Relationships, Personal Factors and Work Conditions As Sources Of Stress For Fire Department Employees:

An Analysis of Employee and Spouse Perspectives

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Abstract

This survey study identifies and prioritizes the aspects of work and personal life that are perceived as stressful to the employees of a large city fire department, both from the perspective of the employee (N = 147) and from that of the employee's romantic partner (N = 62). A total of 22 of 33 areas were rated by a third or more of all employees as stressful, including maintaining relationships with a romantic partner, and maintaining relationships with children. Respondents tended to rate issues as more stressful for others than for themselves. Few significant differences were found between responses of romantic partners and employees.

Introduction

Traumatic situations can be experienced as isolated events, such as earthquakes or unexpected civil disasters, or as ongoing occupational hazards, as experienced by rescue, and child abuse workers and police. Although the psychological responses of those involved in isolated traumatic events have received considerable attention in the research literature, few studies have attempted to assess the way in which ongoing work and personal stressors are experienced by these workers on a daily basis, or the way in which these impact general life satisfaction. This shortcoming has been recognized by other researchers (Beaton and Murphy, 1993), but has yet to be effectively addressed.

Firefighters for example, and the personnel that support them, experience a range of stressors in addition to those unique to the natural disasters and extreme events that often form the basis of most stress-related studies. The firefighting task itself is not only intensely physically and mentally demanding but requires a high level of team work in a highly unpredictable work environment. In the course of a single fire, firefighters can be exposed to a multitude of health and safety risks, including extremes of heat, collapsing buildings, and a variety of air contaminants (Selye, 1974). Schirmer and Glazner (1983) report that even the sound of the fire alarm in the fire station, and the subsequent rapid transition from the friendly environment of the station to the hostile environment of the fire is sufficient to trigger the physiologic responses of extreme stress. The National Commission on Fire Prevention and Control has actually declared that firefighting is the most hazardous and dangerous occupation in the United States (Hildebrand, 1984). Firefighting not only has the highest mortality rate of all occupations, but firefighters also have a life expectancy 10 years shorter than the average non-firefighter (Avers, 1990).

Much of the research on exposure to traumatic events has been focused on the primary or immediate victim of the event. But unlike the victims whom they are called upon to assist, firefighters face not only the stress of the event itself, but also the stress of their role as a help provider. In a study of more than 2000 Emergency Service workers, Beaton and Murphy (1993) showed that critical incident stress was only one of several occupation-related stressors to which firefighters and paramedics are exposed.

The types of stressors experienced by rescue workers can be categorized into three general groups (Hartsough, 1985): event, occupation and organization. Event stressors include the exposure to unpleasant sights, high body counts, personal loss or injury, and situations created by human failure. In a study of firefighters called to a mass casualty air disaster rescue, the characteristic responses related to event stressors included identification with the victims and the dead; feelings of helplessness and guilt; and fear of the unknown (Fullerton et al., 1992).

Occupational stressors pertain to the nature of the work itself, as well as the adverse conditions created by a disaster environment. Physical exhaustion (Fullerton et al., 1992) and the psychological effects of exposure to dangerous chemicals (Markowitz, 1989) are two areas of occupational stress addressed in the literature. Organizational stressors are the conflicts that emerge around roles, authority and operational priorities. The various organizational and leadership stressors that are common to many employee groups are often further aggravated amongst firefighters due to the heavy reliance on teamwork and upon one another in 'life and death' emergency situations. Included in this category are stressors such as the safety of the team or the fulfillment of the obligation to one another, and even on occasion, the mandatory participation in psychological debriefings with the objective of reducing stress.

Stuhlmiller (1994) reported this unexpected finding from a study of firefighters involved in rescue work following the 1989 San Francisco earthquake. The open forum among firefighters from a number of different stations was perceived as threatening by the subjects, whose team strength depended on not admitting vulnerability. This violated the way firefighters typically take care of their stress-privately among their work teams.

The importance of better understanding how these stressors are perceived and experienced by this group is well documented by the evidence. Repeated exposure to trauma, especially for first responders such as firefighters and police officers, leads to increased risk of post-traumatic stress. (Breslau, Davis, Andreski and Peterson, 1991: Durham, McCammon and Allison, 1985; Keating, Blumenfield, Reilly, Pine and Mittler, 1987; McFarlane, 1988a, 1988b; McFarlane and Raphael, 1984). A review of the Firefighting industry specific literature (such as Firehouse, Fire Chief, Fire Command, JEMS, Emergency) reveals that although occupational stress is a frequently addressed issue, much of the material is anecdotal and descriptive, rather than empirical. While a variety of work-related stressors have been identified for firefighters and other emergency rescue workers, little attempt has been made to prioritize or rank these in any way. And although occupational stress is frequently featured in industry-specific journals, much of the material is anecdotal rather than empirical.

An understanding of which stressors have the greatest impact would allow firefighting departments to develop more effective training and support for their employees as well as better targeting of Critical incident stress debriefing or other coping techniques provided after particularly traumatic events. One study that did rank stressors for a sample of 145 Scandinavian firefighters reported that hearing children are in a burning building was the highest ranked stressor. A similar study of 127 U.S. Firefighters sought to establish what was the most stressful situation experienced by firefighters. Common responses included firefighter death or injury, fires in which victims are trapped, burned or dead, a firefighter's first run, dealing with a victim's family members and being in a position of management. (Edwards, 1991).

In addition to the stressors encountered in the work situation, rescue workers such as firefighters experience stress in their personal lives, often as a result of the unique demands of their work. Irregular hours, the rigidity of sleeping arrangements, and the disruption of sleep have been shown to be disruptive to the eating, sleeping and social habits of 10-20% of firefighters (Moore and Richardson, 1985; Tasto et al., 1978). Disturbed sleep was the most commonly reported source of occupational stress in a study of 2000 emergency service workers including firefighter EMT's and paramedics. (Beaton and Murphy, 1993). Similar to shift workers in other industries, firefighters experience conflict between the time they have available for family and social activities, and the often limited and erratic times at which such activities can be pursued. (Walker, 1978: Wedderburn, 1976). Substance abuse has also been investigated. In a Scandinavian study of 145 firefighters, 29% reported possible or probable problems with alcohol use. Very few studies however have addressed these types of personal stressors faced by firefighters, or how these are influenced by or compare with occupational stressors.

Goals of the Study

This study conducted by the Research Specialists at United HealthCare Corporation, seeks to improve our understanding of the everyday work and personal stressors faced by a specific group of rescue workers; the employees of a major US city fire department. The purpose of the study was to identify and prioritize which aspects of work and personal life are perceived by this group as being stressful. This information would then be used to build awareness of these issues among employees and enable the Fire Department, in association with United Health Care Corporation, to provide employees with more targeted services to deal with their stress. The study also includes a 6 item measure of general life satisfaction (including work assignment, career development, intimate/family relationships, social/friend relationships, physical well-being, and life in general) which indicates whether the amount of stress experienced by this group, which we predict from previous literature will be high, is reflected in their satisfaction scores for life overall.

The study was unique in several aspects, not only in terms of the way in which data were collected , but also the sample involved in the study. First, as a means of identifying possible areas of under-reporting of stress, employees were asked to estimate not only the level of stress experienced personally, but also the level of stress they thought was experienced by other fire department employees. Second, to gain a different perspective on the employee and their stress, the same survey was completed by a person with whom the employee had a close personal relationship, this enabled significant others to report how stressful they thought the issues were for the particular employee they knew. These measures were included to provide a more comprehensive view of the stress experienced by firefighters than that currently documented. While past studies have employed a variety of measurement techniques (e.g., DIS, Robins et al., 1981; WOCQ, Folkman and Lazarus, 1985; PERI, Dohrenweld et al.,1980; IES, Horowitz et al., 1979), they have largely collected only the employees responses in reference to their own personal state or situation. Finally, the study is not limited to the responses of the firefighters but seeks to understand and compare the types of stressors faced by a wide range of employees within the fire department, including administrative staff and other support personnel.

Method

Procedure

All 469 current full-time employees of the Fire Department were mailed a description of the study, 2 surveys (one for themselves and one for someone close to them) and 2 postage-paid, pre-addressed return envelopes. All surveys were returned directly to the researcher. After a one-month period, <u>147 employees</u> had returned the survey (return rate of 31%) and <u>62 non-employees</u> had returned the survey (return rate of 13%). This is a statistically acceptable number of surveys to analyze and the response rate for employees compares well to the typical rate for other survey research which ranges from 10% to 30%.

Respondents

The respondents in the employee group were mostly men (88% male vs.12% female), the average age was 43 years (range 24 to 62), and the average number years worked for the Fire Department was 16 (range 1 to 38). Firefighters were the most common job type (number of = 99), followed by inspection /prevention (8), administration (6), communication dispatch (6), other (6), clerical/secretarial (3), building maintenance (2), equipment maintenance (1); blank/no response (16). Compared to employees of other specified job types (n = 32; excluding those who did not specify a job classification), firefighters as a group tended to have worked for the Fire Department longer (17 years vs. 12) and were more likely to be men (91% male vs. 50% male). The marital status of employees included 80% married, 13% single, 3% separated/divorced, and 4% "other." Respondents in the non-employee group were mostly women (6% male vs. 94% female) who were romantically involved with an employee (95% were married).

Materials

The survey was developed by the authors in consultation with the Fire Chief and in the course of interviews with employees representing different divisions of the Fire Department. A total of 33 specific stress areas were identified, including 24 work-related and 9 personal-related areas. To determine the perceived level of stress experienced by employees themselves in each of these areas, the instructions asked: "for you personally, how much stress does this cause in your life?", instructions were also given for the employee to estimate the level of stress they thought was experienced by other fire department employees (i.e., "for fire department employees, in general, how much stress does this cause?"). This measure was included for several reasons: (1)not all of the areas included on the survey were personally relevant to each employee; (2) because it provides an overall picture of stress in the department, and (3) to identify possible areas of under-reporting of stress.

Finally, each employee was also asked to give the survey to someone with whom they have a close relationship and for this person to report on how stressful they thought each area was for the employee they knew (i.e., "Your perception of the stress experienced by the employee you know"). All items were responded to using a five-point rating scale that ranged from 1 = low stress to 5 = high stress. Employees were also asked to indicate how they felt about 6 aspects of their work and personal life, as a measure general life satisfaction. This was presented as a 5 point scale ranging from 1= terrible/very unsatisfied and 5 = delighted/very satisfied.

Results

Part 1. Descriptive Findings

Mean responses on the 1 to 5 scale are reported for the general life satisfaction measure. Areas of high stress are identified by the percentage of employees who rated that area with a score of 4 or 5. Significant differences between ratings based on the source of the rating (employee self, employee other or employee's spouse) or the occupational group (firefighters vs. non-fire fighters) were calculated using the Chi-square statistic. Results are summarized in Table 1.

General Life Satisfaction. When asked to indicate how they felt about various aspects of their lives, most employees were satisfied (average rating across six areas of 3.9 on a scale of 1 = terrible / very unsatisfied to 5 = delighted / very satisfied). However, there was a significant difference based on job type. Firefighters reported significantly greater overall satisfaction than did employees with a specified job type other than firefighter. The average satisfaction scores for firefighter and non-firefighter employees, respectively, in each area were as follows: work assignment (4.2 vs. 3.9), career development (3.9 vs. 3.8), intimate / family relationships (4.0 vs. 3.6), social / friend relationships (3.9 vs. 3.8), physical well-being (3.9 vs. 3.4), and life in general (4.1 vs. 3.7). Note the average ratings for both groups of employees were all above the midpoint of the scale (3.0) which indicates that both groups were moderately satisfied but that firefighters were more satisfied than non-firefighters.

Areas of High Stress. The first column in Table 1 lists the percentage of employees who rated each area as being high in stress for them personally (a rating of 4 or 5). Excluded from each rating were those who reported the area was not applicable to them. A total of 22 areas were rated by a third or more of all employees as stressful. The top 5 most stressful areas were the risk of infectious disease from bodily fluids

(58%), not getting enough sleep and rest (56%), physical demands of performing the job (54%), coping with emotionally difficult situations (53%), and maintaining a relationship with one's romantic partner (48%). Note that two of the top 5 are personal areas (sleep and romance).

Comparison of Stress for Self and Other Employees in General. The second column in Table 1 lists the percentage of employees who rated each area as stressful (a score of 4 or 5) for other employees of the Fire Department in general. Tests revealed that 10 areas were thought to be more stressful for others than for oneself, with the specific areas of risk of infectious disease (75% others vs. 58% self), communication with administration (53% vs. 36%), responding to emergency calls (60% vs. 46%), and use of alcohol or chemicals (25% vs. 11%) showing the biggest differences. Two areas, however, were rated as being less stressful for others than for one self: maintaining a romantic relationship (32% others vs. 48% self) and eating a nutritious diet (17% vs. 28%).

Comparison of Employee and Spouse Ratings for Stress Experienced by Employee. The third column in the Table 1 lists the percentage of romantic partners (spouse or significant other) who rated each area as being stressful for the employee with whom they have a relationship (a score of 4 or 5). Tests found only 2 of the 33 areas to have a significant difference: more romantic partners felt the risk of bodily injury / death was stressful than did employees themselves (63% spouse vs. 46% self) and fewer spouses thought that unclear job duties were stressful than did employees (9% vs. 23%).

Comparison of Personal Stress among Firefighters and Non-Firefighters. The final column of the table lists the percentage of firefighters and non-firefighter employees (excluding those who did not specify a job type) who rated each area as personally stressful (a score of 4 or 5). Tests revealed, as expected, that firefighters were more stressed than non-firefighter employees by the risk of bodily injury / death (55% vs. 6%), the risk of infectious diseases (68% vs. 20%), the physical demands of performing the job (64% vs. 18%), the risk of encountering physical violence on the job (48% vs. 10%), responding to emergency medical calls (53% vs. 17%), responding to fires (50% vs. 25%), and communication with administration (42% vs. 18%); however, firefighters were less stressed than non-firefighters by work overload (42% vs. 68%). These group differences are not that surprising, however, considering that firefighters and non-firefighters differ in the nature of their job duties in ways that correspond to many of these areas. Also, even though firefighters had several areas of work that were rated higher in personal stress than they were for other employees, firefighters also had higher work satisfaction and overall life satisfaction than other employees.

Personal Stress and Individual Characteristics. Other tests found few associations between stress and the individual characteristics of sex, age, job tenure, and overall life satisfaction. Males were slightly more stressed than females by physical job demands, injury risk, disease risk, violence risk, responding to and waiting for fire/emergencies, morale, communication with administration, and alcohol use; females were more stressed than males about diet. These sex differences should be viewed with caution because more males than females were in the study and males were more likely than females to be in jobs (firefighters) relevant to many of the areas with sex differences. Risk for violence, money management, and child day care were more stressful for younger aged employees than for older aged employees and taking care of an aging parent was more stressful for older aged employees than for younger aged employees. Years worked for the Fire Department was associated only with stress of caring for an aging parent. Stress in the areas of unclear job duties, communication with supervisor, morale, legal aspects, maintaining a romance, child care, keeping physically fit, and diet were associated with lower overall life satisfaction. An unexpected result was that stress from risks of injury, infectious disease, and violence were positively associated with higher overall life satisfaction.

Part 2. Optional Written Comments

Only 28 employees and 16 non-employees provided optional written comments. Many people had more than one issue included in their comments. Analysis revealed the following themes, listed in order of predominance according to the number of times each theme was noted: criticism of administration and policies (18), tensions due to racial and gender issues (11), stress of violence and health risks of the job (6), communication style problems and preferential status of fire fighters (5), liking the job and the Department (5), lack of union contract and cutting of benefits (5), lack of supervisor understanding of paramedic needs (4), lack of sleep (4), need for Employee Assistance Program (EAP) and critical incident stress debriefing (4), and stress of performance evaluation (3). Problems with the survey instructions and skepticism about use of survey results were also noted (6). These comments are quite consistent with the findings based on the ratings of specific areas of stress. They do, however, seem to overemphasize the issues with administration when this area is only ranked at No. 17 of the 33 areas in average stress ratings provided by all the employees in the study.

Part 3. Comparison of Employee Occupational Groups

Given that the non-firefighter group consisted of at least five specific occupational categories with unique responsibilities and roles, an attempt was made to compare areas of high and low stress for the three largest of these groups; Inspection/prevention, Communication/dispatch, and Administration. Although the number of survey respondents in each occupational group other than the firefighter group is too small to permit reliable statistical analysis of the data (8,6 and 8 respectively), a summary of the rankings of work and personal areas of high stress does reveal some interesting differences between the occupational groups.

Inspection/Prevention: A total of 11 areas were ranked by 50% or more of the Inspection/prevention group as being stressful: work overload; responsibility for making decisions that affect others; coping with emotionally difficult situations; having an impact on other peoples' lives; having to work long hours; legal issues; general atmosphere of workplace/morale; communication with one's immediate supervisor; getting enough sleep and rest; keeping physically fit and in shape and eating a nutritious diet. The final three of these are personal-related issues. Note that of 8 employees from this group who responded to the survey, only between 4 and 5 responded to these particular questions.

Communication/Dispatch: A total of 9 areas were ranked by 50% or more of the communication/dispatch group as being stressful: having an impact on other peoples' lives; responsibility for making decisions that affect others; interaction with the media or press; lack of proper equipment to do the job; keeping physically fit and in shape; general atmosphere of workplace/morale; interaction with the public; maintaining relationships with children; and taking care of aging and other family member. 3 of these 9 are personal-related. Note again that of the 6 employees from this group who responded to the survey, only 4 responded to these particular questions.

Administration: A total of 10 areas were ranked by 50% or more of the administration group as being stressful: getting enough sleep and rest; maintaining relationship with romantic partner; work overload; responsibility for making decisions that affect others; maintaining relationships with children; coping with emotionally difficult situations; keeping physically fit and in shape; money management and financial issues; interaction with the press or media and eating a nutritious diet. Note that unlike the other groups, a majority of these high stress areas (6 out of 10) relate to personal issues.

Similarities across occupations. While there were no issue areas ranked as stressful by 50% or more of respondents across all 4 employee groups, two issues were ranked as stressful by 3 of the 4 groups: coping with emotionally difficult situations and responsibility for making decisions that affect others.

Discussion and Implications

By identifying which work and personal issues are high stressors for employees of a fire department, this study has important implications for the development of effective stress prevention and stress management programs targeted at this and other similar populations. The findings make an important contribution to the stress literature concerning firefighters and other rescue workers as they reflect stress experienced on an ongoing daily basis; the majority of studies have mostly focused on stress experienced as a result of isolated traumatic events. The inclusion in the study of a range of occupations from within the fire department was also important in highlighting stress areas that may be relevant to all employees, versus those which are unique to the firefighter group.

Results indicate that while the specific areas of highest stress were mostly unique to the fire or non-fire fighter groups, there were two work-related high stress issues common to 3 out of 4 occupational groups: coping with emotionally difficult situations, and responsibility for making decisions that affected others. This suggests that interventions or techniques for dealing with these kinds of stressors could be beneficial to the entire fire department. Other stress management programs should be developed to meet the unique needs of the firefighter or non-firefighter groups.

Firefighter initiatives need to address those areas rated most stressful by this group : risk of infectious disease from bodily fluids, not getting enough sleep and rest, physical demands of performing the job, coping with emotionally difficult situations, and maintaining a relationship with one's romantic partner. Interventions for non-firefighter groups should address the issues specific to that group, in particular having to work long hours and work overload. The types of strategies provided by United HealthCare that could be tailored to meet these unique needs include educational measures (trainings, and written literature), the provision of a resource for employees and their families to contact for counseling for work and personal issues, and the implementation of a Critical Incident Stress Management Plan.

In addition to highlighting areas of highest stress, the two findings from the study of most interest to caregivers working with these types of workers relate to (1) the differences between employee ratings of their own stress and their ratings of other employees stress; and (2) the relatively high level of general life satisfaction expressed by respondents in spite of the high number of stressors.

Employee self-ratings and ratings of others proved to be statistically different on 12 out of the total 33 areas. 10 areas were thought to be more stressful for others than self, suggesting that employees may be underestimating their own levels of stress in these areas, or believing that they have better coping skills than others to deal with such issues.

Two areas however were rated as being less stressful for others than for the self (maintaining a romantic relationship and eating a nutritious diet), suggesting that employees assume these areas are more of a problem for themselves than for others. This may inhibit them from asking for assistance from each other concerning these two areas.

The other perspective sought on employee stress, (that of the romantic partner of the employee) revealed significant differences in only two of the 33 areas. This overall lack of difference indicates that spouses and employees tended to agree about what areas were stressful to the employee. Perhaps employees are good at communicating to their spouses about their job and that is why they have similar reports.

The second finding of interest to caregivers working with fire department employees was their apparently high level of general life satisfaction (above the midpoint of the 5 point scale), despite rating a number of work and personal-related issues as highly stressful. In particular, when compared to other employees, firefighters were more satisfied with life with the exception of physical wellbeing, even though at least 7 of the topic areas included in the survey were rated by 50% or more of firefighters as being highly stressful.

This finding supports previous research studies, where firefighters have also produced high work satisfaction scores (Glazner, 1977). This may reflect a high ability to adapt to significant stressors, or even that the presence of stress as a part of the job is satisfying. These results set Firefighters apart from other Emergency and Rescue Personnel when compared with results of similar studies in these other occupational areas. Emergency Medical Technicians, for example, who also experience high levels of stress (as compared with samples of most other occupational groups in the published literature), were found to be dissatisfied with many aspects of their work (Neale, 1991).

Limitations of the Study

These findings reflect the reports of 31% of Fire Department Employees and are thus most applicable to this group. These findings do not include the views of the remaining 69% of employees who chose not participate in the study. The nature of this sampling bias, however, is unknown. The implications and consequences of the study remain to be more fully developed.

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Results of the Fire Department Employee and Partner Survey

*How much **stress** does this cause in your life?*

Rating scale: Low 1 2 3 4 5 High

Rank	Area	Issue	SELF Employee Rate for Self Percentage rate 4 or 5	OTHERS Employee Rate for Other Employees Percentage rate 4 or 5 Compared to Self	SPOUSE Romantic Partner Rate for Employee Percentage rate 4 or 5 Compared to Self	GROUPS Firefighters (FF) vs. Non-firefighters (NFF) Percentage rate 4 or 5
Rank	/ Area	Issue	%	%	%	FF NFF %
1	Work	Risk of infectious disease from bodily fluids (HIV)	58	75 *	59 NS	68 > 20 *
2	Personal	Getting enough sleep and rest	56	51 NS	60 NS	54 = 40 NS
3	Work	Physical demands of performing the job	54	66 *	58 NS	64 > 18 *
4	Work	Coping with emotionally difficult situations	53	57 NS	50 NS	59 = 41 NS
5	Personal	Maintaining relationship with romantic partner	48	32 *	43 NS	30 = 38 NS
6	Work	Responsibility for making decisions that affect others	47	47 NS	46 NS	47 = 62 NS
7	Work	Risk of bodily injury / death	46	59 *	63 *	55 > 6 *
8	Work	Work overload -- having too much to do	46	45 NS	37 NS	42 < 68 *
9	Work	Responding to emergency medical service calls	46	60 *	44 NS	53 > 17 *
10	Work	Responding to fires	45	55 *	43 NS	50 > 25 *
11	Work	Competition for promotions and career advancement	44	55 *	44 NS	47 = 32 NS
12	Work	Having an impact on other peoples' lives	42	47 NS	37 NS	39 = 55 NS
13	Work	Having to work long hours	41	43 NS	43 NS	43 = 36 NS
14	Work	Risk of encountering physical violence on the job	39	50 *	48 NS	48 > 10 *
15	Personal	Keeping physically fit and in shape	37	29 NS	39 NS	28 = 37 NS
16	Work	General atmosphere of workplace / morale	37	38 NS	28 NS	36 = 36 NS
17	Work	Communication with administration	36	53 *	40 NS	42 > 18 *
18	Personal	Money management and financial issues	34	32 NS	41 NS	31 = 34 NS
19	Work	Legal issues / preparing for and attending court	34	36 NS	30 NS	34 = 37 NS
20	Work	Interaction with the public	33	44 *	43 NS	33 = 36 NS
21	Work	Interaction with the media or press	33	28 NS	25 NS	30 = 50 NS
22	Personal	Maintaining relationships with your children	33	29 NS	43 NS	32 = 24 NS
23	Personal	Taking care of aging parent or other family member	31	20 NS	30 NS	24 = 14 NS
24	Personal	Eating a nutritious diet	28	17 *	24 NS	19 = 17 NS
25	Work	Communication with other coworkers during your shift	25	18 NS	20 NS	21 = 25 NS
26	Work	Lack of proper equipment to do the job	24	18 NS	20 NS	21 = 32 NS
27	Work	Unclear job duties	23	24 NS	9 *	21 = 32 NS
28	Work	Communication with your immediate supervisor	20	21 NS	26 NS	17 = 27 NS
29	Work	Performance evaluation process	19	23 NS	27 NS	17 = 23 NS
30	Work	Communication between shifts/changes of personnel	19	16 NS	26 NS	18 = 18 NS
31	Work	Waiting for a fire or other emergency to occur	15	19 NS	18 NS	18 = 8 NS
32	Personal	Use of alcohol or other chemical substances	11	25 *	23 NS	25 = 20 NS
33	Personal	Child care / Day care	10	18 NS	19 NS	18 = 14 NS

* = difference is greater than expected by chance alone ($p < .05$ statistical significance level)
NS = difference is not statistically significant beyond chance level.