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From: Pat Thompson [mailto:patt@council2.com]
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Subject: FW: Reports Related to Retirement Issue
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Devon,

Here's the study that was forwarded to me.

Pat

Indirect Exposure to the Trauma of Others: The Experiences of 9-1-1 Telecommunicators

BY
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THESIS

Submitted as partial fulfillment of the requirements
for the degree of Doctor of Public Health
in the Department of Public Health Sciences of the
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This manuscript is dedicated to my parents, Robert and Vivian Troxell, who have inspired me by their unending devotion to family and community. They continue to be my role models and I am truly grateful.

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RMT

TABLE OF CONTENTS

CHAPTER PAGE

I. INTRODUCTION 1
- A. Background 1
- B. Statement of the Problem 2
- C. Significance of the Problem 3
- D. Significance of the Study 4
- E. Research Questions 5
- F. Summary 6

II. CONCEPTUAL FRAMEWORK AND RELATED LITERATURE 7
- A. Evolution of Stress Response Theory 7
  - 1. General adaptation syndrome 7
  - 2. Life change and illness model 8
  - 3. Ecological conceptualization of the stress process 9
  - 4. Survival strategies 9
- B. Psychological Stress Responses 10
- C. Field Studies 13
- D. Public Safety Telecommunicators 15
- E. Conceptualization of Traumatic Stress involving Telecommunicators 22

III. METHODOLOGY 24
- A. Design 24
- B. Phase I: Pilot Study 24
  - 1. Purpose 24
  - 2. Research questions 24
  - 3. Sample 25
  - 4. Human subjects protection 25
  - 5. Protocol 26
  - 6. Data analysis 26
- C. Phase II: Main Study 27
  - 1. Research questions 27
  - 2. Supporting centers 28
  - 3. Sample 29
  - 4. Human subjects protection 30
  - 5. Consent 31
  - 6. Data analysis 32
    - a. Training, coding, and database management 32
    - b. Disposition codes 33
    - c. Outcome rates 33
    - d. Statistical analyses 34
- D. Measurement Issues 35
- E. Survey Design 40

TABLE OF CONTENTS (continued)

CHAPTER PAGE

F. Instrumentation 40
1. Work and Background History 41
2. Professional Quality of Life Scale 42
3. Emotional Labor Questionnaire 45
4. Peritraumatic Distress Inventory 45
G. Variables 47
1. Independent variable 47
2. Dependent variables 47
3. Conditioning variables 48
H. Summary 51

IV. PHASE I: PILOT STUDY 52
A. Personal Demographics 52
B. Professional Demographics 52
C. The Telecommunicator Experience 56
1. When someone asks you to describe what you do at work, what do you usually say? 56
2. Why do you feel your job is important? 56
3. How do you react when a call goes well? When it doesn't? 57
4. If you were asked to talk about your exposure at work to the trauma of callers, how would you describe it? 59
5. Index event 60
6. Closing: Anything else you'd like to talk about? 62
D. Research Questions 63
1. Was the topic relevant to the telecommunicator? 63
2. Which of the two measures of exposure to secondary traumatic information more accurately described their experiences? 64
3. Did they feel the Professional Quality of Life measures were appropriate for their profession? 65
4. Did they feel the emotional labor questions were relevant? 66
5. In what ways would they change the questionnaire? 68
6. Did they describe answering the survey questions as stressful? 74
7. Were the instructions and questions clear? 74
8. What was the average time needed to complete the survey? 75
E. Discussion 77

V. PHASE II: MAIN STUDY 80
A. Outcome Rates 80

TABLE OF CONTENTS (continued)

CHAPTER PAGE

B. Emergency Call Centers 81
1. Number of full and part-time telecommunicators 82
2. Number of open positions 82
3. Number of calls received in 2006 (defined as the total of 9-1-1 or emergency calls, non 9-1-1 calls, and police-initiated activity) 82
4. Discussion 82

C. Research Questions 84
1. What was the demographic profile of this sample 84
a. Personal demographics 84
b. Professional demographics 86
c. Additional analysis 93
d. Reliability and validity of selected measures 95
e. Discussion 96
2. What exposure did telecommunicators have to potentially traumatic events/calls? 106
a. Exposure 106
b. Discussion 109
3. To what extent were these calls considered traumatic? 109
a. Findings 109
b. Discussion 112
4. How did they describe their most distressing call? 113
a. Years since occurrence 113
b. Description of calls 113
c. Peritraumatic Distress Inventory 117
d. Reliability and validity 119
e. Discussion 121
5. To what extent did their job involve emotional labor? 129
a. Findings 129
b. Reliability and validity 132
c, Discussion 134
6. What is the prevalence of burnout, compassion satisfaction, and secondary traumatic stress in this group of telecommunicators? 137
a. Findings 137
b. Reliability and validity 140
c, Discussion 147
7. Were there specific demographic factors that increased the potential for compassion satisfaction, the risk for burnout, and the risk for secondary traumatic stress? 153
a. Findings 153
b. Discussion 162

TABLE OF CONTENTS (continued)

CHAPTER PAGE

8. What association existed between exposure to potentially traumatic and traumatic events/calls, emotional labor, burnout, compassion satisfaction, and secondary traumatic stress in this sample? ... 168
   a. Findings ... 169
   b. Discussion ... 172

VI. DISCUSSION ... 176
A. Review of Findings ... 176
B. Discussion ... 180
C. Strengths ... 183
   1. Phase I: Pilot Study ... 183
   2. Phase II: Main Study ... 184
D. Limitations ... 187
E. Recommendations for Further Research ... 194
F. Public Health Implications ... 196
G. Conclusions ... 199

CITED LITERATURE ... 200

APPENDICES ... 213
Appendix A ... 214
Form I ... 214
Form II ... 215
Form III ... 221
Appendix B ... 228
Form I ... 228
Form II ... 229
Form III ... 231
Form IV ... 232
Form V ... 234
Appendix C ... 235
Form I ... 235
Form II ... 236
Form III ... 237
Form IV ... 241
Form V ... 242
Appendix D ... 245
Appendix E ... 248
Appendix F ... 261
Appendix G ... 275
Form I ... 276

TABLE OF CONTENTS (continued)

CHAPTER PAGE

Form II 279
Form III 281
Appendix H 283
Form I 284
Form II 285

VITA 286

LIST OF TABLES

TABLE PAGE

I. SUGGESTED DISTINCTIONS BETWEEN THE DIAGNOSTIC CRITERIA FOR PRIMARY AND SECONDARY TRAUMATIC STRESS DISORDER....11

II. MISSING DATA DECISION RULES....35

III. PSYCHOLOGICAL INSTRUMENTS ASSESSING DSM-IV-TR CRITERION A2 FOR TRAUMATIC EXPOSURE....37

IV. PROFESSIONAL QUALITY OF LIFE SCALE QUARTILE CUT-POINTS AND SCALE PSYCHOMETRICS....44

V. QUESTIONNAIRE VARIABLES....49

VI. TOTAL YEARS OF EXPERIENCE....53

VII. YEARS AT CURRENT CALL CENTER....53

VIII. CURRENT SOURCES OF STRESS....55

IX. RECOMMENDED CHANGES TO PILOT SURVEY....69

X. PROFESSIONAL QUALITY OF LIFE SCALE: ITEM CLARITY....76

XI. AGE CATEGORIES (N = 483)....84

XII. EDUCATION CATEGORIES (N = 495)....85

XIII. YEARS EMPLOYED AS A TELECOMMUNICATOR (N = 491)....87

XIV. OVERTIME PRACTICES (N = 487)....88

XV. SOURCES OF STRESS (N = 493)....91

XVI. SOURCES OF STRESS CATEGORIES (N = 493)....93

XVII. PRINCIPAL COMPONENT ANALYSIS MATRIX OF STAFFING ADEQUACY INDEX....96

XVIII. COMPARISON OF STAFFING SITUATIONS....98

LIST OF TABLES (continued)

TABLE		PAGE
XIX.	COMPARISON OF TOP TEN SOURCES OF STRESS IN DESCENDING ORDER.	101
XX.	ENDORSEMENTS OF POTENTIALLY TRAUMATIC EVENTS/CALLS (N = 496)	108
XXI.	ENDORSEMENTS OF TRAUMATIC EVENTS/CALLS (N = 496)	111
XXII.	PERSONAL INCIDENTS (N = 425)	114
XXIII.	PERSONAL INCIDENTS: GENERAL THEMES	116
XXIV.	COMPARISON OF PERITRAUMATIC DISTRESS INVENTORY MEANS	118
XXV.	ROTATED (VARIMAX) COMPONENT MATRIX OF PERITRAUMATIC DISTRESS INVENTORY	120
XXVI.	EMOTIONAL LABOR SCALE (N = 495)	132
XXVII.	PRINCIPAL COMPONENT ANALYSIS MATRIX OF EMOTIONAL LABOR INDEX	133
XXVIII.	BURNOUT SUBSCALE (N = 491)	133
XXIX.	COMPASSION SATISFACTION SUBSCALE (N = 491)	139
XXX.	SECONDARY TRAUMATIC STRESS SUBSCALE (N = 491)	140
XXXI.	ROTATED (VARIMAX) COMPONENT MATRIX OF THE BURNOUT SUBSCALE	142
XXXII.	PRINCIPAL COMPONENT ANALYSIS MATRIX OF THE COMPASSION SATISFACTION SUBSCALE	144
XXXIII.	PRINCIPAL COMPONENT ANALYSIS MATRIX OF THE SECONDARY TRAUMATIC STRESS SUBSCALE	146
XXXIV.	PROFESSIONAL QUALITY OF LIFE SCALE: COMPARISON OF DATA	148

LIST OF TABLES (continued)

TABLE		PAGE
XXXV.	COMPARISON OF OUTCOME DATA	150
XXXVI.	BIVARIATE ANALYSIS OF DEMOGRAPHIC FACTORS FOR COMPASSION SATISFACTION	155
XXXVII.	BIVARIATE ANALYSIS OF DEMOGRAPHIC FACTORS FOR BURNOUT	158
XXXVIII.	BIVARIATE ANALYSIS OF DEMOGRAPHIC FACTORS FOR SECONDARY TRAUMATIC STRESS	161
XXXIX.	BIVARIATE ANALYSIS OF MAJOR FACTORS FOR COMPASSION SATISFACTION	169
XL.	BIVARIATE ANALYSIS OF MAJOR FACTORS FOR BURNOUT	170
XLI.	BIVARIATE ANALYSIS OF MAJOR FACTORS FOR SECONDARY TRAUMATIC STRESS	171

LIST OF FIGURES

FIGURE PAGE

1. Conceptualization of traumatic stress involving telecommunicators 23

2. Reconceptualization of traumatic tress involving telecommunicators 179

LIST OF ABBREVIATIONS

AAPOR	American Association for Public Opinion Research
ANOVA	Analysis of variance
APCO	Association of Public Safety Communications Officials
CF	Compassion fatigue
DSM-IV-TR	Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, Text Revision
EL	Emotional labor
EMD	Emergency Medical Dispatch
EMS	Emergency Medical System
EMT	Emergency medical technician
GLM	Generalized linear model
NENA	National Emergency Number Association
NIOSH	National Institute for Occupational Safety and Health
PDI	Peritraumatic Distress Inventory
Project RETAINS	Project on Responsive Efforts to Address Integral Needs in Staffing
ProQOL	Professional Quality of Life Instrument
PTE	Potentially traumatic event
PTSD	Post-traumatic stress disorder
STS	Secondary traumatic stress
STSD	Secondary traumatic stress disorder
SWAT	Special Weapons and Tactics
TE	Traumatic event
TERT	Telecommunications Emergency Response Team

LIST OF ABBREVIATIONS (continued)

TP	Traumatized person
VT	Vicarious traumatization

SUMMARY

The experiences of 9-1-1 telecommunicators resulting from indirect exposure to trauma were investigated using a descriptive, cross-sectional approach and generated both quantitative and qualitative data. Phase I involved pilot testing of the survey instrument. Sixteen call-takers and dispatchers employed for at least one year completed the survey and an interview. Recommendations for revision of the survey in terms of clarity of items and instructions as well as addition and deletion of other items were subsequently adopted for use in the Main Study. In addition, responses from the pilot participants provided valuable insight into the personal and professional lives of these public safety professionals.

The Main Study was then conducted in which a convenience sample of 984 full and part-time telecommunicators employed at 79 emergency communication centers in the state of Illinois were mailed survey packets by their center liaisons. There were 497 responses to the two waves of mailings. Personal and professional demographic information was obtained. The main study variables were assessed using a variety of new and established scales.

The majority of participants were female (72.5%) and employed full-time (91%) in the dual role of call-taker and dispatcher (80.7%). The mean age was 39.4 (10.4) years and 78.4% had continued education beyond high school. Years as a telecommunicator ranged from a few months to 32 years, with a mean of 11.2 (7.5) years.

When asked about overtime practices at their centers, 81% of participants said their centers had mandatory and/or forced overtime. Adequacy of staffing was assessed with a series of four items rated on a 5-point Likert scale. The sum of these ratings represented the adequacy of staffing index. The mean was found to be 12.9 (3.3), i.e., *some of the time*. Staffing adequacy was weakly correlated with gender and overtime practices.

The level of tension in the communication center on a usual work day was referred to as the *tone of the room* and was measured using one item rated on a 5-point Likert scale. The mean was 1.8 (1.0) and was interpreted as *not at all to a little tense*. The tone of the room was found to be weakly associated with full or part-time status, overtime practices, and staffing adequacy.

Current sources of stress at work were measured with a list of 23 items addressing organizational, interpersonal, and public relations issues. The mean sources of stress index was 7.9 (4.4). Endorsements varied by full or part-time status, overtime practices, and the tone of the room. The first of these showed a weak correlation. The latter two were moderate. Specifically, significantly more sources of stress were endorsed when mandatory and/or forced overtime was practiced at that center than when none or only voluntary overtime occurred. More sources of stress were also found when the room tone was tenser than when it was less.

Exposure to trauma was measured according to the recommendations of the DSM-IV-TR in that both Criteria A1 and A2 must be met for an event or call to be considered traumatic. Criterion A1was represented by the sum of endorsements from a list of potentially traumatic calls handled during their career. The mean was found to be 12.6 (4.3) and was moderately and positively correlated with years of experience. Participants then indicated if any of those potentially traumatic calls had caused in them a sense of fear, helplessness, or horror. Such endorsements qualified those calls as traumatic, fulfilling Criterion A2. The mean was 5.8 (4.7). Although weakly correlated with gender, the means were moderately and positively related to years of experience.

Further insight into the experiences of participants when handling difficult calls was gained by descriptions of their most troubling, disturbing, or distressing call of their careers. Content analysis of the qualitative data enabled the identification of four aspects of the calls that

made them traumatic: the type of call itself; the reactions and emotions of the caller; the background sounds; and the reactions and emotions of the telecommunicator to all of these. As measured by a modified version of the Peritraumatic Distress Inventory, they were found, on average, to be *somewhat* distressed during and immediately after that call. Ratings were weakly correlated with gender.

Other-focused emotional labor was measured with the Emotional Labor Questionnaire. These six items were rated on a 6-point Likert scale with the sum representing the emotional labor index. The mean was found to be 23.9 (4.0), interpreted as *very true*, in the upper ranges of the scale. Weak correlations were demonstrated with gender, room tone, staffing adequacy, and potentially traumatic and traumatic calls.

The three outcomes of this study were assessed with the Professional Quality of Life Scale. Each subscale consisted of 10 items rated on a 6-point Likert scale. Prevalence was defined as the percentage of participants scoring greater than one standard deviation above the mean for that variable.

The mean for compassion satisfaction was 34.69 (8.85) and was interpreted as *somewhat often to often* that the telecommunicator had those feelings or experiences in the past 30 days at work. The prevalence, or potential for compassion satisfaction, was estimated at 15.1%. Weak negative associations were demonstrated with full-time status, mandatory and/or forced overtime, sources of stress, and secondary traumatic stress. However, satisfaction was strongly and negatively correlated with burnout. A moderate positive correlation was demonstrated with emotional labor and a weak positive association was seen with staffing adequacy. Regression analysis using backward elimination identified the best model explaining 40.6% of the variance

in compassion satisfaction. The variables included education, emotional labor, sources of stress, burnout, and secondary traumatic stress.

For burnout, the mean was found to be 21.57 (6.56), i.e., the participant had those feelings or experiences *a few times* in the past 30 days at work. The prevalence, or those at risk for burnout, was estimated at 14.7%. Burnout ratings were weakly and negatively associated with staffing adequacy but strongly and negatively associated with compassion satisfaction. Weak positive associations were found with full-time status and mandatory and/or forced overtime. Moderate positive correlations were seen with room tone, sources of stress, and the numbers of traumatic calls. A strong positive correlation was found with secondary traumatic stress. The best model explaining 58.1% of the variance in burnout included the following variables: compassion satisfaction, staffing adequacy, sources of stress, full or part-time status, secondary traumatic stress, potentially traumatic and traumatic calls.

Secondary traumatic stress was found to have a mean rating of 12.13 (7.89) and was interpreted as that the participants *rarely* had those feelings or experiences in the past 30 days at work. Prevalence was estimated at 16.3%. It is important to remember that a diagnosis of this condition can only be made with a clinical diagnostic interview and not a screening test such as the one used in this study. As such, prevalence is interpreted as those *at risk* for secondary traumatic stress. Weak negative associations were seen with staffing adequacy and compassion satisfaction. Weak positive associations were found with gender, full-time status, mandatory and/or forced overtime, and emotional labor. Moderate positive correlations were identified with room tone, sources of stress, and traumatic calls. A strong positive correlation was seen with burnout. The best model explaining 46.1% of the variance in secondary traumatic stress included

the following variables: burnout, compassion satisfaction, and potentially traumatic and traumatic calls.

This study identified potential sources of risk and resilience for telecommunicators exposed to traumatic information from citizen calls and police radio traffic. The significance of these findings is discussed in terms of individual and organizations self-care practices as well as the need for further research. Public health implications are explored in terms of prevention with the ultimate goal of strengthening our community emergency response system.

I. INTRODUCTION

A. Background

In the aftermath of the terrorist attacks on the World Trade Center on September 11, 2001, much attention was focused on the rescue and recovery workers. The public gained a new appreciation for the commitment of police, fire, and emergency medical personnel to their communities and each other. Researchers used the opportunity to investigate the physical and psychological consequences of such an exposure in front-line workers (Levin et al., 2004; Smith et al., 2004).

Fortunately, events as catastrophic in terms of destruction of property and numbers of lives lost as these attacks and the Oklahoma City Federal Building bombing in 1995 have been rare in the United States. It is not rare, however, for first responders to risk their own lives in attempts at rescuing others, to confront scenes of maimed or dismembered bodies, to provide care to the seriously injured or dying, and to furnish emotional support to survivors and the families of victims. These are, in fact, daily occurrences for the thousands of police, fire, and emergency medical personnel around the world. The toll such routine exposures may have on the mental health of these individuals is finally being acknowledged and interventions provided (Figley, 2002; Mitchell and Everly, 1994).

Despite these gains, there is one group among first responders that has been virtually ignored: the telecommunicators. These men and women staff community emergency call centers, taking information from distraught citizens and dispatching police, fire, and emergency medical teams to the scenes. They are, in fact, the first link in the chain of emergency response. In contrast to other first responders, the main source of traumatic stress for the telecommunicator is in what they hear from the caller, both in content and tone of voice. They are expected to

ascertain critical information from callers in great physical or emotional pain, make decisions on types of response needed, and dispatch appropriate assistance, often simultaneously and all within a few minutes. They must handle these calls carefully, knowing that what they say and how they say it will either compel the caller to stay on the line or hang up before vital details are obtained. They must rely on the expertise of others to provide the help needed and usually do not learn of the outcomes, preventing closure particularly after very stressful calls. There is little, if any, time between the calls to process their own feelings and little opportunity to elicit support from colleagues busy at their own work stations. Rarely is a job well done recognized by the public, a factor relating to compassion satisfaction which has been shown to counter the effects of compassion stress. Of all first responders, the work of telecommunicators undergoes the closest scrutiny, with all calls being taped and subject to internal review. These men and women further understand that these recordings may later be played in lawsuits or be open to public scrutiny in the media. (Lenexa Kansas Police Department, 2005, unpublished document; Stamm, 2002).

B. **Statement of the Problem**

These unique circumstances make it difficult to apply research findings of other first responders to telecommunicators. They do not put their own lives in peril, i.e., experience primary trauma. Their exposure is in hearing the distress of others. This defines one type of secondary trauma and was the focus of this study. The problem was to examine secondary trauma, i.e., indirect exposure to trauma, among telecommunicators, including its occurrence, job-related consequences of burnout, compassion satisfaction and stress, and the extent of emotional labor (EL) used by these men and women in the course of doing their work. The information gained from this study provides a foundation for further exploration of risk and

resilience in this population of workers with the ultimate goal of informing administrative policies and programs aimed at enhancing the psychological well-being of emergency call center staff.

C. Significance of the Problem

The consequences of secondary traumatic stress (STS) have not been examined in telecommunicators. What has been learned from other groups, primarily mental health professionals, crisis workers, nurses, and other emergency personnel, is that it can result in physical illness, comorbidities such as depression and anxiety, substance abuse, changes in personnel turnover patterns, absenteeism, low morale, poor job performance, and disruption of social relationships (Haisch and Meyers, 2004; Hyman, 2004; Morrissette, 2004; North et al., 2002; Salston and Figley, 2003). Although actual costs relating to traumatic stress specifically have not been calculated, several reports touch on the impact of mental illness among workers on the U.S. economy.

Sauter et al. presented a proposal for the National Institute for Occupational Safety and Health (NIOSH) on the prevention of work-related psychological disorders in 1990. In discussing the importance of this initiative to protect and promote the psychological growth and well-being of workers, they cited a 1985 report from the National Council on Compensation Insurance which found that 11% of all worker compensation claims were for gradual mental stress. This term is used to encompass psychological disorders secondary to job stress and to actual working conditions. During the 1980s, total costs for such claims, which included costs relating to medical care, employment, productivity, and physical health problems associated with psychological disorders, were estimated at $50 to $100 billion dollars annually.

The U. S. Surgeon General issued a report on mental health in 1999. Direct costs for mental health services nationwide were $69 billion in 1996. The indirect costs, those related to reduced or lost productivity, totaled almost $79 billion in 1990. In looking at causes of more than eleven days away from work in 2001, NIOSH (2004) found anxiety, stress, and neurotic disorders surpassed all nonfatal injuries and illnesses. In fact, 42.1% of these cases involved more than thirty days away from work, with the median number of twenty-five days. This contrasted with all nonfatal injuries and illnesses at 22% for more than thirty days and the median number of days as only six.

In their national strategy recommendations, Sauter et al. (1990) included altering job designs to improve work conditions. These included the areas of workload and pace, scheduling, and interpersonal relationships. They also called upon industry, labor, government, and academia to develop surveillance methods for mental disorders, examine potential risk factors, and conduct intervention studies. These last two recommendations have been and continue to be carried out for traumatic stress among a variety of occupational groups. Measures in the realm of primary prevention, i.e., providing realistic expectations of the job, enhancing personal coping skills, and group debriefings, and secondary prevention, i.e., early access to mental health providers, have been found to be beneficial in minimizing long-term sequelae (Horowitz, 2003; Yassen, 1995).

D. Significance of the Study

This study assessed secondary trauma in a sample of telecommunicators as an initial step into researching risk and resiliency in this group of workers. From a public health perspective, ensuring an able call center staff is vital for the adequate provision of community emergency services. However, targeted interventions cannot be designed without first examining the extent of the problem and its consequences for these specific first responders.

E. Research Questions

This research was conducted in two parts using qualitative as well as quantitative methods. Phase I, the Pilot Study, was undertaken to answer the following questions:

1. Was the topic relevant to the telecommunicator?
2. Which of the two measures of exposure to secondary traumatic information more accurately described their experiences?
3. Did they feel the Professional Quality of Life (ProQOL) measures were appropriate for their profession?
4. Did they feel the EL questions were relevant?
5. In what ways would they change the questionnaire?
6. Did they describe answering the survey questions as stressful?
7. Were the instructions and questions clear?
8. What was the average time needed to complete the survey?

Feedback obtained during the pilot phase was used to refine the survey instrument. Phase II, the Main Study, was then conducted to answer the following research questions:

1. What was the demographic profile of this sample?
2. What exposure did telecommunicators have to potentially traumatic events/calls (PTEs/calls)?
3. To what extent were these calls considered traumatic?
4. How did they describe their most distressing call?
5. To what extent did their job involve EL?
6. What was the prevalence of burnout, compassion satisfaction, and STS in this group of telecommunicators?

7. Were there specific demographic factors that increased the potential for compassion satisfaction, the risk for burnout, and the risk for STS?

8. What associations existed between exposure to PTEs/calls and traumatic events/calls (TEs/calls), EL, burnout, compassion satisfaction, and STS in this sample?

F. **Summary**

Trauma exposure and its effects have not previously been studied in telecommunicators. Among other groups, however, there is evidence of adverse psychological, physical, and behavioral consequences. These will be reviewed in the following chapter. The basis of the concern for telecommunicators is then presented along with the conceptual model underlying the present study.

II. CONCEPTUAL FRAMEWORK

A. Evolution of Stress Response Theory

1. General adaptation syndrome

Selye defined stress as the "nonspecific response of the body to any demand made upon it" (1973, p. 692). He first described these physiological reactions as the general adaptation syndrome in 1925. The process begins with the stressor, an event, followed by a period of adaptation or adjustment as the body attempts to reestablish homeostasis, i.e., equilibrium. This phase, commonly known as the alarm reaction, continues until either the hardship ends or exhaustion ensues, manifesting itself as disability, disease, or death.

By definition, Selye points out that despite differences in the stressors, all of them create a common set of reactions in the body, including activation of the autonomic nervous system and the hypothalamic-pituitary-adrenocortical axis. These responses lead to the increased secretion of adrenocorticotrophic hormone and adrenalin, causing adrenal enlargement, gastrointestinal ulcers, and atrophy of the thymus and lymph nodes. Selye called this the "typical triad of the alarm reaction" (1973, p. 694), providing objective evidence of stress. These effects were seen in response to both physical and emotional stressors.

Selye raised other important questions: Why do two people exposed to the same event exhibit different responses and why do two events, of equal strength or toxicity, not cause exactly the same responses? In regards to the latter, he found that the specific effects of an event could modify the general, or nonspecific, stressor effects. In answer to the first question, he postulated that internal and external factors influence the sensitivity of the individual to that event. Such factors include age, sex, dietary status, genetic makeup, and various drug treatments.

2. **Life change and illness model**

Further elaboration of the general adaptation syndrome came in 1978 when Rahe and Arthur introduced the life change and illness model, describing in more detail the sequence from event to illness. In particular, they delved into the issue formerly raised by Selye, i.e., why do individuals differ in their response to the same stressor? They focused on both dramatic stimuli, such as torture and major illnesses, as well as common life events, such as a death in the family and job changes. In effect, they defined the elements of inner and outer conditioning from the Selye model.

When the event occurs, its significance may be altered by past positive or negative experiences, as well as social support systems. The perception of the event then dictates the utilization of ego defense mechanisms, such as denial, displacement, repression, reaction formation, and isolation. In some instances, these may be sufficient to shield the individual from the psychophysiological effects of such an experience. If this does not occur, psychological and physical changes are experienced, some of which are beyond conscious awareness. Examples include pain, mood changes, headaches, and elevations in pulse rate, blood pressure, and serum lipids. Through active coping and unconscious defense techniques, such as muscle relaxation, exercise, medications, avoidance, and distraction, some psychophysiological effects are curtailed. However, others continue. The individual then focuses attention on these symptoms and adopts illness behaviors, such as missing work and seeking medical care. When a diagnosis is made and recorded, caseness is established.

The work of Rahe et al. (1978) highlighted the complex interplay of historical antecedents, social context, psychological, and physiological elements in the evolution of stress-related signs and symptoms. They defined possible risk factors and a view of when particular

interventions might enhance stress tolerance or resilience, thereby halting the progression to illness.

3. **Ecological conceptualization of the stress process**

Instead of looking at the stress process as a linear one, Israel and Schurman (1990) emphasized the influence of multiple feedback loops during the various stages in altering individual perception of the event. They underscored the importance of social support and control as moderating, or buffering, variables and of considering both short and long-term responses to the stressor. Using an ecological perspective, i.e., placing the person in a real life context, they saw individuals in a multileveled environment, possibly experiencing multiple stressors at any one time. In effect, they viewed the stress process as even more interactive and dynamic than previously thought.

4. **Survival strategies**

Valent (1995; 1998) expanded these theories by describing adaptive and maladaptive expressions of the stress response, i.e., survival strategies. The former contribute to recovery while the latter accentuate the level of stress, increase the likelihood of disequilibrium and exhaustion, and promote the progression to illness and disease. These strategies are manifested at the biological, psychological, and social levels. Of note is that Valent (2002) associated the survival strategy of assertiveness-goal achievement with the outcome of burnout. Through a gradual process, daily hassles and job strain lower morale, idealism, the sense of personal accomplishment, and foster depersonalization. The feeling of lack of control leads to powerlessness and emotional exhaustion. A comparison of signs and symptoms of burnout with those of secondary traumatic stress shows considerable overlap (Joinson, 1992; Yassen, 1995).

B. Psychological Stress Responses

Psychological trauma is defined in the 4th version, Text Revision, of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR) as:

> ...an event that involves actual or threatened death or serious injury, or other threat to one's physical integrity; or witnessing an event that involves death, injury, or a threat to the physical integrity of another person; or learning about unexpected or violent death, serious harm, or threat of death or injury experienced by a family member or other close associate (American Psychiatric Association, 2000, p. 468).

The first two types of traumatic exposure are considered primary, or direct, trauma. The last pertains to indirect trauma. The structural and chemical changes that occur in the brain from such stressors alter functioning in all spheres of life: cognitive, emotional, behavioral, spiritual, physical, personal relationships, and work performance (Bremner and Vermetton, 2001).

Within the past few decades, there has been a growing body of research into the primary, or direct, effects of trauma on the individual. More recently, however, interest has focused on those exposed to the victims because of their helping role. The responses seen in those with indirect exposure mirror those of post-traumatic stress in the primary victims, as depicted in Table I (Figley, 1995, p. 8). Why this occurs is rooted in a fundamental trait of those in the caring or helping professions, compassion, the essence of which is empathy, and forms the basis of compassion fatigue (CF) theory (Figley, 2002; Figley and Kleber, 1995).

TABLE I

SUGGESTED DISTINCTIONS BETWEEN THE DIAGNOSTIC CRITERIA FOR PRIMARY AND SECONDARY TRAUMATIC STRESS DISORDER[1]

Primary	Secondary
A. Stressor:	**A. Stressor:**
Experienced an event outside the range of usual human experiences that would be markedly distressing to almost anyone; an event such as:	Experienced an event outside the range of usual human experiences that would be markedly distressing to almost anyone; an event such as:
1. Serious threat to self	1. Serious threat to traumatized person (TP)
2. Sudden destruction of one's environs	2. Sudden destruction of TP's environs
B. Reexperiencing Trauma Event	**B. Reexperiencing Trauma Event**
1. Recollections of event	1. Recollections of event/TP
2. Dreams of event	2. Dreams of event/TP
3. Sudden reexperiencing of event	3. Sudden reexperiencing of event/TP
4. Distress of reminders of event	4. Reminders of TP/event distressing
C. Avoidance/Numbing of Reminders	**C. Avoidance/Numbing of Reminders**
1. Efforts to avoid thoughts/feelings	1. Efforts to avoid thoughts/feelings
2. Efforts to avoid activities/situations	2. Efforts to avoid activities/situations
3. Psychogenic amnesia	3. Psychogenic amnesia
4. Diminished interest in activities	4. Diminished interest in activities
5. Detachment/estrangements from others	5. Detachment/estrangements from others
6. Diminished affect	6. Diminished affect
7. Sense of foreshortened future	7. Sense of foreshortened future
D. Persistent Arousal	**D. Persistent Arousal**
1. Difficulty falling/staying asleep	1. Difficulty falling/staying asleep
2. Irritability or outbursts of anger	2. Irritability or outbursts of anger
3. Difficulty concentrating	3. Difficulty concentrating
4. Hypervigilance of self	4. Hypervigilance for TP
5. Exaggerated startle response	5. Exaggerated startle response
6. Physiologic reactivity to cues	6. Physiologic reactivity to cues

[1]Symptoms under one month duration are considered normal, acute, crisis-related reactions. Those not manifesting symptoms until six months or more following the event are delayed PTSD or STSD.

Note. From "Compassion fatigue as secondary traumatic stress: An overview" by C. R. Figley. In C. R. Figley (Ed.), *Compassion Fatigue: Coping with secondary traumatic stress disorder in those who treat the traumatized*, p. 8. New York: Brunner-Routledge. Copyright 1995 by C. R. Figley. Reprinted with permission (Form I, Appendix H).

This process, from exposure to suffering through to CF, was proposed by Figley in 1995 and expanded in 2001 (Figley, 2005). Upon exposure to the suffering of others, the helper experiences empathic concern, which elicits an empathic response. Cliffordson (2002) examined the hierarchical structure of the concept of empathy. In stressing the emotional and cognitive processes of the empathic response, they found the dimension of concern at the apex of the model overlapping with the constructs of perspective taking, i.e., "adopting the psychological point of view of others" (p. 51), and fantasy, i.e., "the tendency to imaginatively transpose oneself into fictional situations" (p. 49). How well the helper has been able to distance him or herself from the suffering of the victim and/or on his or her ability to alleviate such suffering determines the degree to which the helper experiences residual compassion stress. Finally, CF, analogous to post-traumatic stress disorder (PTSD) in the primary victim of trauma, is the result of the complex interplay of this residual compassion stress, prolonged exposure to the pain of others, traumatic memories, and other life demands of the helper.

Figley (1995) defined compassion stress as "the natural behaviors and emotions…resulting from helping or wanting to help a traumatized person" (p. xiv). In other words, some stress is expected for those working in the field of trauma. As noted by Mitchell and Everly (1996), this stress can be positive or desirable in the sense that it increases motivation and enhances performance. There is, however, a point where continued exposure to the stressor will overtax the abilities of the individual to effectively manage the stress. Exhaustion ensues. In the field of trauma, this state of exhaustion has been termed CF (Figley et al., 1995), vicarious traumatization (VT), and secondary traumatic stress disorder (STSD). By definition, it is "a state of tension and preoccupation with the individual or cumulative trauma of clients as manifested in one or more ways including reexperiencing the traumatic event, avoidance/numbing of reminders

of the event, and persistent arousal" (Figley, as quoted by Gentry et al., 2002, p. 125). As with PTSD, "outcomes may vary from comorbidity, such as depressive disorders, anxiety, substance abuse, through to character pathology, physical health problems, pathological bereavement syndromes, and impacts on social behavior, personal relationships, work, personal functioning, and enjoyment of life" (Raphael and Wilson, 1993, p. 110).

Stamm (2002) introduced the concept of compassion satisfaction in 1996. It is the personal sense of accomplishment one experiences from helping others and is a continued source of motivation, fostering feelings of connectedness with others. In the traumatic stress model, compassion satisfaction acts as a buffer from the negative aspects of trauma work.

C. Field Studies

The incidence of PTSD/STSD symptoms has been variable across studies. Carlson (1997) noted a 25 to 30% rate in those exposed to extreme stressors. After a rail disaster, 20% of rescue workers exhibited symptoms one month later and 21% of firefighters had persistent effects 29 months after catastrophic bushfires in Australia (Ursano et al., 1994a). Thirty-two percent of workers involved in recovery of bodies from Jonestown were affected, as were 40% in the Hyatt Regency skywalk collapse (Raphael and Wilson, 1994). In a study of child protective workers, Cornille and Meyers (1999) found 37% of respondents showed clinical levels of emotional distress associated with STS. Women showed higher levels of somatization, more hostility and global distress symptoms, and obsessive-compulsive disorders. On the other hand, men exhibited more depression, phobic anxiety, paranoid ideation, psychoticism, and distress in interpersonal relationships. Levels of work exposure and work-related personal trauma were strongly associated with these symptoms.

Increased levels of stress have been found among other groups exposed through secondary traumatization: museum workers preparing Holocaust Memorial Museum exhibits (McCarroll et al., 1995), families of kidnapped victims (Navia and Ossa, 2003), trauma therapists (Pearlman and MacIan, 1995), and Israeli police forensic technicians (Hyman, 2004). After the Oklahoma City bombings, mental health workers who provided services were surveyed nine months later (Wee and Myers, 2002). The mean CF scores found these respondents in the high risk category. Some degree of severity for stress disorders, ranging from mild to severe, was seen in 64.7% of workers and 44.1% were determined to have caseness, meaning they scored above the 90th percentile of the non-patient norms for distress.

An investigation of mental health providers after the September 11, 2001 attacks revealed higher levels of STS among those that had longer assignments, were younger, had been practicing for fewer years, had heavier caseloads, or had been working with firefighters than those who did not (Creamer and Liddle, 2005). In addition, a previous history of STS was significant for predicting its recurrence in these circumstances. Roberts et al. (2003) examined a group of chaplains and disaster relief workers following September 11, 2001. The mean CF scores were found to be elevated, as were the scores for burnout. Compassion satisfaction scores were lower than expected. Together, these findings indicated the respondents were at increased risk for STSD. Similar results were obtained in a study of social workers after the attacks of September 11, 2001 (Boscarino et al., 2004). Overall, 27% were at high risk for STSD.

Breslau et al. (1998) conducted a survey of 2,181 persons 18 to 45 years of age in the Detroit area. A probability sample, obtained via random digit dialing and considered representative of the general population, was asked about trauma history and PTSD symptoms. The lifetime prevalence for PTSD was found to be 2.2% for those exposed by learning about the

trauma of others. By definition, however, this constitutes secondary, or indirect, exposure and, therefore, is an estimate of the lifetime prevalence of STSD in the general population.

In summary, the current academic literature on STSD, VT, and CF covers many groups in the helping professions, from nurses to social workers and therapists, firefighters to paramedics and police officers. Emergency call-takers and dispatchers, providing the link between the community and the provision of emergency services, have not been included in any of these studies. Beaton and Murphy (1995), when comparing different types of crisis workers as to frequency of direct or indirect exposure to trauma, stated that telecommunicators experience daily exposure to secondary trauma. They are "physically removed from the trauma scene and victim, but are present emotionally and absorb stress" (p. 52).

D. **Public Safety Telecommunicators**

There are over 6100 emergency call centers within the United States, taking approximately 200 million 9-1-1 calls per year from the public. The call-takers and dispatchers, also known as telecommunicators, employed at these sites number over 100,000. The National Communications Network (2005) has estimated the annual recruitment need for telecommunicators at 10,000. A 2004 national survey of call centers revealed a retention rate of 83%, i.e., a 17% annual turnover rate (Taylor, 2005). This survey was a component of Project RETAINS, an acronym for Responsive Efforts to Address Integral Needs in Staffing. The Association of Public Safety Communications Officials International (APCO), a non-profit organization of 16,000 professionals dedicated to enhancing telecommunications worldwide, was one sponsor of the 2004 survey They had expressed concern over the loss of staff vital to providing an effective community response during emergencies. This research was undertaken to determine root causes for personnel losses and to formulate an effective industry response.

Organizational and management issues, as well as work schedules and mandatory overtime hours, have been implicated.

The U.S. Department of Labor defines police, fire, and ambulance dispatchers as ones who "...handle calls from people reporting crimes, fires, and medical emergencies" (2005, Nature of the Work section, ¶ 4). In describing their working conditions, they mention:

> The work of dispatchers can be very hectic when many calls come in at the same time. The job of public safety dispatcher is particularly stressful because a slow or an improper response to a call can result in serious injury or further harm. Also, callers who are anxious or afraid may become excited and be unable to provide needed information; some may even become abusive. Despite provocations, dispatchers must remain calm, objective, and in control of the situation (2005, Working Conditions section, ¶ 3).

In addition to taking the calls, telecommunicators continuously monitor availability of emergency service personnel and units in the field, dispatching those services necessary for any particular call and closely following their response. In some cases, this same dispatcher provides immediate medical instructions to the caller while waiting for paramedics to arrive at the scene. Such pre-arrival instructions are often life-saving (Salafia and Ormsby, 1998).

The following excerpts are from an actual police dispatcher job description distributed to potential applicants and provide even more insight into the job demands and working conditions of the telecommunicator:

> Police Dispatchers continuously weigh and evaluate large volumes of information. Police Dispatchers must consider numerous factors in determining the appropriate responses to requests. Among these are: the nature of the incident, the proper response agency, availability of resources, potential safety of the caller and response personnel, geographic location of incident, emotional and physical condition of caller, and criminal involvement and trends. Police Dispatchers must accurately and rapidly interpret disjointed information and make quick decisions regarding the urgency of a response, applicability for referral to other agencies, etc. One or more person's safety

and/or life may be dependent upon these decisions. Police Dispatchers are expected to make appropriate decisions based on training, experience, judgment, established police procedures, and "hunches". Police Dispatchers' decisions are subject to constant review.

Police Dispatchers must be able to quickly and accurately recognize letters, numbers, addresses, names, and license numbers received by radio, by telephone, or on a computer monitor. Data is often presented simultaneously or in rapid succession. Data must be accurately compared with information from previous calls (suspect descriptions, license numbers) to determine if it is new and/or updated, and if so, should be reported as such.

Police Dispatchers must quickly and accurately obtain information from callers necessary to determine the appropriate response agency. Police Dispatchers must control conversations and obtain needed information in an accurate, timely, and assertive manner. This may be complicated by callers who are often aggressive, distraught, confused, profane, impaired by mental defect, and sometimes nearly incomprehensible.

Police Dispatchers must maintain high professional standards and attitudes when obscene language is directed at them, when handling emergency situations, and in handling large numbers of nuisance, hang up, or non-emergency calls.

Any call may require the Police Dispatcher to perform several activities simultaneously. Examples include maintaining contact with a 9-1-1 caller while calling the appropriate response agency, updating incident information while monitoring radio traffic, or speaking with a caller while determining response unit availability.

Police Dispatchers often work at a very rapid pace over which they have little control due to workload and the nature of incidents. Police Dispatchers are often unlikely to be able to follow-up on and learn the final resolution of calls received earlier in their shift.

Police Dispatchers are unable to leave their work station for any time during a shift other than brief breaks as the workload allows.

Police Dispatchers work in an often noisy and distracting environment. Police Dispatchers must be able to concentrate on their jobs for extended periods of time while other Police Dispatchers are taking calls, people are walking around them and conversations are taking place in close proximity to them (Lenexa Police Department, 2005, unpublished document, p. 2-3).[1]

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[1] *Note.* From "Job Facts Information," by the Lenexa, Kansas Police Department, 2005, p. 2-3. Reprinted with permission (Form II, Appendix H).

In looking closely at the job of a telecommunicator with a perspective on stress, there are several areas of concern. The ability to multitask is required. The workload is rapidly paced. The national standard requires all calls to be answered within ten seconds, with no more than three rings, during the average peak hour (Hauer, 1998). For example, the Chicago 9-1-1 call center handles up to 20,000 calls each day (Davis, 2005). To achieve the best practice standard for effective and efficient emergency response requires a large number of telecommunicators on duty at all times. With nationwide retention rates at only 83%, mandatory overtime, which includes loss of regular days off, lunch and break periods, may be a frequent occurrence. In fact, 58% of a random sample of managers throughout the Unites States surveyed in the 2004 national study of call centers indicated overtime was frequently necessary (Taylor, 2005). According to Jerry Rankins of the International Brotherhood of Electrical Workers Union, this has been the case in Chicago, with more than a quarter of the staff working overtime in 2005. As quoted by Heinzmann in a January 2006 Chicago Tribune article, he stated, "Members are physically, mentally and emotionally breaking down, causing more and more employees to take medical [leave]" (p. 2, ¶12). Without time away from such a work environment, the ability to detach and defuse the stress is hampered. As Figley (2005) pointed out, this factor directly contributes to residual compassion stress and predisposes the worker to STSD.

Another striking feature of this profession is the profound responsibility the job entails. Split-second decisions often have life and death consequences for citizens and/or other first responders. Telecommunicators must rapidly achieve control over callers to obtain needed information to make those decisions and, in some cases, to compel them to provide immediate life-saving care. They cannot allow themselves to feel the impact of the words spoken by the caller, the distress in their voices, or react to background noises such as screaming, gunfire, or a

victim taking their last breath. They must act professionally, with firmness and empathy in their own tone of voice, inflection, and words in order to do their job well. They are, in essence, doing EL.

Hochschild (1983), in the seminal work on this topic, states the management of feeling "...requires one to induce or suppress feeling in order to sustain the outward countenance that produces the proper state of mind in others" (p. 7). The individual is experiencing a dissociation, or a disconnect, from their self. Hochschild (1983) calls this emotional dissonance, feeling one way but expressing something different. As with any other occupational hazard, there are consequences to such actions including numbing of the capacity to feel, loss of control over how to conduct oneself at work, burnout, alienation from others and their work, lowered self-esteem, depression, cynicism, increased perception of job stress, and greater psychological distress (Hochschild, 1983; Kruml and Geddes, 2000; Pugliesi, 1999; Wharton, 1999). However, Erickson (2004) found that when workers choose to internalize the feelings they are expressing, i.e., not to dissociate, they have a greater sense of control over their work, experience greater job satisfaction, self-efficacy, and sense of well-being and less overall stress. Pugliesi (1999) agrees with these findings but only in jobs that were less demanding and workers had more control. In a study of university employees, she found interactions between EL and work conditions. This is consistent with the theory of Israel et al. (1990) which postulates that the perception of control, one aspect of work conditions, may moderate the effects of a stressor.

Both Pugliesi (1999) and Wharton (1999) recommend viewing EL as a multidimensional concept and a continuous, rather than dichotomous, variable. There are many types of public service workers, ranging from waitresses and flight attendants to physicians and judges, each with their own unique job demands and organizationally-sanctioned feeling rules. In addition, EL

may be self-focused or other-focused and with other-focused, it may be client or co-worker directed. Under these diverse circumstances, when exploring EL, conflicting research results are to be expected.

Wharton (1999) described EL as "the effort involved in displaying organizationally sanctioned emotions by those whose jobs require interaction with clients or customers and for whom these interactions are an important component of their work" (p. 160). For telecommunicators, these feeling rules can be found in job descriptions and training manuals but are also learned during the acculturation process from supervisors, co-workers and callers themselves (Erickson, 2004; Tracy and Tracy, 1998). Furthermore, their performance of these rules is monitored, every phone call recorded. Improper displays of emotion lead to negative job evaluations and may result in adverse publicity for themselves, their call center, and telecommunicators in general.

Through peer socialization, workers also learn ways to cope with the intense stress of doing EL. Qualitative research conducted at one 9-1-1 center revealed techniques used both during and after calls. During calls, telecommunicators used facial and other non-verbal expressions, gave "everyday" advice, upped the priority rating for more rapid response from emergency teams, and/or used self-talk to imagine themselves as the caller. Afterwards, they often reviewed the call with their peers, joked about it or the caller, and/or engaged in sharing experiences (Tracy et al., 1998). These are forms of social support, an important method of buffering the self from the consequences of trauma exposure, consistent with the models of Rahe et al. (1978) and Israel et al. (1990).

Shuler and Sypher (2000), in another qualitative study of a 9-1-1 center, described the expectation of emotional neutrality in taking calls. They found "...dispatchers actually spend a

majority of their time dealing with mundane problems and situations" (p. 65). To deal with the routine aspects of their job, workers joked with each other, spent time talking with their "regular callers", and engaged in story-telling. They talked about getting an adrenaline rush from the intense calls, partly from the excitement but also from the EL required at such times. At other times, telecommunicators would purposely go above and beyond what was required of them during a call. Shuler et al. (2000) described this as engaging in altruistic service. Such giving of oneself during the encounter reinforces the importance of their role in protecting the public safety and how skilled they are in doing their job, thereby improving job satisfaction. In a setting where little recognition is received from the public, these self-initiated "pats on the back" become even more important in sustaining personal job commitment. As noted by Stamm (2002), this sense of compassion satisfaction may lessen the impact of trauma.

In contrast to other emergency responders, telecommunicators do not directly provide the needed assistance to a caller. This can lead to a sense of helplessness and powerlessness, in other words, lack of control. Tracy et al. (1998) found this to be particularly true with suicide calls, when hearing the events of a crime in progress as with domestic violence or rape, and when talking with a caller while waiting for field personnel to arrive at the scene. Not knowing the final outcome of an event can also contribute to powerlessness: "It gnaws at you" (p. 399). Such feelings have been implicated as contributing to both burnout and traumatic stress.

Numerous websites, training programs, newspaper articles, texts, and radio programs include dispatcher stress among topics covered (Behr, 2000; Holt, 1999; Inskeep and Montagne, 2006; McAtamney, 2005; Pivetta, 2002). The academic literature, however, has been nearly devoid of research on STS in this group. There has been only one study, that of Jenkins in 1997, that actually investigated traumatic stress in this population. In her study on coping and social

support among emergency dispatchers during Hurricane Andrew, Jenkins was able to explore sources of stress from this disaster and provide more understanding of the vital role these individuals play in community emergency response. Unfortunately, measures of STS were not included in her research. This present study will build on the work of Jenkins by examining the stress dispatchers experience because of their helping role.

E. **Conceptualization of Traumatic Stress Involving Telecommunicators**

This research described selected elements of the telecommunicator experience and their interrelationships as depicted in the conceptual model in Figure 1. According to this model, exposure to calls involving traumatic material elicits an emotional response. The extent of emotion management required contributes either to a sense of compassion satisfaction, burnout, or STS. The experience of burnout can also add to STS, which may eventually result in STSD. Conditioning variables of past history of trauma, social support, coping abilities, job conditions, and selected pertinent demographic elements may alter the progression in positive or negative ways throughout this highly interactive process. Furthermore, for telecommunicators, exposure to traumatic material is a daily occurrence. The residual stress, i.e., the symptoms of STS they experience after one call, are carried with them during subsequent ones. This model, therefore, implies that traumatic stress can be a cumulative process.

This study was limited to examining trauma exposure, EL, risk for burnout, potential for compassion satisfaction, and risk for STS in a convenience sample of telecommunicators. To improve ease of reading, the terms *secondary traumatic stress* (STS) and *secondary traumatic stress disorder* (STSD) will be substituted, when appropriate, for *compassion stress* and *compassion fatigue* (CF) throughout the remainder of this report.

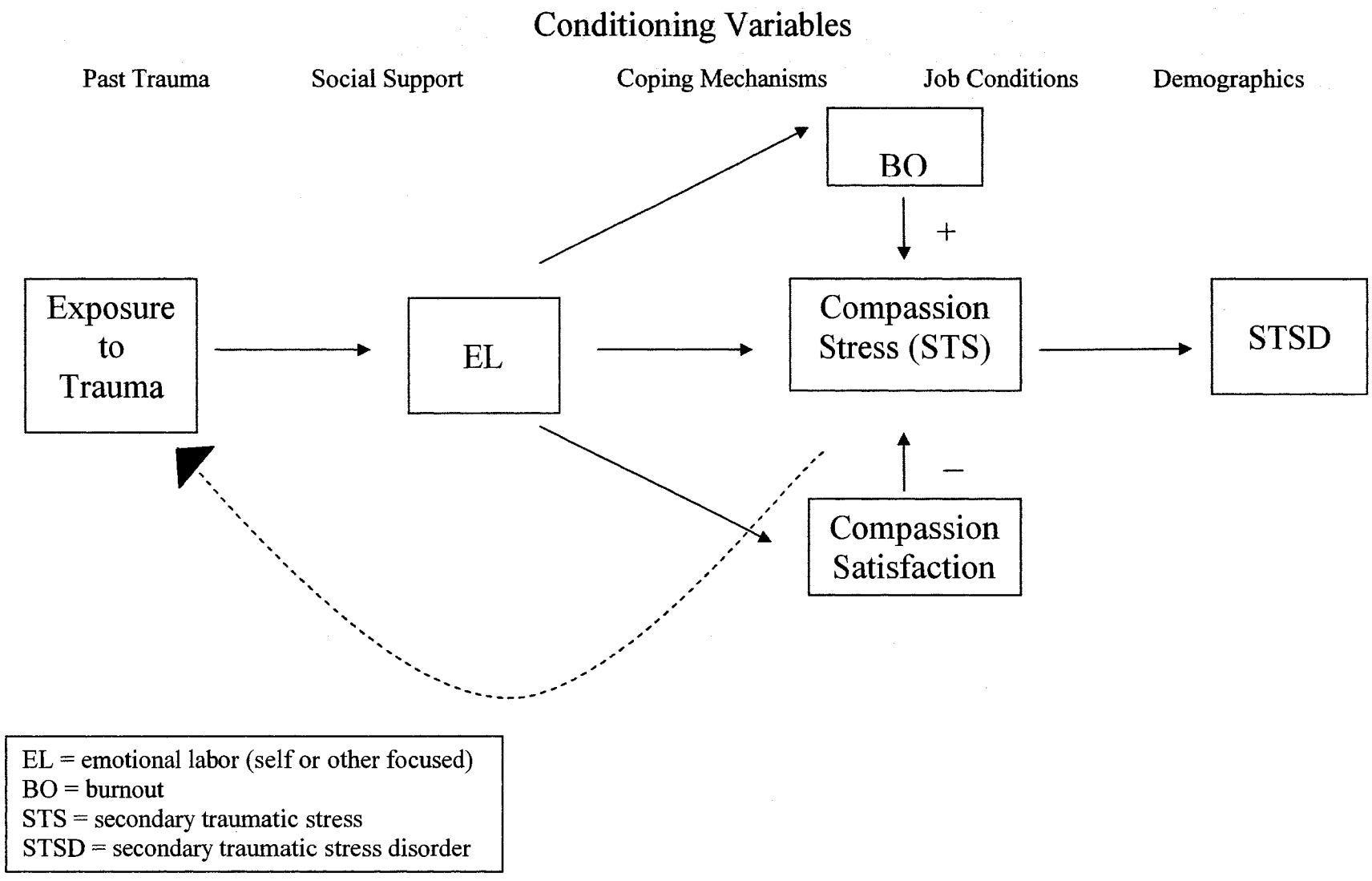


Figure 1. Conceptualization of traumatic stress involving telecommunicators.

III. METHODOLOGY

A. Design

The study was descriptive research in which qualitative and survey methods were used. It was cross-sectional in design, assessing respondents at one moment in time.

B. Phase I: Pilot Study

1. Purpose

The Pilot Study was conducted to determine the length of time participants would need to complete the various questionnaires, scales, and sections, as well as to assess the clarity and relevance of the specific items. This phase used qualitative methodology to answer the research questions. The primary goal was to refine the survey instrument for use in the Main Study.

Particular attention was given to the appropriateness of the exposure measures, i.e., the objective measure being the number of stressful calls and the subjective measure being the stressfulness ratings of these calls. A review of the literature revealed that both types of measures have been used to assess exposure in other subjects and that there is currently no standard for this assessment regarding secondary trauma. In fact, in studies of other first responders, exposure is assumed by virtue of the job and not formally measured. This topic is discussed further in the Measurement Issues section of this report on page 35.

2. Research questions

The Pilot Study was done to answer the following questions:

a. Was the topic relevant to the telecommunicator?

b. Which of the two measures of exposure to secondary traumatic information more accurately described their experiences?

c. Did they feel the ProQOL measures were appropriate for their profession?

d. Did they feel the EL questions were relevant?

e. In what ways would they change the questionnaire?

f. Did they describe answering the survey questions as stressful?

g. Were the instructions and questions clear?

h. What was the average time needed to complete the survey?

3. **Sample**

Respondents were solicited via the listserves of two national telecommunicator organizations, APCO and the National Emergency Number Association (NENA). According to Dillman (2000), doing so lends credibility to the research. The listserve notice is included as Form I, Appendix A. The point at which saturation occurred determined the number of participants needed. It was estimated that this would require 10 to 30 individuals. They must have worked as a telecommunicator within the past year in Illinois, agree to complete the survey, and participate in an interview about the questionnaire and their experiences. Confirmation of eligibility was verified with potential participants by phone and a meeting time and location established. Locations were such that privacy was assured.

Of the 18 individuals responding to the listserve notices, 16 agreed to participate. Although saturation was reached with 13 interviews, three more were conducted to ensure this was the case and because they had been scheduled for more than a week. Thirteen participants chose their office or a conference room at their communication center and three selected their homes as the locations for survey completion and interview.

4. **Human subjects protection**

The proposal for the Pilot Study was submitted to the University of Illinois Institutional Review Board and approved prior to its implementation (Form I, Appendix G). Participants were

asked to complete the survey and interview after being fully informed of the nature of the study and its importance, the potential risks and benefits of participation, anonymity, and the right to refuse participation without risk of repercussions. They were assured of the security of the transcribed documents and that the audiotapes would be destroyed once transcribed. Eight individuals requested copies of their audiotape transcript. Of these, three were returned with only typographical changes noted. All participants were sent a copy of the final research report as had been requested.

5. **Protocol**

At the meeting, verbal and written informed consent was obtained (Form II, Appendix A). The written questionnaire was self-completed, followed by a debriefing with the researcher. The interview format was semistructured to allow the respondents freedom to express their thoughts on issues relevant to the topic of traumatic stress in their work but that would not otherwise be solicited through questions in the interview guide (Form III, Appendix A). Probes were used when needed to enhance and clarify responses. Permission was requested to tape record the session and each segment, questionnaire completion and interview, was timed. Field notes were taken during the sessions. Surveys and field notes were reviewed for completeness prior to ending the interview session. In appreciation for their time and effort, participants were given a copy of *Under the Headset: Surviving Dispatcher Stress* by Richard Behr (2000). They were asked not to share this booklet or their thoughts on the survey and interview with their colleagues until after completion of the Pilot Study so as to minimize the risk of crossover.

6. **Data analysis**

Quantitative data were summarized using descriptive statistics. Field notes were reviewed when listening to the tape recordings, and written up the same day to optimize accuracy and

completeness. Interview data were transcribed verbatim by a professional transcriptionist. The results were read through twice by the researcher while listening to the tapes to ensure their accuracy. The transcriptions were then read through again to become familiar with the content. Line by line coding followed. This allowed the researcher to meticulously explore the information for themes and patterns in responses to the interview items and to answer the research questions. A listing of code words and themes was compiled and the transcriptions reviewed at least one more time to ensure accuracy and thoroughness in coding. Coding sessions were limited to two hours with 30 minute breaks to minimize error due to fatigue. A second coder, trained by the researcher in qualitative analysis, followed the same protocol and the results were then compared. Discrepancies were resolved through discussion and examination of relevant passages from the original documents. The findings were summarized according to the components and scales of the questionnaire in a written report. Refinement of the survey instrument was based on these results. The Pilot Study findings are presented in Chapter IV.

C. Phase II: Main Study

1. Research questions

Information obtained from the Main Study was used to answer the following questions:

a. What was the demographic profile of this sample?

b. What exposure did telecommunicators have to PTEs/calls?

c. To what extent were these calls considered traumatic?

d. How did they describe their most distressing call?

e. To what extent did their job involve EL?

f. What was the prevalence of burnout, compassion satisfaction, and STS in this group of telecommunicators?

g. Were there specific demographic factors that increased the potential for compassion satisfaction, the risk for burnout, and the risk for STS?

h. What associations existed between exposure to PTEs/calls and TEs/calls, EL, burnout, compassion satisfaction, and STS in this sample?

2. **Supporting centers**

Access to potential respondents was made through multiple 9-1-1 emergency call centers within the state of Illinois. Letters requesting the assistance of site administrators, along with a copy of the curriculum vita of the researcher, were sent to these locations during the months of May and June 2006 (Forms I and II, Appendix B). A second mailing of this request was done in early July 2006 in an effort to enhance the response rate (Form III, Appendix B). Specifically, the site representative needed to place address labels on the survey packets for each telecommunicator employed at that location, mail the packets, and post a flyer (Form IV, Appendix B) in the employee break room during the course of the study. This flyer provided the following information: total call volume (the sum of 9-1-1 or emergency calls, non-9-1-1 calls, and police-initiated activity), the number of part and full-time telecommunicators, and the number of open positions. A copy of this flyer was to be returned to the researcher in a postage-paid envelope. They were advised that two mailings were required to improve the response rate and that the duration of data collection would be from one to two months. Memoranda of understanding were returned to the researcher (Form V, Appendix B).

Emergency call centers within Illinois are under the jurisdiction of the Illinois Commerce Commission. On their recommendation, a list of call centers was obtained from their *October 2005 Status Report*. Upon calling the specified contacts at the 200 sites for their addresses, it was learned that some sites had closed, multiple centers were managed by one specific administrator,

or that the designated contact would not be the one to give permission for site participation. Where possible, further information was obtained and contacts with specific sites made. As of June 12, 2006, 200 letters requesting site participation were mailed. On July 3, 2006, 156 sites were sent a second request. Additional letters were sent out as new information was obtained.

In addition, the 2006 President of the Illinois Chapter of NENA posted a notice about the study on the Illinois NENA and the Illinois APCO listserves in late May and early July 2006. These notices encouraged administrators to contact the researcher if they had not received study information in the mail by early June or mid-July, respectively. There were a few responses from these postings.

3. **Sample**

Respondents for the Main Study were recruited from the supporting emergency call centers in Illinois via the mail as specified in the site section above. The sampling frame reflected the number of full and part-time telecommunicators at these locations.

By early June, 2007, memoranda of understanding had been received for 80 of the 236 sites that had been solicited over the previous year. Phone contact was then undertaken to confirm the numbers of surveys needed at each center. At that time, one site was withdrawn from the study as it had consolidated with nearby communities and was no longer in existence. The remaining 79 (33.5%) participating sites represented a pool of 1,004 potential respondents from 39 (38.2%) of the 102 counties throughout rural, urban, and suburban Illinois.

Components of the Tailored Design Method were adopted to enhance response rates, as recommended by Dillman (2000). Consent documents, letters, and information sheets discussed the potential for knowledge gained, including understanding of their work, identifying risk factors for adverse consequences of their exposure to stressful information, and determining

sources of resilience in such situations. They were told approximately 1000 of their colleagues throughout the state were being offered participation as well and that this knowledge could only be gained by asking for their help. These factors conveyed the importance of their participation to their profession and peers, thereby supporting group values and giving social validation (Dillman, 2000). Signatures were hand-written on all documents and the address and phone number of the researcher provided for questions. Potential and actual participants were thanked several times. In addition, space was provided at the end of the survey for comments, allowing them the freedom to address any issue or concern. These measures, according to Dillman (2000), provide rewards and emphasize the value of their opinions.

Questionnaires, with supporting documents and return-addressed envelopes, were placed in plain nine by twelve inch white envelopes. Cover letters were printed on university letterhead to convey authenticity of the project. First-class postage was hand-applied. Respect for privacy, confidentiality, and anonymity was conveyed in four ways. First, these issues were addressed in the cover letters, consents, and information sheets. Second, surveys were distributed to the supporting centers for application of address labels. Third, these centers were instructed to mail the surveys and not hand-distribute them. Lastly, each survey was coded by site with the coding sheet destroyed as soon as they were given to the centers. A second code was added in order to calculate response rates from each separate mailing. Due to financial constraints, two mailings, as opposed to the four recommended by Dillman (2000), were done two weeks apart.

4. **Human subjects protection**

The proposal for this research was submitted to the University of Illinois Institutional Review Board for their approval (Forms II and III, Appendix G). Authorization was obtained prior to its implementation. Participants for the Main Study were asked to complete the survey

after being fully informed of the nature of the study and its importance, the potential risks and benefits of participation, anonymity, and the right to refuse participation without risk of repercussions. The presentation of the Main Study results would not be linked to any specific 9-1-1 center and center administrators would have no way of knowing which of their employees did or did not respond.

Assurances were made that the Main Study findings would be provided to the respondents and administrators upon request. A postcard was sent with the survey packets (Form V, Appendix C). They were advised to return the postcard with mailing information to the investigator, separately from the actual surveys, to request a copy of the findings. In this manner, returned questionnaires could not be linked to any one individual and nonrespondents were able to access the results if desired. In total, 376 individuals returned the postcards.

Completed surveys and the data generated from them have been maintained in a locked, secure file cabinet at the home of the researcher. These materials will be destroyed upon completion of this project.

It was possible that an individual, by virtue of their participation, could experience some psychological distress and desire the assistance of a qualified mental health practitioner. Such resources were delineated in the consent form. There were no reports of such occurrences.

5. **Consent**

As noted in the previous section, the importance of the research and their participation was emphasized in the cover letter to potential respondents (Form I, Appendix C). Anonymity and confidentiality issues were also addressed. The questionnaires were coded to allow for nested data analysis, if desired at a later time, and to determine response rates from each of the two mailings. However, there was no way to connect responses with specific sites or individuals.

Potential participants were told that their decision to not participate would in no way affect their positions or their job evaluations. The vita of the researcher was included with the participant information sheet (Forms II and III, Appendix C). An additional cover letter was sent with the second mailing of the survey (Form IV, Appendix C).

6. **Data analysis**

a. **Training, coding, and database management**

The researcher and only one particular assistant coded all qualitative data according to the steps outlined for the Pilot Study. For the quantitative data, ten individuals were trained by the researcher in the coding system for the measurement tool and provided a scoring guide. Each survey was separately coded by two individuals with the researcher as primary coder. Separate scoring sheets were utilized. Comparisons of the results on each scoring sheet were done to ensure accuracy. Discrepancies were resolved by examination of the original survey documents. Coding sessions were limited to two hours with 30 minute breaks to minimize error due to fatigue.

Data were entered into Excel (Microsoft, 2007) by two professional stenographers. Data entry sessions were also limited to two hours with 30 minute breaks to minimize fatigue. All entries were manually checked by the researcher and an assistant. No discrepancies were found.

The Excel file was then entered into SPSS 15.0 (2006) for analysis by a professional statistician. This same process was repeated by the researcher on all measures with the exception of the factor analyses.

b. **Disposition codes**

Returned questionnaires were assessed for completeness. Disposition codes were reported as recommended by the American Association for Public Opinion Research (AAPOR, 2006). For the purposes of this study, the disposition codes were defined as follows:

1.) Returned questionnaires: total number of questionnaires received in the mail, i.e., the sum of those designated complete, partial, and break- off.

   a.) Complete: 80% of the essential questions answered that pertained to the key variables, i.e., work exposure to traumatic incidents and the three subscales of the ProQOL, and 80% of other questions.

   b.) Partially complete: 80% of the essential questions, as defined above, and 70 to 80% of other questions answered.

   c.) Break-off: less than 80% of essential questions and less than 70% of other questions answered.

2.) Eligible, non-interview: the sum of the following categories of response/non-response plus break-offs:

   a.) Refusals.

   b.) Blank documents mailed back, implicit refusal.

   c.) Completed questionnaire not returned during the study period.

   d.) U.S. Postal Service (USPS) categories, i.e., refused by addressee, illegible address, etc.

c. **Outcome rates**

In this study, one outcome rate was calculated. The *response rate* was defined as the number of complete plus partial cases divided by the sum of complete, partial, break-off,

refusals, completed questionnaires not returned during the study period, and USPS categories in which it was clear the potential respondent refused the mailing.

Only those cases determined to be complete or partial were included in the data analyses. The importance of missing data was addressed on the basis of which variables were involved and their influence on the ability to answer the research questions, as recommended by King et al. (2001) and Van den Broeck et al. (2005). A summary of these decision rules is provided in Table III. In general, for indices, group means were substituted for individual items only when a minimum of 75% of the items had been answered. In all other cases, the surveys were excluded from later analyses using that particular question.

Of note is that 18 duplicates and one copy of a survey were also returned. The former designations were verified by the researcher and an assistant on the basis of site code, responses, and handwriting. These 19 surveys were not included in the analyses.

d. **Statistical analyses**

Descriptive statistics were calculated to provide an overview of the sample population. These included counts, frequencies, means, medians, and standard deviations.

Bivariate analyses were performed to investigate relationships between relevant factors and demographic characteristics. These tests included analysis of variance (ANOVA), chi-square, regression, and correlation.

Those variables with significance levels less than 0.25 were then used in a series of multivariate regression analyses to identify the key predictor variables for the outcome measures. This process was guided by the literature and the proposed conceptual model. All p values <0.05 were considered statistically significant.

TABLE II

MISSING DATA DECISION RULES

Description	**Decision rule**
Staffing adequacy index	If 3 of the 4 items answered, use group mean for 4th item. Disregard responses if more than 1 item blank.
Peritraumatic Distress Inventory	If 8 or 9 of the 10 items answered, use group mean for the missing items. Disregard responses if more than 2 items blank or if no specific index event provided.
Emotional Labor Index	If 1 item blank, use group mean for the missing item. Disregard responses if more than 1 item left blank.
Professional Quality of Life Scale	If 1 or 2 items of any subscale of 10 items left blank, substitute group mean. If more than 2 items blank, disregard the responses.

D. **Measurement Issues**

The design of the survey questionnaire was guided by the purpose of the study, the conceptualization of traumatic stress involving telecommunicators, the research questions, and the academic and lay literature on this topic. Reducing respondent burden and minimizing the risk of psychological distress were also considered. The discussion that follows delves into the controversy surrounding measurement of one of the key variables: exposure to traumatic information by telecommunicators.

The DSM-IV-TR Criterion A for PTSD (Appendix D) specifies that:

> ...the person has been exposed to a traumatic event in which both of the following were present:

1. The person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury or a threat to the physical integrity of self or others.
2. The person's response involved intense fear, helplessness, or horror (American Psychiatric Association, 2000, p. 467-468).

Figley (1995) describes the stressor for STSD as where a person "experienced an event outside the range of usual human experiences that would be markedly distressing to almost anyone; an event such as a serious threat to the traumatized person (TP) or the sudden destruction of [the] TP's environs" (p. 8). He explains further that STSD "affects those emotionally affected by the trauma of another" (p. 8).

Twenty-seven psychological instruments used to assess stress and trauma exposure were reviewed. Of these, 11 assessed only Criterion A1 and five were not specific for *traumatic* events. The remaining 11 are summarized in Table III. The diversity of methods used to measure Criterion A2 reflects the fact that no standard has been established to operationalize this concept. As mentioned earlier in this paper, many studies involving traumatic stress and emergency workers did not formally measure exposure but assumed such exposure based on the type of work done by the group under study.

TABLE III

PSYCHOLOGICAL INSTRUMENTS ASSESSING DSM-IV-TR CRITERION A2 FOR TRAUMA EXPOSURE

Measure	Format	Description
Dimensions of Stressful Events[a]	Interview	A2 limited to asking about the control felt during the event. Rated from *none* to *lots*.
Evaluation of Lifetime Stressors[b]	Self-report and semistructured interview required	A2 fully met by assessing the extent of fear, helplessness, horror, life threat, and feeling of responsibility Description used; no rating scale.
Life Stressor Checklist - Revised[c]	Self-report	A2 fully met by assessing feelings of fear, helplessness, and horror as present or absent.
Post-Traumatic Stress Diagnostic Scale[d]	Self-report	A2 limited to assessing feelings of injury, life threat, helplessness, and horror as present or absent.
Stanford Acute Stress Reaction Questionnaire[e]	Self-report	A2 limited to rating how disturbing was the event. Rated from *not at all* to *extremely*.
Stressful Life Experiences Screening – Long Form[f]	Self-report	A2 limited by rating stressfulness of event at the time it occurred and at present. Rated from *not at all* to *extremely* stressful. Summed for total perceived stress score.

[a]Carlson, 1997; Fletcher, 1996.

[b]Carlson, 1997; Krinsley, 1996.

[c]Carlson, 1997; Wolfe et al., 1996.

[d]Carlson, 1997.

[e]Cardena, 1996.

[f]Stamm et al., 1996a.

TABLE III (continued)

PSYCHOLOGICAL INSTRUMENTS ASSESSING DSM-IV-TR CRITERION A2 FOR TRAUMA EXPOSURE (continued)

Measure	Format	Description
Structural Assessment of Stressful Experiences[g]	Self-report	A2 limited by rating items on scale from *not true at all* to *strongly agree/I often feel this/think this.* Several variations of the following items: "It all seemed too horrible to believe"; "There was nothing I could do"; "I was afraid." Summed score.
Structured Interview of Post-Disaster Adjustment[h]	Interview	A2 limited to measuring the intensity of the initial psychological distress.
Traumatic Stress Inventory Life Event Questionnaire[i]	Self-report	A2 limited by assessing amount of distress (then/now) for each event in a list of traumatic events. Rated *not at all* to *extremely* distressing.
Traumatic Events Screening Inventory[j]	Self-report or semi-structured interview	A2 met by assessing for fear, helplessness, and horror. Score each potential event using Criterion A1 of the DSM-IV-TR.
Critical Incidents History Questionnaire[k]	Self-report	A2 limited to assessing how difficult each police-related critical incident would be for a fellow (average) officer to cope with. Summed score.

[g]Stamm et al., 1996b.

[h]Freedy et al., 1996.

[i]Pearlman, 1996.

[j]Carlson, 1997; Ribbe, 1996.

[k]Brunet et al., 2001; Pole et al., 2001.

Cohen et al. (1983) discussed the pros and cons of objective vs. subjective measures of stress. An example of the former would be a sum of events. This would imply that it is the event itself that puts individuals at risk for adverse health outcomes. On the other hand, self-ratings of event stressfulness place the individual experiencing the event in a life context, i.e., it accounts for internal and external factors that may influence their reactions to an event and the subsequent effects on well-being. In other words, the appraisal of an event as stressful is the pivotal factor in placing an individual at risk for adverse psychological or physical disorders.

Carlson (1997) points out that several factors account for the subjective perception of an event as traumatic. These include severity, nature, duration, controllability, fear, helplessness, despair, and horror. Three of these are specified in the DSM-IV-TR criteria for PTSD. From the literature, exposure to an event that qualifies as a traumatic incident does not lead, for example, to PTSD 100% of the time. In fact, the lifetime prevalence of primary and secondary exposure in the general population is estimated at 89% and 62%, respectively. However, only 10.2% of males and 18.3% of females will actually develop PTSD in their lifetime and only 2.2% will develop STSD following indirect exposure (Breslau, 1998).

Lacking a clear endorsement from the literature for a particular way of assessing trauma exposure and erring on the side of caution, the decision was made to incorporate both objective and subjective measures in the survey questionnaire. These are presented in the Work and Background History section on page 41. The relevancy of each method was explored during the pilot phase of this research project. The findings are presented in Chapter IV along with a discussion of how the survey was changed in this regard.

E. Survey Design

The Tailored Design Method influenced survey construction, layout, and distribution. Questions and instructions were kept as short as possible. Scales were labeled with words as well as numbers. Doing so improves reliability and validity because it clarifies their meaning (Krosnick, 1999). Instructions were printed in bold type to draw attention to them, thereby improving the likelihood of correct completion of the items. When additional emphasis was deemed important, bold underlining, arrows, and larger font size were used for this same reason. If multiple statements required ratings, such as with the ProQOL, alternating items were shaded to draw the eye across the page. This would hopefully reduce the likelihood of the participant missing some items or placing their rating under the wrong one. Short and easy to answer items pertaining to work history were placed on the first page and gradually increased in complexity and completion time until the end of that section. Personal information was limited to those items considered relevant based on the literature. These questions were placed at the end of the survey to appear less intrusive. All pages were printed one-sided on plain white paper. The cover sheet did not include any questions. Page numbers were formatted as *1 of 12*, for example, to enhance identification of any surveys missing pages. All of these factors were considered important as they help to reduce measurement error (Dillman, 2000).

F. Instrumentation

The survey was a compilation of four questionnaires, three of which were established instruments. The full survey for the Pilot Study is included in Appendix E. Revisions were made for the Main Study questionnaire. These are discussed in Chapter IV and the revised survey is included in Appendix F.

1. **Work and Background History**

These sections obtained information on demographics, work history, and exposure to trauma on the job. It was estimated to take no longer than 20 minutes to complete and was meant to gather descriptive information on respondents, their work situations, and work exposure to trauma. Space was provided for any additional comments or concerns the respondent wished to express.

As mentioned earlier, for the purpose of this study, an attempt was made to measure both the extent of exposure and the impact, or felt experience, of this exposure. An objective measure of work exposure to trauma was calculated by summing the responses from item 9 in the survey. Participants were asked to check the types of calls they had handled in the past 30 days. This list of different types of 9-1-1 calls was taken from 1,155 public safety dispatchers surveyed in 2003 by Behr and Fox (2005). The survey had been posted on line on the Dispatch Monthly Magazine website. Subjects were asked, "What was the most stressful incident you have handled in your career as a dispatcher?" There were several tie answers. Comparisons with the DSM-IV-TR (American Psychiatric Association, 2000) Criterion A1 for trauma exposure confirm their consistency. The top ten incidents from highest to lowest are listed below:

a. Officer injured
b. Suicide/Suicide callers
c. Death of a child
d. Line of duty death/Pursuits
e. Shots fired/Natural disasters
f. Officer shot/Murder
g. Traffic accidents

h. Shooting victim(s)/Structure fire

i. Robbery/Barricaded subjects/Calls involving children

j. September 11,2001/Calls involving family or friends

For those calls checked, respondents were then asked to rate on a scale of 0 to 5 how stressful each was for them to handle and then how stressful each would have been for a typical telecommunicator to handle. The latter wording was used in a study of police officers to reduce underreporting bias on the Critical Incidents History Questionnaire (Pole et al., 2005). The sum of the coping difficulties provided a subjective measure of trauma exposure, i.e., a measure of the impact of such exposures on the individual.

2. **Professional Quality of Life Scale**

The second instrument allowed for the assessment of compassion satisfaction, burnout, and STS and was included as question 13. The ProQOL is the 3rd version of the Compassion Fatigue Self Test originally developed by Figley in 1995. Revisions were made to improve psychometrics, strengthen subscale validity, and reduce participant burden. Specifically, the results of reliability analyses, factor analyses and multigroup factorial invariance formed the basis for these decisions. The ProQOL, designed by Stamm, was released in 2003 and revised in 2005. It consisted of three discrete subscales: compassion satisfaction, burnout, and STS. Each subscale, scored separately, contains 10 items. Each item was a statement to which the respondent records how frequently they have experienced that characteristic within the past 30 days, i.e., *never* (0), *rarely* (1), *a few times* (2), *somewhat often* (3), *often* (4), and *very often* (5). These numbers were then added to obtain the final score for that subscale. Compassion satisfaction was scored as *potential* for compassion satisfaction. Burnout and STS were scored as *at risk*. Completion time was estimated as10 minutes.

Reversal of the ratings on items 1, 4, 15, 17, and 29 was required prior to scoring. The value 0 remained null.

a. Compassion satisfaction subscale: the sum of items 3, 6, 12, 16, 18, 20, 22, 24, 27, and 30.

b. Burnout subscale: the sum of items 1, 4, 8, 10, 15, 17, 19, 21, 26, and 29.

c. STS subscale: sum of items 2, 5, 7, 9, 11, 13, 14, 23, 25, and 28.

It should be emphasized that this tool is not used for diagnostic purposes. An actual diagnosis of PTSD/STSD requires a semi-structured interview (Perrin et al., 2000). The ProQOL was originally intended as a method for self-monitoring, i.e., to alert the individual of a potential problem, either of the need to improve their coping mechanisms or for professional assessment. It would also act as a positive reinforcement when it reflected constructive adaptation. The 10 items comprising the STS subscale reflect Criteria B through D, i.e., reexperiencing, avoidance or numbing, and hyperarousal of the DSM-IV-TR (American Psychiatric Association, 2000; Appendix D).

Cut-point scores for the ProQOL are based on quartiles. They were obtained from the responses of 463 cases pooled from several studies. Psychometrics are presented in Table IV. For compassion satisfaction, the mean score is 37 (7) with a scale reliability of alpha = 0.87. Approximately 25% of people score above 41 and 25% below 32. A higher score reflects more satisfaction. For the burnout subscale, the mean score is 22 (6) with a scale reliability of alpha = 0.72. Approximately 25% of subjects score above 28 and 25% below 19. The higher score reflects more burnout. On the final subscale, CF/STS, the mean score is 13 (6) with a scale reliability of alpha = 0.80. Approximately 25% of respondents score above 17 and 25% below 8. Higher scores reflect increased levels of fatigue and greater risk for STS.

TABLE IV

PROFESSIONAL QUALITY OF LIFE SCALE: QUARTILE CUT-POINTS AND SCALE PSYCHOMETRICS

Subscale	Compassion satisfaction	Burnout	Secondary traumatic stress
N	457	379	369
Bottom quartile	33	18	8
Mean (S.D.)	37 (7)	23 (6)	13 (6)
Top quartile	42	27	17
Alpha reliability	0.87	0.72	0.80

The ProQOL possesses good construct validity as it has been based on findings from over 200 articles in the literature (Stamm, 2005). Convergent and discriminant validity were established using the multi-trait multi-method technique and confirm that different constructs are being measured. Compassion satisfaction has a 5% shared variance with burnout and 2% with STS. The shared variance between STS and burnout is higher, at 21%. According to Stamm, this "likely reflects the distress that is common to both conditions" (2005, p. 9).

In various studies, the ProQOL has been used in assessments of health professionals, child and family workers, and school personnel. As noted previously, the effects of secondary traumatic exposure on telecommunicators have not yet been investigated. As such, there is no normative data available for this group of helpers. This study was an effort to provide such information. Nonetheless, results obtained were compared with the normative data from Stamm.

3. **Emotional Labor Questionnaire**

The current study included the EL Questionnaire designed by Guy et al. (2008) as question 12. Factor analysis was used to develop this measure. Pilot testing of a 66-item questionnaire revealed four components. The EL factor, consisting of a 6-item scale, was found to have internal consistency, high reliability with Cronbach's alpha = 0.893, and face validity (Guy et al., 2008). These items explored the extent of other-focused EL required in their job and an assessment of their ability to do this well. The telecommunicators rated these statements on a scale of 0 to 5 from *never* to *strongly agree*. A sum of the individual ratings provided the index variable of EL. Completion time was estimated as 5 minutes.

Although these statements cover the important dimension of other-focused EL at work, they do not assess other accepted dimensions, such as self-focused EL or the degree of inner conflict, i.e., emotional dissonance, experienced as a result. These aspects have also been found to influence satisfaction and distress (Brotheridge and Grandey, 2002a; Brotheridge and Lee, 2002b; Steinberg and Figart, 1999). However, these additional measures were excluded as they were determined to add significantly to the respondent burden and were beyond the scope of the proposed study.

4. **Peritraumatic Distress Inventory**

Brunet et al. (2001) developed the Peritraumatic Distress Inventory (PDI) to assess the level of distress experienced at the time of and immediately after exposure to a critical incident. It was included as question11 in the survey. The original version consisted of 23 items and was revised based on expert opinion, review of the literature, and factor analysis. The final instrument of 13 items was tested with a convenience sample of police officers and civilian peers

matched on age and gender. Coefficient alpha was reported as 0.75 for the officers and 0.76 for the civilians. Test-retest correlation at 391 days in a subgroup of officers was 0.74.

Convergent and divergent validity were examined as well. Correlations with similar measures, i.e., the Civilian Mississippi Scale and the intrusion, hyperarousal, and avoidance subscales of the Impact of Events Scale – Revised, ranged from 0.42 to 0.47. Correlations with dissimilar measures, i.e., social support, and physical health, were 0.11 to 0.15, respectively. Although significant at the 0.05 level, these correlations are low. Length of time since the critical incident was not significant.

In an effort to provide a richer description of the experiences of telecommunicators, respondents were asked to select one call that had, up to that time, been the *most troubling, disturbing, or distressing* for them to cope with. They were asked to specify the year and nature of the call and then rate, on a scale of 0 to 5, from *not at all true* to *extremely true*, the extent to which each of the following items from the PDI was experienced during and immediately after that call:

a. I felt helpless to do more.

b. I felt sadness and grief.

c. I felt frustrated or angry I could not do more.

d. I felt afraid for my safety.

e. I felt guilt that more was not done.

f. I felt ashamed of my emotional reactions.

g. I felt worried about the safety of others.

h. I had the feeling I was about to lose control of my emotions.

i. I had difficulty controlling my bowel and bladder.

j. I was horrified by what happened.

k. I had physical reactions like sweating, shaking, and pounding heart.

l. I felt I might pass out.

m. I thought I might die.

A total score was calculated from these individual ratings. Completion time for this separate question was estimated as 5 minutes.

G. Variables

Table V provides a listing of questionnaire items, the corresponding variables, and their type. Where applicable, the comments section describes how that variable was transformed into categories for some analyses.

1. Independent variable

The primary independent variable in this study was the work exposure of the telecommunicator to traumatic incidents. This included the objective measure of the number of events and the subjective measure of a stressfulness rating.

2. Dependent variables

The dependent variables were the three subscales of the ProQOL. The concept of STS was operationalized by statements pertaining to its hallmark manifestations: reexperiencing of the traumatic events, avoidance/numbing of reminders of the events, and persistent arousal. These are addressed in several ways: blackouts, intrusive thoughts, flashbacks, fear, hopelessness, nightmares, sleeplessness, preoccupation with the trauma of others, distancing, and startle/hyperarousability. More than one statement in the ProQOL addressed the major symptom categories. Compassion satisfaction was operationalized in statements regarding self-esteem, personal and job satisfaction, and contentedness with work. Burnout was operationalized in

statements about being overwhelmed and exhausted by the job and "the system", feeling trapped and unhappy, and disappointment in the person they are.

3. **Conditioning variables**

Other variables that were incorporated into the data analyses were gender, partner status as a measure of social support, overtime practices, staffing adequacy, full or part-time employment status, years of experience, educational level, and the degree of EL used on the job.

Although social support is a multidimensional concept, only structural social support was measured using partner status, i.e., currently married or living with a partner qualified as positive responses versus divorced, single, widowed or separated as negative. The quality of the partner relationship was not measured to reduce respondent burden. Although the perception of social support needed and received has been found to affect quality of life measures (Doeglas et al., 1996), this presence of social support satisfaction was beyond the scope of this study.

TABLE V

QUESTIONNAIRE VARIABLES

Questionnaire	Item	Variable	Type	Comments
Work & Background History				
	1	Employment status	Independent	Discrete variable grouped into nominal categories
	2	Role	Independent	Discrete variable
	3	Overtime practices	Independent	Discrete variable grouped into nominal categories
	4	Hours worked in past 7 days	Independent	Continuous variable
	5	Total years of experience	Independent	Continuous variable grouped into ordinal categories
	6	Length of time at present call center	Independent	Continuous variable
	7	Adequacy of staffing: sum of ratings	Independent	Continuous variable grouped into ordinal categories
	8	Sources of job stress: sum of endorsements	Independent	Continuous variable grouped into ordinal categories
Work exposure to traumatic information	9	Types of calls handled: sum of endorsements	Independent	Continuous variable
	9	Stress level from calls handled: sum of ratings	Independent	Continuous variable
	9	Stress level for typical worker: sum of ratings	Independent	Continuous variable

TABLE V (continued)

QUESTIONNAIRE VARIABLES (continued)

Questionnaire	Item	Variable	Type	Comments
Index Event	10a	Years since index event	Independent	Continuous variable
	10b	Index event		Descriptive
	11	Peritraumatic Distress Inventory: sum of ratings	Independent	Continuous variable
Emotional Labor	12	Index variable: sum of ratings	Independent	Continuous variable grouped into ordinal categories
Professional Quality of Life	13	Burnout subscale: sum of ratings	Dependent	Continuous variable
	13	Compassion satisfaction subscale: sum of ratings	Dependent	Continuous variable
	13	Compassion fatigue subscale: sum of ratings	Dependent	Continuous variable
Demographics	14	Gender	Independent	Nominal variable
	15	Age	Independent	Continuous variable
	16	Education	Independent	Nominal variable grouped into discrete categories
	17	Partner status	Independent	Nominal variable grouped into discrete categories
	18	Number of children at home	Independent	Continuous variable
	19	Child caregiver	Independent	Discrete variable
	20	Elder caregiver	Independent	Discrete variable
	21	Work absences	Independent	Discrete variable
	21	Days missed from work	Independent	Continuous variable
	22	Race	Independent	Discrete categories
	23	Ethnicity	Independent	Discrete categories
	24	Comments		Descriptive

H. Summary

The number of emergency call centers is growing, as are their call volumes. More individuals are needed to fill the openings created and to replace those individuals who retire or choose to leave the field. Administrators could be aided in their recruitment and retention efforts if they knew what enhances employee satisfaction and prevents burnout and STS. Organizations give their employees the tools and skills needed to do their job. This responsibility should extend to the training they need to enhance their health and well-being as well. Together, these would enable the telecommunicators to succeed in their jobs and fulfill the call center mission of prompt, effective, and compassionate service to their communities. This research provided some insight needed to inform future research efforts in the investigation of risk and resilience in these workers.

IV. PHASE I: PILOT STUDY

The results of the Pilot Study are presented. Demographic characteristics are followed by responses to each research question. This chapter concludes with a discussion of the findings and their relevance for the Main Study. The Pilot Study survey is provided in Appendix E.

A. Personal Demographics

Sixteen individuals agreed to participate in the pilot phase. Ages ranged from 24 to 52, with a mean of 35.43 (8.00) years. The majority, 11 (68.75%), were female and 14 (87.5%) were white and not Hispanic/Latino. While half possessed a high school diploma, the remainder had completed trade school (n = 1), an associate degree (n = 4), or a bachelor degree (n = 3). Half were married and another quarter were unmarried but living with a partner. Two were divorced and one each was single or widowed. Six (37.5%) had children under the age of 18 living in their home and for whom they were the primary caregiver. Only one was the primary caregiver for an elderly parent.

B. Professional Demographics

All of the participants were employed full-time and 12 (75%) worked in the dual role of call-taker/dispatcher. The remaining 25% functioned as working/shift supervisors and/or training coordinators in addition to their call-taker/dispatcher role.

Years of experience as a telecommunicator ranged from 5 to 28, with a mean of 13.72 (6.23) years. A breakdown by total years is provided in Table VI. Respondents were also asked about the number of years they had worked at their present call center. The mean number was 10.40 (5.46) years, with a range of 3 to 20. Table VII provides a breakdown for years at their current call center.

TABLE VI

TOTAL YEARS OF EXPERIENCE

Number of years	Frequency	Percent
0-5	2	12.5
6-10	4	25.0
11-15	3	18.75
16-20	6	37.5
21-25	0	0
26-30	1	6.25

TABLE VII

YEARS AT CURRENT CALL CENTER

Number of years	Frequency	Percent
0-5	3	18.75
6-10	6	37.5
11-15	3	18.75
16-20	4	25.0

Respondents rated four statements describing overtime practices at their call centers. Possible choices were *required overtime, voluntary overtime*, and lastly, *not applicable*. The majority, ten (62.5%), reported voluntary overtime; four (25%) required overtime; and two (12.5%) a combination of both. They were then asked to specify the number of hours they had worked in the past seven days. The range of responses was 24 to 64 hours, with a mean of 44.56

(7.87) hours. The majority, 12 (75%), had worked between 41 and 50 hours. Three (18.75%) had worked 40 hours or less and one (6.25%) had worked 61 or more hours. In any event, 81.25% had worked more than 40 hours.

Adequacy of staffing was assessed using the four-item scale in survey question 7. Ratings ranged from *never* (1) to *all of the time* (5). The adequacy of staffing index, i.e., the sum of their responses, was found to be 14.75 (2.86), with a range of 8 to 18. In other words, staffing was considered adequate *some to most of the time*.

Survey question 8 consisted of a list of 15 common sources of stress for telecommunicators. Participants were asked to circle those that were currently a source of stress for them. The mean of the number of endorsements was found to be 4.62 (2.09), with a range from 1 to 9. Table VIII lists the frequencies of endorsement for each of these items.

TABLE VIII

CURRENT SOURCES OF STRESS

Source of stress	Frequency	Percent
The public	9	56.25
Personal conflicts at work	8	50
Lack of appreciation from management	8	50
Workload	6	37.5
Poor staff communication	6	37.5
Poor equipment	6	37.5
Coworkers	5	31.25
Performance evaluations	5	31.25
Other	5	31.25
Ergonomics	4	25
Lack of training	3	18.75
The media	2	12.5
Poor supervision	2	12.5
Low pay/benefits	2	12.5
Call-monitoring practices	1	6.25
None of the above	0	0

C. The Telecommunicator Experience

One of the purposes of the Pilot Study was to gain a better understanding of what it is like to be a telecommunicator. Several questions were asked during the debriefings that addressed this issue. The responses are presented here.

1. When someone asks you to describe what you do at work, what do you usually say?

Responses from the 16 participants ranged from simple ("generic"), such as "work for the city" ($n = 2$), "9-1-1 dispatcher" ($n = 3$), "9-1-1 operator" ($n = 1$), or "9-1-1 telecommunicator" ($n = 2$), to more detailed. Examples of the latter included "answer 9-1-1 phones and dispatch police, fire, and EMS [Emergency Medical Services]" ($n = 7$); "training coordinator" ($n = 1$); "part of the TERT [Telecommunicator Emergency Response Team] team, so I go out with the SWAT [Special Weapons and Tactics] team and the paramedics when they go on high risk calls" ($n = 1$); or "give EMD [Emergency Medical Dispatch] instructions" ($n = 1$).

One participant pointed out that "to some degree you're explaining what your job is every day…to citizens, people in your life, police officers." Two pointed out they preferred the term "telecommunicator" to "dispatcher" or "operator," believing it sounded "more professional."

2. Why do you feel your job is important?

The 16 respondents sat up in their chairs when answering this question. A sense of pride and conviction was apparent from their words as well as their manner of speaking. Two pointed out they are the "*first* first responders" and four said they were the "first line of help" for the public; "vital operations for the city come through us 24-7"; and "ambulance, police, fire don't get sent unless I send them."

Of the 16 interviewed, one answered: "It's a job I go to daily…not any more important than anyone else in the chain." The chain refers to the public safety chain, explained at length by one participant: "I view public safety as a chain. A chain has links." The links include the police department, fire department, the EMS, 9-1-1, and hospitals. "I help everyone else in that safety chain do their job."

Five respondents focused on their duties to other helpers: "keep them safe," "I'm the one that keeps the police officers and firemen and the medics out of harm's way as often as I can, to the best of my ability." One pointed out: "We are told time and time again – we are responsible for these officers' safety."

Ten participants focused on their interactions with the public, using phrases such as "guide them through," "look to us for direction," "help people with their problems," and "security line." One respondent provided an overall view of the responsibility she holds: "We have to make split second decisions and they can be life or death depending on the decision that we've made and how quickly we make that decision." Another telecommunicator highlighted her life-saving experiences and helping to "bring babies into the world."

3. **How do you react when a call goes well? When it doesn't?**

All 16 respondents mentioned personal feelings such as elation, self-gratification, "immense feeling of satisfaction," "contentment I handled the call well," and a "sense of pride in knowing I made a difference" when a call went well. In addition, they felt a sense of accomplishment and felt "better prepared for when the next call comes in." They verbally and nonverbally expressed themselves by smiling, laughing, and joking with their coworkers. Two spoke of feeling relief: "one less I gotta take for the day and worry about the outcome of."

Eleven participants included specific comments about coworkers: giving high-5s, patting one another on the back, building up each other, verbal praise, and celebrating together. One expressed that she felt "a little bit more part of the team."

Two spoke of asking their supervisor to review the call, forwarding it on to them to be included in an evaluation. In addition, one forwarded it to the training coordinator "if it was a good enough call for a training experience."

When asking participants how they felt when a call did not go well, it was not specified whether it was due to their actions or omissions or the nature of the call itself. Interestingly, they all assumed it was the former, speaking at length about second-guessing themselves, obsessing, and overanalyzing it: "I rerun it in my head – did I do what I was supposed to? Did I forget something? If I did something different would it have ended up differently?" One went so far as to say she asked herself if she was really in the right job.

As with good calls, seven approached their coworkers to vent, talk it out, or review the call: "You want that reassurance that - No, you did everything that you could. There's nothing else you could do." Ten participants used rationalization to deal with a bad call, pointing out: "It was not in my control," "It was just the way it was gonna be," and "Tragedy happens." One woman was particularly philosophical about it: "There are so many cogs in this machine…You're not the only factor to achieve success or failure in a call."

Personal feelings about calls with bad outcomes ranged from being depressed, sad, and feeling terrible to grief, frustration, anxiety, anger, and guilt (n = 16). For the two participants who mentioned the call being their fault, i.e., did not follow policy or skill-related, shame was predominant: "I want to crawl under the rug. I want to go home and not come back," and "I feel rather small." When they focused the blame on the perpetrator or someone involved in the

incident, two wanted to "murder the guy" [child sex offender] and "strangle the mother" [incident involving child abandonment resulting in the death of two small children].

Four participants spoke of using sick jokes as a defense mechanism: "You do what you gotta do to get through it or you're gonna go nuts" and "Brushing it off as a joke is sometimes the only way to get ready for that next call and to really come to terms with what just happened." One spoke of being able to detach when you don't know the people involved. Another mentioned being somewhat insulated at the communications center: "We're not there [on the scene]." At the same time, however, she said: "You have to absorb some of it to some level." Another explained: "I'm normally able to deflect and defend all this stuff and keep yourself where you need to be but every now and then, one gets past you."

Four individuals expressed concern about liability, "the finger of blame," and disciplinary action. The recording of all calls allows for easy review, although such administrative reviews are seen as unfair at times as "they [the administrators] are not in the heat of the moment."

4. **If you were asked to talk about your exposure at work to the trauma of callers, how would you describe it?**

This question generated lengthy responses from 15 participants. One did not answer. The respondents agreed they are exposed. Four talked about the manner of exposure: hearing, tone of voice, listening, "you're blind." Another spoke of what she has had to "endure, to listen to." Three respondents mentioned how they "visualize things in your mind" and "Your mind plays horrible tricks on you": "You feel like you're there sometimes – you're right in the thick of things with them." Four participants spoke of the call itself not bothering them, but the grief of the caller and the chaos of everything that was happening. Two others, however, mentioned particular types of

calls that affected them: children and older people. One said it was when "you could draw a line to something in your personal life."

Detachment was the primary theme of reactions discussed by five participants: "hardened attitude," "desensitized," "remove yourself…have an out-of-body experience": "You get that coldness. It's that or I drive myself crazy." One respondent in particular emphatically said: "I am *numbed* to it. I'm more, not upset, but just saddened by the fact that…how disengaged I am from it." One participant mentioned being "haunted" by calls she had handled.

Three spoke of how their exposure has taught them to be more human, more compassionate, and more empathetic. One woman, a telecommunicator for 13 years, said that in the past five to six years, her reactions had changed: "I knew I was strong enough to go into the emotional life of my callers. Not just gather the facts and the information needed. Willing to sit in it with them…to be in their moment with them."

5. **Index event**

Survey question 10 asked respondents to describe the most troubling, disturbing, or distressing call that they had to cope with during their career. One had some trouble selecting a call: "There were so many to choose from." All respondents have thought about their index event since it occurred. Events ranged from one to 18 years ago, with an average of 8.37 years. One could not recall the year it had occurred. Four mentioned the recording being used as a training example on a regular basis at their centers. The following types of events were selected by respondents:

- Child death ($n = 4$)
- Sudden illness of family member ($n = 1$)
- Delusional caller ($n = 1$)

- Line of duty death (n = 1)
- Officer shot (n = 2)
- Shootings (n = 2)
- Murder/suicide in front of daughter (n = 1)
- Officer suicidal (n = 1)
- Wife on telephone with 9-1-1 telecommunicator when husband shot and killed himself (n = 1)
- Murder (n = 1)
- Boy beaten to death in front of caller while on the telephone with the telecommunicator (n = 1)

In survey question 11, they were then asked to rate each of 13 statements about their feelings and experiences during and immediately after that call. The possible ratings ranged from *not at all* (0) to *a great deal* (5). The sum of these ratings became the PDI index and was calculated to range from 8 to 50, with a mean of 26.06 (11.33). This was interpreted as the participants having felt distress *somewhat* during and immediately after their index event/call. The following comments provide a window into the thoughts of the respondents about their most distressing call:

- "I'm still disturbed by the situation but not really at the same level as it was that day."
- "I never thought I'd lose my ability to function when I was needed." [Could not type information into the computer for dispatch].
- "I had so much trouble trying to defuse other situations that had nothing to do with the fire, just how other people perceived it was handled."

- "It still bothers me."
- "I could almost play [the] call back verbatim in my head."
- "It's still very clear in my mind."
- "I had to transcribe the call a month later. I had a very difficult time. I did not want to relive it again. That was worse for me because I knew what was coming…I was really upset they had asked me to do that."
- "It took me till after the first anniversary of it happening. And once we were past that, I was okay."
- "It gave me a little bit of closure that my friend knows her [the adolescent witness to a murder-suicide] and she's doing okay because we never know what happens."
- "I did what I had to do at the time. The policies just kicked in and I just went with it and I worried about everything afterwards."
- "It still bothers me. I was crying. I was hysterical. I've never cried at a call. It absolutely just tore me apart. The kid calls absolutely kill me."
- "I was having nightmares. It haunted me at the time."

6. **Closing: Anything else you'd like to talk about?**

Training, "growing the callous," was mentioned many times. Several respondents would forward calls to the training coordinator for inclusion in future training sessions and/or relate their experiences, in particular, their index event, to new staff members. One participant expressed concern that these new people were sometimes released ("cut loose"), most often after one year, before they were really ready. In his small center, with only two telecommunicators on duty at any time, he not only had to deal with his own duties but felt: "You gotta watch them and

make sure they don't kill somebody." This created more stress for him. Another participant felt that they [the current staff] should have a say as to when the trainees should be "cut loose."

Recognition was another frequent topic. Overall, the respondents perceived it as low from several sources: the public, administration, and City Hall. Rarely were cards, notes, and letters received from Boy Scouts after a tour of the communications center or a citizen who felt their call to the 9-1-1 center had been handled well. The two sources of commendation perceived as most valued by participants were supervisor write-ups for awards and recognition and those from police officers and firefighters. National Telecommunicator Week, held in April each year, was mentioned by one participant as involving the same letter from the Mayor each year with only a change in the date. One center started a Telecommunicator of the Year Award modeled after the same recognition given on a state and national level by the professional organizations for telecommunicators. Unfortunately, the award ended up being a commendation for longevity and not performance.

D. **Research Questions**

Each research question is presented, followed by pertinent findings from the Pilot Study participants. A discussion of these results concludes each section

. 1. **Was the topic relevant to the telecommunicator?**

Not only does the specific topic of indirect trauma but also the topic of stress in general appear to be very relevant from the comments received during the pilot interviews. The many suggestions as to sources of stress and additional types of stressful 9-1-1 calls to include in the revised survey speak to this as well. One woman commented: "The fact that you're doing this at all is amazing." Another remarked: "We are kind of a non-entity in the whole public service package.

Most people don't think about us." Participants expressed disappointment in not being eligible to participate in the Main Study.

2. **Which of the two measures of exposure to secondary traumatic information more accurately described their experiences?**

Exposure was assessed in three parts under survey question 9. First, participants circled the types of calls they had handled in the past 30 days. Responses ranged from 1 to 14, with a mean of 5.87 (4.01). In the second part, they were asked to rate their stress level when handling each type of call, with possible responses ranging from *not at all stressful* (0) to *extremely stressful* (5). The mean was calculated as 12.94 (14.0), with a range of 0 to 55. The median was 9. In other words, the participants felt their level was *a little stressful.*

In the last section of question 9, participants were asked to rate the stress level for a typical telecommunicator. These responses were found to be slightly higher than their own ratings, with a mean of 17.62 (17.55) and a range from 0 to 61. The median was 11.5. Inquiries were made as to how the participants arrived at this rating and, when applicable, why it was different from their own. Four individuals had used the same ratings for themselves and the typical telecommunicator. Eleven participants explained their method of calculating stress levels for the latter. These ranged from using a first year telecommunicator to one with two to five years of experience as their reference. One person remarked that "As you do it longer, you get a little complacent and you handle some things better. It takes time to desensitize." Another said "Some of us are better at turning some of this stuff off than others. They're higher strung than I am. Stuff bounces off me most of the time." Others used the "average in my center" or based their ratings on their "experience of having watched other people handle similar incidents." One individual, who was

also a supervisor, stated she had no trouble coming up with a rating because "I have to pay attention to everybody else's reactions in the room."

The comments from 12 participants applied to this research question itself. Eight of them felt that the stress levels of calls were more reflective of their exposure. Two felt the number of stressful calls or events would suffice. One said either method was accurate. The last felt that assuming exposure was sufficient.

3. **Did they feel the Professional Quality of Life measures were appropriate for their profession?**

The ProQOL consisted of three subscales of ten items for each of the main outcome variables. On the burnout subscale, the mean was 21.4 (7.53), with a range of 11.5 to 36. This was interpreted as the participants having had these feelings or experiences *a few times* in the past 30 days. For the compassion satisfaction subscale, the mean was found to be 37.96 (4.03), with a range of 31.5 to 46. This implies they had felt this way or had those experiences *somewhat often to often* in the past 30 days. Finally, on the STS subscale, the mean was 11.18 (7.63), with a range of 2 to 32. In other words, the participants had these experiences or feelings *rarely* in the past 30 days.

Fourteen participants agreed the ProQOL was relevant. Two did not specifically answer the question. However, burnout and traumatic sequelae, as well as compassion, were mentioned throughout the course of all of the interviews. Several of the 14 individuals who found this section applied to them and their work spoke at length as to why it did and how their experiences have affected them. Some of their comments follow:

- "There's a lot of burnout in this career."
- "Compassion is a huge part of this job."

- "My defense mechanism is to put myself in the third person or always distance myself from what's going on....It's really my life as a helper that has had an incredible impact on my life elsewhere....My husband keeps trying to get me to the doctor but I refuse."
- "Sometimes I don't want to leave the house after dark cuz I don't want to take the chance of something happening."
- "Very hard to separate work from my personal life. That's the only thing that is very stressful in our relationship" [fiancé is a police officer in her jurisdiction].
- "It is a great profession and has changed my life not necessarily for the better. I often find myself *detaching* from experiences outside of work as if I were at the console. While I wouldn't change my helping position, I feel as though sometimes it has cheated me out of feelings, connections other people take for granted."

4. **Did they feel the emotional labor questions were relevant?**

No one had ever heard of the term *emotional labor*. However, all respondents agreed these statements applied to them. "Very much so"; "Oh, God, yes"; "Absolutely"; and "That's exactly what we do on every call" were among the comments received. With the range of scores for each of the six items in the EL index being *not at all* (0) to *a great deal* (5), the range for the sum was 0 to 30. The actual sums for this group were 21 to 30, with a mean of 25.31 (2.55). This represented a strong endorsement for this measure as were the comments made and the examples of "handling callers" that were volunteered by the pilot participants. The main themes were gaining "control" of the call/caller and the skills required to do so. Additional comments were as follows:

- "You take ownership of the call."
- "Manipulate them."

- "Manage the emotions? That makes perfect sense. Take control of the caller."
- "There are some callers - they will suck you into their emotional level to some degree and combating that, remaining where you're at, is sometimes really difficult."
- "It takes easily sometimes 90-100% to deal with some callers."
- "It's a learned skill – how to read people through the phone."
- "We have to determine what a person's mental state is probably in the first 5 words."
- "We're expected to keep our stress level intact and professional but at the same time, kind of lower theirs to a certain level."
- "You take on different personas to manage calls."
- "You wear many hats and put on many faces."

One individual felt this was really a communication style they used and described it as "How I'm gonna talk to somebody to get them to do what I need them to do." As part of their training, respondents reportedly learned of communication techniques to "break the hysteria threshold…stop their panic or screaming mode" because "when they cross it, you lose all control [of the call]." With repetitive persistence, a "verbal judo method", the telecommunicator repeats the same thing over and over as quietly as they can to "talk them down…get them to calm down." They address the caller by name, thereby making the call more personal. They may also "relate a positive to it…relate an outcome to it", such as if the caller can tell the telecommunicator which pills the suicidal person took, the EMTs will be better prepared to help them. As a last resort, they may ask to speak with someone else on the scene who may be more helpful in providing needed information. In dealing with a difficult caller, they try to remember to smile, "because you can hear

that over the phone." Perhaps the best example of critical communication is hostage negotiation. Although there are specially-trained police officers who do the negotiations, one 9-1-1 center pushed for their telecommunicators to receive this training, pointing out: "Who do you [the police department] think talks to them to begin with…till one of your people come over here and takes over the call?" She added: "But by then…some people get too connected to the dispatcher that you can't hand off the call."

5. **In what ways would they change the questionnaire?**

Nine individuals suggested a variety of additional topics to include in survey questions: frustration (n = 1), partners/family members who are also first responders (n = 2), and the level of stress in the room (n = 4). Two spoke of including anger: "You get angry because you feel helpless or because you can't control the situation." One individual wanted more space to write in survey question 10, their most disturbing call, and in the comments bubble at the end of the survey. Additional remarks related to specific survey questions are presented in the Table IX. These included suggestions for more items in lists and changes in wording. All of these recommendations were subsequently adopted for the revised survey.

TABLE IX

RECOMMENDED CHANGES TO PILOT SURVEY

Survey question	Changes
2. Which of the following best describes your role as a telecommunicator?	Add shift/working supervisor (n = 2) and training coordinator (n = 1) to the list of role types.
3. Which statement best describes overtime practices at your center?	Include "forced overtime" and/or directions to read: "circle all that apply" (n = 4).
7-d. Staffing needs are not considered a priority. (Rated on scale of 1 to 5: *never* to *all of the time*).	Delete "not": double negative when reading rating scale of *never.*
16. Indicate the highest level of education you have completed.	Add "some college" to the list of educational levels.
19. Are you the primary caregiver for your dependent children?	Add "NA" as a possible choice.

Participants were more than forthcoming with suggestions for improving survey question 8 in which possible sources of stress were listed and the respondents were asked to circle all those that were currently a source of stress for them. *Low pay/benefits* was advised to be changed to "inadequate compensation" (n = 1) as was adding the words "giving/receiving" after *performance evaluations* (n = 1). By far, the majority of responses focused on including additional sources of stress that were felt to be especially relevant for the pilot participants. These are listed below:

- Stressors outside the job (n = 2).
- Lack of input on new hires (n = 2).
- Management (n = 2) – "seem oblivious to the day to day problems."

- Inadequate staffing (n = 1).
- Level of stress in the room (n = 4).
- Sexual harassment (n = 1).
- Constantly changing policies (n = 2).
- Administrative workloads (n = 1).
- Scapegoating of the communications center (n = 3).
- Scheduling/hours worked (n = 2).
- Lack of closure (n = 2).
- Scheduling time off (n = 2).
- Training new hires when short staffed (n = 2).
- Union issues (n = 1).
- Lack of follow-up/regard for the telecommunicator after a stressful event (n = 1).
- Treatment from others, i.e., management, policemen, firefighters, EMTs, during traumatic events (n = 2).
- Lack of understanding of what telecommunicators do (n = 2).

One theme throughout the interviews was the "tone of the room" and it was discussed by four individuals in relation to this specific survey question. They viewed call-taking and dispatching as a group effort, often helping each other handle calls, either by "hollering out" questions to ask, typing information into the computer for dispatch, or even taking over the call when their coworker was having difficulty emotionally handling it. Although this may be expected of a supervisor, it was voiced by others as well: "You really are acutely aware and constantly monitoring or watching the emotional…watching your partners and trying to feel for them….You

are kind of watching each other's emotions as much as you are the caller's or your own." One participant, who also works as a trainer for newly hired telecommunicators, offers this advice: "It's okay to cry. You're going to. You're a human being. But you can't do it in the room....because we're all going through it together."

The "tone of the room" also "set the pace" and reflected "underlying tension...sometimes you can feel it." Several respondents mentioned how this affected their ability to handle calls and "hold yourself at an even keel" and "keep a cool head." Time and again, participants referred to coworkers as "family" and the communication center not as a room but "the womb...We talk about everything...We're having group therapy." Because of this reliance on each other, four individuals felt it was difficult to separate the emotional work required in handling calls from that of dealing with each other. They recommended changing the instructions for the emotional labor measure to include coworkers as well as the police, fire, and EMS crews during radio communications. One participant had received the following advice from her father, a police officer in her jurisdiction: "When you get worked up it comes through your voice. And if you have an officer that's chasing somebody, everybody is listening to you. And the more [you get] worked up, the more worked up we get, and we think something is wrong."

Survey question 9 centered on exposures to TEs/calls. No respondents wanted any calls removed from the list of PTEs/calls. However, all suggested clarifying specific ones. The added wording, subsequently adopted for the final survey version, is underlined in the list that follows:

- Traffic accidents <u>with fatalities</u> ($n = 5$).
- Natural disasters/<u>severe weather</u> ($n = 4$).
- Suicidal <u>caller</u> ($n = 1$).
- Calls involving children <u>with severe injury</u> ($n = 1$).

- Armed robbery (n = 1).
- Calls involving your family/friends (n = 1).
- Use "homicide" instead of murder (n = 1).

Several additional calls were written in on the surveys under *other* and/or were discussed during the interview phase. These calls are listed below:

- Sexual assault of a child (n = 1).
- Hostage situation (n = 2).
- Domestics (n = 4).
- Riots/mob action (n = 1).
- Multiple incidents at one time (n = 3).
- Gang activity (n = 2).
- Difficult EMS calls (n = 1).
- Frantic caller (n = 1).
- Uncooperative caller/irate caller (n = 3).
- Calls not covered by any standard operating procedure (n = 1).
- Callers with severe mental illness (n = 2).

Two participants offered suggestions for the instructions. One proposed the wording: "Out of all the critical calls you have handled, as either call-taker or dispatcher…" and the other: "Keep in mind the stress levels when reading through the list."

The instructions advised the respondent to think of the calls handled within the past 30 days. There were several recommendations on the time frame that would be the most appropriate. Responses ranged from keeping the 30-day period to "ever." Some participants offered multiple alternatives. Endorsements of the time periods are listed below:

- 30 days ($n = 5$).
- Not 30 days ($n = 3$).
- 60 days ($n = 1$).
- 90 days ($n = 1$).
- 6 months ($n = 3$).
- Ever/entire career ($n = 8$).

Several problems with the 30-day period were raised. Smaller agencies and those in quieter communities may have none or only one or two of these calls. The telecommunicator may be sent for training elsewhere and/or they may be training a new employee, limiting their opportunities for handling calls. As far as concern about accurately recalling specific calls if the time period was beyond 30 days, participants emphatically expressed their opinions: "Things like that stick out"; "Strong stressful events are not time-relevant"; "You can have a call that bothers you from a long time ago but it's still very vivid in your mind"; and "When you have a really bad call that bothers you, it stays with you forever."

Survey question 11 asked the participant to rate several statements describing their feelings and experiences during and immediately after their most disturbing call. All respondents found the statements to be relevant to their index event: "absolutely." However, three questioned the inclusion of *I had difficulty controlling my bowel and bladder* (statement I) and one felt statements D, *I felt afraid for my safety*, and M, *I thought I might die*, did not apply. Another felt additional questions should be included:

- "Did you feel it was your responsibility?"
- "Was it in your control?"
- "Were you frustrated it was not in your control?"

Suggestions for the demographic section of the survey included asking if the unscheduled absences were either due to themselves or a family member and whether or not it was job-related (question 21); rewording *primary caregiver* of elderly parents to also reflect "primary responsibility" (question 20); asking if they were more motivated by internal vs. external factors; and inquiring as to their position in the family (oldest child, middle child, or youngest). The first suggestion was made by two individuals to clarify the reasons for sick time and/or personal days. The second item was discussed by two respondents who did not have the parent living with them. However, a significant amount of their free time was spent handling their affairs and seeing to their needs. The final two topics were each raised by one participant who felt these factors might well influence job choice and the ability to function well as a telecommunicator.

6. **Did they describe answering the survey questions as stressful?**

This was asked twice during the interviews: first in relation to the index event and second during the closing. One person did feel somewhat uncomfortable with the index event. This was not the same person who said she was glad to be going home and not to work during closing remarks. Two others did cry while relating the story of their index call as well as the events surrounding it but said they were not uncomfortable telling their story. In fact, one mentioned: "I found it a lot easier to think and talk about today than I have since it happened." When asked if they wanted to take a break or withdraw from the study, half responded in the negative. The others did not provide an answer.

7. **Were the instructions and questions clear?**

A great deal of feedback was provided on clarity of items, some of which is mentioned in the preceding pages. In addition, survey question 13, the ProQOL measure, prompted much discussion on specific words and their meaning. These issues are presented in Table X.

Participants also provided recommendations on layout, such as putting all items on one page (n = 1) and highlighting more in the instructions, especially the 30 day time frame (n = 1). While layout and providing an example of item interpretation could be added in the final version of the survey, wording of the specific items in the ProQOL could not be changed due to restrictions placed by the developer of this measure.

8. **What was the average time needed to complete the survey?**

The range was 12 to 30 minutes, with a mean of 19.94 (5.98). The most frequent time period for completion of the survey was 17.5 minutes.

TABLE X

PROFESSIONAL QUALITY OF LIFE SCALE: ITEM CLARITY

Item number	Problem
4. I feel connected to others.	"Who are the *others* – caller, coworkers, family, friends, those involved in the incident?" (n = 1).
6. I feel invigorated after working with those I help.	Respondent did not feel he works *with* them, only *with* his coworkers. (n = 1).
15. I have beliefs that sustain me.	"Does it mean *I rarely use my beliefs to sustain me*?" Recommended change in wording to "Do you use your beliefs to sustain you?" (n = 1).
16. I am pleased with how I am able to keep up with helping techniques and protocols.	Recommended deleting "I am pleased with how." (n = 1).
17. I am the person I always wanted to be.	"Does this mean *have I thought I'm who I want to be in the past 30 days?*" (n = 1).
26. I feel "bogged down" by the system.	"What is *the system*?" (n = 1).
29. I am a very sensitive person.	"Is *very sensitive* a good or bad thing?" (n = 1).

E. Discussion

There were three overall purposes for the Pilot Study. The first was to gain a better understanding of what it is like to be a public safety telecommunicator. In effect, the pilot participants functioned as *cultural informants*, providing a window into their personal and professional lives. The information gained confirmed the importance of this study and helped to gauge the willingness of other telecommunicators to participate in the Main Study.

The second purpose of this project was to obtain a critique of the questionnaire in terms of content, clarity, and format. It is evident in the preceding pages that the participants took this very seriously. Their remarks and suggestions for improvement were extremely detailed. This information helped to further refine the questionnaire.

The final purpose of the Pilot Study was to determine the length of time for survey completion which was found to average about 20 minutes. This again played into the likelihood of others participating in the Main Study since that time frame is less likely to be a burden. For this reason, it was important to limit survey revisions to those that would not increase this time frame.

The revised survey can be found in Appendix F. Aside from adopting most of the changes recommended by the pilot participants, a new question was added addressing the *tone of the room*, i.e., the baseline level of tension in the communication center on a typical work day. A draft of the question, emailed to the pilot group, was accepted by them as relevant and in appropriate format.

The PDI, question 11, was shortened from 13 to 10 items. The three deleted items were not endorsed by the pilot participants and/or clearly did not apply to this group of professionals (bowel and bladder issues; dying; and fear for personal safety). A review of the frequencies from the original study justified this decision as well. Permission was obtained from the developer of this

instrument to make changes as appropriate for this sample. It is important to note that deletion of these items may affect the reliability of the measure.

Measuring exposure continued to present a real challenge. Twelve pilot participants provided their opinions on how best to do so. Eight felt that levels of stress were appropriate; two endorsed the types of events; one believed either way was applicable; and the last said exposure could just be assumed on the basis of their job. Multiple recommendations were made as to the best time frame to use. Of the 21 suggestions, eight were for career exposure, five for 30 days, three for six months, and one each for 60 and 90 days. Three were opposed to 30 days.

While entertaining how best to handle changes to this measure, a new article was published addressing this same issue. Weathers and Keane (2007) reviewed the changes made in the DSM criteria for the diagnosis of PTSD since its inception in 1980. They discussed imperfections in past attempts at trauma measurement. However, they highlighted the strengths of three existing instruments that were more conceptually sound and had undergone rigorous content validation. One consisted of a questionnaire and interview and two were questionnaires only. All three assessed lifetime exposure and the presence or absence of fear, helplessness, or horror for endorsed items. In effect, they measured both Criteria A1 and A2 of the DSM. The latter two instruments were reviewed by the researcher and used as a guide for designing a new exposure measure tailored for telecommunicators. Inclusion of both criteria allowed for objective as well as subjective assessment of trauma exposure among telecommunicators.

On the basis of these recommendations and those of the pilot participants, a new survey question was created which provided a measure of Criterion A1, a PTE/call, and A2, that event qualifying as *traumatic* instead of *stressful*. This format was also patterned after that of the Traumatic Life Events Questionnaire (Kubany et al., 2000), one of the few instruments that does so

and has established content validity. The new question would also assess exposure over the career of the telecommunicator which is consistent with the most established trauma exposure measures as well as the view expressed by the participants that "Strong stressful events are not time-relevant."

Lastly, the pilot group offered many ideas on changing the wording and format of the ProQOL instrument, question 13. Unfortunately, this is a copyrighted measure which limits actions in this regard. In addition, changing it would negate the possibility of comparing findings for telecommunicators with other groups of helpers that have been evaluated with the ProQOL. The two changes that were adopted consisted of providing an example of reading an item in relation to the rating scale and keeping all 30 questions on one page.

In summary, the Pilot Study was invaluable in acquiring background knowledge on telecommunicators and improving the survey instrument. In addition, the relevancy of these issues to their work and personal lives was confirmed.

V. PHASE II: MAIN STUDY

Outcome rates for the Main Study are examined. Descriptive statistics pertaining to the participating emergency communication centers are then presented. Responses to each of the research questions are followed by a discussion of the findings. An integrated discussion of all the results will follow in Chapter VI.

A. Outcome Rates

In accordance with the recommendations of AAPOR (2006), the following outcome rate is reported. Definitions are included for purposes of clarity.

The response rate was defined as the number of complete plus partial cases divided by the sum of complete, partial, break-offs, refusals, completed questionnaires not returned during the study period, and USPS categories in which it was clear the potential respondent refused the mailing. Of the returned surveys, 497 were considered complete. Two additional surveys were received after 9/30/2007, the closing date for the study. Refusals consisted of those surveys never received; i.e. refusal was implied. For the purposes of this study, these would include 476 surveys never returned at all. Mail returned via the USPS, nine in total, were marked as "not deliverable as addressed." None of them were specifically refused by an individual. The total number of surveys distributed by the various centers was calculated to be 984. In light of these definitions, the response rate was as follows:

$$\text{Response rate} = 497/\ (497 + 476 + 2) = 50.97\%$$

According to Burns et al. (2008), a response rate of at least 70% is desirable for external validity. In other words, higher response rates imply less nonresponse bias. In a review of findings from 321 mail surveys published in medical journals in 1991, Asch et al. (1997) found the mean response rate to be 54% for physicians and 68% for non-physicians. However, Shih and Fan (2008) found a mean response rate of 45% in a meta-analysis of mail surveys published within the past ten years.

When designing this study, there were no published reports of mail surveys of telecommunicators from which to estimate a response rate. The Project RETAINS study, sponsored by APCO and the Bureau of Justice, had a 20% response rate from call center administrators (Taylor, 2005). The specific response rate for the telecommunicators was not determined. Therefore, it is impossible to speculate on whether or not this is a low, average, or high response rate for this specific professional group.

In summary, according to the numbers from other surveys, the response rate for the present study would appear to be in the average range. As such, the uncertainty caused by 49% not responding limits the generalizability of the results.

B. Emergency Call Centers

Of the 236 sites contacted, 79 (33.5%) had agreed to mail survey packets to their telecommunicators and post flyers describing the study in their employee break rooms. A copy of this flyer was then returned to the researcher with responses to three questions. This information is presented along with a brief discussion.

1. Number of full and part-time telecommunicators

Based on preliminary counts of the number of eligible telecommunicators provided by the centers in early June 2007, a total of 1,004 survey packets as well as a duplicate set were

distributed to the site liaisons later that month for application of home address labels and posting in the mail. Flyers, returned by 61 of the 79 (77.2%) sites, listed 780 full and part-time telecommunicators as currently employed. For the remaining centers, the original estimate of such employees provided in early June was used to calculate the actual number of packets sent by those sites. The addition of these 204 telecommunicators resulted in a final count of 984 full and part-time telecommunicators. The average number at each site was 12 (9), with a range of 4 to 64. The median was 10.

2. **Number of open positions**

The second question on the flyer asked for the number of open positions at that site. The total number for the 61 sites returning the flyer was 68, with a range of 0 to 11and a mean of 1.1 (1.9). The median number was 0.5. Based on this information, there was an 8.0% vacancy, i.e., open position, rate at those centers. No data was available for the 18 sites without returned flyers.

3. **Number of calls received in 2006 (defined as the total of 9-1-1 or emergency calls, non-9-1-1 calls, and police-initiated activity)**

The total call volume for the 61 centers was 4,183,039 with a range of 506 to 612,304 and a mean of 68,574 (104,160). The median number was 30,053. Although the definition of call volume was specific, written comments and telephone discussions with some of the site representatives highlighted potential inaccuracies of the numbers provided: records not kept on police radio traffic, not all phone lines routed through the computer system, and not all calls generated an actual record.

4. **Discussion**

During each contact with the site representatives, the numbers of full and part-time telecommunicators changed. Consequently, this created confusion when determining the final

number to be used as the denominator for outcome rates. Where a discrepancy existed between the number of survey packets sent by the researcher to a specific site and the final number of telecommunicators listed on the flyer returned by that site, the latter was chosen as the *true* number distributed by that site to their employees. For the 18 sites not returning the flyer, the number confirmed by telephone contact in early June 2007 was the most recent estimate of employees and was therefore chosen as the true number for that site. This may have created error in the denominator for outcome rates. When comparing the differences in numbers provided during telephone contact with the returned flyers for the 61 sites, despite the short period of time between them being just a matter of a few weeks, some were less and others more. This could also have been true of the sites not returning the flyers. Further error could have occurred if packets were not mailed by the five sites from which no employees returned surveys. These five site representatives also did not return their flyers. Based on the early June telephone contact, 48 telecommunicators were working at those centers. This would have changed the denominator by almost 4.9% and resulted in an underestimation of the true outcome rates.

The vacancy rate for the participating centers was 8.0%. It is impossible to determine if this is a high or low number because there are no other studies available for comparison. Project RETAINS (Taylor, 2005) revealed a nationwide retention rate of 83%. This would imply a 17% vacancy rate but that may not, in fact, be accurate. Retention pertains only to turnover, i.e., employees not remaining on the job, and not to the number of all open positions.

The potential for wide variability between true call volume and the numbers provided by the site liaisons precluded the use of call volume in further analyses. Therefore, a number of questions remained unanswered. First, does the level of compassion satisfaction, STS, or burnout vary by call volume? Second, does call volume influence the tone of the room, the number and

variety of sources of stress, the staffing adequacy index, overtime practices, or the levels of EL for these telecommunicators? These are important questions that could be addressed in the future as the technology for the emergency call system advances.

C. Research Questions

Responses to the research questions are described utilizing univariate, bivariate, and, where applicable, multivariate statistics. A discussion of the findings is then presented. Final comments are provided at the completion of this section.

1. What was the demographic profile of this sample?

Demographics can be considered as personal or professional, i.e., work-related. Results are grouped according to these two areas.

a. Personal demographics

The majority of participants were female (72.5%). Ages ranged from 20 to 70, with a mean of 39.4 (10.4) and a median of 39 years. The age variable was grouped into categories for later analyses. These are presented in Table XI.

TABLE XI

AGE CATEGORIES (*N* = 483)

Age range (years)	Frequency	Percent
20-29	98	20.4
30-39	137	28.5
40-49	145	30.1
50-59	89	19.0
>59	9	2.0

A prerequisite for employment as a telecommunicator is a high school diploma or GED. The majority, 41.7%, had some college, with an additional 169 having completed their associate, baccalaureate, and/or graduate degrees. Education categories were collapsed for use in further analyses as shown in Table XII.

TABLE XII

EDUCATION CATEGORIES (*N* = 495)

Education level	Frequency	Percent
High school	107	21.6
Trade school/Associate degree	102	20.6
Some college	206	41.7
Bachelor or Graduate degree	80	16.1

Slightly more than half (52.3%) of the participants were married. A new variable was created, termed social support, and was defined as present if the participant was married and/or living with a partner. This described almost two-thirds (62.6%) of the group.

The overwhelming majority was white (94.1%). The remainder indicated their race as black/African-American (1.8%), American Indian/Alaskan Native (0.4%), and *other* (3.7%). There were no Asian participants. The majority, 95.9%, were not Hispanic/Latino.

Of those responding to the question about children under the age of 18 living in their home, 41.3% indicated *yes* and 58.4% said *no*. Three individuals declined to answer. If the response was an affirmative, participants were asked to indicate the numbers of children for whom they were the

primary caregiver. Of the 204 for whom this applied, 191 responded as follows: 72 with one child, 83 with two, 27 with three, eight with four, and one with five children. The majority (85.9%) did not function in a caretaker role for any elderly parents. Five declined to respond to that query.

When asked if their partner, spouse, or another family member was a first responder, 175 (35.6%) replied affirmatively. Of these individuals, 128 (73.2%) indicated that this person worked in their same jurisdiction.

b. **Professional demographics**

Of 488 participants, 91.0% were employed full-time, 7.2% part-time, and 1.8% as *other*. Those who answered in the latter category included individuals who worked full-time at one location and part-time at another, as well as those working multiple part-time jobs.

When describing their roles as telecommunicators, the majority (80.7%) functioned in the dual role of call-taker/dispatcher and 10% as shift or working supervisors. The remainder performed either as call-takers, dispatchers, training coordinators, or *other*. The latter category included individuals who were call center administrators and/or served in multiple roles, i.e., call-taker, dispatcher, and training coordinator or training coordinator and working supervisor.

Responses pertaining to the number of hours worked in the past seven days ranged from 0 to 104 hours, with a mean of 43.8 (14.5) and a median of 44 hours. Arbitrary cut-offs of 40 hours for full-time and 20 hours for part-time were then used to group the participants. Of the 497 participants, 61.2% worked over these numbers of hours.

The length of time employed as a telecommunicator at 9-1-1 centers ranged from a few months to 32 years, with a mean of 11.18 (7.57) and a median of 10 years. The responses were then grouped into categories for further analyses as shown in Table XIII. Of note is that nine individuals commented as to how they did not specifically work at a 9-1-1 center but in another

type of public safety emergency communications center. These other centers handled emergency calls but not calls through the 9-1-1 system.

TABLE XIII

YEARS EMPLOYED AS A TELECOMMUNICATOR (*N* = 491)

Number of years	Frequency	Percent
0-9	226	45.5
10-19	196	39.4
20-29	60	12.1
> 29	9	1.8

From the information provided by each participant, the number of years at their current call center was calculated. This ranged from a few months, rounded to zero, to 32 years, with a mean of 9.7 (7.7) and a median of 8 years. When grouped into categories, 59% were found to have worked at their call center less than 10 years, 75% less than 12 years, and 90% less than 21 years.

Of the 483 (97.2%) responses as to unscheduled absences in the past three months, 301 (62.3%) had not missed any days. Those who responded that they had missed days listed from one to 60, with a mean of 1.6 (5.6) days and a median of 0. Seven individuals provided reasons for not having worked their usual schedule, such as a family wedding, sick leave, or vacation. For those missing work for reasons pertaining only to themselves and not other family members, the mean days missed was 1.0 (4.5).

Responses pertaining to overtime practices at the call centers are presented in Table XIV. One individual indicated that there was no overtime. The remaining 486 chose mandatory, voluntary, forced and/or a combination of these. When collapsing the responses into two categories, it was found that 80.9% worked at centers that required mandatory and/or forced overtime whereas 18.9% worked at those with only voluntary overtime.

Participants were asked their opinion about staffing at their call centers through a series of four items. Fifteen (3%) declined to answer. The remaining 97% replied in the following manner. As for being able to comfortably handle their workloads, 56.3% said *most of the time*. An additional 25.8% responded *some of the time*. There were 6.4% indicating *never* or *seldom*, whereas 8.5% indicated *all of the time*. The average score was 3.7 (0.7), i.e., *some to most of the time*.

TABLE XIV

OVERTIME PRACTICES (*N* = 487)

Type of overtime	Frequency	Percent
Mandatory	46	9.3
Voluntary	92	18.5
Sometimes forced	177	35.6
None	1	0.2
Mandatory and voluntary	12	2.4
Mandatory and forced	12	2.4
Voluntary and forced	78	15.7
Mandatory, voluntary, and forced	69	13.9

As for those who felt their center was chronically understaffed, 31.0% chose *some of the time*, 24.5% *seldom*, and 9.5% *never*. On the other hand, 14.9% indicated this occurred *most of the time* and 17.1% said it was *all of the time*. The mean score for the group was 3.1 (1.2), i.e., *some of the time*.

When asked if the lack of adequate staff was a serious problem at their center, 30.0% said *some of the time*, 25.6% *seldom*, and 11.9% *never*. On the upper end of the scale, 13.9% indicated this was the case *most of the time* while 15.7% said *all of the time*. The average score on this issue was 3.0 (1.2), i.e., *some of the time*.

The final item pertaining to staffing adequacy stated that staffing needs were considered a priority at their center. There were 26.0% of participants who said this was true *most of the time* and 17.1% *all of the time*. However, 23.1% chose *some of the time*, 21.3% *seldom*, and 9.3% *never*. The average score was 3.2 (1.2), i.e., *some of the time*.

The index of staffing adequacy was calculated by summing the 482 ratings of these four statements after reverse coding the second and third items. This index was found to average 12.89 (3.34), with a range of 4 to 20. The median was 13. In other words, staffing was adequate *some of the time*. The index was then collapsed into categories for further analyses. An index of 4 to 10 was considered *low* and included 116 (24.1%) participants. An index of 11 to 14 was *moderate* and applied to 205 (42.5%) of participants. The 161 (33.4%) who answered from 15 to 20 formed the last category of *high staffing adequacy*.

The mean response as to the tone of the room, i.e., the level of tension in the communication center, on a usual work day was 1.8 (1.0), *not at all to a little tense*, with a range of 0 to 4. Approximately 5% selected *very tense* and 84.3% rated the tone as *a little to moderately tense*. Seven individuals wrote in comments as to how the tone of the room resulted from lack of

supervision and coworker issues. They spoke of how it "varied greatly hour to hour and sometimes minute to minute" and "is in a constant state of unrest." The 491 responses as to the tone of the room were grouped into categories for further analyses. Those responding as to the level not being tense at all or *a little tense*, 196 (39.4%), formed the first category. The second level, *some tension*, included those 171 (34.8%) individuals characterizing the tension as *somewhat tense to moderately tense*. The final category of *higher tension* included those 124 (25.3%) participants rating the room as *moderately* and *very tense*.

Of the 493 (99.2%) participants indicating their current sources of stress, only 10 (2%) chose *none* from the list of 23 items. The remainder circled from 1 to 22 items, with a mean of 7.98 (4.42) and a median of 8. This total number became the index variable, sources of stress. Endorsements of the individual items are presented in Table XV. A variety of issues not fitting into any of the named categories were listed under *other*. The most frequent were lack of respect, appreciation, or poor treatment from officers, firefighters, and field personnel; playing favorites or double standards; the long hours; and working alone. The sources of stress were grouped into categories for further analyses. These are summarized in Table XVI.

TABLE XV

SOURCES OF STRESS (*N* = 493)

Source of stress	Frequency	Percent
Lack of appreciation from management	263	53.3
The public	240	48.7
Lack of understanding of what telecommunicators do	238	48.3
Lack of follow-up/regard for us after a stressful incident	231	46.9
Poor communication among staff	229	46.5
Personal conflicts at work	227	46.0
Coworkers	218	44.2
Scapegoating of the communications center	216	43.8
Poor equipment	210	42.6
Management/administration	209	42.4
Constantly changing policies	204	41.4
Scheduling time off	163	33.1
Inadequate compensation	158	32.0
Poor supervision	149	30.2
Lack of input on new hires	139	28.2
Ergonomics (physical lay-out and working conditions)	139	28.2
Treatment from others during stressful events	128	26.0
Performance evaluations (giving/receiving)	127	25.8
Lack of closure	124	25.2
Lack of training	107	21.7
The media	87	17.6

TABLE XV (continued)

SOURCES OF STRESS (*N* = 493) (continued)

Source of stress	Frequency	Percent
Other	60	12.2
Call-monitoring practices (recording all calls)	59	12.0
Sexual harassment	10	2.0

TABLE XVI

SOURCES OF STRESS CATEGORIES (N = 493)

Category	Frequency	Percent
No sources of stress	10	2.0
1-5	146	29.6
6-11	231	46.9
12-17	91	18.5
>17	15	3.0

c. **Additional analyses**

Associations between selected demographic variables and center characteristics were explored using chi-square, ANOVA, linear regression, and correlation. Selection of variables was guided by the literature and the purpose of the study.

The staffing adequacy *categories* were not found to vary by gender, χ^2 (2, N = 480) = 3.995, p = .136. However, when exploring gender differences in the staffing adequacy *index*, males rated the adequacy higher than females, with means of 13.47 (3.28) and 12.64 (3.34), respectively. These differences were significant, F (1, 479) = 5.917, p = .015. The correlation coefficient of r = 0.111, although significant at p = .05, was weak.

The *categories* for staffing adequacy were found to be associated with the overtime *categories,* χ^2 (2, N = 474) = 16.857, p = .000. A comparison of the means of the staffing adequacy *index* by overtime *categories* showed that individuals working at centers with mandatory and/or forced overtime rated the staffing adequacy lower than those at centers with either no overtime or only voluntary overtime. The means were 12.54 (3.32) vs. 14.28 (3.11), respectively. These

differences were significant, F (1, 473) = 20.74, p = .000. The correlation coefficient of r = - 0.205, although weak, was significant at p = .01.

Room tone *categories* varied significantly by gender, χ^2 (2, N = 488) = 9.47, p = .009. The correlation coefficient, weak at r = -0.102, was significant at p = .024. The room tone *index* was not found to be significantly associated with gender, F (1, 487) = 3.280, p = .071.

The room tone *categories* and *index* varied by full and part-time status. Specifically, participants working full-time had mean room tension ratings of 1.835 (1.01) vs. 1.229 (1.09) for those working part-time, F (1,474) = 11.625, p = .001. The correlation coefficient of r = -0.155, although significant at p = .01, was weak.

The room tone index varied by overtime categories. When mandatory or forced overtime was the rule, the mean tension was 1.89 (1.00) vs 1.41 (1.00) when overtime was none or voluntary. These differences were significant, F (1,482) = 17.753, p = .000. The correlation coefficient was weak at r = .189 but nonetheless significant at p = .01.

Finally, the room tone *categories* and *index* were found to vary by both the staffing adequacy *index* and *categories*. The low adequacy group had a mean room tone of 2.45 (0.94); the moderate adequacy group mean was 1.85 (0.90); and the high adequacy group mean was 1.30 (0.93); F (2, 479) = 52.075, p = .000. The correlation coefficient was moderate at r = -0.423 (p = .01).

The sources of stress *index* and *categories* did not vary by gender. However, those working full-time endorsed a mean of 8.18 (4.30) sources of stress vs 4.31 (4.19) for those working part-time. These differences were significant, F (1, 475) = 26.349, p = .000. The correlation coefficient was weak at r = -0.229 (p = .01).

The sources of stress *index* was positively associated with years of experience ($r = .128$, $p = .002$). In addition, individuals working at centers with mandatory and/or forced overtime endorsed a mean of 8.51 (4.39) sources of stress vs. 5.70 (3.74) for those at centers with none or only voluntary overtime, $F(1, 483) = 32.121$, $p = .000$. The correlation coefficient was moderate at $r = 0.250$ ($p = .01$).

Finally, the sources of stress *index* was moderately associated with the tone of the room *index* ($r = .465$, $p = .01$). As the baseline level of tension in the room increased, participants endorsed more sources of stress, $F(1, 487) = 134.389$, $p = .000$.

d. **Reliability and validity of selected measures**

Reliability testing and factor analysis were conducted on the staffing adequacy measure. Cronbach's alpha was determined to be 0.744 for the 4-item staffing adequacy index, question 7. Sample size was 482. The average interitem correlation was 0.421. The item with the lowest correlations, 7d, was then deleted to assess the change in average interitem correlation. This resulted in an increase to 0.593 with a corresponding increase in alpha to 0.807. Based on these findings, reconsideration should be given to the inclusion of 7d in the scale.

According to Clark and Watson (1995), the mean interitem correlation is preferable over alpha as a measure of internal consistency and they recommend an optimal range of 0.15 to 0.50 when developing instruments. The alpha in this case is moderate and the mean interitem coefficient is good.

Factor analysis was conducted on the four items of the staffing adequacy index. The Kaiser-Meyer-Olin measure of sampling adequacy was moderate (0.67) thus indicating factor analysis of the four items was feasible. Principal component analyses yielded one factor (eigenvalue total = 2.32; % of variance explained = 58.09; scree plot leveled off at component 2).

All the variables loaded moderately or highly into this component and are presented in Table XVII. It would appear from these results that there is one primary latent factor represented by the four items of this index and explaining the majority of variance in the staffing adequacy results.

TABLE XVII

PRINCIPAL COMPONENT ANALYSIS MATRIX OF STAFFING ADEQUACY INDEX

Item	Component 1
7a. We are able to comfortably handle the workload.	.764
7b (recoded). We are not chronically understaffed.	.867
7c (recoded). Lack of adequate staff is not a serious problem.	.879
7d. Staffing needs are considered a priority.	.465

e. **Discussion**

The personal and professional characteristics of the sample provided an overall view of their backgrounds, responsibilities outside of the workplace, and their opinions on workplace issues. Unfortunately, how well these reflect the entire professional group is unknown. A review of comparable demographics from the on-line survey of Behr et al. (2005) and Project RETAINS (Taylor, 2005) shows some similarities among the samples. First, the gender frequencies were alike in that more females than males participated: 72% in the present study, 66% in the Behr et al. study (2005), and 72% in Project RETAINS (Taylor, 2005). There were also similarities with the educational levels of the 600 telecommunicators in the latter study.

It was thought that relationships outside of the workplace may impact the level of stress telecommunicators experience when performing their duties. This may be particularly true when a person close to them is also a first responder, especially when that individual serves in the same jurisdiction. This study found one-third to have such relationships, with almost three-quarters of these individuals in the same jurisdiction. In other words, there may be times when the telecommunicator is responsible for sending them out on calls and/or monitoring their status while on duty, perhaps raising their level of anxiety. This was, however, not borne out in later analyses examining the effects of such relationships on the three outcome measures. Further study is warranted to confirm this result. It would also be beneficial to ask individuals in this situation specifically how they feel these relationships affect their stress level while on duty as well as their overall job performance.

Project RETAINS (Taylor, 2005) consisted of two separate surveys. Part A was a national survey of 153 center managers using random sampling. Part B was a survey of 27 large call centers, defined as those having more than 75 employees. When asked if overtime was a frequent necessity, 58% of the managers from Part A and 89% of those from Part B agreed. This difference is large. In comparing the present study results to those of Project RETAINS, it is important to keep in mind that the differences in methods and sample, as well as the three-year gap in timing, may have influenced the findings. Furthermore, the purpose of Project RETAINS was to examine the issue of retention and was sponsored by professional telecommunicator organizations. These factors could also have affected the responses. Nonetheless, 81% of the telecommunicators in the present study did note the occurrence of mandatory and/or forced overtime at their centers.

Although three of the statements from the adequacy of staffing index were taken from Project RETAINS, the questions were posed in different manners, i.e., the present study provided a

rating whereas Project RETAINS reported only a percentage agreeing with the statements. These are summarized in Table XVIII with a comparison to those in the present study who rated the statements as *most* or *all of the time*. The differences between managers and employees are important to note for future studies that may look at this issue further. As mentioned previously, it is unknown if changes during the three year period between the time of Project RETAINS and the present study had any influence on responses. Nonetheless, the values on the latter two items under employee responses and the present research are very close.

TABLE XVIII

COMPARISON OF STAFFING SITUATIONS

Staffing statement	**Project RETAINS**		**Present study: *Most plus all of the time***
	National Survey	**Large Center Survey**	
The current staffing allows the center to comfortably handle the workload.	34% of managers 27% of employees	30% of managers	64.8%
The center is chronically (almost always) understaffed.	17% of managers 37% of employees	44% of managers	32.0%
Lack of adequate staff at this center is a serious problem.	13% of managers 25% of employees	15% of managers	29.6%

The somewhat contradictory results of the present study on the matter of mandatory and/or forced overtime endorsed by 81% of the telecommunicators and 64.8% agreeing they were able to comfortably handle the workload *most* or *always* are difficult to explain. The consistency between responses to all four of the staffing adequacy statements would appear to negate the possibility of the one pertaining to workload having been misread. The other, and more plausible explanation, is that although mandatory and/or forced overtime occurs, it may be infrequent and, therefore, the participants did not believe it affected their ability to handle the workload. Another equally plausible explanation is that the opportunities to work additional hours fit their needs and actually represents a benefit rather than a negative aspect of the job. Clarification of this issue would be an area for future study.

Overtime practices were especially important to consider in this study for three reasons. First, when overtime is mandatory, the telecommunicator has less control over their work situation and this may contribute to burnout. Secondly, with required overtime, the individual has less time away from work to unwind from its stresses and this may predispose them to experiencing ill effects, including traumatic stress. This was confirmed in further analysis. Lastly, the root cause analysis performed as part of Project RETAINS (Taylor, 2005) implicated work schedules as well as mandatory overtime as causes of the low retention rates. Although the present study did not examine factors contributing to retention, the findings confirm the high rate of mandatory and/or forced overtime occurring at emergency call centers. Jamal (2004) investigated the effects of non-standard work schedules, defined as any shifts other than day shift from 9 a.m. to 5 p.m. Workers in such situations were found to have significantly higher overall levels of burnout, emotional exhaustion, overall job stress, and health problems when compared to those working the standard shift.

The final issue presented under the demographic profile examined sources of stress currently experienced as a 9-1-1 telecommunicator. A comparison with the top ten causes of job stress from the Behr et al. (2005) on-line survey are presented in Table XIX. Although the rankings are not the same, there are some agreements between the two groups. Of note is that neither study examined the perceived level of personal stress outside the workplace and the influence this may have on the job. This could be another topic to explore in future research.

TABLE XIX

COMPARISON OF TOP TEN SOURCES OF STRESS IN DESCENDING ORDER

Behr and Fox (2005)	**Present study**
Co-workers	Lack of appreciation from management
Administration	The public
Supervisors	Lack of understanding of what telecommunicators do
The public	Lack of follow-up/regard for us after a stressful incident
Field personnel/Poor equipment/Lack of training[1]	Poor communication among staff
Poor policies/Lack of communication within the agency[1]	Personal conflicts at work
Lack of appreciation/Workload[1]	Co-workers
Personal issues/Boredom	Scapegoating of the communications center
Low pay	Poor equipment
Ergonomics	Management/administration

[1]Ratings included ties.

Hurrell and Aristeguieta (2006) identified three categories of job stressors that contribute to job strain, i.e., the risk for burnout. These were job and task demands, organizational factors, and physical conditions. To better appreciate the significance of the sources of stress from the present study as well as the overtime practices, it is helpful to consider them according to these categories.

Under job and task demands, Hurrell et al. (2006) included workload, control, emotional demands, and interpersonal atmosphere. For workload, 61.2% of telecommunicators were found to have worked over the arbitrary cut-offs of 40 hours for full-time and 20 hours for part-time employment. In addition, 80.9% of them worked at centers that required mandatory and/or forced overtime.

Control pertains to autonomy in work activities, having the skill level needed to function well, and the ability to influence decisions that impact the work situation. Relevant sources of stress, with endorsements, included lack of training (21.7%), constantly changing policies (41.4%), lack of input on new hires (28.2%), scheduling time off (33.1%), and call-monitoring practices (12%).

Blackmore et al. (2007) looked at job strain in a Canadian national population survey. High job strain, defined as high work demands with low control and decision latitude, was significantly associated with depression in men but not women. Likewise, Parslow et al. (2004) found increased work stress to be associated with poorer mental health in a sample of 800 government employees. In this latter study, work stress was examined in relation to control, demands, security, skill discretion, decision-making, conflicting demands, and time pressures on the job. Lastly, job strain, defined as high demand and low decision latitude, was found to be more pronounced in female middle-aged health care workers than in males (Verhaeghe et al., 2003).

Emotional demands included lack of follow-up or regard after stressful incidents (46.9%), treatment from others during stressful events (26%), and lack of closure (25.2%). Written comments from participants included debriefing not being offered to them as an issue, as well as just wishing someone had offered to give them time away from the console after a particularly stressful call. As for lack of closure, several individuals said they still wondered about the outcomes of particular calls years later. Others mentioned how grateful they were when an officer or EMT phoned or stopped by to tell them the final outcome of a call. In essence, closure provides the individual with a complete story, or narrative, of an event. It then becomes more comprehensible and likely to be integrated into their life experiences. In other words, closure allows for the healing process to begin.

Three other sources of stress contribute to the emotional demands on the job as well as the degree of EL required. These are the public (48.7%), lack of understanding of what telecommunicators do (48.3%), and the media (17.6%). Several recommendations from Project RETAINS addressed these issues: "...personnel success stories of lives saved, unusual stories, etc. should be heralded in the media so that the public understands more fully the role 9-1-1 call-takers and dispatchers play." In addition, they advised that 9-1-1 telecommunicators "should regularly participate in community meetings, events, etc. that will expose the community to the valuable role the agency plays in the safety of the community" (APCO, 2005). It would be beneficial to learn the degree to which this recommendation has been acted upon by the various centers and if any change in the percentages of telecommunicators endorsing these three sources of stress can be attributed to such efforts.

Interpersonal atmosphere pertains to personal conflicts at work (46%), coworkers (44.2%), poor communication among the staff (46.5%), and sexual harassment (2%). It also includes the

tone of the room. This level of tension in the call center on a typical work day was found, on average, to be *not at all to a little tense*. This finding appears contrary to the opinion of the seven individuals who felt the tone depended on the coworkers on that shift. The tone and the specific issues regarding the interpersonal atmosphere are worth exploring further.

The third category of job stressors was comprised of organizational factors. These included poor supervision (30.2%), lack of appreciation from management (53.3%), performance evaluations (25.8%), management/administration (42.4%), scapegoating of the communications center (43.8%), and inadequate compensation (32%). In the root cause analysis for the low retention rates conducted by Project RETAINS, organization and management issues, as well as work schedules and mandatory overtime, were implicated (APCO, 2005). In a study of nurses, Bennett et al. (2001) found that managerial support explained 49% of the variance in job satisfaction. In addition, the key predictors of anxiety and depression were lack of managerial support, job overspill, decision-making under time pressure, and lack of recognition by the organization.

The final type of job stressor is physical working conditions. Poor equipment was endorsed by 42.6%, with comments made about bad screens that were difficult to read, old equipment, and frequent problems with break-downs. Ergonomics, endorsed by 28.2%, pertains to the physical layout of the center as well as the individual work stations. Distributing the survey packets to the site liaisons provided the researcher with opportunities to view many of the actual work areas. These varied from one small room crowded with equipment and barely enough leeway for the one telecommunicator to move in her chair to centers possessing hydraulic-equipped consoles that allowed the telecommunicator to sit or stand while working. The latter also had space for them to walk to other stations and to shelves holding policies and manuals while still plugged into their

console. Many centers were arranged in pod fashion, allowing for ease of interaction between staff. Shuler (2001), in her qualitative research at a 9-1-1 center, highlighted the importance of particular interactions, such as humor and bitching, by referring to them as *communicative coping strategies.* Martin (1999), in a study of police officers, referred to such practices as ways of discharging emotions. These opportunities are enabled only when the layout is open, i.e., without barriers between consoles.

The examination of relationships between selected demographic variables revealed some interesting findings. Gender differences were found in the staffing adequacy index, not categories, and the room tension categories but not index variable. In contrast, there were no differences in the sources of stress index or categories. Those working full-time rated the room tenser and endorsed more sources of stress than part-timers. This may be a reflection of the latter group having more time away to unwind and defuse the stress as well as the possibility that they invest less of themselves in the job because of the lower work hours. These issues are worth exploring further. In other words, what contributes to their resilience and what do they perceive as accounting for the differences?

The examination of overtime practices revealed higher room tensions, more sources of stress, and lowered levels of staffing adequacy for those at centers with mandatory and/or forced overtime. Likewise, higher tension ratings were found when staffing adequacy was lower. These findings illustrate both the deleterious effects of the common practice of mandatory and/or forced overtime as well as the urgency of the need to address the high turnover and vacancy rates among emergency communication centers in the community.

In summary, the responses for the personal and work-related demographic questions provided a portrait of the telecommunicators as well as an indication of issues important to them.

In addition, potential sources of risk and resilience were identified. While the majority of the correlations were weak, two were moderate: room tone index and staffing adequacy as well as room tone index and sources of stress. Areas to be explored in future research have been discussed.

Reliability and factor analyses of the staffing adequacy index, though found to be acceptable, highlight the need for further development of this measure. In addition, secondary data analysis in a future research project may include assessment of each separate item with the outcomes of the study.

2. **What exposure did telecommunicators have to potentially traumatic calls/events?**

The PTEs/calls in the list provided to participants met Criterion A1 for psychological trauma as defined in the DSM-IV-TR. They were calls that involved "actual or threatened death or serious injury, or other threat to one's physical integrity" (American Psychiatric Association, 2000, p. 468). Exposure to such calls was assessed over the careers of the telecommunicators. As mentioned by Weathers et al. (2007), endorsement of such events alone does not qualify them as traumatic. Criterion A2 must also be met. This will be examined under the next research question.

a. **Exposure**

Frequencies of endorsement for the specific calls, i.e., PTEs/calls, handled during their careers are presented in Table XX. The sum of the endorsements by each telecommunicator became the PTE index. All but one participant completed this section. The mean was calculated to be 12.6 (4.3), with a range of 1 to 21. As expected the means gradually increased by years of experience until the final category of 30 to 32 years, when the means decreased, F (3, 482) = 22.788, p = .000. In addition, linear regression analysis showed that the total years of experience explained 13.8% of the variance in the PTEs/calls, F (1, 488) = 79.09, p = .000, r = .373.

Space was provided for the participants to write in additional types of calls they had handled. The incidents described in this *other* category were of four distinct types. First, there were specific types of calls. The top five, in order of frequency, were as follows: medical emergencies (n = 12), home invasions with resident or child present (n = 9), train incidents (n = 6), hazardous spills, explosions, or fires (n = 4), and drowning (n = 3). The second category consisted of incidents which included the circumstances of the call. The most frequent was the discovery of a deceased individual or suicide victim by a child or other family member (n = 13). These calls included a description of the emotions of the caller, for example, "they are hysterical" or "crying and screaming," or, in the case of a child caller, "they are the only living person there beside their dead parent."

The third category related calls in which the incident occurred as the telecommunicator spoke with the caller, for example, "subject executed while on the phone with me," "sexual assault while on phone," and "subject that died on the phone and I was the last person she talked to." The final category included calls relating to the skills of the telecommunicator or deficiencies in the 9-1-1 system itself. Examples were multiple calls at one time (n = 3), location of caller unknown (n = 8), non-English speaking emergency (n = 1), and "medical emergency and not trained for that" (n = 1). There were also two calls in which the telecommunicators drew a parallel between those circumstances and something from their personal lives.

TABLE XX

ENDORSEMENTS OF POTENTIALLY TRAUMATIC EVENTS/CALLS (*N* = 496)

Type of call	Frequency	Percent
Domestics	484	97.6
Structure fire	457	92.1
Pursuits	454	91.5
Traffic accidents with fatalities	448	90.2
Suicidal caller	422	85.1
Natural disasters/severe weather	411	82.9
Calls involving children with severe injury	386	77.8
Shots fired	381	76.8
Armed robbery	334	67.3
Officer/ firefighter/EMT injured	332	66.9
Death of a child	302	60.9
Sexual assault of a child	295	59.5
Barricaded subject (police stand-off with suspect)	280	56.5
Calls involving your family/friends	277	55.8
Homicide	242	48.8
Riots/mob action	195	39.3
Hostage situation	176	35.5
Plane crash	126	25.4
Other highly disturbing calls	100	20.2
Officer shot	91	18.3
Line of duty death	74	14.9

b. **Discussion**

Selection of calls for the PTE list was based on the Behr et al. (2005) on-line survey, the literature, and recommendations of the pilot participants. Career exposure, as opposed to a specific time frame, was assessed. This follows the recommendations of the Pilot Study participants as well as accepted psychological measures of PTSD. Another similarity with these instruments is that the amount of exposure, in terms of the number of times a specific call type was handled, was not requested. As such, even if this had been a prospective study, there is no way to determine if a dose-response pattern for each type of call existed. Future research on telecommunicators may look at this. However, the reliability of quantifying lifetime exposure would be in question.

The language used to describe calls in the *other* category was fascinating. It became clear that the call type alone is not necessarily the stressful factor. This was also found to be true in the Pilot Study. This quality can be extended to include the reactions of the callers themselves, the background sounds, and the personal thoughts and feelings of the telecommunicator during the call. This was borne out again when their most distressing, disturbing, or stressful calls were examined. These findings will be presented under research question 4.

3. **To what extent were these calls considered traumatic?**

a. **Findings**

After indicating which types of calls they had handled in their careers, the 496 participants were asked to indicate if any of them had elicited within them a sense of fear, helplessness, or horror. The mean was found to be 5.8 (4.7) calls, with a range of 0 to 21. This became the TE index. The frequencies of these endorsements are presented in Table XXI. The mean for the TE index did vary by the *categories* of years of experience, with the mean increasing until the 30 to 32 years of experience category when it actually decreased, F (3, 482) = 8.833, p = .000). The years of

experience *index* explained 6.8% of the variance in TEs/calls, F (1, 488) = 36.831, p = .000, r = .265). There were also gender differences in the endorsements of TEs/calls, with the mean number for women being 6.32 (4.84) and men 4.50 (4.47), F (1, 491) = 15.473, p = .000, r = .176. Both these correlations are weak.

When interpreting these results, it is important to remember that participants were not asked if all calls of a specific type had caused these reactions. They were asked if any had done so during their careers. In other words, for example, 49.5% of the participants responded that they had handled at least one call involving the death of a child in which they had these feelings.

TABLE XXI

ENDORSEMENTS OF TRAUMATIC EVENTS/CALLS (*N* = 496)

Type of call	Frequency	Percent
Calls involving children with severe injuries	249	51.4
Death of a child	240	49.5
Officer/firefighter/EMT injured	236	48.8
Suicidal caller	223	46.8
Calls involving your family/friends	191	39.3
Traffic accidents with fatalities	184	38.6
Sexual assault of a child	170	35.6
Domestics	149	32.1
Natural disasters/severe weather	149	31.2
Shots fired	141	30.0
Pursuits	135	28.8
Structure fire	123	26.1
Homicide	121	25.3
Barricaded subject (police stand-off with suspect)	108	22.6
Other highly disturbing calls	87	17.8
Armed robbery	83	17.6
Hostage situation	79	16.4
Officer shot	72	14.6
Riots/mob action	62	13.1
Line of duty death	56	11.3
Plane crash	38	7.8

b. **Discussion**

Several individuals did not indicate if a call had created in them a sense of fear, helplessness, or horror. In those situations, the data was considered missing. As such, the TE index may be an underestimation of the true situation. Nonetheless, the results are striking. On average, 49.5% of participants had handled calls that met Criterion A2 of the DSM-IV-TR (American Psychological Association, 2000) and would, therefore, be considered as an exposure to trauma.

The knowledge gained from this examination of exposure is that it is the appraisal of an event as traumatic that puts them at risk for adverse consequences. This is consistent with the use of severity ratings by Weiss in the scoring of the Critical Incidents History Questionnaire (personal communication, September 19, 2006) and the findings of Thabet et al. (2002) in their study of children living in a war zone. Not all events are equal. For example, in the latter study, children witnessing the bombardment and demolition of their homes had significantly greater stress reactions than those not directly bombarded ($p = .000$).

According to Ursano and McCarroll (1994b), the meaning or social context of the death may increase distress. They describe identification with the victim as a type of emotional involvement. For example, children are seen as innocent or the same age as a child of the worker. Beaton et al. (1995) noted that police, firefighters, and other emergency personnel felt most vulnerable to STS when faced with the pain of children. Baker and Williams (2001) concurred on this point. The findings from the current study are consistent with these observations in that the death of a child and calls involving children with severe injury received the top endorsements as traumatic.

In a review of vicarious, i.e., secondary, traumatization, Lerias and Byrne (2003) compiled a list of predictors from the literature. Life experiences, empathic engagement with the victim, and

appraisal of the stressor, as well as severity of the event, among others, have been found to be relevant. The underlying theme in all of this is that events are experienced by individuals bringing their personal history and life meanings to each encounter. Why one event and not another is traumatic is based on their particular interpretations (Baum et al., 1993). The circumstances of any call, no matter how seemingly benign, may escalate its effects to that of a traumatic event. Awareness of this potential by supervisors and the telecommunicators themselves may aid in their ability to prepare for such a possibility as well as to look after each other when these calls occur.

4. **How did they describe their most distressing call?**

a. **Years since occurrence**

Responses were provided by 391 participants. When asked the year in which their most troubling, disturbing, or distressing call occurred, they listed from a few months, rounded to zero, to 35 years, with a mean of 6.3 (6.4) years. Approximately half were within the previous four years and three-quarters within the prior nine years.

b. **Descriptions of calls**

When asked to briefly describe the circumstances of the most troubling, disturbing, or distressing call of their careers, 425 participants provided comments ranging from short phrases, such as "line of duty death" or "SIDS" [sudden infant death syndrome] to three pages of single-spaced, typed script. These responses were grouped according to types of calls and then analyzed for overall themes by two coders. Consensus was reached following discussion of any discrepancies in coding and review of relevant passages from the original documents.

The event that triggered the 9-1-1 call was used in categorizing calls by type. These are presented in Table XXII. Other themes were identified, with the more common ones listed in Table XXIII. Multiple themes were evident in many incident descriptions.

TABLE XXII

PERSONAL INCIDENTS (*N* = 425)

Type of incident	Frequency	Percent
Medical emergency	55	12.94
Fatal or severe traffic accidents	40	9.41
Suicide	31	7.29
Calls involving family/friends	30	7.06
Officer, firefighter, EMT injured	25	5.88
Domestics	22	5.18
Line of duty death	20	4.70
Officer, firefighter, EMT in danger	18	4.23
Severe injury of child	18	4.23
Infant not breathing	17	4.00
Suicidal caller	16	3.76
Death of child	12	2.82
Home invasion	12	2.82
Homicide with or without suicide	10	2.35
Fatal or severe fire	10	2.35
Drowning	10	2.35
Train incidents	7	1.65
Pursuits	7	1.65
Child sexual assault	6	1.41
Multiple calls at one time/high call volume	6	1.41
Mass murder	5	1.18

TABLE XXII (continued)

PERSONAL INCIDENTS (*N* = 425) (continued)

Type of incident	Frequency	Percent
Officer suicide	5	1.18
Severe weather	4	0.94
Attempted murder	4	0.94
Child killed by parent	4	0.94
Armed robbery	4	0.94
Plane crash	3	0.70
Shots fired	3	0.70
Child abuse/neglect	3	0.70
Officer, firefighter. EMT dead (not line of duty)	3	0.70
Family of officer killed	2	0.47
Stalking	2	0.47
Adult sexual assault	2	0.47
Missing child	2	0.47
Riots/mob action	1	0.23
Car hijacking	1	0.23
Animal killed. Abused	1	0.23
Officer suicidal	1	0.23
Combinations of incidents	1	0.23
Suspect taken into custody	1	0.23
Suspect turned self in (had shot officer)	1	0.23

TABLE XXIII

PERSONAL INCIDENTS: GENERAL THEMES

Theme	Frequency
Death	235
Children	108
Officer, firefighter, EMT	74
Caller hysterical, screaming, crying, uncooperative	64
Emotions of caller	62
Emotions – self	60
Person found dead by child, family, friend	59
Audible shots, beating, sexual assault, dying breaths	47
Family, friends	30
Errors made, lack of training, lack of equipment, skills	28
Location problems, time delays	21
Person died while on phone	14
Helplessness	14

c. **Peritraumatic Distress Inventory**

Although the participants had described the most distressing call they had ever handled in their career, the 418 responses provided on the 10-item PDI revealed a mean of 23.15 (10.66), closer to the *somewhat true* rating. The range was 0 to 48 on a scale of 0 to 50, *not at all true* to *a great deal*. In fact, three-quarters of the respondents rated their most distressing call at 30 or below, i.e., *not at all to moderately true*. Only 5% scored 40 or above, in the *very true to a great deal* range. Table XXIV presents the means for the individual items on this measure. Each of the 10 items was rated from 0 to 5, i.e., *not at all* to *a great deal true*. Of note is that women had a higher total mean rating when compared to men, with 24.00 (10.55) vs. 20.97 (10.60) for these groups, respectively, $F(1, 414) = 6.563$, $p = .011$, $r = -.126$.

TABLE XXIV

COMPARISON OF PERITRAUMATIC DISTRESS INVENTORY MEANS

Item	Brunet et al. (2001)		Present study
	Police officers (N = 702)	Civilians (N = 301)	Telecommunicators (N = 418)
12a. I felt helpless to do more.	1.7 (1.4)	2.2 (1.4)	3.8 (1.6)
12b. I felt sadness and grief.	2.1 (1.5)	2.8 (1.4)	3.7 (1.6)
12c. I felt frustrated or angry I could not do more.	2.1 (1.5)	2.7 (1.3)	3.3 (1.7)
12d. I felt guilt that more was not done.	1.0 (1.3)	1.3 (1.4)	2.0 (1.8)
12e. I felt ashamed of my emotional reactions.	0.4 (0.9)	0.9 (1.3)	1.0 (1.4)
12f. I felt worried about the safety of others on the scene.	1.7 (1.5)	1.1 (1.5)	2.4 (2.1)
12g. I had the feeling I was about to lose control of my emotions.	0.7 (1.1)	1.6 (1.4)	1.4 (1.7)
12h. I was horrified by what happened.	1.5 (1.5)	1.6 (1.5)	2.9 (1.8)
12i. I had physical reactions like sweating, shaking, and pounding heart.	1.5 (1.4)	2.0 (1.5)	2.3 (1.9)
12j. I felt I might pass out.	0.2 (0.8)	0.7 (1.2)	0.4 (0.9)

d. **Reliability and validity**

The PDI was assessed for internal consistency. Cronbach's alpha was determined to be good at 0.836 ($N = 418$). The average interitem correlation was moderate at 0.338. Brunet et al. (2001) included reliability testing in the original PDI study. They reported an alpha of 0.75 for police officers and 0.74 in a sample of civilians. There was only a modest decrease in scores over an average of 391 (130) days. The test-retest correlation was 0.74. In addition, these researchers found no significant difference between the two groups in terms of social desirability.

A factor analysis procedure was also conducted on the ten items of the PDI. The Kaiser-Meyer-Olin measure of sampling adequacy was moderate (0.84) thus indicating factor analysis of the ten items was feasible. Principal component analyses yielded two factors (eigenvalue total = 5.58; % of variance explained = 55.837; scree plot leveled off at component 3). As Table XXV indicates, six of the items were moderately and highly correlated with the first component and four were moderately correlated with the second. Examination of the items and their loadings led to identifying the first factor as negative emotions and the second as their arousal reaction to such emotion, whether physical or emotional. The developers of this instrument reported factor analysis on the original 13-item measure with two principal components extracted as well (Brunet et al., 2001). The naming of the latent variables represented by these factors appears consistent in both analyses.

TABLE XXV

ROTATED (VARIMAX) COMPONENT MATRIX OF THE PERITRAUMATIC DISTRESS INVENTORY

Item	Component 1	Component 2
12a. I felt helpless to do more.	.85	.11
12b. I felt sadness and grief.	.77	.12
12c. I felt frustrated or angry I could not do more.	.84	.15
12d. I felt guilt that more was not done.	.65	.26
12e. I felt ashamed of my emotional reactions.	.17	.69
12f. I felt worried about the safety of others on the scene.	.10	.37
12g. I had the feeling I was about to lose control of my emotions.	.37	.70
12h. I was horrified by what happened.	.69	.34
12i. I had physical reactions like sweating, shaking, and pounding heart.	.42	.61
12j. I felt I might pass out.	-.04	.78

e. **Discussion**

In a discussion of the epidemiology of trauma and PTSD, Breslau identifies female gender as a significant risk factor (1998). The findings of the present study, demonstrating a weak association with gender, are also consistent with those of Brunet et al. (2001) in that female police officer and civilians had higher PDI ratings than their male counterparts. However, Pole et al. (2001) did not find any gender differences in PTSD, general psychiatric symptoms, or peritraumatic dissociative symptoms among police officers. These conflicting reports give rise to several questions. First, are men, in fact, more resilient than women? Second, are the rates lower for men because they may be more reluctant to admit how they were affected? Social desirability was assessed in the latter two reports with no gender differences found. This would seem to negate the possibility of the second issue being a factor. Nonetheless, further study should be done to explore this issue.

In comparing the mean PDI values of the present research with those from the original study of police officers and civilians exposed either directly or indirectly to a critical incident, the differences were striking (Brunet et al., 2001). For information purposes, these values are contrasted in Table XXIV. Both groups had mean ratings lower than the telecommunicators on all but two items for the civilians despite the fact that the telecommunicators are only indirectly exposed to traumatic events. In fact, in most cases the means were markedly less than those of the telecommunicators. Furthermore, the mean length of time since the event occurred for the officers was nearly identical to that of the telecommunicators.

The Brunet et al. (2001) study raises important questions as to protective factors in education, training, and treatment after critical incidents that may differ for these groups. The civilian scores fall between the officers and telecommunicators. The likelihood of fewer incidents

having occurred for the civilians prior to the specific critical incident reflected in their PDI scores may have resulted in greater emotional reactions for them as well. The experience was new and effective coping mechanisms may not have been identified for such events. This, however, still does not explain why the telecommunicators, with frequent exposure, would have higher means than the civilians. Brunet et al. discussed the possibility of ratings being biased by current symptoms as well as intervening critical incidents. This explanation is plausible for the present study as well.

All calls depicted in the index events were represented in the list of potentially traumatic calls from Table XX with one exception. *Barricaded subject* was not a category in and of itself for the index events. However, it was often a component of the domestic calls and pursuits. In addition, the index calls with the highest frequencies were the ones on the PTE list. These findings serve to establish its validity as representative of the most common stressful calls. In addition, staffing issues and other sources of stress were specifically mentioned or alluded to in many of the descriptions. By far, however, the high degree of EL often required in their job is the most evident of all the factors examined in this research project.

At times it was difficult to label a narrative as a particular call type. Often, what started as one event snowballed into another or several others. For example, an armed robbery led to shots being fired and then a pursuit. Or a domestic call became a hostage situation and then a murder-suicide. These illustrate the complexity of the situations telecommunicators deal with on a regular basis and lead to a greater appreciation of the skills and abilities required of them as events change quickly and response time often means the difference between life and death.

The general themes in Table XXIII were the most frequent overall. These lists, however, do not adequately convey the knowledge gained from reading these *most troubling, disturbing, and*

distressing calls. In their own words, participants reinforced their prior endorsements of sources of stress and traumatic calls. They spoke of what specifically caused them distress and sometimes how they coped with it. They related their skills and what they learned from the experience. They spoke of friendships and concern for others. They wrote of their own symptoms of STS and, sometimes, even compassion satisfaction. What follows is an attempt at capturing the richness of this data and how it contributes to an understanding of what telecommunicators do and how their work affects them.

By far, calls involving the death of a citizen or responder were the most frequent. These included suicides, homicides, fires, traffic accidents, and medical emergencies. Many were also about infants and children. Because detailed information about the emotions of the callers and background sounds and voices were included in the descriptions of their index events, it was logical to conclude that these added significantly to the stressfulness of the calls. For example, the caller was "screaming," "hysterical," "crying and begging for help," "shrieking," and "very upset" (n = 39). They were also described as "so afraid," "traumatized," "very frightened," and "very distraught" (n = 10). As one telecommunicator put it, "The fear in her voice was the most horrific thing." Another related how he heard in the background a "heinous, horrifying scream" and "I had chills running down my body and my hands were shaking."

Callers were often the Good Samaritans that stopped for traffic accidents. In an effort to provide as much helpful information to the telecommunicators as possible, they often graphically described the scene and victims: "blood all over"; "went from body to body describing what he saw"; "caller advised subject making gurgling noises"; "get help, people are burning up"; and "the process of death, then, he's dead" (n = 7). Such detail, although helpful, may also increase anxiety

during the event and imprint images in the memory of the telecommunicator: "It was terrifying to be on the phone, hearing, but not knowing, what was happening."

Telecommunicators are also, however, exposed to traumatic information by what they overhear in the background: shots being fired; "moaning and asking for help"; "children screaming and upset"; a four-year old screaming "What's wrong with dad?" as his mother attempts resuscitation; "please, don't let me die"; a "baby gurgling"; and another "child choking on blood and yelling from the pain, while dying" (n = 16). They also heard crimes as they were being committed, most often related to domestic violence and home invasions: "as she made the call to me, she was being stabbed"; "female being stabbed to death while screaming for help"; "the sounds of the husband's fists hitting the wife"; "could hear flesh being hit"; and "I heard every hit the mother took" (n = 12). The effect this may have on the telecommunicator can be profound. For example, one participant stated: "I had to ask the questions but felt like I was provoking the attack by keeping her on the line."

A large number of incidents involved other first responders, with the majority about police officers, deputies, and troopers. Ten participants specifically referred to "my officers," their concern for officer safety, and the responsibility they felt to "take care of them." They handled calls in which an officer "screamed his partner had been shot" and then "heard more shots being fired"; the "moans of pain" of an officer who had been shot; and "one was talking to me on the radio when she was shot." Two telecommunicators related incidents in which a citizen used the radio in the squad car to call for assistance: yelling "Emergency, emergency" and "There's an officer down." For many of these calls, as well as those relating to family members, participants were frustrated with the delay in getting updates on their status once medical help arrived (n = 13). This emphasizes the personal responsibility and concern that telecommunicators often feel for

these responders. As one participant put it: "It was the knowledge that we send our officers into a shoot out that freaked us out…I had nightmares that I would send my officers to a call and he would get killed for a very long time. I was afraid when I send my officers to dangerous calls on my shift they might get hurt. It took a long time for me to get over the call and feel that my officers would be safe…I had difficulty letting go…even as I'm typing them out for you, I have tears pouring down my cheeks."

As mentioned in the discussion of the last research question, personal identification with the victim may increase the distress experienced by those in helping roles (Ursano et al., 1994b). This was evident in 11 of the descriptions of their most disturbing calls in which the participant drew a parallel between those callers and victims and their own lives. These calls involved infants and children, mothers and fathers, and parents: "I'm a mother"; "I have a 22 year old son"; and "It made me think of my own deceased parents." Such examples illustrate the empathy triggered in these telecommunicators in the course of doing their jobs.

Descriptions often included examples of the skill required to handle calls (n = 51). Participants spoke of the prolonged nature of some calls and events, the need for keeping the caller calm, and the use of *repetitive persistence* to gain control of the caller. When working alone, participants mentioned the large volume of radio traffic and phone calls and the coordination of activities and responders necessary during critical events. They related successful hostage negotiations, thwarting of suicide attempts, and effective resuscitation efforts. Examples of empathy experienced by the telecommunicators were evident as well: "I had to support her without giving false hope" and "I could only soothe him as best as possible." Another illustrated empathic perspective-taking, saying: "I put myself in her shoes…I couldn't help but feel so sad." Two remarked they felt their own "heart break" during the calls.

At times, participants related incidents which they felt unprepared to handle: "...was new employee and unsure of myself and I felt responsible in some way"; "I was new to the job and totally overwhelmed and actually got to the point where I just stopped working and watched everyone else work"; and "I had never handled a call like that and was instantly overwhelmed and went blank." They also spoke of shortcomings of the system, such as not feeling properly trained, "no officers close," and being in rural areas in which it "took a long time for help to come." Location technology was another issue related to the 9-1-1 system and often contributed to the delay or inability in getting help to those in need ($n = 21$).

The descriptions often provided examples of the items in the PDI. Feeling helpless was the item with the highest mean score on the PDI, 3.8 (1.6), i.e., *very true*, and was specifically mentioned by 14 individuals: "hard for me knowing...I couldn't help him." Feeling sadness and grief, with a mean of 3.7 (1.6), i.e., *moderately to very true*, was also common: "It broke my heart" and "You cope with it by knowing you tried your best and today it just wasn't enough. You pray to God tomorrow it will be and cry a little." Perhaps the best example is the call in which there was a delay in rescue efforts on the scene: "I felt helpless. I felt responsible for her death...I had grief about her death...Thinking about this call still makes me cry." This incident also illustrated the frustration or anger, and guilt that may result in such circumstances. The PDI items pertaining to these feelings had mean ratings of 3.3 (1.7), i.e., *moderately to very true*, and 2.0 (1.8), i.e., *somewhat true*, respectively.

An example pertaining to safety, with a mean rating of 2.4 (2.1) on the PDI, i.e., *somewhat to moderately true*, further illustrates the complexity of emotions that may occur: "I worried about safety issues and whether I did enough or call the right people out to help." This second guessing after the fact was not uncommon: "...was unable to do anything to keep them calm or keep them

safe." The PDI item regarding feeling horrified had a mean of 2.9 (1.8), i.e., *moderately true.* Multiple descriptions spoke of this reaction and its aftermath: "...the woman's horrifying screams echo[ed] into my dreams for months to follow. I had great difficulty sleeping. I had trouble letting go of the incident. When I think about this call, I can still hear her screaming."

Physical reactions had a mean of 2.3 (1.9), i.e., *somewhat to moderately true* on the PDI. Participants related their reactions: "At that moment, I thought I was having a heart attack. I was sweating, shaking, my heart was pounding and I was in great fear my officer was shot...I was never so scared in my life"; "You feel like your head is spinning"; and "I had chills running down my body and my hands were shaking." Crying was also mentioned, as were efforts to cope and maintain control at the same time: "...was in tears by the time I got off the phone"; "It was emotional for me...I tried to prevent from crying myself and prayed very low on the phone"; and "My partner and I were fighting tears doing our jobs and holding each other...patting each other on the back to comfort each other in our fear." This last description provided an example of emotional social support which has been shown to be negatively correlated with STS and burnout (Ortlepp and Friedman, 2002). Other participants specifically commented on the lack of supervisor and employer support ($n = 4$).

Feeling as though they might pass out had a mean of 0.4 (0.9) on the PDI, i.e., *not at all to a little true.* One individual related this experience in their description. No one mentioned feeling ashamed of their emotional reactions, which had a mean of 1.0 (1.4), i.e., *a little true*, on the PDI. However, feeling they were about to lose control of their emotions was mentioned: "...very difficult to try to contain myself." This item had a mean of 1.4 (1.7), i.e., *a little to somewhat true* on the PDI. These three items had the lowest mean PDI ratings. One participant said he would "deal with the emotions later." Another remarked that "We do what we can for people in need and

I'm satisfied with that." A possible explanation for the low mean PDI score was provided by one participant: "I felt some of these things differently later but not at the time of the call."

Although describing themselves as worried, scared, horrified, distraught, and terrified and finding the calls very disturbing, hard to deal with, and even "...an overwhelming feeling of wanting to make this call go away at the time it was happening," somehow these telecommunicators managed to "do the job even if upset." However, many related the short and long-term after-effects of such experiences. Just writing about it caused some to "have tears in my eyes now remembering this." Others spoke of disturbed sleep, bad dreams for months afterwards, and that "I think about these calls from her every day," all of which are examples of intrusive memories and arousal symptoms that represent two of the three categories of STS symptoms (Bride et al., 2003; Lerias et al., 2003). Another summed up her feelings by writing that "when I think about it, it's as if it just occurred."

On the positive side, four individuals provided examples of closure when they received phone calls or letters from a suicidal caller thanking them for the help they had received during their 9-1-1 calls. Another comment illustrated positive growth from their experience: "made me want to know more about how stress affects you." Such reinterpretation of the event as a learning experience has been shown to significantly and positively correlate with control and self-esteem and negatively correlate with anxiety and may partially explain the low mean score on the PDI in the present study (Carver et al., 1989). On the other hand, the responses may be entirely accurate, implying that protective factors were in effect during and after the event, helping them to cope. A shortcoming of the present study was the lack of inquiry into elements that heightened or lessened their reactions, such as co-worker support or participation in a debriefing.

Ideally, future study of the effects of a critical call would occur within a shorter time frame of the event and follow the individual over a period of weeks and months, assessing changes over time as well as factors that may or may not have been supportive. In order for this to be possible, however, a system would have to already be in place that could be implemented on short notice. In addition, when implementing new methods of handling such circumstances in call centers, an evaluation of their effects should be built into the process. For example, peer support programs could include an assessment of symptom severity prior to and after such contact as well as repeated evaluations over time to investigate the durability of change.

While it may be obvious that certain types of calls would be more stressful than others, it is apparent from the wide variety of critical calls, as well as the ranking of TEs/calls, that what is truly *most troubling, disturbing, or stressful* can only be determined by the individuals themselves. Therefore, for appropriate intervention at the time of such a call, a higher index of suspicion would need to be adopted as a usual practice by coworkers, supervisors, and managers.

On a final note, training in critical incident stress for all telecommunicators may increase awareness of their risks. It could include identification of calls considered potentially traumatic and why some may have negative effects on their personal and professional lives. At the same time, positive growth may occur and factors associated with this should be discussed as well. In essence, training should identify risk factors and ways to strengthen resiliency.

5. **To what extent did their job involve emotional labor?**

a. **Findings**

Emotional labor when handling 9-1-1 calls was assessed through the series of six items making up the EL scale. Ratings were applied that ranged from *not at all* (0) to *a great deal* (5). There were 495 responses. For the first item, 7.7% replied their job did not require that they

display many different emotions when interacting with others. There were 11.1% who rated this statement *a little true*, 14.9% as *somewhat true*, 21.4% *moderately true*, 23.4% *very true*, and 21% *a great deal*. Overall, 54.5% rated this item in the upper end of the scale. The mean was 3.0 (1.5), with a range of 0 to 5.

None of the participants replied *not at all* to the second statement regarding guiding people through sensitive or emotional issues in their job. There were 2% with *a little true* rating, 4% *somewhat true*, 12.7% *moderately true*, 32.1% *very true*, and 49.1% *a great deal*. Overall, 81.2% rated this item in the upper end of the scale. The mean was found to be 4.2 (0.9), with a range of 1 to 5.

When asked if dealing with emotionally charged issues was a critical dimension of their job, none of the participants replied in the negative. There were 0.6% with *a little true* rating, 2.8% *somewhat true*, 12.1% *moderately true*, 33.7% *very true*, and 50.7% with *a great deal* for their rating. Overall, 84.4% rated this item in the upper end of the scale. The mean was 4.31 (0.8), with a range of 1 to 5.

As for managing the emotions of others while on the job, there was one (0.2%) negative reply. Of the remaining telecommunicators, 2.2% said this was *a little true*, 4.4% *somewhat true*, 16.6% *moderately true*, 35.4% *very true*, and 41.2% *a great deal*. Overall, 76.6% provided ratings in the upper end of the scale. The mean was calculated to be 4.1 (1.0), with a range of 0 to 5.

When describing their skill as good at dealing with emotional issues in their work, none of the participants replied negatively. There were 1.2% who rated this statement as *a little true*, 3.4% *somewhat true*, 22.8% *moderately true*, 41.6% *very true*, and 30.9% as *a great deal*. Overall 72.5% rated themselves in the upper end of the scale. The mean for this item was 4.0 (0.9), with a range of 1 to 5.

The last item pertained to providing comfort to people in crisis while handling 9-1-1 calls. There were 1% of individuals who rated this statement as not true and 0.2% as *a little true*. The remaining endorsements were as follows: 4.8% *somewhat true*, 10.1% *moderately true*, 36.4% *very true*, and 47.5% *a great deal*. Overall, 83.9% chose ratings in the upper end of the scale. The mean for this item was 4.2 (0.9), with a range of 0 to 5.

Table XXVI is a presentation of the mean scores for each of the six items of the EL scale. The sum of ratings for these items represented the EL Index for each individual. The average score of the EL Index for the sample was found to be 23.9 (4.0), i.e., *very true*, with a range of 9 to 30. The responses were predominantly in the upper end of the scale, with 95% above the midpoint of 16. The median score was 24. The EL Index was collapsed into three categories for further analyses. The lowest category included mean ratings from 9 to 17. Moderate EL ratings ranged from 18 to 23 while high EL was from 24 to 30.

Exploratory analyses were conducted to examine potential relationships between the EL *Index* or *categories* and relevant descriptive variables. Both varied by gender, with males having a mean of 22.85 (4.14) and females 24.25 (3.9), F (1, 490) = 11.974, p = .001, r = -.155. Similar relationships existed as to room tone *index* and *categories*, with the low tension group having a mean EL *Index* of 22.95 (4.34), moderate tension with 24.28 (3.71), and high tension with 24.67 (3.73), F (2, 486) = 8.546, p = .000, r = .173.

The EL *Index* and *categories* also varied with staffing adequacy ratings. The low staffing adequacy group had a mean EL *Index* of 24.72 (3.77), moderate adequacy with 23.87 (4.07), and high adequacy with 23.12 (4.09), F (2, 477) = 5.354, p = .005, r = -.155. In addition, the EL *Index* was associated with the numbers of PTEs/calls and TEs/calls. As the numbers of PTEs and TEs

increased, the level of EL increased, F (1, 492) = 26.560, p = .000, r = .226 and F (1, 492) = 25.725, p = .000, r = .223, respectively.

Although several associations were found, the coefficients were weak. Of note is that the EL Index did not vary by overtime categories, i.e., whether none or voluntary overtime vs. mandatory and/or forced overtime at their call centers, or by full vs. part-time status.

TABLE XXVI

EMOTIONAL LABOR SCALE (N = 495)

Item	Mean
13a. My job requires that I display many different emotions when interacting with others.	3.0 (1.5)
13b. My work requires me to guide people through sensitive and/or emotional issues.	4.2 (0.9)
13c. My work involves dealing with emotionally charged issues as a critical dimension of my job.	4.3 (0.8)
13d. My job requires that I manage the emotions of others.	4.1 (1.0)
13e. In my work, I am good at dealing with emotional issues.	4.0 (0.9)
13f. My work requires me to provide comfort to people who are in crisis.	4.2 (0.9)

b. **Reliability and validity**

Internal consistency was assessed for the items of the EL questionnaire. Guy et al. (2008) had reported an alpha of 0.893. For the present study, Cronbach's alpha was estimated as 0.754 (N = 495) and the average interitem correlation as 0.338, both of which are moderate. Deleting 13a changed the mean to 0.411 and alpha to 0.777. In looking at the factor loading, described below,

however, 13a is also the lowest item to load on the principal component. There are stringent feeling rules governing the display of emotion by telecommunicators when dealing with callers. These rules preclude the display of *many different emotions* when performing in their professional roles. As such, this item may be considered for deletion when used with telecommunicators.

Factor analysis was then conducted on the six items of the EL index. The Kaiser-Meyer-Olin measure of sampling adequacy was moderate, 0.79, thus indicating factor analysis of the six items was feasible. Principal component analyses yielded one factor (eigenvalue total = 2.78; % of variance explained = 46.32; scree plot leveled off at component 2). All of the variables loaded moderately and highly into this component and are presented in Table XXVII. The identification of a single component is consistent with the developers of this instrument (Guy et al., 2008).

TABLE XXVII

PRINCIPAL COMPONENT ANALYSIS MATRIX OF EMOTIONAL LABOR INDEX

Item	Component 1
13a. My job requires that I display many different emotions when interacting with others.	.407
13b. My work requires me to guide people through sensitive and/or emotional issues.	.828
13c. My work involves dealing with emotionally charged issues as a critical dimension of my job.	.761
13d. My job requires that I manage the emotions of others.	.721
13e. In my work, I am good at dealing with emotional issues.	.559
13f. My work requires me to provide comfort to people who are in crisis.	.718

c. **Discussion**

Because of the nature of the work done by telecommunicators, it was not surprising that the overwhelming majority of responses were in the upper ranges of the scales. In a study of 34 telecommunicators at an emergency call center in Florida, Guy et al. (2008) found the mean for the EL Index to be 5.7 (0.6). The difference in scores found in the present study, overall mean 4.0, may be attributed to the fact that their sample participated in focus groups on the topic of EL prior to completion of the survey instrument. As such, they may have been attuned to the issue, thereby inflating their scores. Completion of the EL Index prior to the focus groups would have provided a more accurate assessment and less chance of their ratings being affected by their focus group experience.

Of the six items in the EL scale, the first one, pertaining to displaying many different emotions as part of their job, had the lowest mean rating. As mentioned, this can be accounted for by the fact that, as noted in the U.S. Department of Labor job description, telecommunicators "must remain calm, objective, and in control of the situations" (2005, Working Conditions section, ¶ 3). In other words, the feeling rules applicable to their role preclude them from behaving any other way.

Emotional labor is typically required in public service positions and this was borne out in the present study. As Guy et al. (2008) point out, such labor is "essential for job completion and is a prerequisite for quality service" (p. 3). Several issues, inherent in the EL movement, are based on the latter observation. First, job descriptions should reflect the degree of emotion work required for that position. Second, training should be done to hone this skill as well as to teach ways of coping that improves satisfaction and lessens negative consequences. Third, EL should be a component of performance evaluations. Lastly, recognition of the adeptness of employees to perform EL should

be provided in the form of emotional support, praise, advancement, and monetary remuneration. Each of these will be discussed in turn.

In a presentation to public safety telecommunicators, Ornberg (2007) highlighted the relationship between recruitment and retention. In great detail, she discussed the steps her agency follows during the recruitment phase, from job description to psychological testing. This rigorous process has helped her to maintain an unprecedented *no vacancy* status for telecommunicator positions at her agency. Interestingly enough, the two job descriptions included in the literature review of Chapter II allude to the emotion work required as well as other essential job skills and functions. With such detail, there would be less chance for surprises for those who persist in applying after reading them.

The second issue pertaining to EL relates to training. Emotion work has been found to variably affect satisfaction and burnout, in part due to the aspects studied. For example, feeling for another, i.e., empathic concern, improves the perception of the individual to communicate effectively, whereas feeling with another, i.e., emotional contagion, diminishes it. In effect, with contagion, the helper takes on the feelings of the other, thereby losing their objectivity and possibly their ability to effectively assist the other in dealing with their situation. On the other hand, having genuine concern for another while maintaining enough distance emotionally to function well, also referred to as communicative responsiveness, has been negatively associated with burnout (Miller et al., 1988). Deep acting occurs when an individual modifies his/her feelings during relational exchanges, whereas with surface acting, they put on a false face. The former has been shown to increase the sense of personal accomplishment and the latter decrease it (Totterdell and Holman, 2003). Deep acting is essentially an investment strategy, allowing the individual to feel pride in their EL skills and a sense of control, both of which may improve their ability to deal

with the negative aspects of the job (Erickson, 2004). Through training, these skills can be increased, thereby improving health and a sense of well-being (Slaski and Cartwright, 2003).

The last two issues relating EL to achievement of the organizational mission go hand in hand. Call monitoring, whether through recording or being physically present, provides the input for periodic performance evaluations. When done with constructive, as opposed to punitive, aims, it has been found to be associated with less emotional exhaustion, depression, and higher job satisfaction (Holman et al., 2002). In the present study, one quarter of telecommunicators endorsed performance evaluations as a current source of stress for them with 12% endorsing call-monitoring practices. Further exploration of the reasons behind these findings may enable organizations to use these tools effectively as a form of guidance, support, and professional development. Russell et al. (1987) found classroom teachers with supportive supervisors had significantly lower burnout than those without such supervisors. The key issue in such support was reassurance of their worth. Likewise, Brotheridge and Lee (2003) found supervisor as well as coworker support to be negatively correlated with emotional exhaustion and depersonalization, and positively with a sense of personal accomplishment.

Finally, Himmelweit (1999) defined EL as a type of caring labor. Such work occurs in "...any occupation in which the worker provides a service to someone with whom he or she is in personal...contact. The work is called caring on the assumption that the worker responds to a need or desire that is directly expressed by the recipient" (England and Folbe, 1999, p. 40). In a review of salaries for state employees in four separate states, Guy et al (2008) found pay inequities in jobs involving EL, i.e., caring work. In addition, within those positions, there were gender differences, with men earning more than women. They conclude that only when EL is recognized as an occupational skill and no longer taken for granted will it become compensable.

The significant, although weak, associations found between EL, staffing adequacy, and tension in the room are potentially important and should be explored in further research. As staffing adequacy decreased, higher EL was required. Likewise, as tension in the room rose, EL increased. Even though instructed to consider management of their emotions when dealing with callers as they rated the EL items, the participants may have had difficulty separating this out from dealing with other staff members. This could have inflated their ratings. On the other hand, the positive association between room tension and staffing adequacy may create a higher baseline level of EL that rises further as the telecommunicator handles 9-1-1 calls. Further research could investigate this possibility by including a comparison group rating their level of EL irrespective of considering it only in regards to callers.

6. **What is the prevalence of burnout, compassion satisfaction, and secondary traumatic stress in this group of telecommunicators?**

a. **Findings**

Respondents completed the ProQOL measure by rating each of the 30 items on a scale of *never* (1) to *very often* (5). They were instructed to consider how frequently they had particular experiences or feelings as a helper when performing their job as a telecommunicator over the previous 30 days. As recommended by the Pilot Study participants, an example was provided to improve interpretation of the individual items with the rating scale in mind. There were 491 participants that completed this scale.

The mean ratings of the burnout subscale are presented in Table XXVIII. The burnout index, calculated by summing the scores for these 10 items after reverse-coding items 1, 4, 15, 17, and 29, was found to be 21.57 (6.56), with a range of 4 to 45. In other words, the telecommunicators have had these feelings or experiences *a few times* at work within the past 30

days. The burnout prevalence, represented as those scoring more than one standard deviation above the mean, was estimated to be 14.7%.

TABLE XXVIII

BURNOUT SUBSCALE (*N* = 491)

Item	Mean
1. I am happy.	3.6 (1.1)
4. I feel connected to others.	2.8 (1.2)
8. I am losing sleep over the traumatic experiences of a person I helped.	0.9 (1.1)
10. I feel trapped by my work as a helper.	1.0 (1.3)
15. I have beliefs that sustain me.	3.1 (1.7)
17. I am the person I always wanted to be.	3.1 (1.3)
19. Because of my work as a helper, I feel exhausted.	2.3 (1.4)
21. I feel overwhelmed by the amount of work I have to deal with.	2.3 (1.3)
26. I feel "bogged down" by the system.	2.0 (1.5)
29. I am a very sensitive person.	2.8 (1.4)

The mean score for the compassion satisfaction subscale was 34.69 (8.85), with a range of 2 to 50. The interpretation of this finding is that the telecommunicators have had these feelings or experiences at work *somewhat often to often* within the past 30 days. The mean ratings for the individual items of this subscale are presented in Table XXIX. The prevalence of compassion

satisfaction, i.e., the percentage scoring more than one standard deviation above the mean, was estimated to be 15.1%.

TABLE XXIX

COMPASSION SATISFACTION SUBSCALE (*N* = 491)

Item	Mean
3. I get satisfaction from being able to help people.	3.9 (1.0)
6. I feel invigorated after working with those I help.	2.9 (1.2)
12. I like my work as a helper.	3.9 (1.0)
16. I am pleased with how I am able to keep up with helping techniques and protocols.	3.6 (1.1)
18. My work makes me feel satisfied.	3.3 (1.2)
20. I have happy thoughts and feelings about those I help and how I could help them.	2.9 (1.2)
22. I believe I can make a difference through my work.	3.4 (1.2)
24. I am proud of what I can do to help.	3.9 (1.1)
27. I have thoughts that I am a "success" as a helper.	3.2 (1.2)
30. I am happy that I chose to do this work.	3.7 (1.2)

From the ten items covering STS, the mean was found to be 12.13 (7.89), with a range of 0 to 37. This finding is interpreted as that, on average, the telecommunicators have had these feelings or experiences at work *rarely* in the past 30 days. The means for each item of this subscale are

presented in Table XXX. The prevalence of STS for this sample, represented as those scoring more than one standard deviation above the mean, was calculated at 16.3%.

TABLE XXX

SECONDARY TRAUMATIC STRESS SUBSCALE (*N* = 491)

Item	Mean
2. I am preoccupied with more than one person I have helped.	1.7 (1.3)
5. I jump or am startled by unexpected sounds.	1.7 (1.4)
7. I find it difficult to separate my personal life from my life as a helper.	1.6 (1.4)
9. I think I might be "infected" by the traumatic stress of those I help.	0.9 (1.2)
11. Because of my helping, I have felt "on edge" about various things.	1.5 (1.5)
13. I feel depressed as a result of my work as a helper.	1.0 (1.1)
14. I feel as though I am experiencing the trauma of someone I have helped.	0.7 (1.0)
23. I avoid certain activities or situations because they remind me of frightening experiences of people I have helped.	0.8 (1.1)
25. As a result of my helping, I have intrusive, frightening thoughts.	0.7 (1.0)
28. I can't recall important parts of my work with trauma victims.	1.4 (1.3)

b. **Reliability and validity**

Reliability analysis was conducted on the burnout subscale of the ProQOL instrument. Cronbach's alpha was estimated to be 0.680 with a sample size of 491. This is similar to the findings of Stamm (2005) in which the reliability was 0.72. The mean interitem correlation was

0.175. Deletion of item 29 resulted in a small increase in this value to 0.217 with a corresponding increase of alpha to 0.72. These values are all within the acceptable range.

The Kaiser-Meyer-Olin measure of sampling adequacy was moderate at 0.81, indicating factor analysis of the ten items of the burnout subscale was feasible. Principal component analyses yielded three factors (eigenvalue total = 5.48; % of variance explained = 54.709; scree plot leveled off at component 4). As Table XXXI indicates, six of the items were moderately correlated with the first component, three of the items were moderately correlated with the second component, and one item was highly correlated with the third component. Three major aspects of burnout have been identified in the literature: emotional exhaustion, depersonalization, and a reduced sense of personal accomplishment (Pines, 1993). The factor analysis of the burnout measure in relation to the telecommunicator ratings endorses two of these as the latent variables of components 1 and 2. The final component consists of a single item with a very high loading and appears to be tapping into a distinct dimension perhaps relating to values and worldview. This is known to be a consequence of STS and the high correlation between burnout and STS, $r = 0.617$, may in part be explained by this component.

TABLE XXXI

ROTATED (VARIMAX) COMPONENT MATRIX OF THE BURNOUT SUBSCALE

Item	Component 1	Component 2	Component 3
14-1 recoded. I am not happy.	.53	.47	.10
14-4 recoded. I do not feel connected to others.	-.04	.74	.00
14-8. I am losing sleep over the traumatic experiences of a person I helped.	.60	-.02	.15
14-10. I feel trapped by my work as a helper.	.73	.03	.18
14-15 recoded. I do not have beliefs that sustain me.	.14	.03	.91
14-17 recoded. I am not the person I always wanted to be.	.27	.62	-.24
14-19. Because of my work as a helper, I feel exhausted.	.76	.02	.08
14-21. I feel overwhelmed by the amount of work I have to deal with.	.74	-.02	-.13
14-26. I feel "bogged down" by the system.	.76	.02	-.11
14-29 recoded. I am not a very sensitive person.	-.21	.54	.21

Cronbach's alpha for the compassion satisfaction subscale was shown to be 0.917 with a mean interitem correlation of 0.525. The sample size was 491. Deletion of any item from this subscale resulted in a decrease in alpha. With these high values, it appears this measure should be retained in its present form. Of note is that Stamm (2005) found the alpha to be 0.87.

A factor analysis procedure was conducted on the ten items of the compassion satisfaction subscale. The Kaiser-Meyer-Olin measure of sampling adequacy was high at 0.933, indicating factor analysis of the ten items was feasible. Principal component analyses yielded one factor (eigenvalue total = 5.76; % of variance explained = 57.59; scree plot leveled off at component 2). All of the variables loaded moderately and highly into this component. These items are presented in Table XXXII. The findings appear to indicate a primary dimension of compassion satisfaction represented by the items of this subscale.

TABLE XXXII

PRINCIPAL COMPONENT ANALYSIS MATRIX OF THE COMPASSION SATISFACTION SUBSCALE

Item	Component 1
14-3. I get satisfaction from being able to help people.	.792
14-6. I feel invigorated after working with those I help.	.701
14-12. I like my work as a helper.	.796
14-16. I am pleased with how I am able to keep up with helping techniques and protocols.	.618
14-18. My work makes me feel satisfied.	.805
14-20. I have happy thoughts and feelings about those I help and how I could help them.	.691
14-22. I believe I can make a difference through my work.	.797
14-24. I am proud of what I can do to help.	.834
14-27. I have thoughts that I am a "success" as a helper.	.740
14-30. I am happy that I chose to do this work.	.790

The reliability coefficient for the STS subscale was estimated to be 0.844 with a sample size of 491. Stamm (2005) reported an alpha of 0.80. The mean interitem correlation was 0.351. These values are good and moderate, respectively. Deletion of any items resulted in a decrease in alpha. These findings, therefore, suggest retaining this measure in its present form.

Finally, a factor analysis procedure was conducted on the ten items of the STS subscale. The Kaiser-Meyer-Olin measure of sampling adequacy was high at 0.88, thus indicating factor analysis of the ten items was feasible. Principal component analyses yielded one factor (eigenvalue total = 4.28; % of variance explained = 42.84; scree plot leveled off at component two). All the variables loaded moderately into this component and are presented in Table XXXIII. The development of this scale involved the inclusion of items representing the hallmark symptom categories of PTSD/STSD: hyperarousal, intrusion, and emotional numbing. The factor analysis of the telecommunicator responses suggests strong theoretical cohesion among the variables with one over-arching dimension being tapped with this subscale.

TABLE XXXIII

PRINCIPAL COMPONENT ANALYSIS MATRIX OF SECONDARY TRAUMATIC STRESS SUBSCALE

Item	Component 1
14-2. I am preoccupied with more than one person I have helped.	.420
14-5. I jump or am startled by unexpected sounds.	.571
14-7. I find it difficult to separate my personal life from my life as a helper.	.602
14-9. I think I might have been "infected" by the traumatic stress of those I help.	.786
14-11. Because of my helping, I have felt "on edge" about various things.	.755
14-13. I feel depressed as a result of my work as a helper.	.713
14-14. I feel as though I am experiencing the trauma of someone I have helped.	.735
14-23. I avoid certain activities or situations because they remind me of frightening experiences of the people I have helped.	.648
14-25. As a result of my helping, I have intrusive, frightening thoughts.	.758
14-28. I can't recall important parts of my work with trauma victims.	.432

c. **Discussion**

The present study adopted the estimate of one standard deviation above the mean to define those individuals at risk for STS or burnout or as having the potential for compassion satisfaction. For comparison purposes with the cut-offs from the Stamm report (2005), however, quartiles were calculated and are presented in Table XXXIV. The results are quite similar. This is most interesting. The participants from the Stamm studies included general health workers, child and family workers, and school personnel. They are in face-to-face contact with those they help. As such, exposure to traumatic information includes visual and auditory stimuli, as opposed to only auditory for the telecommunicators in the present study. In other words, it would appear that the assumption that trauma can only be experienced if an individual is on the scene is unfounded.

TABLE XXXIV

PROFESSIONAL QUALITY OF LIFE SCALE: COMPARISON OF DATA

Subscale	**Present study**	**Stamm (2005)**
Compassion satisfaction		
N	491	457
Bottom quartile	30	33
Mean (*SD*)	34.69 (8.85)	37 (7)
Top quartile cut-point	41	41
Burnout		
N	491	379
Bottom quartile	17	18
Mean (*SD*)	21.57 (6.56)	22 (6)
Top quartile cut-point	26	26
Secondary traumatic stress		
N	491	369
Bottom quartile	6	8
Mean (*SD*)	12.13 (7.89)	13(6)
Top quartile cut-point	17	17

Data for the same three main outcomes from two additional sources, Wrenn (2005) and Bates (2005), are presented in Table XXXV. Although there are some similarities in means and cut-points, the prevalences are remarkably different. Wrenn (2005) examined primary exposure to trauma as well as secondary exposure from clients in a survey of 233 Illinois social workers. Prevalence was defined as those scoring above the 75th percentile determined by Stamm (2005). For compassion satisfaction, the prevalence of 39% was almost twice that in the present research. Similar findings were demonstrated in the study by Bates (2005) in which 34.6% of 52 human service workers scored above the 75th percentile. Wrenn (2005) also estimated the prevalence for burnout and STS using the 75th percentile cut-offs from Stamm (2005) and these were 12% and 17%, respectively. Both were less than the present study. Bates (2005) did not include this information in her report.

TABLE XXXV

COMPARISON OF OUTCOME DATA

Variable	Present study	Wrenn (2005)	Bates (2005)
Sample size	491	233	52
Compassion satisfaction			
Mean (*SD*)	34.69 (8.85)	38.68 (6.9)	39.13 (6.48)
Top quartile	41	44	41
Prevalence	22%	39%	34.6%
Burnout			
Mean (*SD*)	21.57 (6.56)	20.49 (6.67)	
Top quartile	26	25	
Prevalence	22%	12%	
Secondary traumatic stress			
Mean (*SD*)	12.13 (7.89)	11.25 (6.7)	13.17 (5.42)
Top quartile	17	15	
Prevalence	24.2%	17%	

There are several possible explanations for these discrepancies. First of all, the samples from Wrenn (2005) and Bates (2005) were of professionals and paraprofessionals engaged in counseling roles. Wrenn (2005) found that 27% of her sample had participated in counseling due to work exposure to stress and that 76% advocated talking to colleagues. Additionally, 12% specifically mentioned participating in staff meetings, peer supervision, and peer consultation to reduce stress. While these situations provide a forum for venting, they also provide opportunities for peer support and timely feedback. According to Pines (1993), a supportive environment maximizes the positive and minimizes the negative aspects of highly demanding jobs. In fact, she found that when a work group fulfilled the following functions, job stress and burnout were

reduced: technical support and appreciation, technical challenge, and a shared social reality. In a study of hospital nurses, Abualrub (2004) found similar results in that perceived social support from coworkers increased job performance and decreased job stress. In contrast to telecommunicators, the social workers from the Wrenn study (2005) and the counseling staff from the Bates study (2005) may have had more access to such opportunities by virtue of their roles and mental health orientation. In addition, taking advantage of such opportunities is strongly advised during the educational preparation for these roles. In fact, many agencies employing counselors have such support programs in place. It is unknown how many emergency call centers offer these types of services. In the future, research directed at ascertaining the specific types of stress management resources available at or through emergency call centers would highlight potential opportunities for support.

Another plausible explanation for the prevalence differences with Bates (2005) and Wrenn (2005) may be that individuals in counseling roles have more than a few minutes in contact with those they are helping. In addition, they may work with their clients over a period of time, providing them with opportunities to see positive change. This work can be very gratifying, especially when closure occurs as clients improve and move on with their lives. Such is not the case for telecommunicators.

In reviewing the sources of stress endorsed by telecommunicators, most of which have relevancy more for burnout than compassion satisfaction or STS, many with the highest endorsements would not apply to social workers or counselors. Examples would be the public and lack of understanding of their work.

There are other possible reasons for the differences, such as variations in personal coping styles, degree of exposure to traumatic events, and motivations pertinent to career choice. Further

research comparing professional groups would be enlightening not only to look at similarities and differences, but also to identify those practices that may be suitable for cross-over and adoption by telecommunicators and their organizations.

Finally, it is important to note that prevalence in this discussion does not define those with the specific condition but those *at risk* for STS and burnout and those with the *potential for* compassion satisfaction. The ProQOL is a screening instrument as opposed to a diagnostic one. However, the usefulness of a screening tool is determined by several factors, including sensitivity, specificity, positive predictive value, and negative predictive value (Ewald, 2006). These indices can only be calculated by comparing the screening results with those of a gold standard. In the case of STS, this would be the diagnostic clinical interview. The use of receiver operating characteristic testing could then be used to determine optimal cut-points (Kristjansson et al., 1996). This has not yet been done during the development phase of the ProQOL.

The second part of this issue is determining which cut-point is best given the situation above. Knowledge of the actual prevalence of these conditions among telecommunicators would guide this selection. Among the general population, the lifetime prevalence of STS has been estimated at 2.2% (Breslau, 1998). Most studies note STSD and PTSD rates of 25 to 30% in those exposed to extreme stressors (Carlson, 1997). The actual rate for telecommunicators is unknown but would most likely fall between these values. As such, the effectiveness of a screening instrument would want to minimize false negative cases and optimize the detection of true positive ones. The ethical considerations in this endeavor center around minimizing the risk of harm to those falsely labeled as at risk, the risk of not picking up those cases truly at risk, and the responsible use of resources when moving to the next phase of diagnostic testing and treatment (Borus, 1987; Grimes and Schultz, 2002).

Given these circumstances, prevalence for the present study was defined using the data from the telecommunicators themselves as opposed to that from other professional helpers. For STS, these rates are 16.3% for those scoring one standard deviation above the mean vs. 24.2% for those scoring above the threshold of 17 from the Stamm report (2005). The difference is 7.9%. Using the latter maximizes detection of true positive cases whereas the former minimizes detection of false positive ones. The question as to which is best will only be determined as future research on this topic is done with diagnostic testing to determine the true prevalence among telecommunicators.

7. **Were there specific demographic factors that increased the potential for compassion satisfaction, the risk for burnout, and the risk for secondary traumatic stress?**

Multiple personal and professional demographic variables were assessed for their effect on the three outcome measures utilizing ANOVA, GLM, and linear regression. Results of these analyses are presented followed by a discussion of their significance.

a. **Findings**

As shown in Table XXXVI, none of the personal demographic variables were found to have an effect on the potential for compassion satisfaction. Missed days for self had no influence as well, $t = .431$, $p = .666$. Of the professional demographic variables, the total years as a telecommunicator also had no effect.

However, the scores on the compassion satisfaction subscale did vary significantly as to full or part-time work status and overtime practices. Specifically, those telecommunicators working full-time had a lower mean compassion satisfaction score than those working part-time, 34.26 (8.93) vs. 38.26 (7.91), respectively, $F(1, 472) = 6.282$, $p = .013$, $r = -.114$. Those working at centers where overtime was mandatory or forced also had lower mean scores compared to those

at centers where overtime was voluntary or nonexistent. The former was 34.17 (9.08) and the latter 36.94 (7.80), F (1, 479) = 7.288, p = .007, r = -.122.

Compassion satisfaction scores varied significantly as a function of the *index* of sources of stress, F (1, 485) = 21.969, p = .000, r = -.208. Mean satisfaction decreased as the sources of stress increased. This was also found to be true when examining the effect of the sources of stress *categories,* F (4, 482) = 6.414, p = .000, r = -.226.

The staffing adequacy *index* was significantly related to satisfaction. As there was an increase in the level of staffing adequacy, compassion satisfaction increased F (1, 474) = 12.571, p = .000, r = .161. Likewise, as the staffing adequacy *categories* went from low to high, compassion satisfaction increased, F (2, 473) = 4.624, p = .010, r = .138.

In an attempt to define the best combination of predictors for compassion satisfaction, those factors having significance values < 0.25 were entered into the GLM program and excluded backward. Staffing adequacy, sources of stress, and room tone *indices*, not the *categories*, were among the seven variables entered. Seven models were significant at p = .000. Correlation coefficients ranged from 0.283 to 0.207. Model 5 was chosen as the best demographic model and explained 5.3% of the variance in compassion satisfaction. It included the variables of gender, education categories, and the sources of stress *index*, F (5, 478) = 6.421, p = .000, r = .251. Specifically, female gender, higher education, and less sources of stress contributed to greater satisfaction. Regardless of which model was chosen, however, the correlations were all small. It would appear that there are other factors more associated with compassion satisfaction as yet unexplained.

TABLE XXXVI

BIVARIATE ANALYSIS OF DEMOGRAPHIC FACTORS FOR COMPASSION SATISFACTION

Demographic variable	*r*	*F*	*n*	*df*	Significance level
Personal					
Gender	.004	2.007	488	1, 486	.157
Education categories	.012	2.021	489	3, 485	.110
Social support	.001	.454	489	1, 487	.501
Caregiver children < 18 years old	.000	.036	488	1, 486	.849
Caregiver elderly parent	.000	.199	486	1, 484	.655
Relationship with first responder	.000	.110	485	1, 483	.740
Same jurisdiction as first responder	.000	.068	480	1, 478	.795
Professional					
FT/PT status	-.114	6.282	474	1, 472	.013
Years as telecommunicator index	-.011	.064	485	1, 483	.801
Center overtime practices	-.122	7.288	481	1, 479	.007
Room tone index	-.108	5.730	486	1, 484	.017
Staffing adequacy index	.161	12.571	476	1, 474	.000
Sources of stress index	-.208	21.969	487	1, 485	.000

Table XXXVII presents a summary of the findings relating to the burnout outcome measure. None of the personal demographic variables were significantly association with the levels of burnout. Missed days for self was also not associated, $t = -.696$, $p = .487$. In contrast, all of the professional demographic variables were related. Specifically, increasing years of experience was associated with higher levels of burnout, F (1, 483) = 4.894, $p = .000$, $r = .100$.

Work status and overtime practices were also related. Those telecommunicators working full-time had higher mean burnout scores compared to those working part-time, 21.89 (6.43) vs. 17.83 (6.72), respectively, F (1, 472) = 12.844, $p = .000$, $r = -.161$. When mandatory/forced overtime was the norm, the mean burnout scores were also significantly higher than for those telecommunicators working at centers with none or only voluntary overtime, F (1, 479) = 6.059, $p = .014$, $r = .109$.

Burnout was found to vary as a function of the sources of stress *index*, F (1, 485) = 61.459, $p = .000$, $r = .335$. The burnout ratings increased as more sources of stress were endorsed. When specifically looking at the sources of stress *categories*, telecommunicators with no sources of stress had a mean rating of 14.70 (6.20) vs. those with more than 17 at 25.74 (6.80), F (4, 482) = 13.052, $p = .000$, $r = .313$.

Staffing adequacy and tone of the room *indices* were also significantly related to burnout. As staffing adequacy increased, the burnout ratings decreased, F (1, 474) = 30.778, $p = .000$, $r = -.247$. Similarly as the *categories* of staffing adequacy went from low to high, the burnout means decreased, F (2, 473) = 15.417, $p = .000$, $r = -.247$. The room tone *index*, however, was positively associated with burnout. As the level of tension in the room increased, burnout also increased, F (1, 484) = 40.055, $p = .000$, $r = .276$. The burnout means increased as the room tone *categories* went from none/low to high, F (2, 483) = 18.428, $p = .000$, $r = .266$.

The seven factors having levels of significance < 0.25 were entered into the GLM program with backward elimination in an attempt to identify the model most predictive of burnout. The initial six models were significant at the 0.000 level with correlations ranging from 0.374 to 0.356. The most efficient one included the room tone and sources of stress *indices*, and full or part-time status, F (3, 465) = 24.687, p = .000, r = .370. In other words, these four factors explained 13.2% of the variance in burnout ratings.

TABLE XXXVII

BIVARIATE ANALYSIS OF DEMOGRAPHIC FACTORS FOR BURNOUT

Demographic variable	*r*	*F*	*n*	*df*	**Significance level**
Personal					
Gender	.000	.021	488	1, 486	.884
Education categories	.000	1.506	489	3, 485	.991
Social support	.000	.005	489	1, 487	.943
Caregiver children < 18 years old	.031	.250	488	1, 486	.617
Caregiver elderly parent	.055	1.630	486	1, 484	.202
Relationship with first responder	.031	.515	485	1, 483	.473
Same jurisdiction as first responder	.000	.000	480	1, 478	.983
Professional					
FT/PT status	-.161	12.844	474	1, 472	.000
Years as telecommunicator index	.100	4.894	485	1, 483	.027
Center overtime practices	.109	6.059	481	1, 479	.014
Room tone index	.276	40.055	486	1, 484	.000
Staffing adequacy index	-.247	30.778	476	1, 474	.000
Sources of stress index	.335	61.459	487	1, 485	.000

When looking at the last outcome measure, the only personal demographic variable found to be significantly associated with STS was gender. Females had higher mean ratings than males, with means of 12.56 (7.68) and 10.83 (8.20), respectively, F (1, 486) = 4.774, p = .029, r = -.100. Missed days for self was not significantly related with STS, t = -.794, p = .428.

Work status and overtime practices were two of the professional demographic factors associated with STS. The group of telecommunicators working full-time had a higher mean STS score compared to those working part-time, F (1, 472) = 7.981, p = .005, r = -.130. Specifically, means were 12.37 (7.81) and 8.47 (8.49), respectively. At centers with mandatory/forced overtime, telecommunicators had a significantly higher mean STS score than those at centers with voluntary or no overtime, F (1, 479) = 4.855, p = .028, r = .100. The means were 12.49 (8.10) for the former and 10.48 (6.88) for the latter group.

The sources of stress *index* was significantly and positively associated with STS, F (1, 485) = 42.500, p = .000, r = .284. In examining the STS scores in relation to the sources of stress *categories*, they were also found to be significant, F (4, 482) = 10.345, p = .000, r = .281. The group with no endorsements had a mean rating of 7.40 (7.50) vs. those with 12 to 17 whose mean was 15.37 (8.70). When more than 17 items were endorsed, the mean decreased slightly to 14.47 (5.86). Sources of stress explained 7.9% of the variance in STS scores.

Mean STS scores also varied according to the staffing adequacy *index*, F (1, 474) = 17.413, p = .000, r = -.188. As the *categories* went from lowest to highest in adequacy, the STS means decreased, F (2, 473) = 9.203, p = .000, r = -.192. The *index* of tension in the room was associated with the STS ratings as well. Specifically, as tension increased, the STS scores increased, F (1, 484) = 36.197, p = .000, r = .264. These results are summarized in Table XXXVIII.

Finally, those factors with levels of significance <0.25 were entered into the GLM program with backward elimination in an attempt to define the best demographic model explaining STS. Initially, seven variables were entered, resulting in seven models with correlation coefficients ranging from 0.330 to 0.285. The second model was chosen as the best one and included the following factors: gender, work status, the years of experience, room tone, staffing adequacy, and sources of stress indices, F (6, 449) = 9.098, p = .000, r = .329. This model explained 9.6% of the variance in STS ratings among participants.

TABLE XXXVIII

BIVARIATE ANALYSIS OF DEMOGRAPHIC FACTORS FOR SECONDARY TRAUMATIC STRESS

Demographic variable	*r*	*F*	*n*	*df*	**Significance level**
Personal					
Gender	-.100	4.774	488	1, 486	.029
Education categories	.032	.178	489	3, 485	.912
Social support	.045	.754	489	1, 487	.386
Caregiver children < 18 years old	.032	.461	488	1, 486	.498
Caregiver elderly parent	.045	1.169	486	1, 484	.280
Relationship with first responder	.000	.003	485	1, 483	.957
Same jurisdiction as first responder	.000	.027	480	1, 478	.870
Professional					
Work (FT/PT) status	-.130	7.981	474	1, 472	.005
Years as telecommunicator index	.074	2.695	485	1, 483	.101
Center overtime practices	.100	4.855	481	1, 479	.028
Room tone index	.264	36.197	486	1, 484	.000
Staffing adequacy index	-.188	17.413	476	1, 474	.000
Sources of stress index	.284	42.500	487	1, 485	.000

b. **Discussion**

The purpose of this research was to explore the experiences of telecommunicators in relation to trauma exposure. The goal was to identify factors associated with resilience or risk of harm. Because this was not a prospective study, any associations cannot be interpreted as causal for the outcome measures. However, the relationships uncovered can be used as a starting point in future prospective research to identify the part they play, if any, in the genesis of compassion satisfaction, burnout, and STS. These findings will be discussed in the larger context of the general trauma literature and how this may relate to telecommunicators.

Compassion satisfaction pertains to the good feelings resulting from helping others. When exploring possible associations with the demographic variables, none of the personal factors were significant. Of the work-related variables, full or part-time status, overtime practices and the indices of room tone, staffing adequacy, and sources of stress were related. These findings bear the question: where does the connection lie?

Radey and Figley (2007), when theorizing about the concept of compassion satisfaction, spoke of maximizing positivity. They specifically mentioned collegial support, self-care, a positive affect, and a wider world view as contributing to this positivity. The importance of social support was reiterated in studies of trauma counselors (Ortlepp et al., 2002) and nurses (Bennett et al., 2001). Workplace social support was significantly and positively correlated with compassion satisfaction. Although collegial social support was not specifically measured in the present study, the five significant professional demographic factors may, in part, be a reflection of it. If staffing is adequate, there may be sufficient time available to meaningfully interact with coworkers. As Tracy et al. (1998) point out, sharing and evaluative talk were key methods used by 9-1-1 staff as a way to deal with their emotions. On the other hand, mandatory overtime on top of a full-time workload

would limit the time and energy available for this as well as other self-care activities (Radey et al., 2007). Dealing with more sources of stress on top of this would likely result in a less than positive affect. This negative energy may spill over to colleagues as a form of emotional contagion, further affecting the room tone or collective mood (Bakker et al., 2006). This picture, purely hypothetical at this point, is a cascade of adverse events culminating in less satisfaction gained from actually helping callers.

The small amount of variance explained by these individual variables, however, shows they are not the major factors affecting compassion satisfaction for telecommunicators. In fact, the most efficient statistical model included only sources of stress, gender, and education as the predictors with just 5.3 % of the variance explained. Clearly, future research should focus on assessing various types of social support, such as emotional and appraisal support, as well as self-efficacy. Emotional support entails the provision of empathy, love, trust, and caring. Appraisal support includes giving feedback and affirmation to another (Israel et al., 1990). Carver et al. (1989) specifically link such emotion-focused coping as contributing to positive reinterpretation of negative circumstances. Self-efficacy includes personal initiative, persistence in the face of adversity, and self-esteem (Penninx et al., 1997). In a study of firefighters, low self-efficacy was found to be significantly associated with depression (Regehr et al., 2003).

On a final note, Radey et al. (2007) discuss the importance of organizational self-care in facilitating personal self-care, which includes "providing appropriate supervision, adequate benefits, and staff development" (p. 210). They also point out that when organizations foster a positive work environment, staff will feel they can depend on each other when in need of emotional support. This raises the question as to how burnout, a reflection of the effect of work hassles, and STS, the negative effect of exposure to traumatic information, were associated with

compassion satisfaction in this study of telecommunicators. This issue will be examined under the final research question.

Stamm (1997) and Jamal (2004) implicate increased work load and institutional stress as the primary factors responsible for burnout. Job strain resulting from high work demands, low control, and low decision latitude were significantly associated with depression among industrial workers (Izutsu et al., 2004) and among men in a population-based survey in Canada (Blackmore et al., 2007). Similarly, Bennett et al. (2001) identified key predictors of negative affect as lack of managerial support, job overspill, decision-making under time pressure, and lack of recognition by the organization. Each of these factors were either included in the list of sources of stress or are inherent in the job of telecommunicator. It was, therefore, not surprising to find that the sources of stress index alone explained 11.1% of the variance in burnout ratings and that it was included in the best multivariate model for this outcome.

Although Ross et al. (1989) found social support did not act as a buffer against burnout, much of the literature highlights such support, peer as well as supervisory, as important predictors of burnout (Ortlepp et al., 2002; Pines, 1993; Russell et al., 1987). In fact, team level engagement was negatively associated with the burnout dimensions of cynicism, exhaustion, and reduced professional efficacy in a study of Dutch police officers (Bakker et al., 2006). The perception of tension in the room and sources of stress may well be a reflection and/or a cause of low levels of support in the communications center. In fact, absenteeism was found to be negatively correlated with social support in a study of healthcare workers (Verhaeghe et al., 2003). As mentioned in the discussion of compassion satisfaction, a short-coming of the present study is that peer and supervisory support were not specifically measured. Again, these would be avenues worth

exploring in future studies of telecommunicators especially considering that, coupled with full or part-time status, they explained 13.2% of the variance in burnout ratings.

No gender differences for burnout were found in the present study. This contrasts, in part, with the research of Tselebis et al. (2001) in which male nurses scored significantly higher than females on one of the three scales on the Maslach Burnout Inventory. Specifically, males had higher levels of personal achievement compared to females. Gender ratings were comparable on the sentimental exhaustion and depersonalization scales. A drawback of the present study is that the individual components of the burnout construct were not assessed separately. Future research may include these measures to determine their association with selected demographic variables for telecommunicators.

Secondary traumatic stress is the result of performing in a caring role. It is the negative consequences of exposure to the traumatic experiences of others. According to McCann and Pearlman (1990), it causes a change in "beliefs, assumptions, and expectations about self and world that enable individuals to make sense of their experiences" (p. 137). In light of these profound effects on the personal and professional lives of those affected, identification of risk factors is imperative.

As with burnout and compassion satisfaction, the index of sources of stress was included among the primary factors associated with STS, explaining 7.9% of the variance in STS scores when considered alone. It was not surprising to find that tone of the room was one of the other significant predictors in the best multivariate model, as it is moderately correlated with the sources of stress index, $r = .465$, $p = .01$. Both of these have been hypothetically linked to social support in prior discussions.

Social support has been frequently examined for its association with STS and PTSD. However, the results have been variable. Regehr et al. (2003) found that as perceived support decreased, traumatic stress symptoms increased in their study of new recruits and experienced firefighters. In a study of lay trauma counselors, social support in the organization was significantly and negatively associated with STS (Ortlepp et al., 2002). The degree of social support may reflect the extent of group cohesion, essential for the sharing of feelings and experiences so as to normalize responses and make them easier to integrate into their life stories (Catherall, 1999; Fawcett, 2000). In contrast, the perceived availability of social support did not buffer the survivors of a flood from stress effects when these were measured one week after the event (Cook and Bickman, 1990) or for Israeli police forensic technicians (Hyman, 2004).

Unfortunately, the present study defined social support in a structural manner, i.e., whether or not the telecommunicator was married or living with a partner. This was not found to be significantly related to STS. Neither perceived peer nor supervisory support was individually assessed for their association to STS, although they were alluded to under sources of stress. The latter type of support may be especially important to include in future studies as the quality of leadership affects the development and maintenance of group cohesion (Clegg, 2001; Egge et al., 1996; Fawcett, 2003).

In a study of workers handling the remains of Gulf War casualties, females experienced greater psychological distress than males (McCarroll et al., 1993b). Likewise, among child protective workers, women were more likely than men to report their symptoms, in particular hyperarousal, somatization, obsessive-compulsive symptoms, hostility, and global distress. Men, however, showed increased distress in areas of interpersonal relations, depression, phobic anxiety, paranoid ideation, and psychoticism (Cornille et al., 1999). In the present study, women had higher

mean STS ratings when compared to men, i.e., 12.56 (7.68) vs. 10.83 (8.19). Specific symptoms or expressions of distress were not individually assessed.

Absenteeism was related to increased psychological distress in a study of health service staff in the United Kingdom. Specifically, those having high distress scores took twice as many days off work when compared to all others (Hardy et al., 2003). Likewise, in the 2000 U.S. National Comorbidity Survey, those with PTSD took approximately 3.6 days off work per month (Thorp and Stein, 2005). In comparison, the present study did not find days missed from work to be significantly associated with STS ratings.

Conflicting results have been found in studies that examined the effects of exposure as measured by years of experience. Some believe prior exposure will toughen or inoculate the individual, thereby increasing resilience. Others believe it may actually increase vulnerability by calling upon psychological resources that have been tapped before and are now less than optimal due to the cumulative effect of such exposure (Carlson, 1997; Moran and Britton, 1994). In support of the former assertion, Creamer et al. (2005) found that the newer mental health workers responding to the attacks of September 11, 2001 had higher STS scores than those with more experience. Likewise, McCarroll et al. (1993a) found inexperienced mortuary workers had higher mean total scores on the Impact of Event Scale, a measure of traumatic stress, when compared to the more seasoned workers. In contrast, more years of experience were found to be related to an increase in STS symptoms in a study of therapists by Chrestman (1995). The present study of telecommunicators found years of experience to be positively related to STS. This conflicts with studies of child welfare workers (Nelson-Gardell and Harris, 2003) and social workers (Simon et al., 2005) in which STS was unrelated to years of experience.

Overtime practices and full or part-time work status were significantly associated with STS. However, the correlations were low, at 0.100 and -0.130, respectively. The staffing adequacy index had a larger correlation with STS, specifically -0.188. As staffing adequacy increased, STS levels decreased. All three of these may be reflective of increased exposure to traumatic material as more hours are spent handling calls from the public and police radio traffic.

In summary, examination of the demographic variables and their relationships to compassion satisfaction, burnout, and STS was revealing in several ways. First, the lack of correlation with the majority of personal factors was somewhat surprising, especially education and social support as defined by partner status in this study. Second, the importance of the work-related variables confirmed the impression of the researcher that peer and organizational issues are critical in understanding burnout and STS among telecommunicators. Third, the small amount of variance explained by the best model of predictors for compassion satisfaction was disappointing. Some areas worth considering in future studies to explore this outcome further include motivation, group cohesion, and post-traumatic growth.

8. **What associations existed between exposure to potentially traumatic calls and traumatic calls, emotional labor, burnout, compassion satisfaction, and secondary traumatic stress in this sample?**

Relationships were explored between the major components of the model proposed in this study utilizing linear regression. Correlations are presented. GLM procedures were then conducted with those variables having significance levels < 0.25, including the demographic factors. Discussion of the findings follows the identification of the best models explaining the major outcome variables of compassion satisfaction, burnout, and STS.

a. **Findings**

Results of the bivariate analysis of the major study variables pertaining to compassion satisfaction are presented in Table XXXIX. Three factors were found to be significant: burnout, EL, and STS. They explained 25.4%, 6.8%, and 2% of the variance in satisfaction ratings, respectively.

TABLE XXXIX

BIVARIATE ANALYSIS OF MAJOR FACTORS FOR COMPASSION SATISFACTION

Variable	***r***	***F***	***n***	***df***	**Significance level**
Burnout	-.504	166.107	491	1, 489	.000
Secondary traumatic stress	-.143	10.138	491	1, 489	.002
Emotional labor index	.261	35.630	489	1, 487	.000
Potentially traumatic events/calls	- .009	.036	490	1, 488	.850
Traumatic events/calls	- .013	.080	490	1, 488	.778

Ten factors were entered into the GLM program with backward elimination. This resulted in six significant models. The correlation coefficients of the full and fourth models were 0.643 and 0.646, respectively. As such, the smaller model was chosen as the best one describing compassion satisfaction. The variables included education, the EL index, sources of stress index, overtime categories, staffing adequacy index, burnout, and STS, F (9, 452) = 36.019, p = .000, r = .646. This model explained 40.6% of the variance in compassion satisfaction.

Table XL is a presentation of the results of the bivariate analysis for burnout. Four factors were found to be significantly related: compassion satisfaction, STS, and the indices of PTEs/calls and TEs/calls. Individually, they explained 25.2%, 38.0%, 2.7%, and 7.9% of the variance in burnout ratings, respectively.

TABLE XL

BIVARIATE ANALYSIS OF MAJOR FACTORS FOR BURNOUT

Variable	***r***	***F***	***n***	***df***	**Significance level**
Compassion satisfaction	-.504	166.107	491	1, 489	.000
Secondary traumatic stress	.617	301.036	491	1, 489	.000
Emotional labor index	.030	.435	489	1, 487	.510
Potentially traumatic events/calls	.172	14.794	490	1, 488	.000
Traumatic events/calls	.284	42.794	490	1, 488	.000

Eleven factors for burnout were entered into the GLM program with backward elimination. Eight models were significant. The correlation coefficients for the full and fifth models were 0.771 and 0.766, respectively. As the loss of variance explained was only 0.5% by choosing the smaller model, it was chosen as the best one accounting for the burnout ratings. The variables included compassion satisfaction, STS, the staffing adequacy and sources of stress indices, overtime categories, and the indices of PTEs/calls and TEs/calls, F (7, 457) = 92.962, p = .000, r = .766. This model explained 58.1% of the variance in burnout ratings.

Relationships between STS and the other major study variables are presented in Table XLI. All factors were found to be significantly related. Burnout, compassion satisfaction, and the EL index explained 38.0%, 1.8%, and 2.6% of the variance in STS ratings, respectively. The PTEs/calls and TEs/calls explained 2.8% and 15.8% as well.

TABLE XLI

BIVARIATE ANALYSIS OF MAJOR FACTORS FOR SECONDARY TRAUMATIC STRESS

Variable	***r***	***F***	***n***	***df***	**Significance level**
Burnout	.617	301.036	491	1, 489	.000
Compassion satisfaction	-.143	10.138	491	1, 489	.002
Emotional labor index	.167	13.995	489	1, 487	.000
Potentially traumatic events/calls	.174	15.224	490	1, 488	.000
Traumatic events/calls	.400	92.971	490	1, 488	.000

Twelve factors were then entered into the GLM program with backward elimination. Nine models were significant. Correlations ranged from 0.698 to 0.683.The smallest model was chosen as the best one describing STS. The variables included burnout, compassion satisfaction, PTEs/calls, and TEs/calls, F (4, 485) = 105.724, p = .000, r = .683. This model explained 46.1% of the variance in STS ratings.

b. **Discussion**

The bivariate analysis of the major study variables for compassion satisfaction showed, as expected, that burnout was significantly and negatively correlated with it. This is consistent with the findings of Simon et al. (2005) and Collins and Long (2003).

In addition, satisfaction increased as the degree of EL increased. This may reflect the pride felt by the telecommunicators when doing EL well (Erickson, 2004; Shuler et al., 2000) and the self-esteem gained through communicative responsiveness (Miller et al., 1995). This latter concept emanates directly from empathy and involves the perception of their ability to communicate effectively. The overall result of this increase in a sense of personal accomplishment, according to Miller et al. (1988; 1995), is a higher level of commitment to the profession. As mentioned previously in the discussion of EL, there have been negative consequences reported as well. As such, the findings in the present study conflict with those of Pugliesi (1999) and Hochschild (1983).

The best regression model for compassion satisfaction included STS, burnout, the EL indices, as well as education, overtime categories, and the indices of staffing adequacy and sources of stress. The latter may be a reflection of a combination of issues, including burnout, STS, social support, and organizational atmosphere. Education was positively correlated with satisfaction as had been expected. Higher education may have helped to mature the individual in terms of worldview, thereby enabling them to positively reinterpret negative experiences and improve satisfaction. Such reappraisal has been positively correlated with a sense of control, self-esteem, and a decrease in anxiety (Carver et al., 1989; Richards, 2004).

The addition of the EL and staffing adequacy indices, as well as the overtime categories, STS, and burnout, to the best regression model with the demographic variables of education and

the sources of stress index did improve the variance explained in compassion satisfaction by 35.2%. Future research on this outcome will hopefully identify other factors pertinent to the genesis of such satisfaction for telecommunicators.

Examination of the findings from the bivariate analysis of the major study variables for burnout showed that compassion satisfaction was protective. This is consistent with the findings of Simon et al. (2005) and Collins et al. (2003). As Pines (1993) points out: "people are able to flourish with stressful and demanding jobs if they feel that their work is significant and appreciated" (p. 387). Compassion satisfaction accounted for 25.2% of the variance in burnout levels.

The bivariate analysis also found a positive correlation between burnout levels and STS, with STS explaining 38.0% of the variance. This replicates the findings of Collins et al. (2003) in that burnout increased along with STS in their study of a trauma and recovery team immediately and at one year after a bombing, as well as Simon et al. (2005). Job strain has also been associated with depression in studies conducted by Izutsu et al. (2004) and Tselebis et al. (2001). Depression is a component of one of the triad of symptom categories for STS and was addressed in the ProQOL instrument used in the current study.

Lastly, as the numbers of PTEs/calls and TEs/calls increased, burnout levels increased, with 2.7% and 7.9% of the variance explained, respectively. This is consistent with the findings of Ross et al. (1989) in their study of doctoral-level counselors. These variables were retained in the best regression model explaining burnout, along with compassion satisfaction, STS, the staffing adequacy and sources of stress indices, and overtime categories. With this combination, PTEs/calls and TEs/calls may be reflecting inadequate time available for talking, joking, and the

sharing of feelings to normalize these responses. Tracy et al. (1998) point out that such activities are essential to combat burnout.

The best demographic model included the indices for tension in the room, sources of stress, and staffing adequacy, and work status, accounting for 13.2% of the variance in burnout ratings. The best model identified after including the major study variables did not include work status or room tone but added the overtime categories, STS, compassion satisfaction, PTEs/calls, and TEs/calls. This model explained 58.1% of the variance in burnout levels. The Maslach Burnout Inventory measures three aspects of burnout: emotional exhaustion, depersonalization, and the reduced sense of personal accomplishment (Pines, 1993). It may be beneficial in the future to examine the influence of this final model on each of these specific areas. Such an analysis may more fully explain the occurrence of burnout for telecommunicators.

All of the major study variables significantly and positively influenced STS levels. These findings are not unexpected. The association of STS and burnout has been discussed under the results for burnout. One point worth making, however, is that the gradual erosion of spirit that occurs with burnout may decrease stress tolerance and, therefore, the ability to effectively cope with exposure to PTEs/calls (Regehr et al., 2005). As has been discussed, EL has been shown to have positive and negative consequences. The best multivariate model predictive of STS included burnout, compassion satisfaction, TEs/calls, as well as PTEs/calls. This model explained 46.1% of the variance in STS ratings.

Compassion satisfaction was protective for STS. Higher satisfaction levels were associated with lower levels of STS. For telecommunicators, exposure is part of the job. Since it cannot be avoided, it is important to find ways to protect them from its consequences. Further research into

the effectiveness of interventions, such as peer support, debriefings, and training in adaptive coping mechanisms, is imperative.

The key findings of this study will be reviewed in the next chapter. Issues pertaining to strengths and limitations of the research design, variables, and methodology will be presented. Finally, public health implications will be explored.

VI. DISCUSSION

A. Review of Findings

This investigation of the experiences of telecommunicators in relation to trauma exposure and its effects consisted of two phases. Phase I, the Pilot Study, was undertaken to refine the survey questionnaire for use in the Main Study. To this end, 16 individuals agreed to complete the original version and an interview covering the items and scales. Multiple recommendations made by them were adopted to improve the relevancy, clarity, and format of the questionnaire. In addition, their stories and comments provided insight into the overall experiences of telecommunicators and how doing their work affected their personal and professional lives.

Phase II, the Main Study, involved the completion of the revised mail survey by 497 (50.9%) individuals recruited through 79 (33.5%) participating emergency communication centers in the state of Illinois. The findings confirmed that telecommunicators are exposed to trauma through citizen calls and police radio traffic despite the fact they are not physically present at the scene. Qualitative analysis of 425 incidents described as the most troubling, disturbing, or distressing of their careers revealed four main themes as to why they were traumatic: the type of incident; the words, tone of voice, and emotions of the caller; background sounds; and the thoughts and emotions triggered in the telecommunicator by all of these. Although relating their most distressing call, assessment of their personal feelings and reactions during and around that time showed their mean level of distress to be 23.15 (10.66), as measured by the PDI. On a scale of 0 to 50, this was interpreted as *somewhat* distressed. The emotion work required of them consisted of handling the emotions of the caller as well as their own. As measured by the EL scale, this index was found to be 23.9 (4.0), *very true*, on a scale of 0 to 30.

The consequences of doing the work of a public safety call-taker/dispatcher were assessed through 491 responses on the three subscales of the ProQOL instrument: compassion satisfaction, burnout, and STS. The first relates to the positive feelings derived from performing in a care-giving role. The latter two pertain to negative aspects of the job, with burnout reflecting job hassles and conflicts and STS the psychological toll of hearing traumatic information. Prevalence of these three outcomes was defined as those individuals scoring more than one standard deviation above the mean.

The mean rating for compassion satisfaction was 34.69 (8.85), interpreted as the telecommunicators had those feelings or experiences *somewhat often to often* in the past 30 days. The prevalence was 15.1%. Analysis showed that educational and overtime categories, burnout, STS, and the indices of EL, staffing adequacy, and sources of stress explained 40.6% of the variance in scores on this subscale.

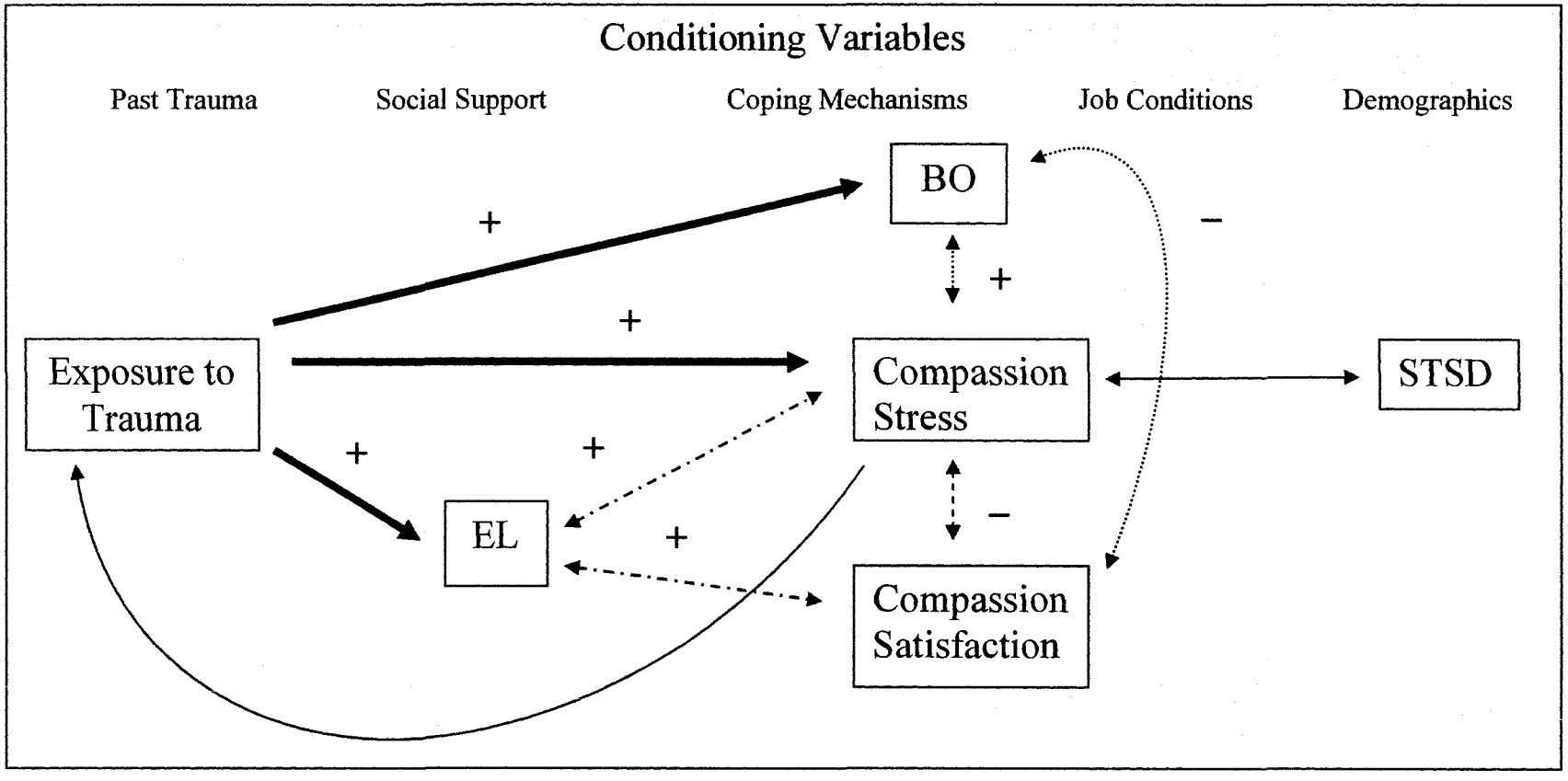
The mean rating for burnout was 21.57 (6.56), interpreted as they had those feeling or experiences *a few times* in the past 30 days. The prevalence was 14.7%. Analysis found that compassion satisfaction, STS, overtime categories, the indices of staffing adequacy and sources of stress, and endorsements of PTEs/calls and TEs/calls together accounted for 58.1% of the variance in burnout scores.

The mean for STS was 12.13 (7.89), interpreted as they had those feeling or experiences *rarely* in the past 30 days. The prevalence was 16.3%. Analysis revealed that the levels of burnout, compassion satisfaction, and endorsements of PTEs/calls and TEs/calls explained 46.1% of the variance in STS scores.

The conceptual model underlying this study guided the choice of variables examined. Based on the data, clarification of the links between its components is warranted. This is

depicted in Figure 2. Exposure to trauma, as measured by the numbers of PTEs/calls and TEs/calls was positively associated with EL, burnout, and STS as depicted by the solid lines. Satisfaction was not significantly associated with either type of exposure. Although burnout did not vary with EL, it was positively associated with STS and negatively with compassion satisfaction as depicted by the round dotted lines. Emotional labor was positively associated with both STS and satisfaction as depicted by the dashed and dotted lines. Lastly, STS and satisfaction were negatively associated as shown by the dashed lines. A lighter solid line remains depicting the feedback loop of residual stress to exposure to identify it as a hypothetical connection based on the literature but not measured in this study. Similarly, the connection between STS and STSD was also not measured.

The experiences of telecommunicators, as measured by multiple variables, clearly show them to be negatively affected by workplace trauma exposure. These negative consequences, in turn, were lessened by the effects of compassion satisfaction. Examination of these and other possible sources of risk and resilience is warranted to protect the well-being of telecommunicators and the effectiveness of our emergency communications system.



EL = emotional labor (self or other focused)
BO = burnout
STS = secondary traumatic stress
STSD = secondary traumatic stress disorder

Figure 2. Reconceptualization of traumatic stress involving telecommunicators.

B. Discussion

Stress response theory began with analysis of physiologic changes in the individual by Selye (1973), raising questions as to why stressors cause reactions in some and not others and why the same stressor may generate different responses in different people. The works of Rahe et al. (1978) and Israel et al. (190) defined important aspects of inner and outer conditioning as originally proposed by Selye (1973). Their models represented the stress process as highly interactive, placing the individual in their life context with multiple negative and positive feedback loops. Valent (1995) further described adaptive and maladaptive survival strategies which manifest at the individual as well as interpersonal levels.

These ecological approaches impacted the development of psychological stress theory. Researchers incorporated the knowledge gained and applied it to the examination of primary exposure to trauma. Over the past few decades, appreciation for the multiple manifestations of physiologic responses to psychological stressors has grown. At the same time, the wider impacts on families, groups, and communities have been elucidated.

The consequences of secondary trauma exposure, i.e., exposure to the trauma of others, were first brought to light by Joinson in 1992 in a description of compassion fatigue among nurses. Figley, investigating this further, proposed a theory of compassion fatigue in 1995, directly paralleling the symptom complex with that of primary exposure. In contrast, or perhaps more appropriately, in addition, to the DSM criteria for PTSD specifying a close relationship to the individual with primary exposure, he advocated for the inclusion of those affected by virtue of their caring or empathy for another. Since that time, many groups of professional helpers have been included in research investigating the effects of secondary exposure. The common thread

between all of them is their direct, or face-to-face, contact with the person who had the primary exposure.

The findings of the present study on the effects of trauma exposure for public safety telecommunicators require a further broadening of compassion fatigue theory. Despite their lack of physical contact with the primary victim, they, too, are at risk for STS for the same reason as other helpers: they empathize with those who are hurting and have asked for their help. Physical distance does not protect them. As Beaton et al. (1995) said, they are "physically removed from the trauma scene and victim, but are present emotionally and absorb stress" (p. 52).

Acceptance of this reality requires expanding the list of factors affecting the negative valence of an event. Recognition has long been given to the type of event, its nature, duration, and the intensity of the exposure (McFarlane and de Girolamo, 1996; Ursano et al., 1994b). The descriptions of their most distressing, disturbing, or troubling calls allowed for the identification of common themes for telecommunicators: the specific type of call, the actual words and tone of voice of the caller, and the background sounds. In most cases, the latter two aspects were the most critical.

Carlson (1997) and Shalev (1996) highlight the importance of immediate and short-term responses as stress mediators. This is consistent with the work of Valent (1995; 1998) on adaptive and maladaptive coping mechanisms. For telecommunicators, the negative valence of a call was also influenced by the emotions that were triggered within themselves. This was another common theme of their most stressful calls. In addition, other-focused EL was found to be significantly and positively associated with risk for STS in this study.

It has long been accepted that the social context in which exposure occurs directly contributes to risk or resilience (Carlson, 1997; Orley, 1996). This also aligns with social

ecological theory. Supportive environments increase the perception of control, normalize responses, and lead to a feeling of protection (Orley, 1996; van der Kolk and McFarlane, 1996). However, 46.9% of telecommunicators surveyed endorsed lack of follow-up/regard after stressful incidents as a current source of stress for them. In addition, 26% endorsed treatment from others during stressful events. Large numbers agreed that personal conflicts at work (46%), poor communication among staff (46.5%), and coworkers (44.2%) were sources of stress as well. Such responses give the impression that the current work environment for these telecommunicators would be unable to provide a mitigating role in the face of trauma exposure. Unfortunately, this remains only an impression as it was not investigated in this research.

Given the complex nature of their work, the finding of 81% working in centers with mandatory and/or forced overtime, and the large endorsements of administrative, management, and coworker issues as sources of stress, it is not surprising that burnout was identified as a cause of lowered retention rates by Project RETAINS (Taylor, 2005). The present study found that compassion satisfaction was also negatively associated with burnout. Radey et al. (2007) discussed maximizing positivity in the organizational environment and how this promotes individual self-care and group cohesion. Such efforts may also serve to increase compassion satisfaction by reducing sources of stress and burnout.

Social ecological theory guided the design of the conceptual model depicting trauma exposure and its consequences for telecommunicators. In turn, this model defined key variables for examination in this study. The findings, in large part, support what has been previously identified in the literature as contributing to the potential for compassion satisfaction or the risk for burnout and STS. Differences may be explained by the complex nature of trauma itself, the

unique exposure of telecommunicators, or, more simply, by the way the variables were defined. The importance of this research lies in having asked the question and generating even more.

C. Strengths

This exploratory research investigated the components of a model hypothesizing the effects of exposure to traumatic information on the telecommunicator. Model design was based on established theory and the current, though limited, literature relating the telecommunicator experience as well as the wider trauma literature.

Data gathered from this research were both qualitative and quantitative. The former allowed for comparison of data with the limited published reports relating telecommunicator experiences. In addition, it was felt to encourage ownership of the project by the participants themselves. In retrospect, this was a wise decision. The degree of personal disclosure by the participants was not only surprising but the information generated enabled the researcher to define why particular calls may or may not be traumatic. This data could not have been gathered using quantitative methods. However, the latter approach did permit comparisons of results with several measures used previously in studies of public safety call-takers and dispatchers as well as trauma-exposed groups in general.

1. Phase I: Pilot Study

There were several strengths of the Pilot Study. Mixed methods were used to obtain data: written surveys and interviews. The interviews were semistructured to allow the participants freedom to express information they considered relevant to the purpose of the project and that was not otherwise addressed with specific questions. The length of the interviews was dictated by the participant to allow for this as well. In fact, answering the 21 questions took approximately 45 to 90 minutes per person. In addition, although it seemed that saturation had

been reached with the thirteenth participant, appointments had already been scheduled for three more individuals. These were conducted and included in the Pilot Study for several reasons. First, these telecommunicators were very interested in the project and wanted to help their peers. Second, they had been scheduled for more than a week and/or rescheduled at least once. Canceling was felt to convey disrespect for their efforts. Finally, the potential for additional insights further justified their inclusion.

Locations and appointment times for survey completion and the interview were chosen by the participants with the only stipulation being privacy. Even though most selected their place of work, there were only two instances of interruptions and these were of short duration. For one individual, the sounds of his daughter in another room were distracting more for the researcher than for him.

All interviews were recorded which greatly improved the accuracy of the findings. There were more than 1,000 pages of transcripts, reflecting the large volume of information obtained and the interest of the participants in this project. Multiple comparisons of the recordings with the transcripts improved accuracy, as did their review by the eight participants requesting copies. Only three were returned with typographical corrections.

"The objective of content analysis is…to identify that person's perspective on the topic" (White and Marsh, 2006, p. 28). To this end, line by line coding was performed separately by the researcher and one assistant. Themes and patterns were identified and then compared. Discrepancies were resolved by referring to the original passages. Particular attention was given to not only answering the research questions but also to ensuring representation of additional themes in the results.

In summary, although the main purpose of the Pilot Study was to refine the survey instrument for use in the Main Study, a second objective was to improve understanding of the work performed by the telecommunicator and its effects on their personal and professional lives. The use of qualitative methods in this regard was invaluable as "it enables us to discover and document aspects of reality that we cannot necessarily anticipate, and thus to transcend the limitations of our own perspective" (Beeson, 1997, p. 24). This process was most productive primarily because of the interest displayed by the 16 participants and their willingness to speak openly, and at length, of their experiences and feelings.

2. **Phase II: Main Study**

Most of the revisions to the survey questionnaire recommended by the pilot participants were adopted. Instructions and wording, where feasible, were changed to improve clarity and readability. New questions regarding the baseline level of tension in the room and relationships with other first responders were added based on their sense of these issues being important to answer the research questions. Appropriate wording of the former question was sent to the pilot participants for review prior to its inclusion. New items were added to the list of sources of stress and that of PTEs/calls. These changes resulted in an instrument more fully reflective of the issues and concerns facing telecommunicators.

Although the survey used in this project had only been pilot tested, a strength of this research was the inclusion of three established psychological measures: the EL scale, the PDI, and the ProQOL. The development of each was based on theory, expert opinion, and factor analysis. Internal reliability was reported as moderate to high for these measures. In addition, the instrument developers examined test-retest data for the PDI and the ProQOL. The latter did not provide an exact figure, however, she states that the data "suggest good reliability across time

with a small standard error of the estimate" (Stamm, 2005, p. 8). The test-retest reliability coefficient for the PDI was reported as moderate.

The ProQOL includes several statements to represent each of the main outcome variables. Touching on more than one aspect of each of these constructs enhances the likelihood of correctly identifying subjects at risk for those conditions. Furthermore, burnout, traumatic stress, and satisfaction are not *all or none* phenomenon. The scoring methods take into account each of these issues.

Although the overall response rate would be considered moderate at 50.9% for the telecommunicators themselves, diverse coverage of the state was provided. Rural, urban, and suburban communication centers participated from one-third of the counties. The types of calls handled may well reflect the type of area served. For example, farm accidents would be more common in rural communities. Small centers may only staff one telecommunicator at a time, a situation quite different from the larger centers. As such, the possibility of different stressors or areas of concern exists. Although Burns et al. (2008) recommend a response rate of at least 70% to establish external validity, the diverse locations and size of call centers included in this project do make the findings from this project more representative of Illinois than if only a specific area of the state had been offered participation.

An additional strength of this project pertains to coding. All qualitative data were coded by the researcher and the same assistant. Quantitative data were coded twice, once by the researcher and once by another trained individual. There was a pool of ten second coders. Scoring was rechecked to confirm agreement. Discrepancies were resolved by comparison with the original documents. Data entry, done by two professional stenographers, was also manually

checked. Although this process was rigorous and time-consuming, it was felt to be optimal for ensuring reliability of the data.

There were similarities between the Pilot Study and Main Study as to what factors contribute to making calls traumatic. Likewise, the importance of several issues, such as mandatory overtime and sources of stress, echoed the conclusions from Project RETAINS (APCO, 2005; Taylor, 2005). These facts help to establish the validity of the findings from the present research.

Lastly, the importance of this study and the need for further research was confirmed in several ways: written comments of participants from both phases of this study and personal conversations with telecommunicators and administrators. In addition, several sessions at two regional and one national telecommunicator conferences attended by the researcher addressed issues raised here: overtime, staffing, burnout, coworker and supervisor conflicts, and stress management. These coincidences speak to the validity of the subject matter and the study findings.

D. **Limitations**

As each research question was discussed, applicable limitations were mentioned. What follows is primarily an analysis of the overall issues in this regard.

Perhaps the major limitation of this study is that it was cross-sectional in design. As a result, causality cannot be assumed when examining associations between the variables of interest. In addition, many of the correlations were weak, especially those with the personal demographic variables. However, 10 moderate and four strong correlations were found among the professional demographic and major study variables. With the large number of statistical

tests done, the chance of making a Type I error may be greater. This may be decreased by adjusting alpha to a more stringent level than the $p < .05$ used in this study.

Interviews and questionnaires were completed by volunteers. According to Schwarz and Schuman (1998), the use of mail surveys allows for topic-related self-selection. In that case, the potential participant has a chance to read through the survey first and then decide whether or not to complete it. As such, they may differ from those who chose not to participate on their demographic characteristics as well as their opinions on the topics covered. Unfortunately, there is no way to determine if this is the case or the degree of such differences. This affects the validity of the findings.

The study design did not allow for comparison of participants with nonresponders. The symptom complex of STS could very likely lead to differential losses, thereby diluting the pool of true cases and lessening the likelihood of finding valid associations. Errors in reporting can also occur because of increased anxiety and arousal, and the use of alcohol, drugs, and psychiatric medications. Lack of control over the Main Study testing conditions, i.e., the home of the telecommunicator, precluded monitoring for these possibilities. These conditions also resulted in the inability to provide clarification of questions if needed. This could have resulted in misinterpretation of particular items, leading to inaccurate data affecting the strength of any associations. Pilot testing should have minimized this risk.

In addition, although truthfulness in responses is assumed, deviations may have occurred due to social desirability bias, crossover, fatigue, history, maturation, and recall. In either phase of this project, participants may have altered their responses to put themselves in a positive light, to reflect what they felt the researcher wanted to hear or, if crossover had occurred, what their coworkers thought. Efforts were made to minimize this risk by highlighting the fact that there

were no right or wrong answers, asking the pilot participants not to share information with their colleagues until after the project was completed, and instructing centers to mail surveys to the homes of their telecommunicators for completion there and not at work. There is no way to verify if these problems occurred or if the instructions were followed. Inclusion of a measure for social desirability bias may be beneficial in future research although Brunet et al. (2001) did not find it to be an issue with police officers or civilians when assessed during development of the PDI measure.

Errors due to fatigue may have occurred with two of the pilot participants who had just completed their shifts or with an unknown number of main study respondents. The likelihood of fatigue due to survey length was addressed by keeping the items as short as possible and the overall time for completion to approximately 20 minutes. Although it is impossible to judge with any certainty whether or not fatigue affected responses, it is worth noting that pilot interviews ranged from 45 to 90 minutes and that many of the Main Study participants wrote lengthy personal incident descriptions despite being asked to *briefly* describe them. In addition, 35.8% of the latter group provided additional comments in the optional space at the end of the questionnaire.

Participants were asked to describe the most distressing call they had ever handled in their career and then to rate ten items as to how they described their feelings and experiences during and around the time of that event. In such circumstances, the problems of history and maturation arise. There may have been intervening incidents that colored their recollection of the experience. As time went on, the participant changed and may now look back on that time in a whole different light. In addition, with traumatic stress, memory may be affected. They may not even want to fully recall, or relive, such an experience. They may also be unable to do so

accurately. On the other hand, several pilot participants made note that such significant events are not time-sensitive. Sudman et al. (1996) agree that "more meaningful material is forgotten at a slower speed" (p. 175). This may be the case for many, as was evident with the detail provided, at times even the words spoken by the caller. But this may not be true for all participants and it may have been one reason why the mean rating on the PDI was low for their most troubling, disturbing, or distressing call.

The accuracy of responses may also be affected by the motives to participate. The cover letters, consents, and participant information sheets highlighted the lack of research on their profession and the need to understand their experiences of their work. Krosnick (1999) points out that motives, such as the desire for self-expression and altruism, may "inspire a person to perform the necessary cognitive tasks [to generate an optimal answer] in a thorough and unbiased manner" (p. 547). On the other hand, if telecommunicators had felt they had no choice about participating, whether due to pressure from coworkers or administrators, they may not have taken the time or made the effort to provide answers most reflective of their experiences, thoughts, or feelings. As mentioned earlier, administrators were instructed to mail the survey for the Main Study to the homes of their telecommunicators, in part to limit the chance of something like this happening. It is unknown if this protocol was followed.

Concerns about respondent burden influenced the decision as to survey length as well as types of questions asked. Although the Pilot Study was done to ensure relevancy of the items for telecommunicators, the inclusion of others previously found to be related to STS in the literature were excluded. Examples include past or present mental health problems and past personal trauma (primary or secondary exposure). Another limitation lies in the overlap of PTSD/STSD symptoms with other psychiatric conditions, such as panic disorder, generalized anxiety disorder,

and major depressive disorder. This could result in false positive results on the outcome measure. It is also beyond the scope of this study to consider other conditions that may result from trauma exposure, such as mood and anxiety disorders (Van Ommeren et al., 2005).

A review of the literature was done to ascertain possible mediators and confounders. However, the field of traumatology is young and much is unknown. This research was based on what has been found previously in helpers as a group but was the first of its kind with telecommunicators. Because of the unique nature of their exposure to trauma, i.e., hearing only, it may be that other variables are more important and the findings may be quite different from what has been seen in other groups. This fact further underscores the importance of this study.

In addition, items known to be related to satisfaction and STS were not included, such as coping skills, services currently provided at their center in the aftermath of critical incidents, and whether or not they had received training specific to traumatic stress. The measures of social support and EL were limited in the dimensions covered. The former strictly assessed personal structural support and the latter other-focused EL in regards to callers only. Several questions were formatted for a simple response or a rating. Unfortunately, concerns about overall survey length precluded provisions for determining why the participant felt that way. In many cases, this would be useful to know and address in future research. Lastly, participants were often asked if something applied to them or not, such as specific sources of stress. If endorsed, it meant it did apply. If not, it could have meant one of two things: either it did not apply or it was not a source of stress. This should be kept in mind when interpreting the results. Later versions may consider including an *NA* category for each item.

Although a strength of this survey was the inclusion of both subjective and objective assessments of trauma exposure, the actual number of PTEs/calls and TEs/calls was not

ascertained. Because lifetime exposure was the time-frame for this item and due to the nature of the work of telecommunicators, such estimates in large part would have been unreliable. An exception may have been for the item on line of duty death as these are typically, and fortunately, rare.

Recommendations of the Pilot Study participants resulted in the number of PTEs listed increasing from 16 to 20. According to Weathers et al. (2007), inclusion of more items may lead to an increased prevalence of exposure. The decision was made, however, to adopt the longer version as it was deemed more relevant by these experts in the field. This measure has yet to be validated in further studies.

Although the instruments used in this survey to assess the main factors of the conceptual model relating trauma exposure to outcomes have established validity and reliability, they had not been previously used with telecommunicators. As such, normative data to which to compare the results was lacking. In addition, tailoring the PDI for this population by exclusion of three items may have affected these values.

The questionnaire was designed in such a way as to reduce the likelihood of errors, such as incorrect placement of a response or failure to answer all or part of a question. Nonetheless, errors were detected during the coding and scoring process. The handling of such errors was, in part, determined by each particular circumstance. However, decision rules were developed to ensure consistency across surveys. For example, question 10 consisted of two parts: circling types of calls handled and then placing an *X* in the appropriate column as to whether or not the participant had felt fear, helplessness, or horror at the time of the call. The participant may have circled a call but failed to rate it or placed the *X* in the space for an uncircled call. In the latter case, the error was obvious and the *X* considered as belonging to the circled item. In the former

situation, the call was counted but no rating assigned. This may have resulted in an underestimation of the true number of TEs/calls. This particular problem was found on 15.7% of the surveys and leads to the conclusion that question 10 should be reformatted for later studies.

The main outcomes of this study were assessed in question 14, the ProQOL measure. Of 491 surveys, 63 (12.8%) were missing responses to one or two items. The total number of missing items was 67. This represents 0.45% of 14,660 items. Each subscale of the ProQOL consisted of 10 items for a total of 4,910 items each. Responses were missing for 13 (0.26%) of the items for compassion satisfaction, 23 (0.47%) for burnout, and 31 (0.63%) for STS subscales. These numbers, as well as those for the additional indices used in this study, are small and would, therefore, not significantly affect the findings in this report. Nonetheless, missing items pertaining to the remainder of the indices are presented for purposes of full disclosure. The staffing adequacy index, determined using a 4-item measure, included one survey with one missing item. The PDI, a ten-item index, included 17 surveys missing one or two items for a total of 20 blank responses. Lastly, the EL index, consisting of a six-item scale, had five surveys missing one item each.

Content validity of the questionnaire and its numerous items and scales was assessed through literature reviews and pilot testing. Internal consistency findings were reported for the main variables of the study as measured by established instruments. In addition, convergent and divergent validity were determined for both the ProQOL and the PDI by its developers. Factor analysis, as a measure of construct validity, had also been undertaken on these two measures and the EL index by their respective developers. Test-retest reliability was reported on the PDI only. Reliability testing and factor analysis were conducted for the present study on all indices. They are described together under the results section for each index or scale.

Although the interitem correlations and factor analyses of these multiple measures lend some support to the reliability and construct validity of these tools, there remains a large proportion of variance unexplained for each and consideration should be given to their further development and testing among telecommunicators. The somewhat conflicting results with published reports may be partially explained by the unique form of exposure in this group of helpers.

This research was exploratory in nature and has brought to light for the first time issues of importance to telecommunicators, including potential sources of risk and resilience in the face of trauma exposure. This fact and the strengths of this study outweigh its limitations.

E. **Recommendations for Further Research**

Although suggestions for future research have been made during the presentation of findings, it is helpful to reconsider some of them again in light of the full report. Overall, it has raised more questions than provided answers and, under the circumstances, the answers should be considered tentative until confirmed, or refuted, in later studies of this professional group. Fortunately, one such study is in the planning phase and will sample telecommunicators at large centers in a western state using the ProQOL measure.

Questions raised pertain to how the telecommunicators perceive exposure to traumatic calls affects them in and out of the workplace, both positive and negative; what practices they consider enhance their sense of compassion satisfaction; how they handle the stress of their work now and in what ways they believe this can be improved; and what part their coworkers play in helping or hindering them from coping with stress. The relevance of additional demographic factors, as gleaned from the literature, should be examined as well. For example, does a current or prior history of psychological problems affect their experience of STS? Would the inclusion of measures

of other mental health conditions in a survey find more significant correlations than with STS? Finally, are there more salient dimensions of emotional labor and social support than those examined in the present study?

The first step in exploring these questions would be focus group discussions about the *why* of several responses. For example, why is the tone of the room tense or not? Does this affect them and if so, how? Why is a particular source of stress just that – or not? In what ways would the participants say their work with callers has changed them for the better and/or for the worse? If they have mandatory/forced overtime at their center, is it a problem for them – why or why not?

The second step would include examining established measures of social support pertaining to coworkers and supervisors/leadership and considering their use in a pilot study, adapting it as needed for telecommunicators. The same would apply for measures of self-efficacy and self-esteem and other dimensions of EL. It would be useful to include a measure of social desirability as well. Additional items may be included pertaining to motivations, personal stress outside of the workplace and whether or not this influences their performance, as well their perception of how personal relationships with other first responders may affect their stress levels when on duty. Several of the measures from the present study should also be included. However, consideration should be given to excluding some of the personal items felt to be intrusive by three or four participants that were also not significantly related to any of the major variables, such as being the caregiver of children or elderly parents. Surveys should be coded by type of community served, i.e., rural, urban, or suburban, and/or numbers of telecommunicators on staff. They should also delineate which services are provided, i.e., police, fire, EMD, and if they are consolidated centers or not. This would allow for identification of issues specific to such sites and tailoring of future interventions accordingly.

A third step, or concurrent with the second, would be formal site surveys examining current stress management practices, such as peer support, debriefings, and formal education and training. Project RETAINS (APCO, 2005) has published their best practices recommendations. These include staffing formulas and community outreach, as well as stress management. It would be informative to determine how many centers have adopted them.

After completing these steps, a larger study utilizing random sampling or cluster sampling should be undertaken to evaluate the revised questionnaire and provide a better estimate of the issues than can be obtained with a convenience sample. In the long run, a prospective study would be ideal and include reevaluations at short intervals to enhance recall and pick up the nuances of exposure and coping.

The ultimate goal of such assessments remains the identification of factors that promote resilience and those that increase risk for negative outcomes. Once identified with a greater degree of certainty, interventions incorporating the lessons learned should be designed and tested to determine the best way to keep these essential community responders healthy and capable of performing their vital role in an effective manner.

F. **Public Health Implications**

The primary concern of public health practitioners is the health and well-being of populations or groups. However, in actual practice, health has often been narrowly conceptualized. According to the World Health Organization (2007), "Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" (p. 1). They further highlight the importance of the mental health component:

> Mental health can be conceptualized as a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work

> productively and fruitfully, and is able to make a contribution to his or her community. In this positive sense, mental health is the foundation for well-being and effective functioning for an individual and for a community (p. 1).

It would appear from this discourse that emotional and psychological issues affecting groups should be approached with the same fervor as with other activities of health promotion and chronic disease prevention. Doing so would affect the overall well-being of communities. Not to do so results in negative consequences, as proposed by the theory of the ripple effect (Coarsey, 2004). Just as a stone thrown in water creates consecutive ripples emanating out from where it has fallen, stress in general affects an individual, a family, coworkers, neighborhoods, communities, and finally, society at large. This latter point was emphasized by Sauter et al. (1990) in their proposal to NIOSH for the prevention of work-related psychological disorders and in the Mental Health report from the Surgeon General in 1999.

Although many groups of first responders have been the focus of preventive efforts in regards to traumatic stress, telecommunicators have been overlooked. The findings from the present study clearly show that these workers are secondarily exposed even though they are not in face-to-face contact with the victims. Nonetheless, the potential consequences can be just as devastating. In addition, the nature of their work and organizational issues place them at risk for burnout, adding to the potential for negative effects. The complex interplay of these two factors is evidenced by the known overlap of symptoms and work-related problems of poor performance and retention and was confirmed through multivariate analysis in this study.

The intent of this project was to identify sources of resilience and risk in regards to trauma exposure among telecommunicators. Many such factors parallel those pertaining to burnout, some of which were confirmed in this study. Others were not included due to constraints in survey

length, such as coworker support, leadership, and training. Health promotion, an essential component of public health practice, approaches health as a resource to be protected and nurtured. It does so by asset-building and risk reduction. For telecommunicators, the focus of such attention should be on these professionals, their organizations, and society at large. This is consistent with the social ecological model of health promotion in which individual, groups, and organizations are enlisted to promote the collective well-being (Stokols, 1996). Public health professionals can lend their support to such efforts by providing their expertise to the study of relevant issues and the design and evaluation of prevention programs.

Primary prevention encompasses health promotion activities, such as enhancing coping skills and training to foster post-traumatic growth (Linley, 2003). Organizations play a role in this phase by providing realistic job expectations, adequate resources in the form of staffing and equipment, and other measures to control job stressors. However, the nature of the work done by telecommunicators precludes prevention of exposure to traumatic information itself. Instead, primary prevention must address preparation for these occurrences and an environment conducive for support when it occurs. The overall goal is to build resiliency in the individual and the environment.

Secondary prevention encompasses early intervention efforts, such as peer and supervisor support, psychological first-aid, and group debriefings. The overall goal of this phase is to help the worker, and at times the group, control or modify their perception of the experience (Baker and Karasek, 2000). Such reappraisal, when positive, enhances feelings of hope, belonging, self-efficacy, and compassion.

Tertiary prevention pertains to measures aimed at healing those negatively affected by trauma (Hurrell et al., 2006). Employee Assistance Programs are one such resource. The ultimate

goal is to reduce the degree of disability, including the development of chronic forms of traumatic stress.

The role of public health in addressing the myriad of issues threatening the health and well-being of telecommunicators is essential. Their expertise enables them to view the individual in a wider context and appreciate the nuances of the complex interplay between the person and their environment.

G. **Conclusions**

This research has described the experiences of a sample of telecommunicators in regards to compassion satisfaction, burnout, and STS. Sources of stress, including staffing and organizational issues, have been discussed. Components of calls contributing to trauma exposure were defined. Finally, the importance of further study in specific areas was emphasized.

Telecommunicators are a unique group of professionals performing a vital function in every community as the *first* first responders. Unfortunately, this realization has escaped many, primarily because they are not physically present at the scene of emergencies. Efforts should be made to address this deficiency in thinking. This was best said in a guide for disaster planning: "A response is only as good as the responders. A plan must be in place to ensure physical and psychological support ...as well as staffing depth to ensure ongoing operational capacity" (U.S. Department of Health & Human Services, 2003).

CITED LITERATURE

Abualrub, R. F. (2004). Job stress, job performance, and social support among hospital nurses. *Journal of Nursing Scholarship, 36*(1), 73-78.

American Association for Public Opinion Research. (2006). *Standard definitions: Final dispositions of case codes and outcome rates for surveys* (4th ed.). Lenexa, KS: AAPOR.

American Psychiatric Association. (2000). *Diagnostic and Statistical Manual of Mental Disorders - Text Revision* (4th ed.). Arlington, VA: American Psychiatric Association.

Asch, D. A., Jedrziewski, M. K., and Shristakis, N. A. (1997). Response rates to mail surveys published in medical journals. *Journal of Clinical Epidemiology, 50*(10), 1129-1136.

Association of Public Safety Communications Officials. (2005). Project RETAINS: Working conditions. Retrieved 2/26/2005, from www.apcointl.org/about/911/retains/workingconditions_retirement.

Baker, D. B., and Karasek, R. A. (2000). Stress. In B. S. Levy & D. H. Wegsom (Eds.), *Occupational Health: Preventing Work-Related Disease and Injury*. Philadelphia: Lippincott Williams & Wilkins.

Baker, S. R., and Williams, K. (2001). Short communication: Relation between social problem-solving appraisals, work stress and psychological distress in male firefighters. *Stress & Health, 17*, 219-229.

Bakker, A. B., van Emmerick, H., and Euwema, M. C. (2006). Crossover of burnout and engagement in work teams. *Work and Occupation, 33*(4), 464-469.

Bates, K. M. (2005). *Moderators for secondary traumatic stress in human service professionals: The role of emotional, cognitive, and social factors.* Capella University, Minneapolis. (UMI No. 3178463).

Baum, A., Solomon, S. D., Ursano, E. J., Brickman, L., Blanchard, E., Green, B. L., Keane, T. M., Laufer, R., Norris, F., Reid, J., Smith, E. M., and Steinglass, P. (1993). Emergency/disaster studies: Practical, conceptual, and methodological issues. In J. P. Wilson & B. Raphael (Eds.), *International Handbook of Traumatic Stress Syndromes* (pp. 125-133). New York: Plenum.

Beaton, R., and Murphy, S. (1995). Working with people in crisis: Research implications. In C. R. Figley (Ed.), *Compassion Fatigue: Coping With Secondary Traumatic Stress Disorder in Those Who Treat the Traumatized* (pp. 51-81). New York: Brunner/Routledge.

Beeson, D. (1997). Nuance, complexity, and context: Qualitative methods in genetic counseling research. *Journal of Genetic Counseling, 6*(1), 21-43.

Behr, R. (2000). *Under the Headset: Surviving Dispatcher Stress*. Wildomar, CA: Staggs Publishing.

Behr, R., and Fox, M. (2005). Dispatcher Stress Survey. Retrieved March 17, 2005, from http://www.911dispatch.com/cism/stress_results.html.

Bennett, P., Lowe, R., Matthews, V., Dourali, M., and Tattersall, A. (2001). Stress in nurses: Coping, managerial support, and work demands. *Stress & Health, 17*, 55-63.

Blackmore, E. R., Stansfeld, S. A., Weller, I., Munce, S., Zagorski, B., and Stewart, D. (2007). Major depressive episodes and work strain: Results from a national population survey. *American Journal of Public Health, 97*(11), 2088-2093.

Borus, J. F. (1987). The other part of the elephant: Mental disorder screening in primary health care settings and physical disorder screening in psychiatric settings. *Medical Care, 25*(12), S100-S102.

Boscarino, J. A., Figley, C. R., and Adams, R. E. (2004). Compassion fatigue following the September 11 terrorist attacks: A study of secondary trauma among New York City social workers. *International Journal of Emergency Mental Health, 6*(2), 1-10.

Bremner, J. D., and Vermetten, E. (2001). Stress and development: Behavioral and biological consequences. *Development and psychopathology, 13*, 473-498.

Breslau, N. (1998). Epidemiology of trauma and posttraumatic stress disorder. In R. Yehuda (Ed.), *Psychological Trauma* (Vol. 17, pp. 1-29). Washington, D.C.: American Psychiatric Press.

Breslau, N., Kessler, R. C., Chilcoat, H. D., Schultz, L. R., Davis, G. C., and Andreski, P. (1998). Trauma and posttraumatic stress disorder in the community: The 1996 Detroit area survey of trauma. *Archives of General Psychiatry, 55*(7), 626-632.

Bride, B. E., Yegidis, B., and Figley, C. R. (2003). Development and validation of the Secondary Traumatic Stress Scale. *Research on Social Work Practice, 13*(10), 1-16.

Brotheridge, C. M., and Grandey, A. A. (2002a). Emotional labor and burnout: Comparing two perspectives of "people work." *Journal of Vocational Behavior, 60*, 17-39.

Brotheridge, C. M., and Lee, R. T. (2002b). Testing a conservation of resources model of the dynamics of emotional labor. *Journal of Occupational Health Psychology, 7*(1), 57-67.

Brotheridge, C. M., and Lee, R. T. (2003). Development and validation of the emotional labour scale. *Journal of Occupational and Organizational Psychology, 76*, 365-379.

Brunet, A., Weiss, D. S., Metzler, T. J., Best, S. R., Neylan, T. C., Rogers, C., Fagan, J., and Marmar, C. R. (2001). The Peritraumatic Distress Inventory: A proposed measure of PTSD Criterion A2. *American Journal of Psychiatry, 158*(9), 1480-1485.

Burns, K. E., Duffett, M., Kho, M. E., Meade, M. O., Adhikari, N. K., Sinuff, T., and Cook, D. J. (2008). A guide for the design and conduct of self-administered surveys of clinicians. *Canadian Medical Association Journal, 179*(3), 245-252.

Cardena, E. (1996). Psychometric review of the Stanford Acute Stress Reaction Questionnaire (SASQR). In B. H. Stamm (Ed.), *Measurement of Stress, Trauma, and Adaptation* (pp. 293-295). Lutherville, MD: Sidran Press.

Carlson, E. B. (1997). *Trauma Assessments: A Clinician's Guide.* New York: The Guilford Press.

Carver, C., Scheier, M. F., and Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology, 56*(2), 267-283.

Catherall, D. (1999). Coping with secondary traumatic stress: The importance of the therapist's professional peer group. In B. H. Stamm (Ed.), *Secondary Traumatic Stress: Self-Care Issues for Clinicians, Researchers, and Educators* (pp. 80-94). Lutherville, MD: Sidran Press.

Chrestman, K. R. (1995). Secondary exposure to trauma and self-reported distress among therapists. In B. H. Stamm (Ed.), *Secondary Traumatic Stress: Self-Care Issues for Clinicians, Researchers, and Educators* (pp. 22-36). Lutherville, MD: Sidran Press.

Clark, L. A., and Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment, 7*(3), 309-319.

Clegg, A. (2001). Occupational stress in nursing: A review of the literature. *Journal of Nursing Management, 9*, 101-106.

Cliffordson, C. (2002). The hierarchical structure of empathy: Dimensional organization and relations to social functioning. *Scandinavian Journal of Psychology, 43*, 49-59.

Coarsey, C. V. (2004). *Handbook for Human Services Response: A Practical Approach for Helping People.* Gainesville, GA: Higher Resources, Inc.

Cohen, S., Kamarck, T., and Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior, 24*(December), 385-396.

Collins, S., and Long, A. (2003). Too tired to care? The psychological effects of working with trauma. *Journal of Psychiatric and Mental Health, 10*, 17-27.

Cook, J. D., and Bickman, L. (1990). Social support and psychological symptomatology following a natural disaster. *Journal of Traumatic Stress, 3*(4), 541-556.

Cornille, T., and Meyers, T. (1999). Secondary traumatic stress among child protective service workers: Prevalence, severity, and predictive factors. *Traumatology, 5*(1), 1-18.

Creamer, T. L., and Liddle, B. J. (2005). Secondary traumatic stress among disaster mental health workers responding to the September 11 attacks. *Journal of Traumatic Stress, 18*(1), 89-96.

Davis, J. B. (2005). Finding calm after the call. *American Bar Association, 91*(3), 75-75.

Dillman, D. A. (2000). *Mail and Internet Surveys: The Tailored Design Method* (2nd ed.). New York: John Wiley & Sons.

Doeglas, D., Suurmeijer, T., Briancon, S., Moum, T., Krol, B., Bjelle, A., Sanderman, R., and Van den Heuvel, W. (1996). An international study on measuring social support: Interactions and satisfaction. *Social Science and Medicine, 43*(9), 1389-1397.

Egge, B., Mortensen, M., and Weisaeth, L. (1996). Soldiers for peace: Ordeals and stress. In Y. Danieli, N. Rodley & L. Weisaeth (Eds.), *International Responses to Traumatic Stress* (pp. 257-283). Amityville, NY: Baywood.

England, P., and Folbe, N. (1999). The cost of caring. *Annals of the American Academy of Political and Social Sciences, 561*, 39-51.

Erickson, K. (2004). To invest or detach? Coping strategies and workplace culture in service work. *Symbolic Interaction, 27*(4), 549-572.

Ewald, B. (2006). Post hoc choice of cut points introduced bias to diagnostic research. *Journal of Clinical Epidemiology, 59*, 798-801.

Fawcett, J. (2000). Managing staff stress and trauma. In M. Janz & J. Slead (Eds.), *Complex Humanitarian Emergencies: Lessons from Practitioners* (pp. 92-125). Monrovia, CA: World Vision.

Fawcett, J. (Ed.). (2003). *Stress and Trauma Handbook: Strategies for Flourishing in Demanding Environments*. Monrovia, CA: World Vision.

Figley, C. R. (1995). Compassion fatigue as secondary traumatic stress: An overview. In C. R. Figley (Ed.), *Compassion Fatigue: Coping with Secondary Traumatic Stress Disorder in Those Who Treat the Traumatized* (pp. 1-20). New York: Brunner-Routledge.

Figley, C. R. (2005). "Compassion fatigue": An introduction. Retrieved July 4, 2005, from http://mailer.fsu.edu/%7Ecfigley/CFintro.html.

Figley, C. R. (Ed.). (2002). *Treating Compassion Fatigue*. New York: Brunner-Routledge.

Figley, C. R., and Kleber, R. (1995). Beyond the "victim": Secondary traumatic stress. In R. Kleber, C. Figley & B. Gersons (Eds.), *Beyond Trauma: Cultural and Societal Dynamics* (pp. 75-98). New York: Plenum Press.

Fletcher, K. E. (1996). Psychometric review of Dimensions of Stressful Events (DOSE) Ratings Scale. In B. H. Stamm (Ed.), *Measurement of Stress, Trauma, and Adaptation* (pp. 144-151). Lutherville, MD: Sidran Press.

Freedy, J. R., Kilpatrick, D. G., and Resnick, H. S. (1996). Psychometric review of Structured Interview(s) of Post-Disaster Adjustment. In B. H. Stamm (Ed.), *Measurement of Stress, Trauma, and Adaptation* (pp. 355-357). Lutherville, MD: Sidran Press.

Gentry, E. J., Baranowsky, A. B., and Dunning, K. (2002). ARP: The accelerated recovery program (ARP) for compassion fatigue. In C. R. Figley (Ed.), *Treating Compassion Fatigue* (pp. 123-137). New York: Brunner-Routledge.

Grimes, D. A., and Schultz, K. F. (2002). Uses and abuses of screening tests. *Lancet, 359*, 881-884.

Guy, M. E., Newman, M. A., and Mastracci, S. H. (2008). *Emotional Labor: Putting the Service in Public Service*. Armonk, N.Y.: M.E. Sharpe.

Haisch, D. C., and Meyers, L. S. (2004). MMPI-2 assessed post-traumatic stress disorder related to job stress, coping, and personality in police agencies. *Stress and Health, 20*, 223-229.

Hardy, G. E., Woods, D., and Wall, T. D. (2003). The impact of psychological distress on absence from work. *Journal of Applied Psychology, 88*(2), 306-314.

Hauer, J. (1998). Best practices in 9-1-1 dispatching [Electronic version]. *NENA News Magazine, September*, 1-3.

Heinzmann, D. (2006, January 20). Union flags high overtime at 911 center. *Chicago Tribune,* p. 2.

Himmelweit, S. (1999). Caring labor. *Annals of the American Academy of Political and Social Science, 561*, 27-38.

Hochschild, A. R. (1983). *The Managed Heart: Commercialization of Human Feeling* (2nd ed.). Berkeley: University of California Press.

Holman, D., Chissick, C., and Totterdell, P. (2002). The effects of performance monitoring on emotional labor and well-being in call centers. *Motivation and Emotion, 26*(1), 57-81.

Holt, F. X. (1999). Handling dispatcher stress: A manager's responsibility. *9-1-1 Magazine* (pp. 1-4).

Horowitz, M. (2003). *Treatment of Stress Response Syndromes*. Washington, D.C.: American Psychiatric Publishing.

Hurrell, J. J. J., and Aristeguieta, C. (2006). Occupational stress. In B. S. Levy, D. H. Wegman, S. L. Baron & R. K. Sokas (Eds.), *Occupational and Environmental Health* (pp. 382-396). Philadelphia: Lippincott Williams & Wilkins.

Hyman, O. (2004). Perceived social support and secondary traumatic stress symptoms in emergency responders. *Journal of Traumatic Stress, 17*(2), 149-156.

Illinois Commerce Commission. (2005). *October 2005 status report: 9-1-1 emergency.* Springfield, IL: State of IL.

Inskeep, S., and Montagne, R. (April 5, 2006.). Hurricane duty continues to haunt Mississippi police. National Public Radio.

Israel, B. A., and Schurman, S. J. (1990). Social support, control, and the stress process. In K. Glanz, F. M. Lewis & B. K. Rimer (Eds.), *Health Behavior and Health Education: Theory, Research and Practice* (pp. 187-215). San Francisco: Jossey-Bass.

Izutsu, T., Tsutsumi, A., Asukai, N., Kurita, H., and Kawamura, N. (2004). Relationship between a traumatic life event and an alteration in stress response. *Stress & Health, 20*, 69-73.

Jamal, M. (2004). Burnout, stress, and health of employees on non-standard work schedules: A study of Canadian workers. *Stress and Health, 20*, 113-119.

Jenkins, S. R. (1997). Coping and social support among emergency dispatchers: Hurricane Andrew. *Journal of Social Behavior and Personality, 12*(1), 201-217.

Joinson, C. (1992). Coping with compassion fatigue. *Nursing, 22*(4), 116-120.

King, D. W., King, L. A., and Bachrach, P. S. (2001). Contemporary approaches to missing data: The glass is really half full. *The National Center for PTSD Research Quarterly, 12*(2), 1-5.

Krinsley, K. E. (1996). Psychometric review of The Evaluation of Lifetime Stressors (ELS) Questionnaire & Interview. In B. H. Stamm (Ed.), *Measurement of Stress, Trauma, and Adaptation* (pp. 160-162). Lutherville, MD: Sidran Press.

Kristjansson, B., Hill, G., McDowell, I., and Lindsay, J. (1996). Optimal cut-points when screening for more than one disease state: An example from the Canadian Study of Health and Aging. *Journal of Clinical Epidemiology, 49*(12), 1423-1428.

Krosnick, J. A. (1999). Survey research. *Annual Reviews of Psychology, 50*, 537-567.

Kruml, S. M., and Geddes, D. (2000). Exploring the dimensions of emotional labor: The heart of Hochschild's work. *Management Communication Quarterly, 14*(1), 8-49.

Kubany, E. S., Leisen, M. B., Kaplan, A. S., Watson, S. B., Haynes, S. N., Owens, J. A., and Burns, K. (2000). Development and preliminary validation of a brief broad-spectrum measure of trauma exposure: The Traumatic Life Events Questionnaire. *Psychological Assessment, 12*(2), 210-224.

Lerias, D., and Byrne, M. K. (2003). Vicarious traumatization: Symptoms and predictors. *Stress and Health, 19*, 129-138.

Levin, S. M., Herbert, R., Moline, J. M., Todd, A. C., Stevenson, L., Landsbergis, P., Jiang, S., Skloot, G., Baron, S., and Enright, P. (2004). Physical health status of World Trade Center rescue and recovery workers and volunteers: New York City, July 2002 - August 2004. *Morbidity and Mortality Weekly Report, 53*(35), 807-812.

Linley, P. (2003). Positive adaptation to trauma: Wisdom as both process and outcome. *Journal of Traumatic Stress, 15*(6), 601-610.

Martin, S. E. (1999). Police force or police service? Gender and emotional labor. *Annals of the American Academy of Political and Social Science, 561*, 111-126.

McAtamney, T. P. (2002). Headsets911 agency evaluation and enhancement program. Retrieved February 4, 2005, from http://www.headsets911.com/agencyeval.htm.

McCann, I. L., and Pearlman, L. A. (1990). Vicarious traumatization: A framework for understanding the psychological effects of working with victims. *Journal of Traumatic Stress, 3*(1), 131-149.

McCarroll, J. E., Blank, A. S., and Hill, K. (1995). Working with traumatic material: Effects on Holocaust Memorial Museum Staff. *American Journal of Orthopsychiatry, 65*(1), 66-75.

McCarroll, J. E., Ursano, R. J., and Fullerton, C. (1993a). Symptoms of posttraumatic stress disorder following recovery of war dead. *American Journal of Psychiatry, 150*(12), 1875-1877.

McCarroll, J. E., Ursano, R. J., Fullerton, C. S., and Lundy, A. (1993b). Traumatic stress of a wartime mortuary: Anticipation of exposure to mass disaster. *Journal of Nervous and Mental Disease, 181*(9), 545-551.

McFarlane, A., and de Girolamo, G. (1996). The nature of traumatic stressors and the epidemiology of posttraumatic reactions. In B. van der Kolk, A. McFarlane & L. Weisaeth (Eds.), *Traumatic stress: The effects of overwhelming experience on mind, body, and society* (pp. 129-154). New York: Plenum.

Microsoft (2007). Excel. Redmond, WA: Microsoft Corporation.

Miller, K., Birkholt, M., Scott, C., and Stage, C. (1995). Empathy and burnout in human service work. *Communication Research, 22*(2), 123-147.

Miller, X. I., Stiff, J. B., and Ellis, B. H. (1988). Communication and empathy as precursors to burnout among human service workers. *Communication Monographs, 55*, 250-265.

Mitchell, J. T., and Everly, G. S. J. (1994). *Human Elements Training for Emergency Services, Public Safety, and Disaster Personnel: An Instructional Guide to Teaching Debriefing, Crisis Intervention and Stress Management Programs*. Ellicott City, MD: Chevron.

Mitchell, J. T., and Everly, G. S. J. (1996). *Critical Incident Stress Debriefing: C.I.S.D.* Ellicott City, MD: Chevron.

Moran, C., and Britton, N. (1994). Emergency work experience and reactions to traumatic incidents. *Journal of Traumatic Stress, 7*(4), 575-585.

Morrissette, P. J. (2004). *The Pain of Helping: Psychological Injury of Helping Professionals.* New York: Brunner-Routledge.

National Communications Network. (2005). Emergency dispatchers & telecommunicators: A unique class of first responders. Retrieved February 12, 2005, from http://www.ncn-npcpss.com/EDT.htm.

National Institute for Occupational Safety and Health. (2004). Worker health chartbook. Retrieved June 20, 2006, from http://www.cdc.gov/niosh/docs/2004/146/ch2/ch2-1.asp.htm.

Navia, C. E., and Ossa, M. (2003). Family functioning, coping, and psychological adjustment in victims and their families following kidnapping. *Journal of Traumatic Stress, 16*(1), 107-112.

Nelson-Gardell, D., and Harris, D. (2003). Secondary traumatic stress and child welfare workers. *Child Welfare, 82*(1), 5-26.

North, C. S., Tivis, L., McMillen, J. C., Pfefferbaum, B., Cox, J., Spitznagel, E. L., Bunch, K., Schorr, J., and Smith, E. M. (2002). Coping, functioning, and adjustment of rescue workers after the Oklahoma City bombing. *Journal of Traumatic Stress, 15*(3), 171-175.

Orley, J. (1996). Health activities across traumatized populations: WHO's role regarding traumatic stress. In Y. Danieli, N. Rodley & L. Weisaeth (Eds.), *International Responses to Traumatic Stress* (pp. 383-395). Amityville, NY: Baywood.

Ornberg, S. (2007, October). *You've got to dig deep to find the right people.* Speech presented at the 23rd Annual Illinois Public Safety Telecommunications Conference, Springfield, IL.

Ortlepp, K., and Friedman, M. (2002). Prevalence and correlates of secondary traumatic stress in workplace lay trauma counselors. *Journal of Traumatic Stress, 15*(3), 213-222.

Parslow, R. A., Jorm, A. F., Christensen, H., Broom, D. H., Stradins, L., and D'Souza, R. M. (2004). The impact of employee level and work stress on mental health and GP service use: An analysis of a sample of Australian government employees [Electronic version]. *BMC Public Health, 4*(41).

Pearlman, L. A. (1996). Psychometric review of TSI Life Event Questionnaire (LEQ). In B. H. Stamm (Ed.), *Measurement of Stress, Trauma, and Adaptation* (pp. 419-430). Lutherville, MD: Sidran Press.

Pearlman, L. A., and MacIan, P. S. (1995). Vicarious traumatization: An empirical study of the effects of trauma work on trauma therapists. *American Psychological Association, 26*(6), 558-565.

Penninx, B. W., van Tilburg, T., Deeg, D. J., Kriegsman, D. M., Boeke, A. J., and van Eijk, J. T. (1997). Direct and buffer effects of social support and personal coping resources in individuals with arthritis. *Social Science and Medicine, 44*(3), 393-402.

Perrin, S., Smith, P., and Yule, W. (2000). Practitioner review: The assessment and treatment of post-traumatic stress disorder in children and adolescents. *Journal of Child Psychology and Psychiatry, 41*(3), 277-289.

Pines, A. M. (1993). Burnout. In L. Goldberger & S. Breznitz (Eds.), *Handbook of Stress: Theoretical and Clinical Aspects* (pp. 386-402). New York: Free Press.

Pivetta, S. (2002). Critical incident stress (pp. 1-2). Sumner, WA: Professional Pride.

Pole, N., Best, S. R., Metzler, T. J., and Marmar, C. R. (2005). Why are Hispanics at greater risk for PTSD? *Cultural Diversity and Ethnic Minority Psychology, 11*(2), 144-161.

Pole, N., Best, S. R., Weiss, D. S., Metzler, T. J., Liberman, A. M., Fagan, J., and Marmar, C. R. (2001). Effects of gender and ethnicity on duty-related posttraumatic stress symptoms among urban police officers. *Journal of Nervous and Mental Disease, 189*(7), 442-448.

Pugliesi, K. (1999). The consequences of emotional labor: Effects on work stress, job satisfaction, and well-being. *Motivation and Emotion, 23*(2), 125-154.

Radey, M., and Figley, C. R. (2007). The social psychology of compassion. *Clinical Social Work, 35*, 207-214.

Rahe, R. H., and Arthur, R. J. (1978). Life change and illness studies: Past history and future directions. *Journal of Human Stress* (March), 3-15.

Raphael, B., and Wilson, J. P. (1993). Theoretical and intervention considerations in working with victims of disaster. In J. P. Wilson & B. Raphael (Eds.), *International Handbook of Traumatic Stress Syndromes* (pp. 105-118). New York: Plenum Press.

Raphael, B., and Wilson, J. P. (1994). When disaster strikes: Managing emotional reactions in rescue workers. In J. P. Wilson & J. Lindy (Eds.), *Countertransference in the Treatment of PTSD* (pp. 333-350). New York: Guilford Press.

Regehr, C., Hill, J., Knott, T., and Sault, B. (2003). Social support, self-efficacy, and trauma in new recruits and experienced firefighters. *Stress and Health, 19*, 189-193.

Ribbe, D. (1996). Psychometric review of Traumatic Event Screening Instrument. In B. H. Stamm (Ed.), *Measurement of Stress, Trauma, and Adaptation* (pp. 386-389). Lutherville, MD: Sidran Press.

Richards, J. M. (2004). The cognitive consequences of concealing feelings. *Current Directions in Psychological Sciences, 13*(4), 131-134.

Roberts, S. B., Flannelly, K. J., Weaver, A. J., and Figley, C. R. (2003). Compassion fatigue among chaplains, clergy, and other respondents after September 11th. *Journal of Nervous and Mental Disease, 191*(1), 756-758.

Ross, R. R., Altmaier, E. M., and Russell, D. W. (1989). Job stress, social support, and burnout among counseling center staff. *Journal of Clinical Psychology, 36*(4), 464-470.

Russell, D. W., Altmarien, E., and Van Velzen, D. (1987). Job-related stress, social support, and burnout among classroom teachers. *Journal of Applied Psychology, 72*(2), 269-274.

Salafia, P. M., and Ormsby, C. C. J. (1998). 9-1-1 liability myths [Electronic version]. *NENA News Magazine, June*, 1-4.

Salston, M., and Figley, C. R. (2003). Secondary traumatic stress effects of working with survivors of criminal victimization. *Journal of Traumatic Stress, 16*(2), 167-173.

Sauter, S. L., Murphy, L. R., and Hurrell, J. J. (1990). Prevention of work-related psychological disorders. *American Psychologist, 45*(10), 1146-1158.

Schwarz, N., and Schuman, H. (1998). Survey methods. In D. T. Gilbert, S. T. Fiske & G. Lindzey (Eds.), *The Handbook of Social Psychology* (pp. 143-179). Boston: McGraw-Hill.

Selye, H. (1973). The evolution of the stress concept. *American Scientist, 61*(November-December), 692-699.

Shalev, A. (1996). Stress versus traumatic stress: From acute homeostatic reactions to chronic psychotherapy. In B. van der Kolk, A. McFarlane & L. Weisaeth (Eds.), *Traumatic stress: The effects of overwhelming experience on mind, body, and society* (pp. 77-101). New York: Guilford.

Shih, T. H., and Fan, X. (2008). Comparing response rates from web and mail surveys: A meta-analysis. *Field Methods, 20*(3), 249-271.

Shuler, S. (2001). Talking community at 9-1-1: The centrality of communication in coping with emotional labor. In G. J. Shepher & E. W. Rothenbuhler (Eds.), *Communication and Community.* (pp. 53-77). Mahwah, N.J.: Lawrence Erlbaum.

Shuler, S., and Sypher, B. D. (2000). Seeking emotional labor: When managing the heart enhances the work experience. *Management Communication Quarterly, 14*(1), 50-89.

Simon, C. E., Pryce, J. G., Roff, L. L., and Klemmack, D. (2005). Secondary traumatic stress and oncology social work: Protecting compassion from fatigue and compromising the worker's worldview. *Journal of Psychosocial Oncology, 23*(4), 1-14.

Slaski, M., and Cartwright, S. (2003). Emotional intelligence training and its implications for stress, health, and performance. *Stress and Health, 19*, 233-239.

Smith, R. P., Katz, C. L., Holmes, A., Herbert, R., Levin, S., Moline, J., Landsbergis, P., Stevenson, L., North, C. S., Larkin, G. L., Baron, S., and Hurrell, J. J. J. (2004). Mental health status of World Trade Center rescue and recovery workers and volunteers: New

York City, July 2002-August 2004. *Morbidity and Mortality Weekly Report, 53*(35), 812-815.

SPSS 15.0 (2006). Chicago: SPSS Inc.

Stamm, B. H. (1997). Work-related secondary traumatic stress. *PTSD Research Quarterly, 8*(2), 1-6.

Stamm, B. H. (2002). Measuring compassion satisfaction as well as fatigue: Developmental history of the compassion satisfaction and fatigue test. In C. Figley (Ed.), *Treating Compassion Fatigue* (pp. 107-122). New York: Brunner-Routledge.

Stamm, B. H. (2005). Professional quality of life: Compassion satisfaction and fatigue subscales, R-IV (ProQOL). Retrieved May 26, 2005, from http://www.isu.edu/~bhstamm.

Stamm, B. H. (Ed.). (1996). *Measurement of Stress, Trauma, and Adaptation*. Lutherville, MD: Sidran Press.

Stamm, B. H., and Bieber, S. L. (1996a). Psychometric review of Structural Assessment of Stressful Experiences (SASE). In B. H. Stamm (Ed.), *Measurement of Stress, Trauma and Adaptation* (pp. 333-348). Lutherville, MD: Sidran Press.

Stamm, B. H., Rudolph, J. M., Dewane, S., Gaines, N., Gorton, K., Paul, G., McNeil, F., Bowen, G., and Ercolano, M. (1996b). Psychometric review of Stressful Life Experiences Screening. In B. H. Stamm (Ed.), *Measurement of stress, trauma, and adaptation* (pp. 317-319). Lutherville, MD: Sidran Press.

Steinberg, R. J., and Figart, D. M. (1999). Emotional demands at work: A job content analysis. *Annals of the American Academy of Political and Social Science, 561*(1), 177-191.

Stokols, D. (1996). Translating social ecological theory into guidelines for community health promotion. *American Journal of Health Promotion, 10*(4), 282-298.

Sudman, S., Bradburn, M. M., and Schwarz, N. (1996). *Thinking about Answers: The Application of Cognitive Processes to Survey Methodology*. San Francisco: Jossey-Bass.

Taylor, M. (2005, April). *APCO Project RETAINS: Responsive efforts to address integral needs in staffing*. Paper presented at the Regional Conference of the Association of Public Safety Communications Officials, Kansas City, Missouri.

Thabet, A. A., Abed, Y., and Vostanis, P. (2002). Emotional problems in Palestinian children living in a war zone: A cross-sectional study. *Lancet, 359*, 1801-1804.

Thorp, S. R., and Stein, M. B. (2005). Posttraumatic stress disorder and functioning. *PTSD Research Quarterly, 16*(3), 1-7.

Totterdell, P., and Holman, D. (2003). Emotion regulation in customer service roles: Testing a model of emotional labor. *Journal of Occupational Health Psychology, 8*(1), 55-73.

Tracy, S. J., and Tracy, K. (1998). Emotional labor at 911: A case study and theoretical critique. *Journal of Applied Communication Research, 26*, 390-411.

Tselebis, A., Moulou, A., and Ilias, I. (2001). Burnout versus depression and sense of coherence: Study of Greek nursing staff. *Nursing and Health Sciences, 3*, 69-71.

U.S. Department of Labor. (2005). U. S. Dept. of Labor: Material-recording, -scheduling, -dispatching, and -distributing occupations. Retrieved from http://www.bls.gov.

U.S. Surgeon General. (1999). Mental Health: A report of the Surgeon General. Retrieved June 17, 2005, from http://www.surgeongeneral.gov/library/mentalhealth/chapter6/sec2.html.

U.S. Department of Health and Human Services. (2003). Mental health all-hazards disaster planning guidance. DHHS Pub. No. SMA3829.: Rockville, MD: Center for Mental Health Services, Substance Abuse, and Mental Health Administration.

Ursano, R., Fullerton, C., and McCaughey, B. (1994a). Trauma and disaster. In R. Ursano, B. McCaughey & C. Fullerton (Eds.), *Individual and Community Responses to Trauma and Disaster: The Structure of Human Chaos* (pp. 3-30). Cambridge: Cambridge University Press.

Ursano, R. J., and McCarroll, J. E. (1994b). Exposure to traumatic death: The nature of the stressor. In R. J. Ursano, B. G. McCaughey & C. S. Fullerton (Eds.), *Individual and Community Responses to Trauma and Disaster: The Structure of Human Chaos* (pp. 46-71). Cambridge: Cambridge University Press.

Valent, P. (1995). Survival strategies: A framework for understanding secondary traumatic stress and coping in helpers. In C. R. Figley (Ed.), *Compassion Fatigue: Coping with Secondary Traumatic Stress disorder in Those Who Treat the Traumatized* (pp. 21-50). New York: Brunner-Routledge.

Valent, P. (1998). Introduction to survival strategies. Retrieved September 30, 2001, from http://www.trauma-pages.com/valent98.htm.

Valent, P. (2002). Diagnosis and treatment of helper stresses, traumas, and illnesses. In C. R. Figley (Ed.), *Treating Compassion Fatigue.* (pp. 17-38). New York: Brunner-Routledge.

Van den Broeck, J., Cunningham, S. A., Eeckels, R., and Herbst, K. (2005). Data cleaning: Detecting, diagnosing, and editing data abnormalities. *PLoS Medicine, 2*(10), 0966-0970.

Van der Kolk, B., and McFarlane, A. (1996). The black hole of trauma. In B. van der Kolk, A. McFarlane & L. Weisaeth (Eds.), *Traumatic Stress: The Effects of Overwhelming Experience on Mind, Body, and Society* (pp. 3-23). New York: Guilford.

Van Ommeren, M., Saxena, S., and Saraceno, B. (2005). Aid after disasters. *British Medical Journal, 330*, 1160-1161.

Verhaege, R., Mak, R., Van Maele, G., Kornitzer, M., and De Backer, G. (2003). Job stress among middle-aged healthcare workers and its relation to sickness absence. *Stress and Health, 19*, 265-274.

Weathers, F. W., and Keane, T. M. (2007). The Criterion A problem revisited: Controversies and challenges in defining and measuring psychological trauma. *Journal of Traumatic Stress, 20*(2), 107-121.

Wee, D. F., and Meyers, D. (2002). Stress responses of mental health workers following disaster: The Oklahoma City bombing. In C. R. Figley (Ed.), *Treating Compassion Fatigue* (pp. 57-84). New York: Brunner-Routledge.

Wharton, A. S. (1999). The psychological consequences of emotional labor. *Annals of the American Academy of Political and Social Science, 561*(1), 158-176.

White, M. D., and Marsh, E. E. (2006). Content analysis: A flexible methodology. *Library Trends, 55*(1), 22-45.

Wolfe, J. W., Kimerling, R., Brown, P. J., Chrestman, K. R., and Levin, K. (1996). Psychometric review of The Life Stressor Checklist-Revised. In B. H. Stamm (Ed.), *Measurement of Stress, Trauma, and Adaptation* (pp. 198-200). Lutherville, MD: Sidran Press.

World Health Organization. (2007). Mental health: Strengthening mental health promotion. Retrieved September 1, 2008, from http://www.who.intl.org/mediacentre/factsheets/fs220/en.

Wrenn, L. J. (2005). *The relationship between personal trauma exposure and secondary traumatic stress for social workers.* Loyola University, Chicago. (UMI No. 3174273).

Yassen, J. (1995). Preventing secondary traumatic stress disorder. In C. R. Figley (Ed.), *Compassion Fatigue: Coping with Secondary Traumatic Stress Disorder in Those Who Treat the Traumatized* (pp. 178-208). New York: Brunner/Routledge.

APPENDICES

APPENDIX A

FORM I

PILOT STUDY RECRUITMENT NOTICE

The following information was posted to the listserves of the Illinois chapters of the National Emergency Number Association (NENA) and the Association of Public Safety Communications Officials (APCO):

Subject line:

Telecommunicator research project

Message:

Telecommunicators are needed for a pilot study of work exposure to stressful 9-1-1 calls. The study will be conducted through the University of Illinois at Chicago School of Public Health. Participants must have worked as a telecommunicator in Illinois within the past year. Completion of a written survey and an interview are required. This should take approximately 90 minutes at a time and location of your convenience. Your experiences and opinions will be used to refine the final survey to be sent to telecommunicators throughout the state. If you are interested in participating or have any questions about this project, please contact Roberta Troxell at (815)289-9455 or by email at rtroxe1@uic.edu.

APPENDIX A (continued)

FORM II

PILOT STUDY CONSENT FORM

Please leave blank. For office use only.

Pilot Study Consent Form

University of Illinois at Chicago
Consent for Participation in Research
"Indirect Exposure to the Trauma of Others: The Experiences of 9-1-1- Telecommunicators"

Why am I being asked?

You are being asked to be a subject in a research study about stress experienced by telecommunicators conducted by Roberta Troxell from the School of Public Health at the University of Illinois at Chicago. You have been asked to participate in this research because you are a telecommunicator in the state of Illinois and responded to the request for participants in a pilot study posted on the APCO and NENA listserves. You may be eligible to participate. We ask that you read this form and ask any questions you may have before agreeing to be in the research.

Your participation in this research is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University or your call center. If you decide to participate, you are free to withdraw at any time without affecting that relationship.

Why is this research being done?

Telecommunicators are the real "first" responders in our community. Your work involves hearing the traumatic experiences of others. This can create a lot of stress for you and affect your work and personal life. Research has been conducted in this area with other groups of emergency responders but never with telecommunicators. What we have learned from other responders may not apply to you because of the unique role you fill in our emergency response system. The questions asked of them may also not be appropriate for telecommunicators. We need to know what to ask about and how to ask it. Your experiences and comments will help us to better design the survey for the large group study.

What is the purpose of this research?

The purpose of this research is to learn how we can improve the questions in the survey on indirect exposure to traumatic information from callers so it is more appropriately designed for telecommunicators and to determine the average length of time to complete the survey.

What procedures are involved?

If you agree to be in this research, we would ask you to do the following things:

→ Read the entire consent form and sign it.

→ Complete the written questionnaire.

→ Once you have completed the questionnaire, participate in an interview to discuss the survey questions and explore your experiences and issues relevant to this subject. You may decline to have this session audiotape-recorded. The total process should take approximately 90 minutes of your time.

→ The tapes, notes, transcriptions, and consents will be maintained in a locked cabinet at the home of the researcher and will not contain any identifying information that could be linked to you. The tapes will be destroyed as soon as they are transcribed.

→ We ask that you not discuss this research with fellow telecommunicators until the final study is completed. Telling them about the study questions may affect their responses if they decide to participate in the main study.

Approximately thirty individuals from throughout the state may be involved in this pilot research through the University of Illinois at Chicago. Approximately 1000 of your fellow telecommunicators will be invited to complete the final version once the pilot study is completed.

What are the potential risks and discomforts?

The research has some risk:

You may experience some distress while answering the study questions. This can be a normal response when thinking about the difficult calls you have handled during your career and how they may have affected you both personally and professionally. If you feel it is just too much to deal with, you can decide to not participate any further in this research. If you want to talk with someone about the feelings you may have, you may contact one of the following:

→ *Your Employee Assistance Program.*

→ *Critical Incident Stress Foundation.*

- *Main number: (410) 750-9600*
- *24-hour hotline: (410) 313-2473*

Are there benefits to taking part in the research?

There are many reports of telecommunicator stress on the internet, in training manuals, magazines, and books. However, this is the first time it will be studied in a scientific manner. Your ideas will help to frame future research in this area.

What other options are there?

There is no other way to gather this information. It is important your voices be heard and the job you perform be recognized as a difficult and important one.

What about privacy and confidentiality?

The only people who will know that you are a research participant are members of the research team. No information about you, or provided by you during the research, will be disclosed to others without your written permission, except:

- if necessary to protect your rights or welfare (for example, if you are injured and need emergency care or when the UIC Institutional Review Board monitors the research or consent process); or

- if required by law.

When the results of the research are published or discussed in conferences, no information will be included that would reveal your identity.

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law.

→ The surveys, audiotapes of the interviews, interview notes, and transcriptions will not be coded in any way so as to ensure your anonymity. You may review a copy of the transcription and edit its contents if desired. Audiotapes will be destroyed after they are transcribed.

→ All study materials will be kept in a locked cabinet by the researcher and destroyed when the research project is completed.

→ If you are interested, a copy of the final research report will be made available to you.

What if I am injured as a result of my participation?

In the event of injury related to this research study, treatment will be made available through the University of Illinois at Chicago Hospital. However, you or your third party payer, if any, will be responsible for payment of this treatment. There is no compensation and/or payment for such medical treatment from the University of Illinois at Chicago for such injury, except as may be required of the University by law. If you feel you have been injured, you may contact the researcher, Roberta Troxell, at (815) 289-9455.

What are the costs for participating in this research?

There are no dollar costs for participating in this study. However, your time is also valuable. Every effort will be made to respect this.

Will I be reimbursed for any of my expenses or paid for my participation in this research?

You will not be paid for participating in this study. However, you will be given a copy of the book "Under the Headset: Surviving Dispatcher Stress" in appreciation of your time and effort.

Can I withdraw or be removed from the study?

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study.

Who should I contact if I have questions?

The researcher conducting this study is Roberta Troxell, a doctoral student in the School of Public Health at the University of Illinois in Chicago. You may ask any questions you have now. If you have questions later, you may contact her at (815) 289-9455. You may also contact her faculty advisor, Noel Chavez, at (312) 996-0747.

What are my rights as a research participant?

If you feel you have not been treated according to the descriptions in this form, or if you have any questions about your rights as a research participant, you may call the Office for the Protection of Research Subjects (OPRS) at (312) 996-1711 or toll-free at (866) 789-2614 or e-mail OPRS at uicird@uic.edu.

What if I am a UIC student?

You may choose not to participate or to stop your participation in this research at any time. This will not affect your class standing or grades at UIC. The investigator may also end your participation in the research. If this happens, your class standing or grades will not be affected. You will not be offered or receive any special consideration if you participate in this research.

What if I am a UIC employee?

Your participation in this research is in no way a part of your university duties, and your refusal to participate will not in any way affect your employment with the university, or the benefits, privileges, or opportunities associated with your employment at UIC. You will not be offered or receive any special consideration if you participate in this research.

Remember: Your participation in this research is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University or your call center. If you decide to participate, you are free to withdraw at any time without affecting that relationship.
You will be given a copy of this form for your information and to keep for your records.

Signature of Participant

I have read the above information. I have been given an opportunity to ask questions and my questions have been answered to my satisfaction. I agree to participate in this research. I have been given a copy of this form.

_____ _____
Signature Date

_____
Printed Name

_____ _____
Signature of Researcher Date

APPENDEX A (continued)

FORM III

PILOT STUDY GUIDE

Leave box empty. For office use only.

Pilot Study Guide

University of Illinois at Chicago
"Indirect Exposure to the Trauma of Others: The Experiences of 9-1-1 Telecommunicators"

Introductions

Review of overall study purpose

To gather information on their experiences as a telecommunicator.
To obtain their critique of the questionnaire, to include content relevancy, clarity, and format.
To ascertain the length of time for survey completion.

Review of consent form

Respondent to read the consent form.

Remind them they may decline to answer any questions they feel uncomfortable with and/or that they may stop the questionnaire or interview session at any time they feel too uncomfortable to continue.

Reiterate the importance of their opinions on the specific subject material as well as other issues they may consider relevant to this study. Reiterate that the survey forms, any notes, tapes, and transcriptions will be maintained in a secure location. Assure them that any information that could be used to identify them will be kept confidential and will be presented anonymously in future reports.

Remind them they may request a copy of the transcriptions to review as well as a copy of the final research report.

Ask what more they would like to know about this study and their participation. Answer any questions. Address any concerns.

Obtain written permission for participation. Obtain permission to tape record the interview and to take notes. Provide them with a copy of the consent form.

Questionnaire completion

The survey will be given to the participant to complete. The length of time for completion of the survey will be recorded.

Debriefing format

Probes to be used as appropriate: restating/repeating; asking for clarification of terms or comments; asking for examples; saying "I see" or "uh-huh", or "can you tell me a bit more about that" to encourage them to continue and to express understanding and interest.

Debriefing questions

Role description:

1. When someone asks you to describe what you do at work, what do you usually say?

2. Why do you feel your job is important?

3. How do you react when a call goes well? When it doesn't?
   Probe: physically, emotionally, verbally, nonverbally

General impression of survey:

4. Did you experience any difficulty answering the questions?
   Probe: clarity of instructions, wording of items (go through each section)

5. What did you like about the survey?
   Probe: specific questions, topics

6. What didn't you like about the survey?
   Probe: specific questions, length of time to complete, recall of difficult calls

7. What ideas do you have to make the survey better?
   Probe: length, questions, topics

Exposure variable:

8. Look at question 9 asking about stressful calls. What type of calls would you add to this list? What would you remove? Was the 30-day time frame too long/too short? What time frame would you suggest?

9. That same question asked you to rate how stressful it was for you to handle the calls you'd taken in the past 30 days. Did you have any trouble doing this? Did you find it harder/easier to rate how stressful it would have been for a typical telecommunicator to have handled these calls?

10. If you were asked to talk about your exposure at work to the trauma of callers, how would you describe it?

11. In thinking about your answer to the last question, do you think a listing of difficult calls or a stressfulness rating of difficult calls is more accurate in describing your exposure to the trauma of those you're trying to help? Why?

Index event:

12. Questions 10 asked you to think about the one call that sticks out in your mind as the most troubling, disturbing, or distressing call you have had to cope with. Did you have any trouble choosing an event? Why/why not? Have you thought about it at other times? Did you ever talk with anyone about it? If not, did you wish you had?

13. Question 11 asked you to rate several statements describing feelings and experiences during and immediately after that call. How well did these questions apply to you? Did you have any difficulty remembering?

14. In answering these questions, did you feel uncomfortable or distressed by recalling these events and your feelings? Did you need to take a break from the questions or did you want to stop? Do you want to talk with anyone about your feelings?

ProQOL:

15. In general, did you feel these statements were relevant to your profession? Why/why not?

16. This section asked how you've felt in the past 30 days. Does that time frame seen right or would you suggest changing it? Why/why not? If so, how?

Emotional labor:

17. In general, did you feel these statements reflected what you are required to do, at times, when you handle 9-1-1 calls? Why/why not?

18. What suggestions do you have to make it better?
    Probe: add/delete items, which ones, why?

Closing:

19. I want to thank you for taking the time to complete the survey and to answer my questions. I realize this may have been difficult for you at times. How do you feel now? Do you have any concerns? Any more suggestions? Anything else you'd like to talk about?

20. Would you like to receive a copy of the final research report?

21. Would you like to review a copy of the transcription?

Parting:

As a thank-you for being interested in this research project and for taking the time to participate, I'd like to present you with a copy of "Under the Headset: Surviving Dispatcher Stress" by Richard Behr, a fellow telecommunicator.

APPENDIX B

FORM I

LETTER TO 9-1-1 CENTER ADMINISTRATORS

(PRINTED ON UNIVERSITY OF IL SCHOOL OF PUBLIC HEALTH LETTERHEAD)

May 20, 2006

Dear 9-1-1 Center Director:

I am asking for your assistance in recruiting participants for a dissertation research project to learn about the various stressors experienced by Illinois telecommunicators, in particular the effects of hearing accounts of traumatic experiences from callers. The main goal of this study is to develop a better understanding of the effects of such stressors on the work and personal lives of telecommunicators so that interventions to reduce such effects can be developed for managers and telecommunicators. This survey will contain questions regarding prior trauma history, stressful exposures, coping mechanisms, and secondary traumatic stress symptoms.

This research will be conducted by me, Roberta M. Troxell, R.N., M.S., a doctoral student at the University of Illinois at Chicago, in partial fulfillment for my Doctor of Public Health degree. A copy of my curriculum vitae is attached. The project will be overseen by my 5-member dissertation committee representing the School of Public Health, and by the Institutional Review Board of the University of Illinois at Chicago.

All participant information, including specific employment site, will be kept strictly confidential. Listed below are the tasks where I need your help. Following this procedure will ensure anonymity of respondents, their voluntary participation, and the opportunity for every telecommunicator in Illinois to participate:

- Attach mailing labels to each postage-paid survey packet for every person on your staff who functions as a telecommunicator, either part or full-time. Two mailings may be needed to increase response rates. Mail the packets.
- Post a flyer describing the program in the employee break room during the duration of data collection (one to two months). Fill in the spaces with the call volume for 2005, the size population your center serves, the number of part and full-time telecommunicators, and the number of open positions.
- Complete and return a brief site survey with a copy of the above completed flyer. A postage-paid envelope will be provided for this purpose.

This study will help us to understand the dimensions of telecommunicator stresses and the effects of indirect exposure to traumatic information from callers. A copy of the findings will be sent to you and a presentation provided on request.

If you have any questions regarding this project, please contact me at (815)289-9455 or (815)282-9455. In addition, you may contact my faculty advisor, Noel Chavez, PhD at (312)996-0747. If you do want to participate, please use the attached template on your site letterhead, sign, and return to me by June 30, 2006 in the postage-paid envelope provided. Data collection is projected for September or October, 2006.

Thank you for your consideration.

Sincerely,

Roberta M. Troxell, M.S.

Enclosures (3)

APPENDIX B (continued)

FORM II

CURRICULUM VITAE

ROBERTA M. TROXELL
4935 Cardamon Lane
Rockford, IL 61114
Home: (815)282-9455
Cell: (815)289-9455
Email: rtroxe1@uic.edu

EDUCATION

University of Illinois, Chicago
6/97 to present
Doctoral Candidate, School of Public Health

University of Illinois, Chicago
9/78 to 6/80
M.S., Nurse-Midwifery

University of Maryland, Baltimore
8/73 to 5/75
B.S.N.

Loyola University, Chicago
9/71 to 5/73

Mundelein College, Chicago
9/70 to 5/71

LICENSURE & CERTIFICATIONS

Advanced Practice Nurse, State of Illinois
Certified Nurse-Midwife, American College of Nurse-Midwives
RN, State of Illinois
RN, State of Wisconsin

APPENDIX B (continued)

FORM II (continued)

PROFESSIONAL MEMBERSHIPS

American Public Health Association
International Society of Traumatic Stress Studies
Association of Traumatic Stress Specialists
American College of Nurse-Midwives
Sigma Theta Tau International, National Honor Society of Nursing
Association of Women's Health, Obstetric, & Neonatal Nurses

APPENDIX B (continued)

FORM III

FOLLOW-UP LETTER TO 9-1-1 ADMINISTRATORS

(PRINTED ON UNIVERSITY OF IL SCHOOL OF PUBLIC HEALTH LETTERHEAD)

July 1, 2006

Dear 9-1-1 Center Director:

I am following up on a request sent to your office for participation of your center in a study on traumatic stress and the telecommunicator. A copy of the original correspondence is enclosed.

Telecommunicators are the one group of emergency responders that have not been asked about the effects of the difficult job they do and the traumatic information they hear. The research I will be conducting will examine these effects in order to help administrators and telecommunicators develop ways to promote their well-being and maintain an effective call-center staff. I hope you will strongly consider this request to provide your employees with an opportunity to participate. If so, a participation agreement is enclosed for your use. My contact information is listed below should you have any questions.

If you have already responded, please disregard this letter and accept my appreciation for your help.

Sincerely,

Roberta Troxell
(H) (815)282-9455
(Cell) (815)289-9455
E-mail: rtroxe1@uic.edu

Enclosures (4)

APPENDIX B (continued)

FORM IV

MAIN STUDY FLYER

(PRINTED ON YELLOW PAPER)

TELECOMMUNICATOR SURVEY

Indirect Exposure to the Trauma of Others: The Experiences of 9-1-1 Telecommunicators

Research conducted by Roberta Troxell, M.S. from the School of Public Health at the University of Illinois at Chicago
4935 Cardamon Lane Rockford, IL 61114

The effectiveness of our community emergency response system depends on you.

You are the vital link between the public & all other first responders.

Your work may be stressful for many reasons.

We want to know about these causes of stress so future studies can look at how to lessen these risks & keep you healthy.

Surveys mailed to your home within the next month

~40 minutes to complete

Completely voluntary & anonymous

Call Roberta at (815) 289-9455 if any questions

Call Center Information

Total number of calls received in 2006 _____
(Total of 9-1-1 or emergency calls, non-9-1-1 calls, & police-initiated activity)

Number of full & part-time telecommunicators ____

Number of open positions _____

Please leave blank. For office use only.

FORM V

Emergency Call Center Agreement

In support of the research project on telecommunicator stress to be conducted by Roberta M. Troxell, doctoral candidate in the School of Public Health, University of Illinois at Chicago,

I agree to the following:

- Attach mailing labels to each survey packet for every person on my staff that functions as a telecommunicator, either part or full-time. Two mailings will be required.
- Post a flyer describing the program in the employee break room during the duration of data collection (one to two months) with the call volume of my site for 2005, the size population my center serves, the number of part and full-time telecommunicators, and the number of open positions.
- Mail in a copy of the site flyer.

I understand all study materials and postage will be provided by Ms Troxell and that a copy of the results will be sent to me.

I would like a presentation of the final research findings: _____ (please check if desired).

Name: _____

Signature: _____

Title: _____

E-Mail Address: _____

Number of Part and Full-Time Telecommunicators: _____

Date: _____

APPENDIX C

FORM I

MAIN STUDY COVER LETTER

(PRINTED ON THE UNIVERSITY OF IL SCHOOL OF PUBLIC HEALTH LETTERHEAD)

Dear Telecommunicator:

You are being asked to participate in a research study to learn about the various stressors experienced by you and your colleagues in Illinois, in particular the effects of hearing accounts of traumatic experiences from callers. The main goal of this study is to develop a better understanding of the ways in which this indirect exposure to traumatic information affects your personal and professional life. I hope this information will be used to guide future research efforts aimed at reducing your risks of negative consequences and improving your health and well-being.

Approximately 1000 telecommunicators in the state are being asked to participate in this research. The more responses we have, the more valid the information obtained. I believe this is an important issue we need to understand better. Although numerous studies have been conducted on this topic with other emergency responders, telecommunicators, the real "first" responders, have never been included.

This research will be conducted by me, Roberta Troxell, a doctoral student at the University of Illinois at Chicago, in partial fulfillment for my Doctor of Public Health degree. A copy of my curriculum vita is attached. The project will be overseen by my 5-member dissertation committee representing the School of Public Health and by the Institutional Review Board of the University of Illinois at Chicago.

If you agree to be a part of this research, you would need to carefully read the Participant Information Sheet, complete the survey, and mail it back to me in the enclosed postage-paid envelope. There are no right or wrong answers to the survey questions. What is most important is your being as candid as possible about your experiences.

If you have any questions, please contact me at (815) 289-9455 or my faculty advisor, Noel Chavez, PhD, at (312) 996-0747. I can also be reached by e-mail at rtroxe1@uic.edu.

Thank you for considering participating in this research.

Please leave blank. For office use only.

Sincerely,

Roberta M. Troxell

APPENDIX C (continued)

FORM II

VITA

NAME:	Roberta Mary Troxell
EDUCATION:	B.S.N., Nursing, University of Maryland, Baltimore, Maryland, 1975
	M.S., Nurse-Midwifery, University of Illinois at Chicago, Chicago, Illinois, 1980
	Dr.P.H. Candidate, Public Health, University of Illinois at Chicago, Chicago, Illinois
PROFESSIONAL MEMBERSHIPS:	American Public Health Association International Society of Traumatic Stress Studies Association of Traumatic Stress Specialists American College of Nurse-Midwives SigmaTheta Tau International, National Honor Society of Nursing Association of Women's Health, Obstetric, and Neonatal Nurses
PUBLICATIONS:	Mendez-Bauer, C., Troxell, R.M., Roberts, J.E., Firman, S.M., Dubois, J.F., Menendez, A., and Freese, U.E.: A clinical test for diagnosing nuchal cords. Journal of Reproductive Medicine. 32: 924-927, 1987.

FORM III

MAIN STUDY PARTICIPANT INFORMATION SHEET

Please leave blank. For office use only.

Main Study Participant Information Sheet

Indirect Exposure to the Trauma of Others: The Experiences of 9-1-1 Telecommunicators
University of Illinois at Chicago

You are being asked to participate in a research study about stress experienced by telecommunicators conducted by me, Roberta Troxell, from the School of Public Health at the University of Illinois at Chicago. You have been asked to participate in the research because you are a telecommunicator in the state of Illinois and your center administrator agreed to mail this survey to you.

Telecommunicators are the real "first" responders in our community. Your work involves hearing the traumatic experiences of others. This can create a lot of stress for you and affect your work and personal life. Research has been conducted in this area with other groups of emergency responders but never with telecommunicators. What we have learned from other responders may not apply to you because of the unique role you fill in our community emergency response system. Should you decide to participate, the responses you provide will help guide future research efforts aimed at reducing the risks of such indirect exposure to trauma and improving the well-being of telecommunicators.

If you agree to be in this research program, I would ask you to do the following things:

- Read this entire Information Sheet carefully.
- Complete the written questionnaire. This should take approximately 40 minutes of your time.
- Once you have completed the questionnaire, place it in the enclosed postage-paid manila envelope, seal it, and put it in the mail to me. Do not put any identifying information on the survey or envelope.
- If you are interested in receiving a written report of the findings from this study, fill out the enclosed postage-paid postcard. Mail this to me separately from the survey. You do not have to participate to request this report.

Approximately 1000 of your fellow telecommunicators throughout the state of Illinois are being invited to complete this survey. There is no other way to gather this information. It is important your voices be heard and the job you perform be recognized as a difficult and important one. By learning about your experiences, we can determine the extent of any problems you have had or are currently having because of the emergency calls that you handle. There are no right or wrong answers to the survey questions. What is most important is your being as candid as possible about your experiences.

This research has some risk. You may experience some distress while answering the study questions. This can be a normal response when thinking about the difficult calls you have handled during your career and how they may have affected you both personally and professionally. If you feel it is just too much to deal with, you can decide to not participate any further in this research. If you want to talk with someone about the feelings you may have, you may contact one of the following:

- Your Employee Assistance Program
- Critical Incident Stress Foundation
    - Main number: (410) 750-9600
    - 24-hour hotline: (410) 313-2473

There are benefits to taking part in this research. Although there are many reports of telecommunicator stress on the internet, in training manuals, magazines, and books, this is the first time it will be studied in a scientific manner. Your ideas will help to frame future research in this area.

Your privacy and the confidentiality of your responses are important. The only people who will know that you are a potential research participant are your call center administrators who agreed to mail this survey to you. However, no one, including them, will know if you decide to participate or not. There will be no information that could identify you on the survey materials. If you choose to make any narrative comments, they will not be quoted in any subsequent reports

When the results of the research are published or discussed in conferences, no information will be included that could reveal your identity. The surveys are not coded in any way that would threaten your anonymity. They will be kept in a locked cabinet by me and destroyed when this project is completed. If you return the postcard requesting a written report of the findings, it will be destroyed once the report is mailed to you.

There are no dollar costs for participating in this study. However, your time is also valuable. Every effort has been made to respect this. A pilot study was done with some of your colleagues in Illinois to refine the study questions and include the most pertinent ones in this final survey.

You will not be paid for your participation. In the event of injury related to this study, treatment will be made available through the University of Illinois at Chicago Hospital. However, you or your third party payer, if any, will be responsible for payment of this treatment. There is not compensation and/or payment for such medical treatment from the University of Illinois at Chicago for such injury, except as may be required of the University by law. If you feel you have been injured, you may contact me at (815) 289-9455.

Your participation in this research is voluntary, your decision whether to participate or not will not affect your current or future relations with the University of Illinois or your call center. If you decide to participate, you are free to withdraw at any time without affecting those relationships. You may also refuse to answer any questions you do not want to answer and still remain in the study.

If you feel at any time that you have not been treated according to the descriptions in this form, or you have any questions about your rights as a research participant, you may call the Office for the Protection of Research Subjects (OPRS) at (312) 996-1711 (local) or (866) 789-2614 (toll-free) or e-mail OPRS at uicirb@uic.edu.

If you have any questions, please contact me at (815) 289-9455 or by e-mail at rtroxe1@uic.edu. You may also contact my faculty advisor, Noel Chavez, PhD, at (312) 996-0747.

Thank you for considering participating in this research.

Sincerely,

Roberta M. Troxell

APPENDIX C (continued)

FORM IV

COVER LETTER FOR SECOND MAILING OF MAIN STUDY SURVEY PACKET

(PRINTED ON UNIVERSITY OF IL SCHOOL OF PUBLIC HEALTH LETTERHEAD)

Dear Telecommunicator:

A few weeks ago a survey was sent to you on the effects of hearing traumatic information from 9-1-1 callers. Your opinion is important. The information we learn from your responses will help guide future research on what can be done to reduce your risks of negative effects and improve your health.

If you have already completed the survey, please accept my sincere thanks. If not, please reconsider doing so. If you have any questions, please call me at (815)289-9455 or contact me by e-mail at rtroxe1@uic.edu.

Sincerely,

Roberta M. Troxell

Please leave blank. For office use only.

APPENDIX C (continued)

FORM V

RESPONDENT POSTCARD TO REQUEST REPORT OF FINDINGS

A postage-paid postcard was provided to the main study potential respondents to return to the researcher if they desired a copy of the final research findings. A standard-sized postcard, 4 inches by 6 inches, was printed as follows.

Please leave blank. For office use only.

Front:

Roberta Troxell
4935 Cardamon Lane
Rockford, IL 61114

(postage)

Roberta Troxell
4935 Cardamon Lane
Rockford, IL 61114

Back:

Please send me a copy of the findings from your study on Illinois Telecommunicators when they are available.

Name: _____

Address: _____

_____

City: _____

State: _____

Zip Code: _____

APPENDIX D

DSM-IV-TR CRITERIA FOR THE DIAGNOSIS OF POST-TRAUMATIC STRESS DISORDER

A. The person has been exposed to a traumatic event in which both of the following were present:

(1) the person experienced, witnessed, or was confronted with an event of events that involved actual or threatened death or serious injury or a threat to the physical integrity of self or others.

(2) the person's response involved intense fear, helplessness, or horror.

B. The traumatic event is persistently reexperienced in one (or more) of the following ways:

(1) recurrent and intrusive distressing recollections of the event, including images, thoughts, or perceptions.

(2) recurrent distressing dreams of the event.

(3) acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur on awakening and when intoxicated.

(4) intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event.

(5) physiological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event.

APPENDIX D (continued)

C. Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma), as indicated by three (or more) of the following:

(1) efforts to avoid thoughts, feelings, or conversations associated with the trauma.

(2) efforts to avoid activities, places, or people that arouse recollections of the trauma.

(3) inability to recall an important aspect of the trauma.

(4) markedly diminished interest or participation in significant activities.

(5) feeling of detachment or estrangement from others.

(6) restricted range of affect (e.g., unable to have loving feelings).

(7) sense of a foreshortened future (e.g., does not expect to have a career, marriage, children, or a normal life span).

D. Persistent symptoms of increased arousal (not present before the trauma), as indicated by two (or more) of the following:

(1) difficulty falling or staying asleep.

(2) irritability or outbursts of anger.

(3) difficulty concentrating.

(4) hypervigilance

(5) exaggerated startle response.

APPENDIX D (continued)

E. Duration of the disturbance (symptoms in Criteria B, C, and D) is more than 1 month.

F. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

Specify if:

Acute: if duration of symptoms is less than 3 months.

Chronic: if duration of symptoms is 3 months or more.

Specify if:

With Delayed Onset: if onset of symptoms is at least 6 months after the stressor.

(American Psychiatric Association, 2000)

APPENDIX E

PILOT STUDY SURVEY

Indirect Exposure to the Trauma of Others:

The Experiences of 9-1-1 Telecommunicators

Survey Questionnaire

PLEASE CIRCLE ONE ANSWER CODE FOR EACH QUESTION UNLESS OTHERWISE DIRECTED.

Work History

The following questions pertain to your work as a telecommunicator. Think carefully about each question before answering.

1. Which of the following best describes your current employment status?

Employed full-time..... 1
Employed part-time..... 2
Unemployed..... 3
Other..... 4
(Please describe _____)

2. Which of the following best describes your role as a telecommunicator?

Call-taker..... 1
Dispatcher..... 2
Call-taker and dispatcher..... 3
Other..... 4
(Please describe: _____)

3. Which statement best describes overtime practices at your center?

I am required to work overtime..... 1
Overtime is voluntary..... 2
Does not apply..... 3

4. Fill in the number of hours you worked in the past 7 days.

_____hours worked in the past 7 days

5. Fill in the total number of years you have worked as a telecommunicator at 9-1-1 call centers.

_____years worked at 9-1-1 call centers

6. Fill in the month and year you started working at your present call center.

_____Month _ _ _ _Year

7. For each of the following statements, indicate your opinion about staffing at your call center by circling the number based on the following scale:

1.....2.....3.....4.....5				
Never	Seldom	Some of the time	Most of the time	All of the time

	(Never.....All the time)
a. We are able to comfortably handle the workload.	1.....2.....3.....4.....5
b. We are chronically understaffed.	1.....2.....3.....4.....5
c. Lack of adequate staff is a serious problem.	1.....2.....3.....4.....5
d. Staffing needs are not considered a priority.	1.....2.....3.....4.....5

8. The following list describes many sources of stress for 9-1-1 telecommunicators. Circle the number after the ones that are currently a source of stress for you.

Lack of training..... 1
Poor supervision..... 1
Personal conflicts at work..... 1
Lack of appreciation from management..... 1
Low pay/benefits..... 1
Workload..... 1
Poor communication among the staff..... 1
Poor equipment..... 1
Ergonomics (physical lay-out)..... 1
Co-workers..... 1
The public..... 1
The media..... 1
Call-monitoring practices (recording all calls)..... 1
Performance evaluations..... 1
Other..... 1
(Please describe: _____)

None of the above..... 0

9. The following is a list of types of calls often taken by 9-1-1 operators.

In the far left column, circle the number for all those that you have handled during the past 30 days.

For the calls that you have circled, indicate how stressful each was for you to handle by circling the number in the spaces provided in the 2nd column from the right.

In the far right column, please indicate how stressful you think those calls would have been for a typical telecommunicator to handle by circling the numbers in the spaces provided.

Base the stress levels on the following scale:

0.....1.....2.....3.....4.....5

Not stressful at all	A little stressful	Somewhat stressful	Moderately stressful	Quite stressful	Extremely stressful

If handled by you in past 30 days, circle the number		**Circle the stress level for you** (Not.....Extremely)	**Circle the stress level for typical telecommunicator** (Not.....Extremely)
a. 1	Traffic accidents If checked, how stressful?	0...1...2...3...4...5	0...1...2...3...4...5
b. 1	Line of duty death If checked, how stressful?	0...1...2...3...4...5	0...1...2...3...4...5
c. 1	Death of a child If checked, how stressful?	0...1...2...3...4...5	0...1...2...3...4...5
d. 1	Natural disaster If checked, how stressful?	0...1...2...3...4...5	0...1...2...3...4...5
e. 1	Suicide call If checked, how stressful?	0...1...2...3...4...5	0...1...2...3...4...5
f. 1	Officer, firefighter, paramedic, EMT injured If checked, how stressful?	0...1...2...3...4...5	0...1...2...3...4...5
g. 1	Murder If checked, how stressful?	0...1...2...3...4...5	0...1...2...3...4...5
h. 1	Pursuits If checked, how stressful?	0...1...2...3...4...5	0...1...2...3...4...5

0……1……2……3……4……5					
Not stressful at all	A little stressful	Somewhat stressful	Moderately stressful	Quite stressful	Extremely stressful

If handled by you in past 30 days, circle the number		**Circle the stress level for you** (Not……Extremely)	**Circle the stress level for typical telecommunicator** (Not……..Extremely)
i. 1	Shooting victim If checked, how stressful?	0...1…2…3…4…5	0…1…2…3…4…5
j. 1	Calls involving children If checked, how stressful?	0…1…2…3…4…5	0…1…2…3…4…5
k. 1	Calls involving family, friends If checked, how stressful?	0…1…2…3…4…5	0…1…2…3…4…5
l. 1	Shots fired If checked, how stressful?	0…1…2…3…4…5	0…1…2…3…4…5
m. 1	Officer shot If checked, how stressful?	0…1…2…3…4…5	0…1…2…3…4…5
n. 1	Structure fire If checked, how stressful?	0…1…2…3…4…5	0…1…2…3…4…5
o. 1	Robbery If checked, how stressful?	0…1…2…3…4…5	0…1…2…3…4…5
p. 1	Barricaded subject (police stand-off with suspect) If checked, how stressful?	0…1…2…3…4…5	0…1…2…3…4…5
q. 1	Others. Please specify: _____ _____ If checked, how stressful?	0…1…2…3…4…5	0…1…2…3…4…5

10. Take a few minutes to think about the calls you have handled during your career as a telecommunicator that were stressful for you. Pick the one that stands out in your mind as the most troubling, disturbing, or distressing you have had to cope with.

a. Write in the year this occurred: _ _ _ _

b. Describe the circumstances of this call:

11. With the call you specified in question 10 in your mind, indicate the extent to which each of the following was experienced during and immediately after that call. Circle the number that <u>best</u> describes your experiences based on the following scale:

0.....1.....2.....3.....4.....5					
Not at all	A little true	Somewhat true	Moderately true	Very true	A great deal

	(Not at all.....A great deal)
a. I felt helpless to do more.	0.....1.....2.....3.....4.....5
b. I felt sadness and grief.	0.....1.....2.....3.....4.....5
c. I felt frustrated or angry I could not do more.	0.....1.....2.....3.....4.....5
d. I felt afraid for my safety.	0.....1.....2.....3.....4.....5
e. I felt guilt that more was not done.	0.....1.....2.....3.....4.....5
f. I felt ashamed of my emotional reactions.	0.....1.....2.....3.....4.....5
g. I felt worried about the safety of others.	0.....1.....2.....3.....4.....5
h. I had the feeling I was about to lose control of my emotions.	0.....1.....2.....3.....4.....5
i. I had difficulty controlling my bowel and bladder.	0.....1.....2.....3.....4.....5
j. I was horrified by what happened.	0.....1.....2.....3.....4.....5
k. I had physical reactions like sweating, shaking, and pounding heart.	0.....1.....2.....3.....4.....5
l. I felt I might pass out.	0.....1.....2.....3.....4.....5
m. I thought I might die.	0.....1.....2.....3.....4.....5

12. The following statements describe specific work conditions and management of your emotions when dealing with 9-1-1- calls. Circle the number that <u>best</u> describes your experiences based on the following scale:

0……..1……..2……..3……..4……..5					
Not at all	A little true	Somewhat true	Moderately true	Very true	A great deal

	(Not at all……A great deal)
a. My job requires that I display many different emotions when interacting with others.	0……..1……..2……..3……..4……..5
b. My work requires me to guide people through sensitive and/or emotional issues.	0……1……2……3……4……5
c. My work involves dealing with emotionally charged issues as a critical dimension of my job.	0……1……2……3……..4……5
d. My job requires that I manage the emotions of others.	0……1……2……3……4……5
e. In my work, I am good at dealing with emotional issues.	0……1……2……3……4……5
f. My work requires me to provide comfort to people who are in crisis.	0……1……2……3……4……5

13. Helping people puts you in direct contact with their lives. As you probably have experienced, your compassion for those you help has both positive and negative aspects. I would like to ask you questions about your experiences, both positive and negative, as a helper when performing your job as a telecommunicator.

Consider each of the following questions about you and your current situation. Circle the number after each statement that honestly reflects how frequently you experienced these characteristics in the <u>last 30 days</u> based on the following scale:

0	1	2	3	4	5
Never	Rarely	A few times	Somewhat often	Often	Very often

	(Never.....Very often)
1. I am happy.	0....1....2....3....4....5
2. I am preoccupied with more than one person I have helped.	0....1....2....3....4....5
3. I get satisfaction from being able to help people.	0....1....2....3....4....5
4. I feel connected to others.	0....1....2....3....4....5
5. I jump or am startled by unexpected sounds.	0....1....2....3....4....5
6. I feel invigorated after working with those I help.	0....1....2....3....4....5
7. I find it difficult to separate my personal life from my life as a helper.	0....1....2....3....4....5
8. I am losing sleep over the traumatic experiences of a person I helped.	0....1....2....3....4....5
9. I think I might have been "infected" by the traumatic stress of those I help.	0....1....2....3....4....5
10. I feel trapped by my work as a helper.	0....1....2....3....4....5
11. Because of my helping, I have felt "on edge" about various things.	0....1....2....3....4....5
12. I like my work as a helper.	0....1....2....3....4....5
13. I feel depressed as a result of my work as a helper.	0....1....2....3....4....5
14. I feel as though I am experiencing the trauma of someone I have helped.	0....1....2....3....4....5
15. I have beliefs that sustain me.	0....1....2....3....4....5
16. I am pleased with how I am able to keep up with helping techniques and protocols.	0....1....2....3....4....5
17. I am the person I always wanted to be.	0....1....2....3....4....5
18. My work makes me feel satisfied.	0....1....2....3....4....5
19. Because of my work as a helper, I feel exhausted.	0....1....2....3....4....5
20. I have happy thoughts and feelings about those I help and how I could help them.	0....1....2....3....4....5
21. I feel overwhelmed by the amount of work I have to deal with.	0....1....2....3....4....5
22. I believe I can make a difference through my work.	0....1....2....3....4....5
23. I avoid certain activities or situations because they remind me of frightening experiences of the people I have helped.	0....1....2....3....4....5
24. I am proud of what I can do to help.	0....1....2....3....4....5
25. As a result of my helping, I have intrusive, frightening thoughts.	0....1....2....3....4....5

0	1	2	3	4	5
Never	Rarely	A few times	Somewhat often	Often	Very often

	(Never.....Very often)
26. I feel "bogged down" by the system.	0....1....2....3....4....5
27. I have thoughts that I am a "success" as a helper.	0....1....2....3....4....5
28. I can't recall important parts of my work with trauma victims.	0....1....2....3....4....5
29. I am a very sensitive person.	0....1....2....3....4....5
30. I am happy that I chose to do this work.	0....1....2....3....4....5

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CIRCLE ONE ANSWER CODE FOR EACH QUESTION UNLESS OTHERWISE DIRECTED.

Descriptive Information

The following questions ask about your background. Please respond as accurately as possible.

14. Indicate your gender.

Female.....1
Male.....2

15. Fill in your age in years.

_____years old

16. Indicate the highest level of education you have completed.

High school.....1
Trade school.....2
Associate degree.....3
Bachelor degree.....4
Graduate degree.....5

17. Indicate your current partner status.

Currently married.....1
Unmarried & living with a partner.....2
Divorced..... 3
Single.....4
Widowed..... 5
Separated..... 6

18. Please indicate the number of children under 18 years of age that are living in your home.

_____number of children under 18 years of age

19. Are you the primary care-giver for your dependent children?

Yes..... 1
No..... 0

20. Are you the primary care-giver for any elderly parents?

Yes..... 1
No..... 0

21. Have you had any unscheduled absences from work in the past 3 months?

No..... 0
Yes..... 1
(If yes, please indicate the number of days missed from work.)
_____Days missed from work

22. Which of the following categories describes your race? Circle all that apply.

American Indian or Alaskan Native..... 1
Asian.....2
Black or African-American.....3
Native Hawaiian or Other Pacific Islander.....4
White..... 5
Some other race..... 6

23. Which of the following categories best describes your ethnicity?

Hispanic or Latino..... 1
Not Hispanic or Latino..... 0

Thank you very much for your participation.

If there is anything else you would like to comment on or any other concern you may have about your role as a telecommunicator, please do so in the space provided below.

THANK YOU FOR YOUR COOPERATION

Please return the completed questionnaire
In the enclosed postage paid envelope to:

Roberta Troxell
4935 Cardamon Lane
Rockford, IL 61114
(815)282-9455
(815)289-9455
rtroxe1@uic.edu

Office Use Only

Number: _____

Date received: _____

Coder 1: _____
Coder 2: _____
Rechecked: _____
Entered: _____

APPENDIX F

MAIN STUDY SURVEY

Indirect Exposure to the Trauma of Others:

The Experiences of 9-1-1 Telecommunicators

Survey Questionnaire

PLEASE CIRCLE ONE ANSWER CODE FOR EACH QUESTION UNLESS OTHERWISE DIRECTED.

Work History

The following questions pertain to your work as a telecommunicator. Think carefully about each question before answering.

1. Which of the following best describes your current employment status?

Employed full-time..... 1
Employed part-time..... 2
Unemployed..... 3
Other..... 4
(Please describe _____)

2. Which of the following best describes your role as a telecommunicator?

Call-taker..... 1
Dispatcher..... 2
Call-taker and dispatcher..... 3
Shift/Working supervisor..... 4
Training coordinator..... 5
Other..... 6
(Please describe: _____)

3. Which statements describe overtime practices at your center? Circle all that apply.

Overtime is mandatory..... 1
Overtime is voluntary..... 2
Overtime is sometimes forced..... 3
We do not work overtime at my center..... 4

4. Fill in the number of hours you worked in the past 7 days.

_____hours worked in the past 7 days

5. Fill in the total number of years you have worked as a telecommunicator at 9-1-1 call centers.

_____years worked at 9-1-1 call centers

6. Fill in the month and year you started working at your present call center.

_____Month _ _ _ _Year

7. For each of the following statements, indicate your opinion about staffing at your call center by <u>circling the number</u> based on the following scale:

1……2……3……4……5				
Never	Seldom	Some of the time	Most of the time	All of the time

	(Never……All the time)
a. We are able to comfortably handle the workload.	1……2……3……4……5
b. We are chronically understaffed.	1……2……3……4……5
c. Lack of adequate staff is a serious problem.	1……2……3……4……5
d. Staffing needs are considered a priority.	1……2……3……4……5

8. Circle the response below that best describes the "tone of the room" (the level of tension in your communication center) <u>on a usual work day</u>

Not at all tense…… 0
A little tense…… 1
Somewhat tense…… 2
Moderately tense…… 3
Very tense…… 4

9. The following list describes many sources of stress for 9-1-1 telecommunicators. Circle the number after the ones that are <u>currently</u> a source of stress for you.

Lack of training..... 1
Poor supervision..... 1
Personal conflicts at work..... 1
Lack of appreciation from management..... 1
Inadequate compensation..... 1
Poor communication among the staff..... 1
Poor equipment..... 1
Lack of input on new hires..... 1
Management/administration..... 1
Sexual harassment..... 1
Lack of follow-up/regard for us after a stressful incident..... 1
Constantly changing policies..... 1
Scapegoating of the communications center..... 1
Ergonomics (physical lay-out & physical working conditions)..... 1
Co-workers..... 1
Treatment from others during stressful events..... 1
The public..... 1
The media..... 1
Call-monitoring practices (recording all calls)..... 1
Performance evaluations (giving/receiving)..... 1
Lack of understanding of what telecommunicators do..... 1
Lack of closure..... 1
Scheduling time off..... 1
Other..... 1
(Please describe: _____)

None of the above..... 0

10. The following is a list of types of calls often taken by 9-1-1 telecommunicators.

In the far left column, circle the number for all those that you have ever handled during your career.

For the calls that you have circled, indicate if you did or did not experienced fear, helplessness, or horror at the time of the call by putting an X in the space provided.

If handled by you ever, circle the number		Place an X in the box to indicate whether or not you felt fear, helplessness, or horror: Yes, I did.	No, I did not.
a. 1	Traffic accidents with fatalities		
b. 1	Natural disasters/severe weather		
c. 1	Suicidal caller		
d. 1	Homicide		
e. 1	Line of duty death		
f. 1	Death of a child		
g. 1	Officer, firefighter, EMT injured		
h. 1	Pursuits		
i. 1	Calls involving children with severe injury		
j. 1	Armed robbery		
k. 1	Sexual assault of a child		
l. 1	Calls involving your family/friends		
m. 1	Hostage situation		
n. 1	Domestics		
o. 1	Riots/mob action		
p. 1	Plane crash		
q. 1	Shots fired		
r. 1	Officer shot		
s. 1	Structure fire		
t. 1	Barricaded subject (police stand-off with suspect)		
u. 1	Other highly disturbing calls. Please specify: _____ _____		

11. Take a few minutes to think about the calls you have handled during your career as a telecommunicator that were stressful for you. Out of all those critical calls, pick the one that stands out in your mind as the most troubling, disturbing, or distressing you have had to cope with.

a. Write in the year this occurred: _ _ _ _

b. Briefly describe the circumstances of this call:

12. With the call you specified in question 11 in your mind, indicate the extent to which each of the following was experienced during and immediately after that call. Circle the number that best describes your experiences based on the following scale:

0.....1.....2.....3.....4.....5

Not at all	A little true	Somewhat true	Moderately true	Very true	A great deal

	(Not at all.....A great deal)
a. I felt helpless to do more.	0.....1.....2.....3.....4.....5
b. I felt sadness and grief.	0.....1.....2.....3.....4.....5
c. I felt frustrated or angry I could not do more.	0.....1.....2.....3.....4.....5
d. I felt guilt that more was not done.	0.....1.....2.....3.....4.....5
e. I felt ashamed of my emotional reactions.	0.....1.....2.....3.....4.....5
f. I felt worried about the safety of others on the scene.	0.....1.....2.....3.....4.....5
g. I had the feeling I was about to lose control of my emotions.	0.....1.....2.....3.....4.....5
h. I was horrified by what happened.	0.....1.....2.....3.....4.....5
i. I had physical reactions like sweating, shaking, and pounding heart.	0.....1.....2.....3.....4.....5
j. I felt I might pass out.	0.....1.....2.....3.....4.....5

13. The following statements describe specific work conditions and management of your emotions <u>when dealing with 9-1-1 calls</u>. Circle the number that <u>best</u> describes your experiences <u>with callers</u> based on the following scale:

0……..1……..2……..3……..4……..5					
Not at all	A little true	Somewhat true	Moderately true	Very true	A great deal

	(Not at all……A great deal)
a. My job requires that I display many different emotions when interacting with others.	0……..1……..2……..3……..4……..5
b. My work requires me to guide people through sensitive and/or emotional issues.	0……1……2……3……4……5
c. My work involves dealing with emotionally charged issues as a critical dimension of my job.	0……1……2……3……..4……..5
d. My job requires that I manage the emotions of others.	0……1……2……3……4……5
e. In my work, I am good at dealing with emotional issues.	0……1……2……3……4……5
f. My work requires me to provide comfort to people who are in crisis.	0……1……2……3……4……5

14. Helping people puts you in direct contact with their lives. As you probably have experienced, your compassion for those you help has both positive and negative aspects. I would like to ask you questions about your experiences, both positive and negative, as a helper when performing your job as a telecommunicator.

Consider each of the following questions about you and your current situation. Circle the number after each statement that honestly reflects how frequently you experienced these characteristics in the <u>last 30 days</u> based on the scale provided.

The example below may be helpful in understanding how to read the statements on the following page with the rating scale in mind:

<u>Example</u>

In the past 30 days, I have experienced or felt the following:

"I am happy"..... 0 (never in the past 30 days).
1 (rarely in the past 30 days).
2 (a few times in the past 30 days).
3 (somewhat often in the past 30 days).
4 (often in the past 30 days).
5 (very often in the past 30 days).

0.....1.....2.....3.....4.....5

Never	Rarely	A few times	Somewhat often	Often	Very often

	(Never.....Very often)
1. I am happy.	0....1....2....3....4....5
2. I am preoccupied with more than one person I have helped.	0....1....2....3....4....5
3. I get satisfaction from being able to help people.	0....1....2....3....4....5
4. I feel connected to others.	0....1....2....3....4....5
5. I jump or am startled by unexpected sounds.	0....1....2....3....4....5
6. I feel invigorated after working with those I help.	0....1....2....3....4....5
7. I find it difficult to separate my personal life from my life as a helper.	0....1....2....3....4....5
8. I am losing sleep over the traumatic experiences of a person I helped.	0....1....2....3....4....5
9. I think I might have been "infected" by the traumatic stress of those I help.	0....1....2....3....4....5
10. I feel trapped by my work as a helper.	0....1....2....3....4....5
11. Because of my helping, I have felt "on edge" about various things.	0....1....2....3....4....5
12. I like my work as a helper.	0....1....2....3....4....5
13. I feel depressed as a result of my work as a helper.	0....1....2....3....4....5
14. I feel as though I am experiencing the trauma of someone I have helped.	0....1....2....3....4....5
15. I have beliefs that sustain me.	0....1....2....3....4....5
16. I am pleased with how I am able to keep up with helping techniques and protocols.	0....1....2....3....4....5
17. I am the person I always wanted to be.	0....1....2....3....4....5
18. My work makes me feel satisfied.	0....1....2....3....4....5
19. Because of my work as a helper, I feel exhausted.	0....1....2....3....4....5
20. I have happy thoughts and feelings about those I help and how I could help them.	0....1....2....3....4....5
21. I feel overwhelmed by the amount of work I have to deal with.	0....1....2....3....4....5
22. I believe I can make a difference through my work.	0....1....2....3....4....5
23. I avoid certain activities or situations because they remind me of frightening experiences of the people I have helped.	0....1....2....3....4....5
24. I am proud of what I can do to help.	0....1....2....3....4....5
25. As a result of my helping, I have intrusive, frightening thoughts.	0....1....2....3....4....5
26. I feel "bogged down" by the system.	0....1....2....3....4....5
27. I have thoughts that I am a "success" as a helper.	0....1....2....3....4....5
28. I can't recall important parts of my work with trauma victims.	0....1....2....3....4....5
29. I am a very sensitive person.	0....1....2....3....4....5
30. I am happy that I chose to do this work.	0....1....2....3....4....5

CIRCLE ONE ANSWER CODE FOR EACH QUESTION UNLESS OTHERWISE DIRECTED.

Descriptive Information

The following questions ask about your background. Please respond as accurately as possible.

15. Indicate your gender.

Female.....1
Male.....2

16. Fill in your age in years.

_____years old

17. Indicate the highest level of education you have completed.

High school.....1
Trade school.....2
Some college.....3
Associate degree.....4
Bachelor degree.....5
Graduate degree.....6

18. Indicate your current partner status.

Currently married.....1
Unmarried & living with a partner.....2
Divorced.....3
Single.....4
Widowed.....5
Separated.....6

19. Do you have any children under 18 years of age living in your home?

No.....0
Yes.....1
(If yes, please indicate for how many you are the primary care-giver.)
_____ Number of children as primary care-giver.

20. Are you the primary care-giver for any elderly parents (whether living with you or not)?

No..... 0
Yes.....1

21. Have you had any unscheduled absences from work in the past 3 months?

No..... 0
Yes..... 1
(If yes, please indicate the number of days missed from work.)
_____Days missed from work
(Please indicate how many were for yourself and not other family.)
_____Days missed from work for myself.

22. Is your partner, spouse or another family member a first responder?

No..... 0
Yes..... 1
If yes, are they in your jurisdiction?
No..... 0
Yes..... 1

23. Which of the following categories describes your race? Circle all that apply.

American Indian or Alaskan Native..... 1
Asian.....2
Black or African-American.....3
Native Hawaiian or Other Pacific Islander.....4
White..... 5
Some other race..... 6
Please specify: _____

24. Which of the following categories best describes your ethnicity?

Hispanic or Latino..... 1
Not Hispanic or Latino..... 0

Thank you very much for your participation.

If there is anything else you would like to comment on or any other concern you may have about your role as a telecommunicator, please do so in the space provided below.

THANK YOU FOR YOUR COOPERATION

Please return the completed questionnaire
In the enclosed postage paid envelope to:

Roberta Troxell
4935 Cardamon Lane
Rockford, IL 61114
(815)282-9455
(815)289-9455
rtroxe1@uic.edu

Office Use Only

Number: _____

Date received: _____

Coder 1: _____
Coder 2: _____
Rechecked: _____
Entered: _____
Rechecked: _____

APPENDIX G

INSTITUTIONAL REVIEW BOARD DOCUMENTS

UNIVERSITY OF ILLINOIS
AT CHICAGO

Office for the Protection of Research Subjects (OPRS)
Office of the Vice Chancellor for Research (MC 672)
203 Administrative Office Building
1737 West Polk Street
Chicago, Illinois 60612-7227

Approval Notice
Initial Review (Response To Modifications)

February 13, 2007

Roberta Troxell, B.S.N., M.S
Community Health Sciences
4935 Cardamon Lane
Rockford, IL 61114
Phone: (815) 289-9455

RE: **Protocol # 2007-0041**
"Indirect Exposure to the Trauma of Others: The Experiences of 9-1-1 Telecommunicators"

Dear Ms. Troxell:

Your Initial Review (Response To Modifications) was reviewed and approved by the Expedited review process on February 12, 2007. You may now begin your research.

Please note the following information about your approved research protocol:

Protocol Approval Period: February 12, 2007 - February 11, 2008
Approved Subject Enrollment #: 1,030
Additional Determinations for Research Involving Minors: These determinations have not been made for this study since it has not been approved for enrollment of minors.
Performance Site: UIC
Sponsor: None
Research Protocol:

a) Indirect Exposure to the Trauma of Others: The Experiences of 9-1-1 Telecommunicators

Recruitment Materials:

a) Respondent Postcard to Request Report of Findings, Indirect Exposure to Trauma; Version 1; 01/03/2007
b) Recruitment Letter, Indirect Exposure to Trauma; Version 1; 01/08/2007
c) Follow-up Letter, Indirect Exposure to Trauma; Version 1; 01/14/2007
d) Flyer, Indirect Exposure to Trauma; Version 1; 01/18/2007
e) Pilot Notice, Indirect Exposure to Trauma; Version 2; 02/02/2007
f) Call Center Agreement, Indirect Exposure to Trauma; Version 2; 02/06/2007

Informed Consents:

a) Pilot Study Guide, Indirect Exposure to Trauma; Version 1; 01/08/2007
b) Main Study Sheet, Indirect Exposure to Trauma; Version 2; 02/05/2007
c) Pilot Consent, Indirect Exposure to Trauma; Version 2; 02/06/2007
d) A waiver of signed documentation of consent has been granted under 45 CFR 46.117 for the main study

Your research meets the criteria for expedited review as defined in 45 CFR 46.110(b)(1) under the following specific categories:

(6) Collection of data from voice, video, digital, or image recordings made for research purposes., (7) Research on individual or group characteristics or behavior (including but not limited to research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Please note the Review History of this submission:

Receipt Date	Submission Type	Review Process	Review Date	Review Action
01/18/2007	Initial Review	Expedited	01/26/2007	Modifications Required
02/07/2007	Response To Modifications	Expedited	02/12/2007	Approved

Please remember to:

→ Use your **research protocol number** (2007-0041) on any documents or correspondence with the IRB concerning your research protocol.

→ Review and comply with all requirements on the enclosure,
"UIC Investigator Responsibilities, Protection of Human Research Subjects"

Please note that the UIC IRB has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

We wish you the best as you conduct your research. If you have any questions or need further help, please contact OPRS at (312) 996-1711 or me at (312) 996-2014. Please send any correspondence about this protocol to OPRS at 203 AOB, M/C 672.

Sincerely,

Sandra Costello
IRB Coordinator, IRB # 2
Office for the Protection of Research Subjects

Enclosures:

1. **UIC Investigator Responsibilities, Protection of Human Research Subjects**
2. **Informed Consent Documents:**
   a) Pilot Study Guide, Indirect Exposure to Trauma; Version 1; 01/08/2007
   b) Main Study Sheet, Indirect Exposure to Trauma; Version 2; 02/05/2007
   c) Pilot Consent, Indirect Exposure to Trauma; Version 2; 02/06/2007
3. **Recruiting Materials:**
   a) Respondent Postcard to Request Report of Findings, Indirect Exposure to Trauma; Version 1; 01/03/2007
   b) Recruitment Letter, Indirect Exposure to Trauma; Version 1; 01/08/2007
   c) Follow-up Letter, Indirect Exposure to Trauma; Version 1; 01/14/2007
   d) Flyer, Indirect Exposure to Trauma; Version 1; 01/18/2007
   e) Pilot Notice, Indirect Exposure to Trauma; Version 2; 02/02/2007
   f) Call Center Agreement, Indirect Exposure to Trauma; Version 2; 02/06/2007

cc: Bernard Turnock, Community Health Sciences, M/C 923
Noel Chavez, Community Health Sciences, M/C 923

UNIVERSITY OF ILLINOIS
AT CHICAGO

Office for the Protection of Research Subjects (OPRS)
Office of the Vice Chancellor for Research (MC 672)
203 Administrative Office Building
1737 West Polk Street
Chicago, Illinois 60612-7227

Approval Notice
Amendment to Research Protocol and/or Consent Document – Expedited Review
UIC Amendment # 1

May 23, 2007

Roberta Troxell, B.S.N., M.S
Community Health Sciences
4935 Cardamon Lane
Rockford, IL 61114
Phone: (815) 289-9455

RE: Protocol # 2007-0041
"Indirect Exposure to the Trauma of Others: The Experiences of 9-1-1 Telecommunicators"

Dear Ms. Troxell:

Members of Institutional Review Board (IRB) #2 have reviewed this amendment to your research and/or consent form under expedited procedures for minor changes to previously approved research allowed by Federal regulations [45 CFR 46.110(b)(2)]. The amendment to your research was determined to be acceptable and may now be implemented.

Please note the following information about your approved amendment:

Amendment Approval Date: May 22, 2007
Amendment:
Summary: UIC Amendment # 1 received May 17, 2008 is an investigator-initiated amendment regarding the following:
1. to increase enrollment from 1030 to 1130.
2. change survey completion time from 40 to 20 minutes.
3. revised survey questionnaire.
4. revised mailing instructions.

Approved Subject Enrollment #: 1030

Recruiting Materials:
a) Main Study Letter, Indirect Exposure to Trauma; Version 2 05/17/2007
b) Flyer-Main Study Flyer, version 2, 5/16/07
c) Center Cover Letter, version 1, 5/17/07

Informed Consents:

a) Main Study Participant Information Sheet, version 3, 5/21/07

Please note the Review History of this submission:

Receipt Date	Submission Type	Review Process	Review Date	Review Action
05/17/2007	Amendment	Expedited	05/22/2007	Approved

Please be sure to:

→ **Use only the IRB-approved and stamped consent document(s) and/or HIPAA Authorization form(s) enclosed with this letter when enrolling subjects.**

→ Use your research protocol number (2007-0041) on any documents or correspondence with the IRB concerning your research protocol.

→ Review and comply with all requirements on the enclosure, **"UIC Investigator Responsibilities, Protection of Human Research Subjects"**

Please note that the UIC IRB #2 has the right to ask further questions, seek additional information, or monitor the conduct of your research and the consent process.

We wish you the best as you conduct your research. If you have any questions or need further help, please contact the OPRS at (312) 996-1711 or me at (312) 413-2053. Please send any correspondence about this protocol to OPRS at 203 AOB, M/C 672.

Sincerely,

Sophia L. Radlowski, M.Ed
IRB Coordinator, IRB # 2
Office for the Protection of Research Subjects

Enclosures:

1. **UIC Investigator Responsibilities, Protection of Human Research Subjects**
2. **Informed Consent Document:**
   a) Main Study Participant Information Sheet, version 3, 5/21/07
3. **Recruiting Materials:**
   a) Main Study Letter, Indirect Exposure to Trauma; Version 2 05/17/2007
   b) Flyer-Main Study Flyer, version 2, 5/16/07
   c) Center Cover Letter, version 1, 5/17/07

cc: Noel Chavez, M/C 923
Bernard Turnock, Community Health Sciences, M/C 923

UNIVERSITY OF ILLINOIS
AT CHICAGO

Office for the Protection of Research Subjects (OPRS)
Office of the Vice Chancellor for Research (MC 672)
203 Administrative Office Building
1737 West Polk Street
Chicago, Illinois 60612-7227

Approval Notice
Continuing Review

January 25, 2008

Roberta Troxell, B.S.N., M.S
Community Health Sciences
1727 Locust Place
Apt 106
Schaumburg, IL 60173
Phone: (815) 289-9455

RE: **Protocol # 2007-0041**
"Indirect Exposure to the Trauma of Others: The Experiences of 9-1-1 Telecommunicators"

Dear Ms. Troxell:

Your Continuing Review application was reviewed and approved by the Expedited review process on January 23, 2008. You may continue your research.

Please note the following information about your approved research protocol:

Protocol Approval Period: February 12, 2008 - February 10, 2009
Approved Subject Enrollment #: 513 previously enrolled subjects; closed to accrual
Additional Determinations for Research Involving Minors: These determinations have not been made for this study since it has not been approved for enrollment of minors.
Performance Site: UIC
Sponsor: None
Research Protocol:

a) Indirect Exposure to the Trauma of Others: The Experiences of 9-1-1 Telecommunicators

Recruitment Material:

a) No recruitment materials will be used – study closed to accrual

Informed Consent:

a) A waiver of signed consent documentation has been granted under 45 CFR 46.117 for the main study

Your research continues to meet the criteria for expedited review as defined in 45 CFR 46.110(b)(1) under the following specific categories:

(6) Collection of data from voice, video, digital, or image recordings made for research purposes., (7) Research on individual or group characteristics or behavior (including but not limited to research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Please note the Review History of this submission:

Receipt Date	Submission Type	Review Process	Review Date	Review Action
01/15/2008	Continuing Review	Expedited	01/23/2008	Approved

Please remember to:

→ Use your **research protocol number** (2007-0041) on any documents or correspondence with the IRB concerning your research protocol.

→ Review and comply with all requirements on the enclosure,
"UIC Investigator Responsibilities, Protection of Human Research Subjects"

Please note that the UIC IRB has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

Please be aware that if the scope of work in the grant/project changes, the protocol must be amended and approved by the UIC IRB before the initiation of the change.

We wish you the best as you conduct your research. If you have any questions or need further help, please contact OPRS at (312) 996-1711 or me at (312) 996-2014. Please send any correspondence about this protocol to OPRS at 203 AOB, M/C 672.

Sincerely,

Sandra Costello
IRB Coordinator, IRB # 2
Office for the Protection of Research Subjects

Enclosure: **UIC Investigator Responsibilities, Protection of Human Research Subjects**

cc: Bernard Turnock, Community Health Sciences, M/C 923
Noel Chavez, Community Health Sciences, M/C 923

APPENDIX H

LETTERS OF PERMISSION TO REPRINT COPYRIGHTED MATERIALS

Charles R. Figley, PhD
871 Topaz St.
New Orleans, LA 70124

September 2, 2008

Dear Dr. Figley:

I am a doctoral student in Public Health and have conducted research on 9-1-1 telecommunicators in regards to their indirect exposure to trauma.

I am writing to request permission to use Table I (page 8) from your publication (Compassion Fatigue: Coping with Secondary Traumatic Stress in Those Who Treat the Traumatized, 1995) in my thesis. This material will appear as originally published. Unless you request otherwise, I will use the conventional style of the Graduate College of the University of Illinois at Chicago as acknowledgement.

A copy of this letter is included for your records. Thank you for your kind consideration of this request.

Sincerely,

Roberta Mary Troxell
1727 Locust Place. Apt. 106
Schaumburg, IL 60173
(815)289-9455
rtroxe1@uic.edu

The above request is approved.

Approved by: _____ Date: ____September 30, 2008__

Received Lenexa PD

SEP 0 5 2008

By (initial) _____

Chief Ellen Hanson
Lenexa Police Department
12500 W. 87th St. Pkwy.
Lenexa, KS 66220

September 3, 2008

Dear Chief Hanson:

I am a doctoral student in the School of Public Health at the University of Illinois at Chicago. My dissertation research investigated the experiences of telecommunicators in relation to trauma exposure, compassion satisfaction, burnout, and secondary traumatic stress.

In preparation for this project, I attended the Midwest regional conference of the Association of Public Safety Communications Officials in Kansas City in 2005. A representative from your department conducted a session on the hiring process. He handed out the Job Facts Information sheets for the Police Dispatcher Position, dated January 2005. It is the best description of this position that I have seen.

I am writing to request permission to use this material in my thesis. It will appear as originally published. Unless you request otherwise, I will use the conventional style of the Graduate College of the University of Illinois at Chicago as acknowledgement.

A copy of this letter is included for your records. Thank you for your kind consideration of this request.

Please contact me at rtroxel@uic.edu or (815)289-9455 if you have any questions.

Sincerely,

Roberta M. Troxell

Roberta M. Troxell
1727 Locust Place Apt. 106
Schaumburg, IL 60173

The above request is approved.

Approved by: Ellen Hanson Date: 9-6-08

VITA

NAME:	Roberta Mary Troxell
EDUCATION:	B.S.N., Nursing, University of Maryland, Baltimore, Maryland, 1975
	M.S., Nurse-Midwifery, University of Illinois at Chicago, Chicago, Illinois, 1980
	Dr.P.H., Public Health, University of Illinois at Chicago, Chicago, Illinois, 2007
PROFESSIONAL MEMBERSHIPS:	American Public Health Association International Society of Traumatic Stress Studies Association of Traumatic Stress Specialists American College of Nurse-Midwives SigmaTheta Tau International, National Honor Society of Nursing Association of Women's Health, Obstetric, and Neonatal Nurses
PUBLICATIONS:	Mendez-Bauer, C., Troxell, R.M., Roberts, J.E., Firman, S.M., Dubois, J.F., Menendez, A., and Freese, U.E. (1987). A clinical test for diagnosing nuchal cords. *Journal of Reproductive Medicine, 32*: 924-927.