N = 979) = 4.64, p = .10$, whereas the direct effect only model, $\chi^2(4, N = 979) = 46.93, p < .01$, and the direct plus indirect effects model, $\chi^2(2, N = 979) = 42.29, p < .01$, provided a poorer fit than did the full model. Thus, the direct plus the common stressor effects model was selected as the best model. Percentages of variance in distress of unemployed and employed couples explained by predictors were 13% and 13%, respectively, in Model A and 18% and 6%, respectively, in Model B.

The path coefficients for the final Models A and B are shown in Figures 2 and 3, respectively. The direct distress crossover effect from the unemployed to the employed spouses was significant ($b = .24, p < .01$); the direct crossover effect from the employed to the unemployed spouses was also significant ($b = .29, p < .01$). These findings indicate significant direct crossover effects of distress levels between partners. Thus, Hypothesis 1 on the direct crossover path was supported.

Hypothesis 2 states that marital support mediates the relationship between daily distress levels of unemployed individuals and their employed spouses. For the role of marital support in the crossover process, the nested model comparisons supported fixing its effects to zero (Figure 3); however, its mediating role (Figure 2) was not supported. The path coefficient between distress of the unemployed participants and marital support was not significant ($b = .07, ns$), whereas the path coefficient between marital support and distress of the employed participants was significant, but in the opposite direction ($b = .06, p < .05$). Thus, the hypothesis of indirect crossover through daily marital support was not supported.

We further explored the possibility of a lagged indirect effect of marital support in a series of post hoc analyses. First, we tested the possibility that the end-of-day distress of the employed spouse may decrease marital support the following day, which in turn increases the distress of the unemployed spouse the following day. For Model A, hierarchical linear regression analyses indicated nonsignificant relationships between distress of the unemployed participants and marital support reported by the employed participants the following day ($b = -.05, ns$) and between marital support and distress of the unemployed participants the following day ($b = -.01, ns$). Similarly, there were no significant relationships in the reversed Model B ($b = -.05, ns$, and $b = .01, ns$). Thus, the post hoc analyses did not show evidence of a lagged indirect effect of marital support.

Hypothesis 3 suggests that daily family hassles, a common stressor, explain part of the relationship between partners' distress levels. We found significant path coefficients for daily family hassles and partner distress levels. As shown in Figures 2 and 3, the coefficients are $b = .22$ and $b = .43$ for the relationship between daily family hassles and distress of employed participants in Models A and B, respectively, and $b = .44$ and $b = .26$ for the relationship between daily family hassles and distress of unemployed participants in Models A and B, respectively ($p < .05$ for all tests). Thus, Hypothesis 3 was supported.

We conducted further analyses to examine whether family hassles accounted for additional variance beyond the direct crossover mechanisms. When the coefficient for daily family hassles was fixed to zero in Model A, the direct crossover of distress from the unemployed spouse to the employed spouse was .03 ($p < .01$); the figure for Model B was .25 ($p < .01$).⁶ Following procedures to calculate R^2 in multilevel modeling (Hofman, 1997), we computed the R^2 change of adding the common stressors of daily family hassles in Models A and B. Specifically, the R^2 change was computed as the percentage of residual variance change when

⁵ Mplus does not provide some common SEM fit indices (e.g. RMSEA, CFI, TLI) for MSEM models with random coefficients. To calculate the traditional fit indices, we removed marital satisfaction from all the models and did not treat the direct crossover path coefficient as random across couples. These fit indices are presented for the purpose of demonstration, since there are no clear cut-off values for these traditional fit indices in MSEM models. For Model A, fit indices for alternative models are: full model, $\chi^2(13, N = 979) = 50.77, RMSEA = .05, CFI = .88, TLI = .77$; direct effect only model, $\chi^2(17, N = 979) = 103.47, RMSEA = .07, CFI = .71, TLI = .60$; direct plus common stressor effects model, $\chi^2(15, N = 979) = 59.64, RMSEA = .06, CFI = .85, TLI = .76$; and direct plus indirect effects model, $\chi^2(15, N = 979) = 93.50, RMSEA = .07, CFI = .74, TLI = .59$. For Model B, fit indices for alternative models were as follows: full model, $\chi^2(13, N = 979) = 35.37, RMSEA = .04, CFI = .92, TLI = .85$; direct effect only model, $\chi^2(17, N = 979) = 87.62, RMSEA = .07, CFI = .75, TLI = .65$; direct plus common stressor effects model, $\chi^2(15, N = 979) = 40.12, RMSEA = .04, CFI = .91, TLI = .86$; and direct plus indirect effects model, $\chi^2(15, N = 979) = 83.17, RMSEA = .07, CFI = .76, TLI = .61$. These fit indices suggested similar conclusions on the basis of models explained in the text.

⁶ Mplus can only provide unstandardized path coefficients for MSEM with random coefficients (Muthén & Muthén, 2007). Thus, it was inappropriate to compare the path coefficient of direct crossover when effects of daily hassle were fixed at zero with the coefficient when effects of daily hassle were freely estimated.

Table 2
Fit Indices and Log-Likelihood Ratio Tests (Chi-Square) of Alternative Models of Crossover

Model	-Log-likelihood	No. of free parameters	df	Log-likelihood ratio: $\chi^2(N = 979)$
Model A (crossover from unemployed to employed)				
Full model	6,222.66	20		
Direct effect only	6,248.63	16	4	51.94**
Direct plus common stressor effects	6,227.72	18	2	10.12**
Direct plus indirect effects	6,243.08	18	2	40.84**
Model B (crossover from employed to unemployed)				
Full model	6,214.95	20		
Direct effect only	6,238.42	16	4	46.93**
Direct plus common stressor effects	6,217.27	18	2	4.64
Direct plus indirect effects	6,236.10	18	2	42.29**

Note. For models A and B, four alternative models are estimated: a full model for a direct effect only model, a direct plus common stressor effects model, and a direct plus indirect effects model. As the first three models are nested within the full model, the log-likelihood ratio testes are conducted between each of the last three models and the full model.

effects of daily family hassles were fixed to zero versus freely estimated. We found that daily family hassles explained an additional 3% variance in distress of unemployed individuals and an additional 1% variance of employed spouses. Both R^2 changes were significant. These results supported both the direct crossover effects and common stressor effects from daily family hassles in explaining daily distress.

The next set of hypotheses pertains to other stressors originating from the employment and unemployment situations of the spouses. Consistent with Hypothesis 4a, for unemployed spouses, financial strain significantly predicted distress of the unemployed spouse in the two models ($b = .27$ and $b = .28$, respectively, $p < .01$ for both). The coefficients between deprivation of time structure and distress of unemployed participants were not significant ($b = .04$ and $b = -.01$ for Models A and B, respectively, ns for both). Thus, Hypothesis 4b was not supported. We found a significant

relationship between negative job search experience and distress of unemployed individuals ($b = .25$ and $b = .27$, respectively, $p < .01$ for both). Thus, Hypothesis 4c was supported.

For employed spouses, we did not find significant relationships between work stressors and distress of the employed spouse ($b = .22$ and $b = .17$ for Models A and B, respectively, ns for both). Therefore, Hypothesis 5a was not supported. Consistent with Hypothesis 5b, work-family conflict significantly predicted distress of employed individuals in both models ($b = .10$ and $b = .12$, respectively, $p < .05$ for both). Family-work conflict related significantly to distress of employed participants in Model A ($b = .15$, $p < .05$), but it was not significant in Model B ($b = .15$, ns), indicating partial support for Hypothesis 5c.

In examining the role of marital satisfaction in the crossover process, as proposed in Hypothesis 6, we used marital satisfaction reported by unemployed individuals in Model A and satisfaction

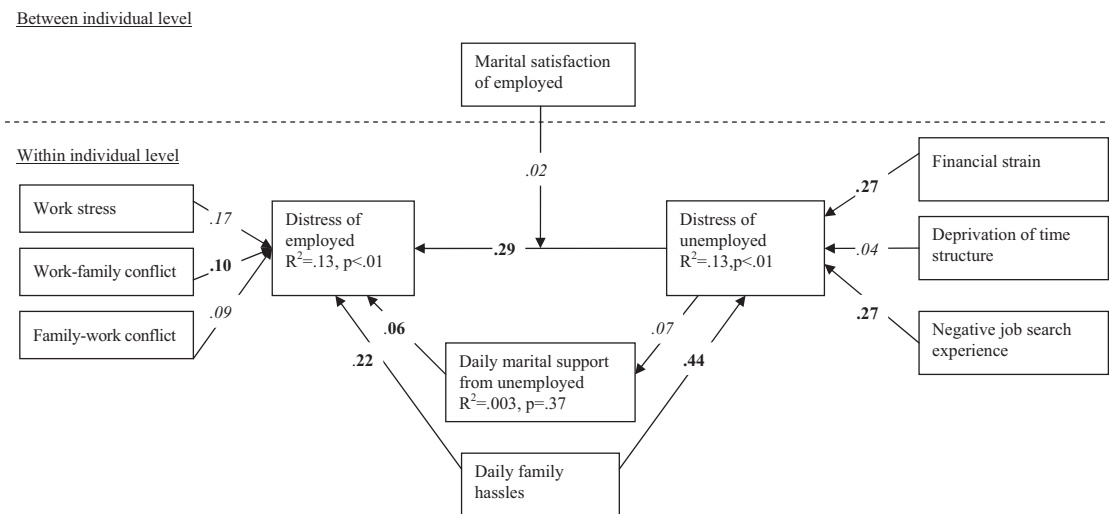


Figure 2. Distress crossover from the unemployed to the employed (Model A). Coefficients in bold are significant at $p = .05$ level. Coefficients in italics are not significant.

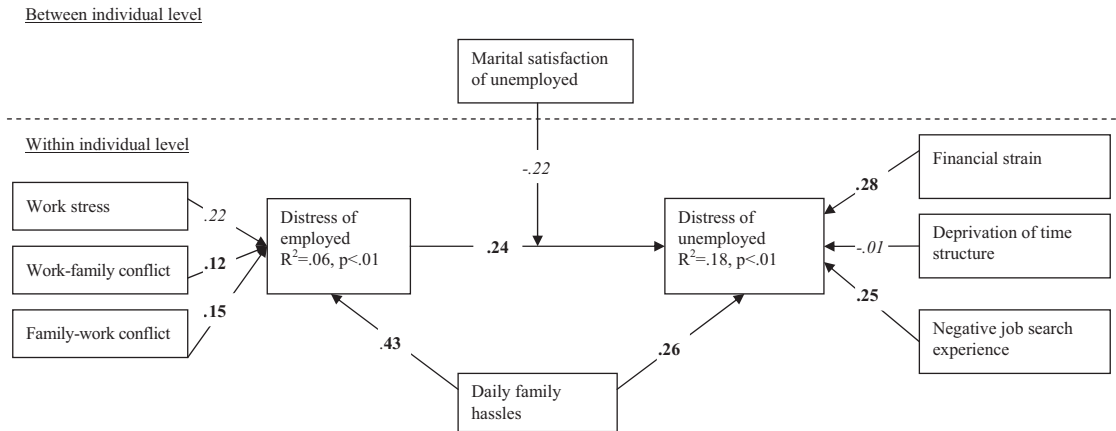


Figure 3. Distress crossover from the employed to the unemployed (Model B). Coefficients in bold are significant at $p = .05$ level. Coefficients in italics are not significant.

reported by employed individuals in Model B. In Model A, we found that the cross-level interaction effect was negative but not significant at the .05 level ($b = -.22, p = .06$). In Model B, the cross-level interaction was negative but not significant ($b = -.03, ns$). Thus, Hypothesis 6 was not supported.

We used the multiple-group SEM analysis to conduct post hoc analysis and examine the difference between male and female groups on the moderating effects of marital satisfaction on distress crossover. For female unemployed spouses, the moderating coefficient for marital satisfaction was $-.41, t(977) = -3.11, p = .01$, whereas the coefficient was $.30, t(977) = 1.21, ns$ for the male unemployed families. These two coefficients were significantly different from each other, $\chi^2(1, N = 979) = 7.49, p < .01$. Thus a significant three-way interaction among distress, marital satisfaction, and gender was found.

Using the post hoc approach, we further explored whether other path coefficients differed across gender by conducting multiple-group MSEM analyses. First, we performed the structural modeling for men and women subgroups with no constraints on the path coefficients across gender. Second, we repeated the same analyses with equal constraints on path coefficients between the gender subgroups. Because the constrained and unconstrained models were nested, the significance of the fit index changes between the unconstrained and alternative constrained models was examined by using LR tests. A nonsignificant LR test suggests that a constrained model is preferable to an unconstrained model, whereas a significant LR test indicates an unconstrained model is preferred. Following that test, we identified specific coefficients that vary across gender groups. We expected the series of tests to help us locate specific path coefficients that differed across gender groups. However, multiple post hoc tests can lead to higher familywise error rates. To control for the potential familywise error rates, we adopted the Holm–Bonferroni method to adjust the alpha level.

For Model A, the LR test, between constrained and unconstrained models, $\chi^2(12, N = 979) = 28.64, p < .01$, indicated that the unconstrained model was preferable. To locate the specific path coefficients that vary across gender groups, we conducted 11 pairs of comparison tests between the unconstrained model and 11 different constrained models (for each constrained model, we set

only one path coefficient to be equally constrained across gender groups). After we adjusted the alpha on the basis of the Holm–Bonferroni method, the results indicated that only the path between daily work stressor and end-of-day distress varied across gender ($p < .01$). For female employed spouses, the relationship between daily work stressors and end-of-day distress was positive and significant ($b = 0.82, p < .01$), whereas for male employed spouses, the relationship between daily work stressors and end-of-day distress was not significant ($b = -.10, ns$). We did not find a significant difference between moderating effect of marital satisfaction in Model A, $\chi^2(1, N = 979) = 0.23, ns$. The results described above are reported in Figure 4. For Model B, the LR test, $\chi^2(9, N = 979) = 16.59, p = .06$, indicates that the constrained model was preferable to the unconstrained one. No overall gender difference was detected. We also reported results from the unconstrained model in Figure 5 for reference.⁷

Discussion

We developed and tested a model of stress crossover comprising three crossover mechanisms under conditions in which one spouse is unemployed and the other has a full-time job. In short, our study provides compelling evidence that the daily stress experiences of unemployed and employed individuals are interrelated with their significant others. The findings support direct crossover effects but not the mediating effects of marital support. Results also suggest that other stressors originating from either unemployment or employment situations of spouses contributed to their daily distress levels. For the unemployed spouses, negative daily financial strain and job search experiences were associated with higher levels of daily distress. For employed spouses, work–family conflict and family–work conflict were factors that associated significantly with higher levels of distress. We also examined the moderating

⁷ We also tested potential moderating effects of job type (managerial/professional vs. others jobs) and education (with higher education vs. without higher education) on the relationships in our model. No significant moderating effects were detected.

Between individual level

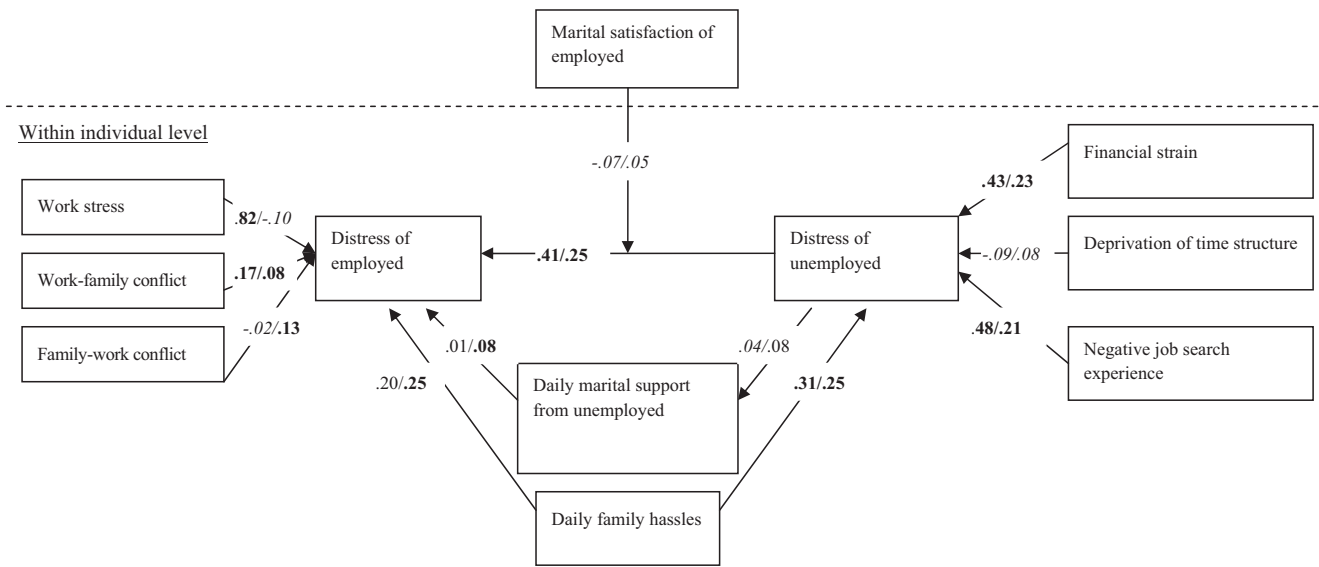


Figure 4. Distress crossover from the unemployed to the employed (Model A by gender). Coefficients in bold are significant at $p = .05$ level. Coefficients in italics are not significant. Coefficients on the left of forward slashes are from the model with the group of employed wives and unemployed husbands. Coefficients on the right of forward slashes are from the model with the group of unemployed wives and employed husbands.

effects of marital satisfaction and gender over stress crossover effects and found that the moderating effect of marital satisfaction on distress crossover from employed spouses to unemployed spouses depended on gender.

Theoretical Implications

We responded to the call to examine the couple as a unit in dealing with stress, especially in unemployment situations (Boden-

mann, 1997). The current diary study on the dynamics of daily distress of unemployed individuals and their employed spouses provides a deeper understanding of the spousal crossover mechanisms (e.g., Vinokur et al., 1996; Westman et al., 2004). Notably, our model includes stressors common to both spouses and other stressors originating from employment and unemployment. Although the employed partners seem to be less distressed than their unemployed partners, the spouses' daily distress levels were asso-

Between individual level

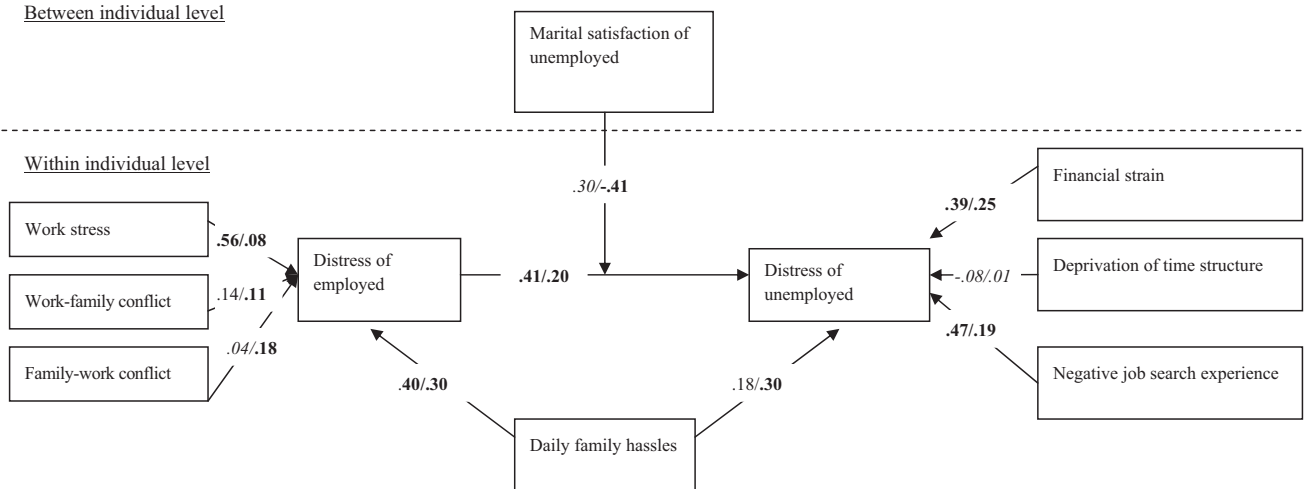


Figure 5. Distress crossover from the employed to the unemployed (Model B by gender). Coefficients in boldface are significant at $p = .05$ level. Coefficients in italics are not significant. Coefficients on the left of forward slashes are from the model with the group of employed wives and unemployed husbands. Coefficients on the right of forward slashes are from the model with the group of unemployed wives and employed husbands.

ciated positively, suggesting that the negative impact of job loss may extend to the working spouses. Similarly, work–family conflict of employed individuals can negatively influence the distress of both spouses. These findings lend strong support for investigating the family as an integrated system to understand the dynamics of unemployment.

We did not find significant mediating effects of daily marital support on the distress crossover in both same-day and lagged regression models, probably because most families in our study had relatively low socioeconomic status (i.e., low education levels and low family incomes). Turner and Noh (1981, as cited in Riley & Eckenrode, 1986) found that stress buffering of social support is most salient for high and middle levels of socioeconomic status and is not significant for low-status levels. The lack of personal resources (e.g., education, income, and internal locus of control) can diminish the impact of support mobilization to psychological well-being, and support mobilization in the absence of such personal resources may lead to detrimental effects (Riley & Eckenrode, 1986). We found that marital support offered by the unemployed participants to their employed spouses correlated positively with distress reported by the unemployed participants. There could be other mediators for the crossover effect that we did not study, such as social undermining (Vinokur et al., 1996), which represents behaviors between partners that are detrimental in nature.

In examining minor day-to-day stressors (Helms & Demo, 2005), research results have indicated that minor family stressors account for stress levels of couples. Following past research on the work–family and unemployment literatures, we included daily family hassles as the common stressor and classified other stressors as either stemming from employment (i.e., work stressor, work–family conflict, and family–work conflict) or unemployment (i.e., time structure, negative job search experience, and financial strain). We recognize that categorizing these stressors may not be straightforward. For example, whereas past research has viewed financial strain as an unemployment-specific stressor, financial strain may also influence the employed spouse (Westman et al., 2004). Thus, future research may consider financial strain as a common stressor. Moreover, we treated work and family conflict as other stressor for employed spouses. Similar to employed spouses who need to juggle between work and family responsibilities, unemployed job seekers need to balance their house chores and job search endeavors. It is also possible that for unemployed spouses, their family responsibilities may conflict with their job search activities. Future studies can link stressors in a more comprehensive and fine-grained manner.

We found a three-way interaction among gender, marital satisfaction, and distress of employed spouses on distress experienced by unemployed spouses. In families with employed wives, the crossover of distress from wives to husbands was stronger in more satisfied marriages than in less satisfied ones. In families with employed husbands, the crossover of distress from husbands to wives was weaker in more satisfied marriages than in less satisfied ones. These differential gender effects may reflect different goals for men and women in managing their work and home domains. Men tend to protect their families from tensions they experience at work (Weiss, 1990), whereas women tend to have a tighter link between work and family experiences (Rothbard, 2001). These may drive different strategies for men and women to either segregate or integrate work and family spheres. In our post hoc

analysis, we found a significant relationship between daily work stress and distress for employed wives but not for employed husbands, suggesting that women may be more sensitive to pressures originating from work (Gutek et al., 1991).

Both the literature review and the results of the current study related to gender differences highlight that the traditional gender role theories may not be easily applicable in current societies. Traditional beliefs about gender roles have been challenged with women's increasing participation in the labor force and their prominence in high-status professional roles such as senior government officials, business executives, doctors, and lawyers (Kulik, 2000). Barnett and Hyde (2001) suggested that women and men are becoming increasingly similar in their behaviors and motivations at work and at home. They argue that the quality of social function is more important than gender in determining the individual's mental well-being. According to this gender theory, work and family conflicts, bad jobs, and poor marital relationships have similar detrimental effects for women and men. Our results, to some extent, support their proposition.

Limitations and Future Research Directions

A limitation of the study was the underrepresentation of male job seekers. We were informed by the community center employees that the unemployed men were more likely to engage in informal employment, thereby disqualifying them from the study. This tendency may reflect Chinese unemployed men's strong work commitment, a conjecture that future studies can examine. Nevertheless, other recruiting strategies should be explored in future research to achieve a gender-balanced sample to increase power to detect meaningful gender differences. Despite the gender imbalance, the diary study method, which provided multiple reports from each individual nonetheless allowed us to test gender differences on unemployment experiences.

Another limitation was the inability to tease out the mechanisms accounting for the stress-buffering effect of a well-adjusted marital relationship. From the perspective of the affect sender, spouses in good marital relationships may display negative feelings in a way that is less likely to be perceived as hostile or spouses may withhold negative feelings to protect their partners from worry (Cutrona, 1996). From the receiver's perspective, spouses in good marital relationships may be more immune to the cynical appraisals of their partners' distress or negative behaviors and are thus less likely to fall into vicious cycles of negative emotions (R. W. Larson & Richards, 1994). To separate these two possibilities, researchers can adopt designs that record marital interactions, such as lab observational coding (Kerig & Baucom, 2004).

Although we only included marital satisfaction as a moderator, other variables can moderate stress crossover between spouses. For example, a survey study in China (Pimentel, 2000) indicated that parental approval of marriage for both wives and husbands was significantly correlated with marital happiness, which may reflect the Confucian tradition that values the decent line (i.e., from father to son) more than other relationships and places the father–son relationship ahead of the husband–wife relationship. It would be interesting to study how relationships with parents could influence marital interactions and stress crossover. Another possible moderator is unemployment duration. Longer unemployment duration can make people feel despair and intensify family conflict on the

one hand and give unemployed individuals and their families an opportunity to learn to adapt to the changed life situation on the other hand (Clark, 2006; Liem & Liem, 1990). These competing mechanisms may either heighten or mitigate stress crossover between partners. Future studies are encouraged to examine these important factors.

Another potential moderator is that of gender role attitudes (e.g., Thornton, Alwin, & Camburn, 1983), which should be distinguished from gender (Powell & Greenhaus, 2010, in press). Gender role attitudes have been defined broadly as “beliefs about the appropriate role activities for women and men” (McHugh & Frieze, 1997, p. 4). Specific to the context of work–family interface, individuals who hold an egalitarian gender role attitude may view men and women equally in their obligations to both the work and home spheres, whereas those who hold traditional gender role attitudes consider that men should devote more energy to their work, whereas women should dedicate more time to their homes (Hochschild, 1989). A recent study (Livingston & Judge, 2008) revealed moderating effects of gender role attitudes on the relationship between work–family conflict and guilt. Gender role attitudes may moderate the relationship between stressors (e.g., work stress and deprivation of time structure) and experienced distress. These attitudes may also influence spousal expectations of division of housework and arrangement of timetables. Future research can examine how gender role attitudes of husbands and wives moderate the distress crossover process.

Data were collected in China, where unemployed job seekers may face situations that are different from those in other countries (Price, Choi, & Lim, 2006; Song, Wanberg, Niu, & Xie, 2006). Findings of this study may not automatically apply to other countries. However, the modernization of Chinese societies has minimized the differences of gender roles between China and other developed countries. The traditional Chinese values based on the Confucian teachings placed women at the lower end of the patriarchal family structure. In this system, women are subordinate to men and restricted to the family sphere. In the past century, however, especially through efforts of the Chinese government since 1949, this gender inequality has been challenged. The phrase “Women hold up half the sky” was coined by Mao Zedong who launched a campaign to get women out of the home and into the workforce. Consequently, China has one of the highest rates of employment for women in the world, which contrasts with other countries and regions dominated by ethnic Chinese (i.e., Taiwan, Hong Kong, and Singapore). Given the improved socioeconomic status of women in modern China, similar to that of developed countries, findings of gender effects from the study may be generalizable to other countries. Moreover, the situation in which one partner is unemployed and the other is employed is common in other parts of the world. Findings of the current study should have some general implications for different countries in dealing with unemployment.

Practical Implications

Our study highlights the need for organizations to be more sensitive and supportive when their employees have family members, particularly spouses, who are unemployed. Given the increased family burdens for employees who have unemployed spouses, organizations should be mindful about their employees’

family situations. Organizations can implement family-friendly policies to help employees fulfill family roles, which, in turn, could increase the employees’ attitudinal and behavioral commitment (Guzzo, Nelson, & Noonan, 1992). These policies can include, but are not limited to, assurance of job security, Employment Assistant Programs, and flexible working hours to help employees cope with their changed family situation. Our findings suggest that female employees may particularly benefit from these programs as they were more influenced by work stress.

Our findings also emphasize the need for social service agencies to provide comprehensive unemployment assistance programs that take into account unemployed individuals as well as their families. Most unemployment intervention programs focus only on unemployed individuals and neglect their partners. Our study suggests that because stress experiences of members of the couple are closely intertwined, it is critical to include both spouses to reduce the adverse effects of job loss on family well-being. Furthermore, secondary stressors brought about by unemployment can influence well-being of both spouses through multiple mechanisms. Couples need to receive guidance in building communal coping strategies to handle these stressors effectively (Mickelson, Lyons, Sullivan, & Coyne, 2001). Unemployment assistance programs should collaborate with family and marriage experts to develop more family-focused interventions.

Conclusion

Stress experienced during unemployment is not an individual phenomenon, as spouses’ daily psychological experiences are closely linked. We present a model of spousal stress crossover that incorporates minor day-to-day stressors in the context of a major life stressor—that of unemployment. To study the couple as a unit of analysis, researchers should include spousal dynamics, such as daily hassles, which shape the crossover effects. Knowledge about how couples jointly respond to stress in their daily lives during periods of unemployment can provide insights into family functioning and provide avenues for effective interventions.

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Correction to Landers et al. (2010)

In the article “Retesting After Initial Failure, Coaching Rumors, and Warnings Against Faking in Online Personality Measures for Selection,” by Richard N. Landers, Paul R. Sackett, and Kathy A. Tuzinski (*Journal of Applied Psychology*, Vol. 96, No. 1, pp. 201–210), some of the wording in the (b) and (c) descriptions of the caption to Figure 1 was printed incorrectly. The corrected caption is provided below:

Figure 1. Logistic regressions of blatant extreme responding (BER) engagement on time, applicant status, and interaction term. $N = 32,311$. Graph represents composite of three logistic regression curves: (a) completed BER on time, internal/external applicant status, and interaction before warnings; (b) completed BER on time, internal/external applicant status, and interaction after warnings; and (c) attempted BER on time, internal/external applicant status, and interaction after warnings. “Attempted” in this context includes those who completed with BER.

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