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Social Support and Network Conflict in Firefighters and Paramedics[1]

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The relationship(s) between self-rated social support network conflict (both at work and off-work) and self-report measures of occupational stressors, job satisfaction, and health outcomes were examined in samples of currently employed professional firefighters (n = 1,730) and paramedics (n = 253). In both samples, perceived social support and network conflict at work were more strongly correlated with job satisfaction and work morale, as well as a measure of their appraised occupational stressors, than with their comparable home (off-work) satisfaction/conflict ratings. The path analysis generated suggested that, with only one exception, social support and relational conflict in the combined respondent sample could be conceptualized as direct sources of stress influencing the respondents' appraisal of their occupational stressors. The path model further suggested that firefighter/paramedics' appraisal of their occupational stressors mediated the network variables' influences on self-reported job dissatisfaction and stress symptom health outcome measures.

Professional firefighting is a stressful and dangerous occupation that ranks fifth in occupational mortality in the United States (Leigh, 1988). Evidence suggests that most firefighter mortality and morbidity is related either directly or indirectly to the stressful nature of their work (Beaton & Murphy, 1993; National Fire Protection Agency [NFPA], 1988). To cope with inherently dangerous and stressful occupational demands, firefighters and paramedics must presumably rely upon coworkers, family members, and friends for social support. Professional firefighters and paramedics spend long hours

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together at the firehouse. Due in part to their long shifts (between 14 and 24 hours in duration) and occupational cultural norms, firefighter/paramedic coworkers eat, sleep, and play together. Thus, the social relations of firefighters and paramedics are rather unique, even when compared to other emergency workers or to other human service workers (Corneil, 1993).

Firefighters and paramedics also have the opportunity to develop strong kinships and friendships. The type of work shift patterns assigned often provides several days at home at a time. Moreover, firefighters and paramedics do not have regular workweeks, nor do they necessarily celebrate holidays at the same time as neighbors and extended family. Thus social and recreational activities tend to occur in the company of other firefighters and paramedics and family members whose schedules are similar. This increased degree of interaction leads to a greater interdependence of firefighter and paramedic coworkers in terms of social support both on and off the job; it also creates a closer interaction between family and work social support than in most other occupational groups. Furthermore, while on duty, there is a heavy emphasis on teamwork and a reliance upon one another in life and death emergency situations. Thus firefighter and paramedic coworkers may constitute an even more intimate, confiding, and supportive network than marital, family and kin, and nonwork friendships.

One purpose of this investigation was to test the premise that bonds among firefighters and paramedic coworkers are stronger than nonwork bonds. To this end, we examined the satisfaction with social support reported by firefighters and paramedics as well as the impact of coworker relations and relations with family and friends upon their health outcomes. The second purpose of this study was to examine the similarities and differences between professional, public sector firefighters and paramedics, in terms of perceived social support and network conflict. A third purpose was to determine the interrelationships among social support, relationship conflict, work stressors, job satisfaction, and self-reported health outcome variables in these high-strain workers. The path analysis generated tested two competing models of social support/conflict in terms of their effects on appraisal of their occupational stress and job satisfaction and on health outcomes. Specifically, in this sample of firefighters and paramedics, did social support *buffer* or moderate the impact of job-related stressors on adverse health outcomes (*buffering hypothesis*), or did their unsatisfactory social relations (and interpersonal conflict) have *direct* negative effects on health outcomes (*costs of nonsupport hypothesis*) (Gore, 1978; Tilden & Gaylen, 1987; Wheaton, 1985)?

Previous research by the first and second authors showed that the reported level of occupational stressors, as well as certain specific job-related stress-

ors, are associated with job satisfaction and work morale ratings in firefighters and paramedics (Beaton & Murphy, 1993). This investigation extends our prior findings and conceptual model by incorporating social support and health outcome measures in the analyses. Over the past two decades, numerous epidemiological studies have established statistical associations between social support variables and health outcomes such as morbidity and mortality (Berkman & Symes, 1979; Broadhead et al., 1983; Cassell, 1974). However, most of the reported effect sizes have been small, accounting for only 3% to 5% of the variance (Smith, Fernengel, Holcroft, Gerald, & Marien, 1994). These modest associations and other inconsistent findings from studies of the stress-buffering hypothesis may be due, in part, to methodological issues (Gore, 1978; Krause, 1987; Murphy, 1987). For instance, some researchers have posited that social support is a multidimensional construct (King, Reis, Porter, & Norsen, 1993), although others have noted that the various items and scales measuring social support are highly intercorrelated, suggesting a unidimensional model (Sarason, Shearin, Pierce, & Sarason, 1987).

Although there is also a growing recognition that social networks are double-edged swords, with aspects of support as well as conflict, there has been very little research on the "darker side" of social support, that is, conflicted social relations (Tilden & Gaylen, 1987). Social relationships may themselves be sources of stress as well as potential buffers of job-related stress (Hurrell, 1987). Gore (1978) obtained evidence supporting the hypothesis that low social support is yet another stressor that directly and adversely affects health outcomes, findings consistent with the cost of nonsupport hypothesis.

Theoretical relationships among social support, occupational stress variables, and health have been previously formulated by LaRocco, House, and French (1980) and House (1981). Their theoretical model postulated that perceived social support affects the appraisal of occupational stressors, subjective job satisfaction, and psychological (stress) symptoms (LaRocco et al., 1980). Corneil's (1993) examination of traumatic stress among firefighters found that whereas social support, both at work and from family members, had a protective role in terms of reducing the risk for post-traumatic stress disorder symptomatology, work social support had the stronger effect. This finding confirmed House's (1981) contention that workplace support (of coworkers and supervisors) may be more important, perhaps due to its relevancy, than nonwork support in terms of buffering the impact of occupational stressors. Norbeck's (1985) research with a sample of critical care nurses provided equivocal support for House's model; that is, the stress-reducing effects of social support among critical care nurses was found

to be quite general. Finally, Pines (1983) found that the availability of social support at work correlated negatively with burnout indices among human services professionals.

Although there are a number of similarities between the occupational social structures of firefighters and paramedics, there are also some notable differences. Paramedics are reportedly subjected to even greater occupational stress levels than are firefighters (Dutton, Smolensky, Lorimor, & Leach, 1978). Professional firefighters are generally assigned to a particular platoon (or work group) at a particular fire station. Firefighters thus work with a particular engine or ladder truck crew (of two to five firefighter coworkers) for an extended period of time (months or years). Also, public sector paramedics are generally assigned to a particular fire station and work with a paramedic or emergency medical technician partner as part of a "medic unit" team. Whereas firefighters generally have a clear command hierarchy at the station and at incident scenes, paramedics are often equally trained and may alternate the authoritative positions of driver and senior medic from shift to shift. Thus the present study included paramedics to ascertain whether their social structures, occupational stressors, and health outcomes were empirically similar to those of the firefighter respondents.

In summary, a number of investigators have previously documented relationships between social network variables and health outcomes. The present investigation addresses a number of research questions regarding the nature and extent of these interrelations in a professional sample of currently employed firefighters and paramedics, including: (a) their satisfaction and conflict ratings with coworkers and their nonwork/friend/kin networks are compared; (b) the nature of the relationship(s) between assessed network variables, job satisfaction, morale, and self-reported health outcomes is examined; and (c) finally, two competing models of social support's effect on health (the buffering hypothesis vs. the costs of nonsupport hypothesis) were tested for goodness of fit with the data collected.

METHODS

Sample and Sampling Procedure

Data were obtained from respondents who completed an anonymous mail survey of occupational stress sent to all public sector, professional paramedics and firefighters in Washington State (prospective $N = 4{,}000$). The survey methodology was a modification of Dillman (1978), including a follow-up "reminder" postcard. Nearly 2,050 surveys were returned, for an overall rate

of return of about 50%. A description of the entire firefighter-paramedic respondent sample and of the two separate occupational groups follows:

Firefighter-paramedic sample (FF-PM). The majority of the entire study sample (n > 2,000) were male (97%), Caucasian (93%), and firefighters (87%). (More than 90% of the paramedic group were *also* firefighters; that is, they were paramedics as well as firefighters). The mean age of the FF-PM sample was about 36 years old; about 80% were married and had at least one other household member (a child) less than 16 years old. The FF-PM respondents reportedly averaged about 2 years of formal education past high school, and more than a third of the overall sample reportedly worked at another job, averaging 20+ hours/month at this second job.

The FF-PM sample had reportedly worked for the same fire department for the past 12 years, and they had, on average, worked at the same firehouse for slightly more than 4.5 years. A small percentage (about 11%) of FF-PM respondents were "detailed" or assigned to a given station and engine or ladder team on a shift-to-shift basis.

Paramedic subsample (PM). The paramedic group (n = 253) made up about 13% of the respondent sample, with an overall return rate of 49%. While 93% of the PM sample were also firefighters, data from the non-firefighter/paramedics were also included in these analyses because they did not differ from the other paramedic scores on the measures employed. During their past 10 shifts, the PM sample reported that 80+% of their "runs" or calls were to provide emergency medical services and that about 15% of their runs involved fire suppression. PMs reported they had been employed by their current department for 10.2 years, had been employed as paramedics for the past 7.86 years, and had worked at the same station for 4.64 years; 11.5% were detailed or shifted from station to station.

The PM group averaged 35.65 years of age (SD = 5.95); 98% were male, and 95% were Caucasian. Nearly 80% were reportedly married; 65% had at least one family member (child) less than 16 years old (mean number in household < 16 years old = 1.31). The average number of years of education was 14.38 (where high school graduate = 12). About 42% of the PM respondent sample reported outside (second-job) employment averaging 25 hours/month.

Firefighter subsample (FF). The firefighter group made up 87% of the sample (n = 1,730), with a survey return rate of 51%. All of the firefighters were EMT certified except 1% who were paramedic certified. The FF respondent sample reportedly provided emergency medical services on nearly 60% of runs during their past 10 shifts. The FF group reportedly had been with the same fire department for 12.09 years, had worked as firefighters for 12.53 years and/or formally as paramedics (n = 343) for 1.12 years, and

had reported to the same fire station for 4.62 years. About 11.3% of the FF sample were detailed to various stations on a shift-by-shift basis.

The FF sample averaged 37.17 years of age (*SD* = 7.46); 97% were male and 92% were Caucasian. Nearly 80% of the FF were reportedly married; 60% had a least one family member, presumably a child, less than 16 years old (mean number in household = 1.14). The average number of years of education reported by the FF sample was 13.79 (high school graduate = 12). Nearly a third (32.6%) of the FF sample reported some outside employment, averaging about 18 hours/month of work at these second jobs.

Instruments

Social network measures. Firefighter and paramedic respondents were asked to rate their perceived social satisfaction, as well as their subjective relationship conflict experienced at home, with family and friends, and with coworkers on four separate 0 to 100 modified visual analog scales (VASs) (Gift, 1989). The following adjectival VAS anchors were identified on the social support (at work and at home) satisfaction measures: 0 = *completely dissatisfied*, 50 = *somewhat satisfied*, and 100 = *completely satisfied.* For the network degree of conflict measures, comparably anchored VAS ratings of appraised conflict (at work and at home) were as follows: 0 = *little or no conflict*, 50 = *some conflict* and 100 = *frequent, intense conflict.* These four separate modified VAS ratings were used to assess the respondents' subjective satisfaction with their social relations, as well as their perceived conflict with family relations and friends (at home) and, separately, their appraised satisfaction with social support and network conflict ratings for their coworker relationships.

Sources of occupational stress. As part of the survey battery, a 57-item questionnaire was developed by the first and second authors to measure the firefighter and paramedic respondents' Sources of Occupational Stress (SOOS). The SOOS was designed to assess the types and degree(s) of psychosocial stressors to which firefighters and paramedics were commonly exposed. Firefighter and paramedic respondents were asked to indicate whether they had experienced a particular type of occupational stressor within their past 10 work shifts and, if they had, to indicate how "bothered" they had been by this job-related stressor on a 0 to 100 VAS (where 100 = *extremely bothered*, 50 = *somewhat bothered*, and 0 = *not bothered at all*). Summing their replies to all 57 items (with *not applicable* = 0) yielded a total SOOS score. Prior research revealed that the SOOS consisted of 14 statistically distinct factors (Beaton & Murphy, 1993). The following 14 factor analytically derived scales, each comprising two to five

items, were identified: sleep disturbance, job skill concerns, past critical incidents, management/labor conflicts, apprehension regarding personal safety, coworker conflict, substandard equipment, wage/benefit and reduction in force worries, conveying tragedy, tedium, poor health habits, discrimination/harassment, family/financial strain, and second job stress (Beaton & Murphy, 1993).

Job outcome measures. Two separate items were employed to assess job satisfaction and morale. One outcome measure asked respondents to rate current overall job satisfaction on a 0 to 100 VAS (where 0 = *not satisfied at all with job* to 100 = *completely satisfied with job*); another measure asked for their current work-related morale ratings on a 0 to 100 VAS (where 0 = *extremely low morale/demoralized* and 100 = *extremely high morale*). Although no differential definition was offered for job satisfaction and work-related morale, the former presumably identified an individual respondent's personal sense of job pleasure/displeasure, whereas the latter was understood as reflecting a more general condition of enthusiasm (or lack of enthusiasm) shared by an employee group (or department). Prior research has shown that job satisfaction correlates negatively with role ambiguity (Miles, 1975) and with workload in air traffic controllers (Rose, Jenkins, & Hurst, 1978). Job satisfaction/dissatisfaction is generally considered to be an important measure of worker psychological health and reflective of the individual employee-organization interface (Murphy, Hurrell, & Quick, 1992).

Measure of health outcomes: The *Symptoms of Stress Inventory* (SOS) was used to measure the firefighter/paramedic respondent samples' somatic, behavioral, and psychological stress symptomatology. Firefighter and paramedic respondents were asked to rate the frequency with which they might have experienced a particular stress symptom during the past week on a 0 to 4-point scale (0 = *never* to 4 = *frequently*). Scoring of the SOS yielded a total score, as well as the following 11 content-derived scale scores: (1) peripheral (7 items), (2) cardiovascular (7 items), (3) neurologic (5 items), (4) muscle tension (10 items), (5) gastrointestinal (8 items), (6) habit patterns (15 items), (7) depression (8 items), (8) anxiety (11 items), (9) anger (8 items), (10) cognitive disorganization (7 items), and (11) cardiorespiratory (8 items). Prior research studies have shown that the SOS inventory has adequate interitem (Cronbach's $\alpha = .96$) and test-retest reliabilities (*r*s for SOS scales ranged from .47 to .86 for a 6-week test-retest interval) (Beaton, Burr, Nakagawa, Osborne, & Thompson, 1978; Nakagawa-Kogan & Betrus, 1984). The SOS subscale internal reliabilities ranged, with one exception, from $r = .78$ to $r = .91$ in a sample of stress-disordered clients ($N = 415$) (Thompson, 1989). The SOS neurologic scale, the exception, was shown to possess an internal reliability of $r = .62$.

Prior investigations have already documented the SOS's validity in terms of its ability to detect the benefits of stress management therapy and to differentiate between patient and nonpatient samples (Beaton, Egan, Nakagawa-Kogan, & Morrison, 1991; Beaton, Nakagawa-Kogan, Hendershot, & Betrus, 1985). Previous studies have also documented that the total SOS score correlated significantly (r = .76) with the Global Symptoms Index of the SCL-90R in an outpatient sample of clients with stress disorders (Beaton et al., 1978; Derogatis, 1977). The correlation between the measure of overall firefighter/paramedic job stressors (as measured by the total score on the 57-item SOOS) and the SOS total score was statistically significant (r = .60, $p < .001$) for a sample (n = 163) of urban firefighters (Beaton, Murphy, Pike, & Jarrett, 1995). Thus the SOS appears to have adequate sensitivity and specificity in terms of its ability to assess firefighter and paramedic stress symptomatology even though much of the SOS reliability and validity data were gathered with samples of mostly female stress clientele.

Edward's Social Desirability Scale

Finally, Edward's Social Desirability (SD) Scale, a measure of respondents' social desirability test-taking bias, was also administered to determine the social desirability valences of the measures employed. This was necessary to assess the degree to which respondent's replies reflected a conscious or unconscious tendency to respond in a socially desirable manner. This was important, because prior research has demonstrated the ubiquitous nature of this test-taking bias and that some measures of health and well-being were correlated significantly with this measure of social desirability (Edwards, 1970).

RESULTS

The findings will be addressed by first noting the relationship between respondents' Edward's SD Scale scores and other measures. Then differences between firefighter and paramedic respondents on the network variables will be reported. Next, the relationship(s) between network variables themselves will be presented. The following analyses will then address the relationship(s) between network variables, ratings of job satisfaction and morale, perceived occupational stressors, and stress symptomatology. Finally, a path analysis will be used to document and illustrate the direct and indirect effects of network support and conflict on the occupational stressors, job dissatisfac-

tion, and stress symptomatology of this sample of professional firefighters and paramedics.

Edward's Social Desirability Scale: Relationship to Other Measures

None of the correlations between the social network variables and Edward's SD scale scores exceeded +.10 for either the firefighter, paramedic, or combined groups. This finding suggested that social network ratings were not correlated with this measure of socially desirable test-taking bias.

Sample, Gender, and Social Support/Conflict Network Differences

Firefighter and paramedic social support/conflict network ratings did not significantly differ. Therefore the two groups' reported social support and relational conflict ratings were combined into a single firefighter-paramedic group for most, but not all, subsequent analyses. Compared to the male colleagues, female firefighter respondents ($n = 57$) reported similar levels of perceived support at work and at home, but they reported significantly more coworker conflict ($t = -2.41$; $p = .02$). Despite this one significant difference, female firefighter replies were combined with the male group in subsequent analyses. The social network replies and intercorrelations of the FF-PM respondents who were detailed to a given station, engine, ladder, and/or medic unit on a shift-to-shift basis did not differ from the other FF-PM respondents. Therefore, the replies of these detailed firefighters and paramedics were also included in all of the following statistical analyses.

Table 1 presents the means and standard deviations for the network measures employed for the combined FF-PM sample ($N = 2,005$ to 2,009). Table 1 also shows the results of t tests for differences between satisfaction with social support at home versus at-work (coworker) support and perceived conflict with coworkers versus conflict with family and friends (off-work). Also in Table 1, note that respondents' ratings of social satisfaction at home (with family and friends) were significantly higher than comparable ratings at work (satisfaction with coworker support). On the other hand, perceived conflict ratings at home and at work did not differ significantly when employing the Bonferroni's statistical correction for multiple t tests (Miller, 1981). Not shown are results of t tests comparing social support and conflict at work ($t = 33.13$; $p < .001$) and social support and conflict at home ($t = 47.61$; $p < .001$). These latter statistical tests showed that ratings of satisfac-

TABLE 1: Network Variables—Means, SDs, & *t*-Test Differences for the Combined Firefighters/Paramedic Group (N = 2,005-2,009)

Rated Variable	*Mean*	SD	t *value*	p
Satisfaction with social support at work (coworkers)	57.41	23.84		
			–20.47	<.001
Satisfaction with social support at home (family and friends)	70.66	23.81		
Conflict at work (coworkers)	28.81	23.16		
			2.41	.016 (ns)[a]
Conflict at home (family and friends)	27.20	24.29		

NOTE: *t* and *p* values are on a separate line because they compare the satisfaction and conflict values respectively.
a. Using Bonferroni's Correction for *p* value ≤ .05/4 ≤.0125 (after Miller, 1981).

tion with social support both at home and at work were significantly greater than their comparable conflict ratings in the same interpersonal environment; that is, mean conflict was rated as intermediate between none and *some*.

Figure 1 shows the results of Pearson product-moment correlations generated between the social support and perceived conflict both within and across networks in the combined FF-PM sample (N = 1,992). The social conflict and satisfaction measures were significantly and inversely correlated (r = –.34 to –.43) *within* a network (coworker or off-work) but *not* across networks (r = –.05 to –.03). Figure 1 also shows that the satisfaction and conflict measures were each positively correlated (r = .20 to .26) with like measures *across* social networks; that is, social support ratings, as well as conflict ratings, were similar in work and off-work environments.

Social Support and Relational Conflict: Relationships to Job Satisfaction and Work Morale

Table 2 shows the correlations among social support and conflict ratings and reported job satisfaction and worker morale in the firefighter and paramedic samples. Perceived social support, both at home and at work, was significantly correlated with job satisfaction (r ranged from .11 to .52) in both the firefighter and paramedic groups. Only reported conflict *at work*, however, was significantly and inversely related to ratings of job satisfaction and work morale in the firefighter and paramedic groups (r = –.21 and –.28).

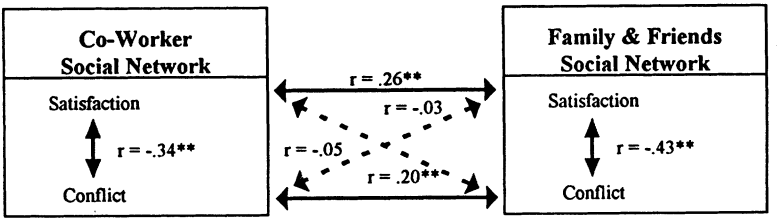

Figure 1: Correlations of perceived satisfaction and relational conflict in firefighter and paramedic respondents (N = 1,992).
**$p < .001$.

Reported conflict at home was not associated with ratings of job satisfaction, nor with work morale, in either firefighter or paramedic groups.

Social Support, Relational Conflict, Perceived Occupational Stressors Measures, and Stress Symptomatology

In the combined FF-PM sample (n = 1,793) appraised level of job stress, as indicated by total SOOS scores, was positively correlated with network conflict ratings (both at home, $r = .22$, $p < .001$; and at work, $r = .33$, $p < .001$) and negatively correlated with social support ratings (both at home, $r = -24$, $p < .001$; and at work, $r = -.37$, $p < .001$).

Table 3 shows the correlations among the firefighter-paramedic respondent sample's (N = 2,009) Symptoms of Stress scores (SOS content scales and total score) and support and conflict ratings (at work and at home). Virtually all of the SOS scales, as well as the SOS total score, correlated significantly with the network measures employed. The correlations between satisfaction with social support and SOS scores ranged from –.11 to –.32; the correlations between conflict and SOS scores ranged from .09 to .26. Not shown here are t-test results for group differences between high and low support and high and low conflict (using median splits of the respondent sample), which yielded significant mean differences ($p < .001$) on all SOS scales and SOS total score.

Figure 2 shows a path analysis model of social support, relational conflict, perceived sources of occupational stress, job dissatisfaction, and stress symptomatology. This figure illustrates the direct and indirect effects of both coworker and off-work network support and conflict on appraised job-related

TABLE 2: Pearson Product-Moment Correlations of Social Support and Conflict Ratings With Occupational Outcome Measures of Job Satisfaction and Worker Morale in Firefighter Group (n = 1,713) and Paramedic Group (n = 248)

	Job Satisfaction		*Work Morale*	
	Firefighters	*Paramedics*	*Firefighters*	*Paramedics*
Social support at work (coworkers)	.40**	.46**	.44**	.52**
Social support at home (family and friends)	.17**	.26**	.11**	.25**
Conflict at work (coworkers)	−.21**	−.23**	−.23**	−.28**
Conflict at home (family and friends)	−.05	−.04	.03	.01

**$p < .001$ (one-tailed).

TABLE 3: Correlations Between Symptoms of Stress Total and Scale Scores and Social Network Variables for Firefighter/Paramedic Sample (N = 2,009)

Symptoms of Stress Scale	*Social Support at Work*	*Social Support at Home*	*Conflict at Work*	*Conflict at Home*
1. Peripheral	−.19	−.14	.16	.11
2. Cardiovascular	−.16	−.14	.11	.13
3. Cardiorespiratory	−.21	−.11	.14	.10
4. Neurologic	−.17	−.14	.16	.09
5. Gastrointestinal	−.23	−.17	.17	.16
6. Muscle tension	−.24	−.14	.19	.15
7. Habit patterns	−.27	−.23	.20	.20
8. Depression	−.29	−.32	.20	.26
9. Anxiety	−.27	−.23	.21	.18
10. Anger	−.27	−.26	.23	.23
11. Cognitive disorganization	−.20	−.20	.14	.18
SOS Total Score	−.30	−.25	.23	.22

NOTE: All correlations were significant at $p < .01$).

stressors (as measured by their SOOS total score), job dissatisfaction, and stress symptomatology (as measured by their SOS total score). Only significant paths ($\beta > .10$) are shown.

Discussion

The path analysis results suggested that, with one exception, social support and relational conflict in the firefighter and paramedic respondent

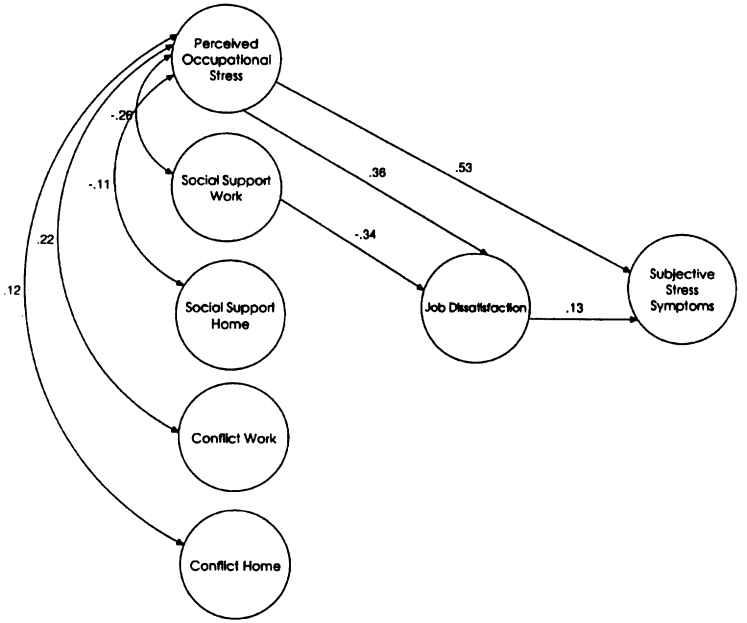

Figure 2: Path model of social support and network conflict (significant paths with $\beta >$ .10 only) depicting main effects on perceived occupational stress and job dissatisfaction. This path model also illustrates the mediating roles of perceived occupational stress and job dissatisfaction in terms of the subjective stress sysmptoms health outcome measure (n = 1,919).

sample can be conceptualized as direct sources of stress affecting occupational stress, which appeared to mediate the network variables' influence on job dissatisfaction and stress symptomatology, supporting the costs of non-support hypothesis of Gore (1978) and others. The only significant direct path between the network variables and outcomes measures was for rated social support at work and job dissatisfaction ($\beta = -.34$). There was also a direct path identified between occupational stress and job dissatisfaction ($\beta = .36$) and a weak direct path between job dissatisfaction and subjective stress symptomatology ($\beta = .13$). The network variables influence on stress symptoms was indirect, operating through the appraisal of occupational stress. The most robust correlational path identified was between the appraised job stressors and stress symptom scores ($\beta = .53$).

The appraisal of occupational stressors, self-reported stress symptoms, and certain job outcome measures were all significantly correlated with the social network variables employed in this sample(s) of professional firefight-

ers and paramedics. Firefighter and paramedic social support and network conflict ratings did not differ from one another, despite some differences in their occupational duties and tasks. In both groups, appraisal of job stress was more strongly tied, albeit weakly (accounting for less than 5% of the variance), to ratings of social satisfaction and perceived conflict at work, supporting the basic tenet of the primacy of work-related social support (House, 1981). At work, social support and conflict ratings accounted for three times more variance of the measure of occupational stressors (total SOOS score) than home (off-work) satisfaction/conflict ratings. Thus, even though "at home" social support was rated as significantly "more satisfactory" by the firefighter and paramedic respondents, their nonwork support and conflict ratings were not as strongly associated with job and health outcome measures. Although more highly rated, the at-home (non-work-related) support may have lacked the relevance and timeliness of the social support provided at work (LaRocco et al., 1980; Thoits, 1982). This was true even though there was some overlap between the firefighter/paramedic respondents' work and off-work social networks.

Although they were inversely related to one another, satisfaction and conflict ratings in the same psychosocial environment shared only 10% to 15% of common variance ($r = -.34$ to $-.43$). These data suggest that, although they may empirically overlap, satisfaction with social support and rated interpersonal conflict are distinctly different and not merely inverse network variables, supporting Tilden and Gaylen's (1987) conceptualization. In terms of occupational outcome measures (e.g., job satisfaction and work morale), social satisfaction and conflict at work were more robustly correlated, accounting for about seven times more variance than comparable at-home measures. Overall, social satisfaction ratings were slightly more robust correlates of job outcomes than comparable conflict measures. Parallel statistics were generated between these network measures and health outcome measures. In general, most of the computed correlations were in the predicted direction; that is, firefighter and paramedic ratings of sources of occupational stressors were negatively correlated with perceptions of social support and positively correlated with perception of relational conflict. Firefighter and paramedic respondents' perceptions of social support at work were most robustly correlated with perceptions of occupational stressor levels. Perceived conflict, especially at work, was also significantly associated with occupational stressors. Thus House's (1981) conclusions regarding the importance of social support provided at work evidently also applies to relational conflict in terms of the appraisal of stress symptomatology. This result also replicates the findings reported by Singh (1990) with a sample of U.S. flight nurses.

Stress symptom correlations with network measures were also in the expected direction, with reports of more frequent and/or numerous stress symptoms associated with lower social support ratings and higher conflict ratings. The computed network correlations were somewhat more robust with reported emotional stress symptoms such as depression and anger compared to somatic neurological and cardiopulmonary stress-related symptoms. Also, social support at work appeared to be more significantly and inversely correlated with stress symptomatology of the FF-PM respondents, consistent with the findings reported by Bromet, Dew, Parkinson, Cohen, and Schwartz (1992) for a sample of female blue-collar employees.

In conclusion, for both firefighters and paramedics, social support as well as relational conflict were associated with the appraisal of occupational stress and job dissatisfaction, as well as certain self-reported health outcomes. Furthermore, the impact of network variables on health outcomes was largely mediated through appraised occupational stress in this emergency worker sample(s). Although the effect sizes were modest, the magnitude and direction of the associations were typical for the type of social support and health outcome measures employed (Smith et al., 1994).

The study findings are limited by the possibly nonrepresentative nature of the sample, the global measures of social support and network conflict employed, and the cross-sectional nature of the research. Still, they are important because firefighters and paramedics are in high-risk occupations with elevated mortality and morbidity (Beaton & Murphy, 1993; NFPA, 1988). Our present findings suggest that firefighters and paramedics with low social support and/or high relational conflict (especially at work) may be at even greater risk in terms of adverse health outcomes. The findings also suggest that *both* social support and network conflict need to be assessed independently. Furthermore, clinicians and researchers need to assess these network variables separately for an individual's home (family/friend) and their work environments. Although these data are suggestive of social support "interventions," we agree with Lanza and Revenson (1993) that the content, source, and targets of such interventions first need to be delineated before these treatments are proffered.

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