Examining the Relationship Between Secondary Traumatic Stress and Sickness Absenteeism within 9-1-1 Emergency Call Centers

by

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Abstract

Introduction: 9-1-1 emergency communication specialists (telecommunicators) are considered the gatekeepers for critical emergency information used by police officers, firefighters and paramedics. Emerging technology used by telecommunicators has increased operational efficiency through reduction of emergency response time while simultaneously increasing the number of calls processed per shift. Telecommunicators emotional labor is heightened and agitated by the extreme variations in the caller's emergency circumstance. Telecommunicators are expected to remain emotionally stable regardless of the caller's situation while defusing, decoding and relaying potentially life-saving information to the appropriate authorities. They work in highly structured environments where their performance is regularly monitored and assessed for purposes of improving public safety.

Objective: Sickness absenteeism has been considered a byproduct from working in stressful work environments. Unscheduled days missed from work is often the residual effects of job stress manifested as burnout or exhaustion. The study's aim was to examine the effects of chronic exposure to secondary traumatic stress and situational life factors and their relationship with sickness absenteeism amongst 9-1-1 telecommunicators.

Methods: The study was centered on a conceptual understanding that the probability of taking sick days is predicated by the interplay between the number and type of stress factors experienced at work. Six emergency call centers in a state located in the Pacific Northwest were recruited to take an online survey during the month of April 2013. The survey collected self-reported information pertaining to job effort and reward, overcommitment, technostress, perceived control and colleague and supervisory support. Descriptive statistics were computed to summarize distributions of the data while relationships between response and predictor variables were tested for statistical significance using bivariate and multivariate methods.

Data Findings and Interpretation: A total of 156 telecommunicators were surveyed from six 9-1-1 emergency call centers. The adjusted model showed job effort (OR = .46, 95% CI: 0.25, 0.88) – the measure of job predictability, work-load and demand as well as telecommunicator experience (≤ 10 years vs. 11 + years), (OR = .42 95% CI: 0.18, 0.94) and perceived control (OR = .52, 95% CI: 0.28, 0.97) - measure of work autonomy - to be inversely related with sickness absenteeism. We observed females having greater odds at taking sick days compared to male telecommunicators (OR = 3.31, 95% CI: 1.17, 9.33). We also found significant relationship between interaction term variable (Overcommitment * SOSI) – the level of work commitment and its effects at home as well as the measure of physiological and physical indications of stress and sickness absenteeism (OR = 1.004, 95% CI: 1.000, 1.008). The study sought to understand the relationship between stress and symptoms of stress and their effects on taking sick days amongst 9-1-1 emergency call center dispatchers and call-takers. The overall results were mixed in providing conclusive evidence on the model's assumption that higher levels of stress and symptoms of stress are associated with sickness absenteeism. The study revealed meaningful associations between sick days and gender status as well as perceived control and SOSI score (unadjusted) suggesting further exploration is warranted between work related stress factors and sickness absenteeism.

Introduction:

9-1-1 emergency telecommunicators serve as the primary conduit in the process of transferring critical information from members of the public to emergency first-responders. They arguably have one of the most emotionally demanding occupations amongst today's workforce. Public safety is highly dependent on their ability to work under pressure while successfully relaying potentially life-saving information to the correct

authorities. Telecommunicators work can be described as the process of providing informational services to firefighters, police officers and paramedics through the use of technologies specifically designed to dispatch emergency calls. In general, call centers have been characterized as stressful work environment where telephone and computer technologies are used to answer and distribute large volumes of inbound calls. (Arnold B. Bakker, 2003), (Hingst, 2006) Over recent decades they have become highly effective in receiving, processing and disseminating large amounts of information across different economic sectors. Call center technology has evolved into a highly scalable process that is capable of adapting to the fluctuating needs of today's demanding economy. Their ubiquitous nature when measured against highly developed industries and organizational structures is a testimony to their utility for processing large volumes of call data. (Arnold B. Bakker, 2003), (Hingst, 2006)

Secondary traumatic stress can be referred to as to the process in which individuals become cognitively distressed when hearing traumatic incidents firsthand. Its symptomatology has been known to closely follow symptoms related to post-traumatic stress disorder (PTSD). (Troxell, 2008) Studies have also revealed potential risks and the natural consequences of developing PTSD while working as a 9-1-1 telecommunicator. (Pierce H, 2012), (Ted Bober, 2006) Secondary traumatic stress in emergency call centers can be categorized into two forms: one, relates to the psychological component directly from answering emergency phone calls, and two, is the combination of psychological and psychological from the use of complex technology designed for handling transactional call data. Research has described 9-1-1 telecommunicator work as being fasted-paced, requiring quick and precise decisions that are predominately time-sensitive while multi-tasking between various computer dispatching technologies. (Maria Gurevich, 2006) These characteristics have helped researchers better understand symptoms of secondary traumatic stress that are commonly associated with exposure to distressed situations. (Troxell, 2008)

The sources of stress for 9-1-1 telecummicator work are multifaceted; recent literature has looked at the design and functionality of call centers in general. For example, studies have compared call centers ability to increase the number of calls handled per work shift to the tayloristic approaches used by assembly line factories seeking to maximize production without increasing workforce. (Hingst, 2006), (Russell, 2008) This parallels telecommunicators rigid work environment where tasks are inherently tedious, requiring shift work (i.e. day, evening and graveyard) where breaks are timed and sometimes neglected due to being understaffed. Inbound calls are recorded and frequently monitored and subsequently critiqued resulting in performance anxiety. (Horsford, 2012) Telecomunicators must also adapt to the unpredictable demands of their job due to the fluctuation of call volume and severity. They must balance the process of interpreting calls correctly while limiting their response time. (Maria Gurevich, 2006) Telecommunicator stress can arise when assessing emergency call situations and subsequently question their judgment when setting the level of response (i.e. the number and mixture of emergency first-responders). For instance, dispatching fewer resources (under-responding) could jeopardize the safety and health of the public as well as emergency

responders themselves while sending too many resources (over-responding) could prematurely deplete emergency budgets as well as risk using ambulances and police resources inappropriately. (Samuel J. Stratton, 1992), (Maria Gurevich, 2006)

Recent studies have uncovered associations between work stressors and negative physiological and psychological outcomes. (Turner, 2015) (Troxell, 2008) However, knowledge gaps on the side-effects and interconnections between stress and situational factors such as age and gender, marital status, years of work experience or number of dependents remain outstanding. Studies have shown that being a single care giver or having dependents under the age of six increases job anxiety and burnout. (Bakker, 2001) Studies suggest workers are more susceptible to chronic stress especially when there is little or no access to flexible work schedules. (Soo Jung Jang, 2012) There is also indication that work strain can be modified by age, gender or years of experience. For example, the assumption lies that more tenured telecomunicators potentially have greater coping skills and thus more effective at handling traumatic calls compared to their less seasoned colleagues. (Troxell, 2008) Studies have also measured the stress capacity between genders, where stress response and outcomes are significantly different between females and males. (Gary Johns, 2008) Absenteeism, defined as voluntary days missed from work, has generally been categorized as absence duration - total number of days or length in time missed from work, and absence frequency - the number of times absent or rate of work days missed. (Gary Johns, 2008) (Bakker, 2001) Though reasons for absenteeism are complicated research has nonetheless revealed important explanatory variables such as burnout as being positively linked to unscheduled missed work days. (Horsford, 2012) (Brian W. Swider, 2009)

Objective:
While exposure to secondary trauma stress has been associated with negative physical and psychological outcomes within 9-1-1 emergency telecommunicators, their effects on sickness absenteeism is limited. The study sought to understand the interconnections between secondary-traumatic stress factors presented as covariates and the response variable sickness absenteeism amongst 9-1-1 telecommunicators working at various call centers in the Pacific Northwest

Methods:
This was a secondary analysis to the original study conducted by Meischke et al. who's primary objective was to understand the characteristics of stress by seeking the interconnections between symptoms and buffers to stress amongst 9-1-1 telecommunicators. (Hendrika Meischke, 2015) The prospective study was conducted through an online survey promoted to telecommunicators working at six different emergency call centers located in the Pacific Northwest. The data was collected during a three-week period in the month of April 2013, and limited to full time employees working as call takers, dispatchers or supervisors.

The survey was constructed to capture symptoms of stress intended to measure associations with stressors and buffers of stress categorized as effort, reward, overcommitment, techno-stress, perceived

control, coping with stress, friendly co-workers, concerned supervisor and mindfulness. (Hendrika Meischke, 2015) A five–point Likert scale ranging from strongly disagree (1) to strongly agree (5) were used to gauge the level of participant's responses within each subscale category. For instance, six questions that measured uncertainty and insecurity associated with using job tools such as computer dispatch software or telephones captured the level of stress within the predictor variable techno-stress. Telecommunicators level of social support was measured through their agreement with statements such as "my coworkers are friendly" (Friendly Co-Worker) and "my supervisor expresses their concern" (Concerned Supervisor). (Hendrika Meischke, 2015) Managing work stress (Coping with Stress) was tested through questions related to stress reduction programs, colleague support groups, and mental health visits. Telecommunicators perceived control was constructed using five questions that measured their level of autonomy to make decisions at work. A fifteen item mindfulness scale was used to test the attentional control towards telecommunicators environmental stress factors. The mindfulness variable was excluded from the analysis due lack of overall fit with study's objective. For recording symptoms of stress, Calgary Symptoms of Stress Inventory (C-SOSI) was used to record symptoms of stress which measures physiological and physical indications such as depression, anger, muscle tension, neurological and GI issues, cognitive disorganization and upper respiratory problems. (Hendrika Meischke, 2015) We added an interaction term between SOSI and overcommitment for purposes of allowing SOSI's robust scoring methodology to be included in the model.

To help form the analysis, the study collated situational variables related to age, gender, marital and dependent status and work experience. Sickness absenteeism was established through the survey's sick day question asking telecommunicators to recall how many days they had taken off in the previous month due to sickness. The dependent variable, sickness absenteeism, was recoded as binary (sick-no-sick) to depict a yes or no status instead of the number sick days missed in the previous month. The role of supervisor (N = 24) was removed from the analysis to gain consistency in job functions when evaluating relationships between secondary traumatic stress and sickness absenteeism. The measured role types were defined as call-taker only, dispatcher only or dispatcher and call-taker. Due to the interchangeability of call-taker and dispatcher comparisons between role type was not used in the analysis. Independent variables displaying collinearity issues were removed from the analysis while missing data due to unanswered questions contributed to the variance in total N (153 to 156).

IBM's SPSS statistical software (Version 19 © 1989) was used for the descriptive and regression analysis. Sample characteristics in the descriptive analysis included the mean, and standard deviation for numerical variables while frequency and percentages represented categorical variables. Two sample t-test and chi-square test were used for determining bivariate associations while logistic regression reporting odds ratio and 95% confidence intervals were used to examine association between covariates and dependent variable. Covariates selected for the multivariate model were based of bivariate associations,

significance level, and unadjusted results. Collinearity between variables were tested through evaluation of collinearity matrix as well as observed changes of the odds ratio in the bivariate and multivariate regression models. The study was approved by the Intuitional Review Board from the University of Washington, Human Subjects Division in Seattle Washington.

Results:
A total of 156 telecomunicators comprised of call takers and dispatchers were surveyed and tested for associations between secondary traumatic stress and sickness absenteeism. Table 1A summarizes the descriptive variables and demographic characteristics between sick and no-sick responders. The majority of telecommunicators reporting sick days and no sickness in the previous month were 30-39 age group (14.9% sick vs. 21.4% no-sick) followed by 18-29 age group (13.6% - sick) and 40-49 (13.0% - no-sick). Looking across age bands, there were more telecommunicators in the younger age group (18 – 49 years) versus the older age group (40 – 59 years) (63% vs 36%). The study found more telecomunicators being female than male (78.4% vs 21.6%) while females reported more sick days than males (40.5% vs 5.9%). Marital status was evenly distributed between sick days and no sickness for telecommunicators being married (29.5% vs. 30.8%) while amongst those not married there were lower incidents of sick days (17.3% - sick day vs. 22.4% - no sickness). There were more telecommunicators having no dependents compared to telecommunicators with dependents under the age of eighteen (61.4% vs. 38.6%). Telecommunicators having dependents reported fewer sick days than those that did not have dependents (18.3% vs. 28.1%). Work experience was evenly distributed between sick days and no sickness with five to twenty-year old age band containing majority of workers (32% sick vs. 27% no sickness). Interestingly, there were twice as many telecommunicators having no sick days for work experience under five years. (10% sick vs. 22% no sickness).

The bivariate results presented in Table 2A displays the associations between covariates and sickness absenteeism response variable (sick-no-sick.) We found overcommitment score to be significantly higher for telecommunicators reporting sick days versus telecommunicators having no sickness (mean ± SD, 3.07 ± .96 vs. 2.60 ± .94, P = .002). Job reward score was also significantly lower for telecommunicators reporting at least one sick day compared to telecomunicators having reported no sick days in the past month (2.86 ±.74 vs. 3.20 ± .69, P = .003). SOSI score – the physiological and psychological measure of symptoms related to stress was significantly higher for telecommunicators having sick days in the previous month compared to telecommunicators reporting no sickness (64.04 ± 31.2 vs. 47.65 ± 27.61, P = .001). This was potentially driven by females who had significantly higher scores than males (58.20 ±30.65 vs. 44.09 ±28.40, P = .019). Assessing sickness absenteeism by gender, we found women to have statistically significantly higher incidents of absenteeism than men (51.7% vs. 27.3%, P = .036).

In the adjusted model summarized in Table 3A, covariates inversely related to sickness absenteeism were telecommunicator work experience (OR = .42, 95% CI: 0.18, 0.94), job effort (OR = .46,

95% CI: 0.25, 0.88) and perceived control (OR = .52, 95% CI: 0.28, 0.97). We also found women telecommunicators to have greater odds of taking sick days compared to men (OR = 3.31, 95% CI: 1.17, 9.33). Notably, concerned supervisor, friendly co-worker nor dependents were associated as having a significant difference in the odds of taking sick days after adjusting for covariates. We found telecommunicators taking no sick days to have higher odds of experiencing job reward – measure of colleague respect, promotional opportunity, job security and experiences compared to colleagues reporting sickness (OR = .63, 95% CI: .32, 1.26). The interaction term between overcommitment and SOSI was also found to be significantly associated with telecommunicators reporting sick days (OR = 1.004, 95% CI: 1.000, 1.008).

Discussion:

This study summarizes the inter-connections between symptoms of secondary traumatic stress and sickness absenteeism from an online survey presented to six different 9-1-1 emergency call centers in a state of the Pacific Northwest. Of the 156 survey participants working as dispatchers, call-takers or both, 46% reported as having at least one sick day in the previous month. Dispatcher and call-taker are both involved in the calls narrative but differ in that call-takers cannot perform all of the same functions as a dispatcher even though dispatchers are trained to take on the roll as a call-taker when needed. (Turner, 2015) Though their functions may differ their roles are interdependent in servicing emergency calls. A dispatcher, though trained to be a call-taker, typically only speaks with emergency responders which includes such services as monitoring and supporting police officer's locations through two-way radios and computer-aided dispatch (CAD) software. In contrast, call-takers only interaction is through the general public whose main purpose is to collect and transfer emergency information to dispatchers to support their job of engaging first responders (i.e. police officers, firefighters, and paramedics).

Research has studied the negative side effects, including increased employer cost, due to unscheduled absenteeism within industries requiring multiple shift work. (Alex Kerin, 2005) Studies have revealed improvements in call center technology and productivity while work schedules remain consistent to the tayloristic approaches used in assembly line factories of years past. (Hingst, 2006), (Russell, 2008) These findings along with symptoms of emotional labor performance (considered a necessity in emergency call center work (Shuler, 2000)) has prompted researchers to investigate the downstream effects of secondary traumatic stress. Though not entirely surprising, given the stressful environment of emergency call centers, the study found evidence suggesting the relationship between plausible stress related risk factors and sickness absenteeism. For instance, the adjusted results showed telecommunicators reporting no sickness having significantly greater odds of experiencing more perceived control - the measure of one's ability to govern the pace and autonomy of their work, compared to telecommunicators reporting sick days. Another assumption was the potential association with gender type considering stress is manifested differently between men and women. The study found the odds of experiencing sick days were three times higher for women compared to men after considering covariates. However, this should be treated with

caution due to gender imbalance and warrants additional research to understand the true magnitude of the observed difference.

We also considered, based off stress incurred from parenting and finding adequate childcare, the potential association between dependent status and sickness absenteeism. While controlling for other variables we found no association with dependent status which could be attributable to dependents being older and independent of parental supervision. The study also sought to understand if experience level (≤ 10 years vs. 11+ years) would be protective against sickness absenteeism due to tenured telecommunicators potentially having greater coping skills than less experienced telecomunicators. However, we found the inverse relationship where the odds for taking sick days were lower for less experienced telecommunicators (≤ 10 years) than more seasoned colleagues (11 + years). This suggests job burnout may become harder to manage through acquired coping skills as work experience increases. (Horsford, 2012), (Wilmar B. Schaufeli, 2009) It may also indicate that burnout is a more significant indicator of taking unscheduled sick days rather than the inability to cope with stressful work environments. (Brian W. Swider, 2009)

Marital status through spousal support was also tested as being potentially protective against sickness absenteeism however we found no significant association. Though majority of responders were married (63%), this finding may be more reflective of the study's sample characteristics where majority of responders were younger (between 18 and 39 years of age (62%)) and female (78%). Other and less intuitive results found to be associated with sickness absenteeism was job effort. This was due to the inverse relationship where telecommunicators reporting no sick days had significantly greater odds of feeling pressed for time, high performance demand, being interrupted or having unpredictable work situations than telecomunicators having at least one sick day in previous month. This may represent telecommunicators having stronger personality types that are potentially lower utilizers of sick days. (Brian W. Swider, 2009)

Interestingly, SOSI score (C-SOSI: Calgary Symptoms of Stress Inventory) which measures the psychosomatic and physical responses from being in stressful environments, was not associated with sickness absenteeism in the adjusted results. The bivariate results however, showed mean average SOSI score to be significantly higher for sick-day responders compared with telecomunicators reporting no sick-days. This was also found to be the case for overcommitment where only the bivariate results showed significant associations with sick-no-sick variable. Having no significant association in the adjusted results was perplexing given the measure of factors related to perseveration and anxiousness (overcommitment) and physiological and psychological symptoms (SOSI). We found overcommitment and SOSI to have moderate correlation in that telecommunicators reporting higher overcommitment scores (agree to strongly agree) also had higher SOSI scores. This seems reasonable given telecommunicators having difficulty

turning off work off, sleeping, or worried about making mistakes at work (overcommitment) would have more complex set of physiological or psychological symptoms of stress (SOSI). In order to account for this relationship, and preserve the study's objective, we incorporated SOSI and overcommitment as an interaction term. This consisted of blending the two variables by creating a product term between overcommitment score and SOSI score for each telecommunicator. Though the interaction may have helped modify the mean scale size difference between variables to be significantly related with sickness absenteeism, the effect size remained relatively small. This implies a more complex and sensitive relationship between predictor variables suggesting further modification to the model such as analyzing gender status separately.

We observed inconsistent results with overcommitment and job reward when contrasting the bivariate and multivariate analysis. Overcommitment nor job reward showed associations with sick day in the adjusted model. The bivariate results however showed overcommitment's mean average score being statistically significantly higher for sick responders than no sick day responders (Table 2A). Instinctively this would be the expectation considering the variable measures factors related to chronic obsession which falls in line with positive relationship between organizational commitment and absenteeism. (Bakker, 2001) Additionally, job reward was statistically significantly lower for sick day responders compared to no sick day responders in the bivariate analysis. This would be conceivable in that telecomunicators having reported no sick days would be consistent with higher reward scores connected to questions including, "*I received the respect I deserve at work*" or "*My job promotion prospects are good*". (Hendrika Meischke, 2015) Specific assumptions regarding factors that were symptomatic, protective or agitators of secondary traumatic stress were considered when selecting variables for the model. Moderate collinearity issues between telecommunicator age and work experience as well as overcommitment and SOSI were observed during model design. Overall, the study's results were mixed with both significant and insignificant associations based on the models design that measured predictor stress variables and sickness absenteeism response variable (sick-no-sick). Though gender, work experience and perceived control revealed positive associations with sickness absenteeism - confirming some of the model expectations; the study's validity may have been further substantiated by testing associations at the subscale level.

Limitations:
This was a cross-sectional study examining the relationship between stressors, symptoms of stress as well as situational factors with sickness absenteeism amongst 9-1-1 emergency dispatchers and call-takers. One of the inherit limitations to the analysis was the potential of survey results not being a representative cross-section of the telecommunicator work-force. Moreover, the survey's voluntary participation may have misrepresented the general feelings, concerns and perceptions that telecommunicators have about their line of work. To promote generalizability and adequate sample size, subjects were surveyed throughout six different call centers. Sample size was considered adequate for an online survey as well as the gender

composition (80% Female vs. 20% Male) matching the study's largest call center. (Hendrika Meischke, 2015)

Another limiting aspect of the study was the potential of participants having response bias - the tendency to provide intentionally or unintentionally misleading answers due to pressure of being socially accepted. (Duncan, 2011) This concern was attenuated by incorporating widely used scales known throughout social science for their effectiveness on evaluating validity and reliability. (Hendrika Meischke, 2015) Though these scales were adopted, the study's data lacked objective indicators that could have been used to cross-reference survey answers. Additionally, temporal relationships between study variables was not possible thus preventing the establishment of casualty. Overall, interpretation of results could have been strengthened by knowing telecommunicator work shift, personality type and number and age of dependents. (Alex Kerin, 2005), (Soo Jung Jang, 2012), (Brian W. Swider, 2009)

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Table 1A Variable Descriptives

Variable	Sick N (%)	No Sick N (%)
Age in Years (N = 154)		
18-29	20 (13.0)	21 (13.6)
30-39	23 (14.9)	33 (21.4)
40-49	20 (13.0)	18 (11.7)
50-59	7 (4.5)	10 (6.5)
60+	1 (.6)	1 (.6)
Gender (N = 153)		
Female	62 (40.5)	58 (37.9)
Male	9 (5.9)	24 (15.7)
Marital Status (N = 156)		
Yes	46 (29.5)	48 (30.8)
No	27 (17.3)	35 (22.4)
Experience (N = 155)		
Less than 2 years	8 (5.2)	14 (9.0)
Between 2 and 5 years	8 (5.2)	20 (12.9)
Between 5 and 10 years	24 (15.5)	23 (14.8)
Between 11 and 20 years	26 (16.8)	20 (12.9)
Between 21 and 30 years	5 (3.2)	6 (3.9)
More than 30 years	1 (0.6)	0 (0.0)
Dependents (N = 153)		
Yes	28 (18.3)	31 (20.3)
No	43 (28.1)	51 (33.3)

Table 2A Bivariate Associations for Sickness Absenteeism

Independent Variable	N	Sick Mean (±SD)	No Sick Mean (±SD)	P - Value
Concerned Supervisor	156	3.00 (1.16)	3.14 (1.18)	0.444
Friendly Co-workers	156	3.61 (.98)	3.87 (.71)	0.054
Perceived Control	155	1.64 (.74)	1.86 (.67)	0.054
Job Effort	153	3.84 (.80)	3.67 (.82)	0.195
Job Reward	155	2.86 (.74)	3.20 (.69)	0.003
Overcommitment	153	3.12 (.89)	2.67 (.86)	0.002
SOSI	156	64.05 (31.20)	47.65 (27.61)	0.001
		N (%)	N (%)	
Telecommunicator Experience				
≤ 10 Years		40 (41.2)	57 (58.8)	0.092 **
11 + Years		32 (55.2)	26 (44.8)	
Dependents				
Yes		28 (47.5)	31 (52.5)	0.836
No		43 (45.7)	51 (54.3)	
Marital Status				
Yes		46 (48.9)	48 (51.1)	0.509
No		27 (43.5)	35 (56.5)	
Gender				
Female		62 (51.7)	58 (48.3)	0.036
Male		9 (27.3)	24 (72.7)	

* Two sample t-test was used for numerical variables

** chi-square was used for categorical variables

Table 3A Multivariate Logistic Regression Model for Sickness Absenteeism

	Unadjusted:			Adjusted:			
Independent Variable	OR	95% CI	P - Value	N	OR	95% CI	P - Value
Telecommunicator Experience*	.57	.29, 1.09	.094	142	.42	.18, .94	.036
Dependents (Yes vs No)	1.07	.55, 2.05	.836	142	.72	.30, 1.67	.445
Marital Status (Yes vs No)	1.24	.55, 2.05	.510	142	1.54	.68, 3.15	.302
Gender (Female vs Male)	2.85	1.22, 6.64	.015	142	3.31	1.17, 9.33	.024
Concerned Supervisor	.90	.68, 1.17	.441	142	1.01	.72, 1.43	.941
Friendly Co-worker	.69	.46, 1.07	.058	142	.82	.48, 1.37	.447
Perceived Control	.63	.39, 1.01	.057	142	.52	.28, .97	.038
Job Effort	1.30	.87, 1.95	.195	142	.46	.25, .88	.020
Job Reward	.51	.32, .80	.004	142	.63	.32, 1.26	.190
Overcommitment x SOSI Interaction	1.005	1.002, 1.007	.001	142	1.004	1.000, 1.008	.030

* ≤ 10 Years vs 11 + Years

REFERENCES:

Alex Kerin, A. A. (2005). Improving Health, Safety, and Profits in Extended Hours Operations Shiftwork. *Industrial Health, 43*, 201-208.

Arnold B. Bakker, E. D. (2003). Dual processes at work in a call centre: An application of the job demands – resources model. *European Journal of Work and Organizational Psychology, 12*(4), 393-417.

Bakker, A. B. (2001, June 20). Job demands and job resources as predictors of absence duration and frequency. *Journal of Vocational Behavior, 62*(2003), 341-356.

Brian W. Swider, R. D. (2009). Born to burnout: A meta-analytic path model of personality, job burnout and work outcomes. *Journal of Vocational Behavior, 76*(2010), 487–506.

Duncan, I. (2011). *Healthcare Risk Adjustment and Predictive Modeling.* ACTEX Publications Inc.

Gary Johns, W. D. (2008). Work Strain, Health, and Absenteeism: A Meta-Analysis. *Journal of Occupational Health Psychology, 13*(4), 293-318.

Hendrika Meischke, I. P. (2015). The objective was to report a cross-sectional study of 9-1-1 Emergency Call Centers. *Annals of Emergency Dispatch & Response, 3*(2), 28-35.

Hingst, R. (2006). Perceptions of Working Life in Cal Centers. *Journal of Management Practice, 7*(1), 1-9.

Horsford, S. G. (2012). Coping Experiences of 911 Communication Workers. *Electronic Thesis and Dissertation Repository*, Paper 413.

Liu, Y. (2005). Investigating turnover intention among emergency communication specialist. *Graduate Theses and Dissertations*.

Maria Gurevich, J. H. (2006). Frontline Stress behind the Scenes: Emergency Medical Dispatchers.

Pierce H, L. M. (2012). Duty-related trauma exposure in 911 telecommunicators: Considering the risks for posttraumatic stress. *J Trauma Stress, 25*(2), 211-215.

Russell, B. (2008). Call Centres: A Decade of Research. *International Journal of Management Reviews, 10*(3), 195-219.

Samuel J. Stratton, M. F. (1992). Triage By Emergency Medical Dispatchers. *Prehospital and Disaster Medicine, 7*(3), 263-268.

Shuler, S. S. (2000). Seeking Emotional Labor: When managing the heart enhances the work experience. *Managment Communication Quarterly, 14*, 50-89.

Soo Jung Jang, A. Z. (2012, August). Family Roles as Moderators of the Relationship Between Schedule Flexibility and Stress. *Journal of Marriage and Family*, 897 – 912.

Ted Bober, C. R. (2006). Strategies for Reducing Secondary or Vicarious Trauma: Do They Work? *Oxford Journals, 6*(1), 1-9.

Troxell, R. M. (2008). Indirect Exposure to the Trauma of Others: The Experiences of 9-1-1 Telecommunicators. *Doctoral Thesis*.

Turner, K. D. (2015). Effects of Stress on 9-1-1 Call-Takers and Police Dispatchers: A Study at the San Jose Police Department. *Master's Theses, Paper 4562*.

Wilmar B. Schaufeli, A. B. (2009). How changes in job demands and resources predict burnout, work engagment, and sickness absenteeism. *Journal of Organizational Behavior*.