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PREDICTORS OF BEHAVIORAL HEALTH AMONG
FIREFIGHTERS IN THEIR THIRD YEAR OF FIRE SERVICE

A Thesis
presented in partial fulfillment of requirements
for the degree of Master of Arts
in the Department of Psychology
The University of Mississippi

by

VICTORIA A. TORRES

December 2018

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ABSTRACT

Employee turnover is expensive, as job training can cost upwards of 30% of an employee's annual salary (not including additional onboarding expenses; Boushey & Glynn, 2012). This is especially true among high stress, dangerous occupations that require specialized training such as firefighters (Envisage Technologies, 2016; Knoll, 2011; Patterson et al., 2010). Health status is a primary reason for job concerns that may lead to decline in job performance and employment separation (Hourani, Williams, & Kress, 2006; Virtanen, Kivimäki, Vahtera, Elovainio, Sund, Virtanen, & Ferrie, 2006). Two research areas that support this notion include literature on the biopsychosocial model and occupational stress. The purpose of the current study was twofold: 1) to assess pre-academy biopsychosocial factors that may predict positive health outcomes among firefighters after 3 years of service, and 2) to determine the impact of occupational stress on health status over time. Results indicate that social support from family, number of family mental health diagnoses, depression symptoms and occupational stress were the most salient predictors of total health in the third year of fire service. By pinpointing these markers of vulnerability early in a high-risk, high-stress career, investigators aim to enhance future training and prevention efforts for those in particularly dangerous occupations. Specifically, these findings highlight potentially useful domains to help identify those who may be "at-risk" as well as areas that may be targets for early intervention.

DEDICATION

To Rob Reyes, the love of my life, you make everything better.

ACKNOWLEDGEMENTS

I express my sincere appreciation to my advisor, Dr. Lee Cohen, who has offered consistent encouragement and guidance throughout this project and along the path to my degree. I would also like to thank Dr. Suzy Bird Gulliver who allowed access to the data analyzed in this study, who has provided constant support, and who shifted the trajectory of my life in the best ways. Additionally, I offer sincere gratitude to my committee members, Dr. Gross and Dr. Allen who guided me through foreign concepts, along with my own stress and anxiety. To the fire service personnel who participated in this study: thank you for making this work possible!

Lastly, I am thankful for the continued support of my father, mother, brother, and close friends.

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CHAPTER 1

INTRODUCTION

Employee turnover is problematic as the cost of employment separation can weigh heavily on an organization's budget and workforce. Accordingly, declines in job performance can be expensive and even dangerous, as is the case in high risk occupations wherein employees must rely on one another when responding to an emergency situation. A primary reason for such on-the-job concerns is health status (Hourani, Williams, & Kress, 2006; Virtanen et al., 2006). Specifically, work-related stress imposes a high monetary cost on society (Hassard, Teoh, Visockaite, Dewe, & Cox, 2018). In fact, in their review of 15 studies across multiple countries, Hassard and colleagues (2018) estimated that the total cost of work-related stress ranged from \$221.13 million to \$187 billion, indicating that health status plays a key role in employment separation. This is especially the case among those employed in high-risk occupations such as firefighters, who require specialized job training (Envisage Technologies, 2016; Knoll, 2011; Patterson et al., 2010).

It may be surprising that individuals in occupations that require, at least upon entry, a significant level of physical fitness and technical skill (i.e., first responders, military), engage in unhealthy behaviors that lead to a decline in health status over time. This may be particularly the case among these individuals because it is logical to assume that those who have exhibited good physical and mental health in the past will continue to do so in the future. However, this is not

the case for a variety of reasons. For example, in order to qualify for fire service, fire recruits must first pass a number of strenuous physical fitness tests. Despite this requirement, Coronary Heart Disease (CHD) has been deemed a noteworthy issue among firefighters, as 45% of on-duty deaths are attributed to CHD as compared to emergency medical service (EMS) workers (11%); police and detectives (22%); and general workplace deaths (15%; Kales, Soteriades, Christoudias, & Christiani, 2003; Maguire, Hunting, Smith, & Levick, 2002; TriData Corporation, 2002). Further, Wang, Schmitz, Dewa, and Stansfeld (2009) found that survey respondents who reported good or excellent health at baseline were at higher risk for depression years later when faced with stressful work conditions when compared to their less healthy counterparts (Ganster & Rosen, 2013). This finding indicates that those who do not have a history of health concerns may be more vulnerable to the health consequences of a stressful work environment when compared to their coworkers who have had to overcome earlier health-related challenges. Two broad areas of research which explore, and may help to explain, the complex relationships between high performance occupations and subsequent health decline are studies detailing the biopsychosocial model and occupational stress.

The biopsychosocial model posits that biological, psychological, and social factors serve as a framework guiding the development or absence of specific health conditions (Engel, 1977). That is, the interaction and development of each factor over time contributes to a person's overall health status. Specifically, a person's biology (i.e., his or her genetic makeup), social factors (i.e., level of social support and perceived group inclusion), and psychological factors (i.e., development of psychopathology or related symptoms) all play a role in determining an individual's health. An illustrative application of the biopsychosocial model includes the diathesis-stress model, which posits that a person's genetic predispositions combined with his or

her threshold for stress load throughout life contributes to development or absence of psychopathology (Goforth, Pham, & Carlson, 2011). In sum, according to the biopsychosocial model, biological, psychological, and social factors (and the interaction of these factors over time) influence who a person becomes both in utero and over time. These factors can have an important impact on a person's health.

The literature in the field of occupational stress also highlights the relationship between stress and health (DeLongis, Folkman, & Lazarus, 1988; Johnson, Cooper, Cartwright, Donald, Taylor, & Millet, 2005). Specifically, researchers have found that increased, prolonged stress can lead to a number of unhealthy behaviors such as nicotine and tobacco use, poor diet, lack of exercise, and a sedentary lifestyle (Ng & Jeffery, 2003). In addition to these behavioral outcomes, biological changes, including reduced immune system functioning, have been implicated in response to certain types of stressors (i.e., brief naturalistic stressors, chronic stressors, event sequences), which may contribute to the development of health problems (such as upper respiratory infections, Crohn's disease, multiple sclerosis, rheumatoid arthritis, and coronary heart disease; Segerstrom & Miller, 2004). Considering that the average American spends approximately half of their waking hours at work, stress specifically occurring in the context of the work environment is worthy of close examination (U.S. Bureau of Labor Statistics, 2016). In the occupational stress literature, there is consideration of both stressors and responses to stress.

Those employed in high-risk occupations are at even higher risk for exposure to a variety of stressors (Beaton, Murphy, Johnson, Pike, & Corneil, 1998; Meyer, Zimering, Daly, Knight, Kamholz, & Gulliver, 2012). Specifically, first responders (i.e., firefighters, police, military), who routinely run towards danger as part of their positions, are often exposed to potentially

traumatic events, making them an ideal sample to study to gain a better understanding of occupational stress. Therefore, examining behavior and health outcomes among those in high risk, high stress occupations may shed light on the influence of these vulnerabilities, as well as the impact of prolonged occupational stress, on health.

In 2002, Murphy and colleagues conducted a study assessing firefighter lifestyle risk factor profiles and the influence of lifestyle factors on health outcomes. They found that over half of their sample (53%), which consisted of 441 male firefighters, met criteria for “lifestyle concerns” based on frequency of exercise per week, alcoholic drinks per week, and cigarettes per day (Murphy, Bond, Beaton, Murphy, & Johnson, 2002). While Murphy and colleague’s study was useful in determining risk factors for firefighters as well as understanding the role of occupational stress among firefighters, it had several limitations. First, a threat to internal validity was noted as data were gathered from a single data collection point. Second, the study was limited on the number of health variables included and did not include information on diet, sleep, caffeine consumption, or drug use. Third, data were gathered solely through self-report indices, which can be problematic when assessing constructs such as health variables. Specifically, self-report data in assessing factors such as substance use may underestimate actual use (Del Boca & Noll, 2000; Van de Mortel, 2008).

Given Murphy and colleague’s (2002) findings and limitations, it is clear that more work is warranted to investigate health concerns among those in fire service. Accordingly, the proposed study aims to expand upon the important work noted above. Specifically, this study intends to respond to Murphy and colleagues’ call for an “important next step” using a large, multi-site, longitudinal data set that spans the first three years of service. Since the Firefighter Risk and Resilience (FFR&R; Project RECRUIT) data set utilized a variety of data collection

modalities (namely clinician administered interviews, telephone interviews, and self-report measures) from a variety of sites (7 geographic locations across the United States) to capture information about diet, sleep quality, and drug use along with several other potentially notable constructs, it appears to be an ideal mechanism for addressing the concerns raised. In addition to the FFR&R data set's more generalizable features, the proposed data set was designed to address Murphy and colleagues' (2002) suspected underreporting of alcohol use by employing biological samples (e.g., hair samples) to corroborate self-reported alcohol use. As such, the FFR&R data set appears to be in an ideal position to expand upon Murphy and colleagues' (2002) findings.

Purpose

The current study sought to examine how long-term health outcomes are influenced by various individual factors prior to entry into a high-risk, high-stress occupation. This study also sought to examine the influence of occupational stress on health after three years of fire service. This study is an important next step in gaining an understanding of how pre-existing risk factors develop and in determining future vulnerabilities among firefighters. Early identification of individuals who may be more susceptible to developing unhealthy behavioral patterns may contribute to a more effective workforce by informing prevention efforts and psychoeducation during training. While the current study only examines health features of firefighters, it is believed that findings from this study will generalize to individuals in other high-risk occupations.

Statement of Hypotheses

Hypothesis 1. Firefighters with a positive pre-academy biopsychosocial background will evidence more healthy behaviors compared to firefighters with a negative pre-academy biopsychosocial background. Biopsychosocial backgrounds (collected before entry into the academy) included data relevant to family history of mental health diagnoses, symptoms of depression, symptoms of post-traumatic stress, significant emotional problems, drinking episodes, traumatic life events, and amount of social support. Specifically, fewer reports of family mental health diagnoses (number of symptoms divided by number of family members) gathered using the Family Interview for Genetic Studies (FIGS), lower number of reported symptoms of depression using the Beck Depression Inventory for Primary Care (BDI-PC), lower number of days with emotional problems as indicated on the Timeline Followback (TLFB; Form 90), lower quantity of PTSD symptoms on the PTSD Checklist – Civilian Version (PCL-C), fewer pre-academy drinking episodes in 12 weeks preceding the assessment, less exposure to traumatic events as shown via the Trauma History Questionnaire (THQ), and a higher rating of familial social support as evidenced by a participant’s total score on the Sources of Social Support (SOSS) scale, were thought to be indicative of a more positive pre-academy biopsychosocial background. Health behavior outcomes were represented by nicotine use as indicated on the TLFB, diet and exercise patterns as indicated on the Lifestyle Questionnaire (LQ-R), and total health score represented by the Short-Form Health Survey (SF-12). A more healthy set of behavioral outcomes was characterized by fewer days of nicotine use, endorsement of a regular exercise program, eating at least 3 fruits and vegetables per day, and a higher total health score. The null hypothesis is that there would be no significant difference in health outcomes over time among those with a positive biopsychosocial background and those with a

negative biopsychosocial background. Thus, the participant's pre-academy biopsychosocial background features served as independent variables, while features of the participant's behavioral repertoire served as the dependent variables.

Hypothesis 2. Further, it was hypothesized that firefighters with lower occupational stress scores on the Sources of Occupational Stress (SOOS-14) in year 1 would demonstrate more healthy behaviors in their third year of service when compared to their counterparts reporting higher occupational stress scores. Healthier behavioral outcomes were operationalized as fewer days of nicotine use, endorsement of following a regular exercise program and eating at least 3 fruits and vegetables per day, and a higher total health score. The null hypothesis was that there would be no significant difference in behavioral health outcomes based on occupational stress scores. For this hypothesis, occupational stress scores served as the independent variable and behavioral health outcomes served as the dependent variables.

CHAPTER 2

METHODS

Materials and Procedures

Data for the proposed study came from a subset of the Project Firefighter Risk and Resilience (FFR&R; Project RECRUIT) data set (Warriors Research Institute [WRI], 2017). Project RECRUIT is a federally funded project that was developed to assess risk and resilience specifically in relation to trauma and subsequent emotional psychopathology and substance use over the course of the first three years of fire service. Recruitment was intentionally conducted at diverse training sites in order to maximize generalizability. Data were gathered from 2006 to 2013 via in-person clinical interviews conducted by Ph.D. level clinical psychologists and self-report measures at baseline and annually (A1 – A3). Telephone interviews were conducted by research assistants at 4-month intervals.

Data concerning firefighter work experiences, depression, anxiety, post-traumatic stress disorder, substance use, social support, occupational stress, and health behaviors were gathered. Additionally, as previously noted, hair samples were collected and drug testing was conducted at annual assessments. Telephone reminders were also employed in order to reduce study attrition. For a more complete description of this data set, please see:

<http://researchers.sw.org/wri/completed-projects>

Participants

Participants were 322 U.S. firefighter recruits from seven urban cities: Boston, MA; Providence, RI; New York, NY; Fairfax, VA; Chicago, IL; Austin, TX; and Dallas, TX. Consistent with U.S. fire service demographics, most of the firefighter recruits were White (80.2%) males (89.4%) between the ages of 21 and 34 ($M = 27.26$; $SD = 4.31$). At baseline, most recruits reported never being married (65.8%) and not currently living with a romantic partner (57.3%). Just over one third of the sample (36.1%) reported completing at least some college while 37.6% reported having earned a Bachelor's degree.

Individuals were excluded from this study if they 1) were pregnant, 2) planned to relocate within 2 months of protocol initiation, 3) reported a history of psychotic symptoms or suicidal behavior within the past 30 days, 4) endorsed symptoms sufficient to qualify for a current substance use disorder [other than tobacco or caffeine], 5) reported a current or lifetime PTSD diagnosis, or 6) were diagnosed with a current Axis I disorder.

Measures

Beck Depression Inventory for Primary Care (BDI-PC). The BDI-PC is a well-researched 7-item screening instrument, originally created by drawing items from the 21-item Beck Depression Inventory-II (BDI-II; Beck, Guth, Steer, & Ball, 1997). The BDI-PC is used to assess symptoms of Major Depressive Disorder (MDD) according to the Diagnostic and Statistical Manual of Mental Disorders, 4th ed. (DSM-IV). Participant responses are elicited in the context of the “past 2 weeks, including today” using a 4-point Likert scale which ranges from

0 to 3 (Beck, Guth, Steer, & Ball, 1997). The BDI-PC is scored using a participant's total score. Although clinical cut-off scores have been proposed (between 4 and 6), Beck and Beamesderfer (1974) have strongly urged that researcher and clinician discretion should be used to set cut-off scores based on the instrument's specified purpose. For the purpose of the original FFR&R project, a score of 5 or above indicated a "positive depression screen" which is consistent with literature in this area (Geronazzo-Alman et al., 2017). Since the goal of the present study was to assess differences between those with a healthy profile compared to those with a less healthy profile, the BDI-PC total score was dichotomized. Specifically, participants' scores were categorized into either the symptomatic or non-symptomatic group.

The clinical utility of the BDI-PC has been tested on both inpatients hospitalized for general medical problems as well as outpatients (Beck, Guth, Steer, & Ball, 1997; Steer, Cavalieri, Leonard, & Beck, 1999). Internal consistency of the BDI-PC items was high when tested on both samples ($\alpha = 0.86$ and 0.85 respectively; Steer, Cavalieri, Leonard, & Beck, 1999). Compared with nine other instruments used to identify medical patients without MDD, the BDI-PC demonstrated higher than average specificity rates (99% BDI-PC with outpatients vs. average 72%; 95% CI 94% - 99%; Steer, Cavalieri, Leonard, & Beck, 1999). In order to assess psychometric value of this measure in the present study, the researcher ran a reliability analysis and found that internal consistency was acceptable ($\alpha = .67$). Test-retest reliability was assessed by running a correlation between Baseline and Annual 1 ($r = .27$); Annual 1 and Annual 2 ($r = .47$); Annual 2 and Annual 3 ($r = .72$); and Baseline and Annual 3 ($r = .45$). All correlations were significant (all $p < .01$). See Appendix A for the BDI-PC.

Family Interview for Genetic Studies (FIGS). The FIGS is an interview method used to systematically gather diagnostic data about family members. It is comprised of General

Screening Questions, a Face Sheet, and symptom checklists (Maxwell, 1992). First, the General Screening Questions are used to capture broad information about a person's ancestry. Then, more detailed information is gathered via the Face Sheets, which are created for each first-degree relative. Finally, symptom checklists are used to determine presence or absence of diagnoses for each family member.

Data gathered using the FIGS can be tailored based on the purpose of the study. For this study, number of family members and number of diagnostic endorsements were used to calculate a family mental health ratio where higher scores indicate a higher prevalence rate of family members with mental health problems.

While a Spanish version of the FIGS has been validated, the original version of the FIGS has no psychometric data available (de Villalvilla et al., 2008). The Spanish version of the FIGS is considered valid as defined by the criterion set forth by Moriyama (1968) which proposes that expert answers must agree at a level $\geq 70\%$. The FIGS – Spanish version has been demonstrated to exceed this 70% agreement criterion (de Villalvilla et al., 2008). Additionally, internal consistency for each list of symptoms in the Spanish version of the FIGS was good ($\alpha > 0.8$; de Villalvilla et al., 2008). The investigator originally intended to compare psychometric data from the Spanish version of the FIGS to the FIGS data gathered in FFR&R. However, the available data did not allow for these analyses to be conducted. See Appendix B for the FIGS.

Timeline Followback (TLFB). The TLFB (also known as the Form 90-AIR/ED) is a retrospective interview method used to quantify substance use over a designated period of time (Sobell, Brown, Leo, & Sobell, 1996). Using a calendar, a trained administrator aids the participant in describing drinking patterns over a specific time period. The participant then has an opportunity to provide information about other substance use (i.e. nicotine use, hallucinogens,

stimulants) as well as number of days with significant emotional problems. The number of items and time to administer varies depending on the specific time period being assessed (number of drinking days can vary from 30 to 360; 10 to 30 minutes). The TLFB can be used in clinical or research settings for a variety of purposes including calculating substance use patterns, variability of drugs used, and extent of drinking and substance use. In Project FFR&R, the TLFB was used to gather drinking data every 3 months. For the purpose of the present study, drinking data were represented by number of drinking episodes during the 12 weeks before firefighters entered the academy where an episode consisted of 4 or more drinks for women and 5 or more drinks for men over the course of 2 hours. Additionally, participants' responses for number of nicotine use days at Annual 3 (0 vs. 1-365 days) and days with significant emotional problems before entry into the academy (0 days vs. 1-90 days) were also gathered and dichotomized into one of two groups for each variable.

Overall, the TLFB has been shown to be a reliable method of obtaining information in clinical and general populations both in person and when administered via telephone and computer (Sobell, Brown, Leo, & Sobell, 1996). Test-retest reliability was demonstrated to be high as evidenced by comparisons of drinking variables for the 90 days prior to treatment ($r = .83$ to $.95$; $p < .001$). Correlations remained high and significant throughout treatment (Days 1-30: r 's ranged from $.78$ to $.92$; Days 31-60: r 's ranged from $.83$ to $.93$; Days 61-90: r 's ranged from $.58$ to $.93$; $p < .001$) and at post-treatment (r 's ranged from $.77$ to $.90$ for the first 30 days after treatment and when the same 30 days were recalled 12 months later; $p < .001$). The TLFB has also been assessed for evaluation of other addictive behaviors such as cocaine, cannabis, and cigarette use (Robinson, Sobell, Sobell, & Leo, 2014). Participant's reported use of cocaine, cannabis, and cigarettes from 30, 90, to 360 days prior to the interview were found to be highly

reliable as they fell in the “excellent” range ($r = .75$ to $.91$; $p \leq .0001$). Specifically, reliability was high and in the excellent range ($r = .75$ to $.96$) for cigarette use data. Aside from 30 days for mean percent days abstinent ($r = .65$) and for mean longest consecutive days abstinent ($r = .68$), test-retest correlations ($.73 - .93$) were high and in the excellent range. Additionally, all correlations were statistically significant ($p \leq .0001$) for cigarette use (Robinson, Sobell, Sobell, & Leo, 2014). When the TLFB method for capturing smoking behavior retrospectively was assessed, Brown and colleagues (1998) found that 3- and 20-week test-retest reliabilities were high (3 weeks: $r = .62$ for total number of smoking days; $r = .73$ for average number of cigarettes; 20 weeks: $r = .70$ for total number of smoking days; $r = .80$ for average number of cigarettes; all correlations were significant $p < .001$). Further, 93% of samples were consistent with self-reported smoking as verified using observed smoking rates from participants’ significant others and from measurements of cotinine gathered using saliva samples. Validity for the TLFB was also reported as high (r ’s ranging from $.67$ to $.97$; all p -values were significant $p < .001$). See Appendix C for the TLFB.

PTSD Checklist – Civilian Version (PCL-C). The PCL-C is a 17-item self-report instrument that uses a 5-point Likert scale (1 “Not at all” to 5 “Extremely”) to assess symptoms related to stressful experiences based on DSM-IV (1994) PTSD criteria B, C, and D (i.e., re-experiencing, avoidance, and hyperarousal) in civilian populations over the past month. The PCL-C yields a total symptom severity score ranging from 17 – 85. Suggested cut-off scores are dependent on context and estimated prevalence of PTSD. For the purpose of this study, the goal was to assess the presence or absence PTSD symptoms; therefore, no cut-off scores were designated. This instrument has displayed excellent internal consistency for the PCL total score ($\alpha = .94$) and good internal consistency for the subscales (re-experiencing $\alpha = .85$; avoidance α

= .85; hyperarousal $\alpha = .87$) as well as good test-retest reliability ($r = .68$ to $.92$; Weathers, Litz, Herman, Huska, & Keane, 1993; Ruggiero, Ben, Scotti, & Rabalais, 2003).

Similarly, when the investigator ran statistical analyses on this particular data set, the instrument displayed good internal consistency for the PCL-C total score ($\alpha = .87$) and acceptable internal consistency for the subscales (re-experiencing $\alpha = .79$; avoidance $\alpha = .76$; hyperarousal $\alpha = .70$). Test-retest reliability was assessed by running a correlation between Baseline and Annual 1 ($r = .31$); Annual 1 and Annual 2 ($r = .55$); Annual 2 and Annual 3 ($r = .66$); and Baseline and Annual 3 ($r = .45$). All correlations were significant (all $p < .01$). These analyses indicate that the PCL-C had poor reliability over three years. See Appendix D for the PCL-C.

Trauma History Questionnaire (THQ-R). The THQ-R is a 25-item instrument that has been used as an interview or a self-report screening instrument. It was originally created for use with community and clinical populations to gather data about lifetime traumatic event exposure. In this particular data set, the THQ-R was used as part of the clinical interview. Although no standard scoring method has been suggested, several scoring conventions have been agreed upon in the empirical literature depending on the investigator or clinician's intended purpose. For example, some investigators have used subscales (including evaluating the crime-related cluster, general disaster and traumatic experiences cluster, and the physical and sexual experiences cluster separately) while others have generated a total score. For the purpose of the present study, the investigator utilized the number of distinct potentially traumatic events endorsed at baseline.

Concerning the THQ-R's psychometric performance, 60 unique studies of reliability and validity evidence is available. Overall, the measure has been found to be somewhat reliable.

Specifically, in a mailed survey assessing college students, reliability coefficients ranged from fair to excellent across multiple administrations. While stability coefficients differed depending on event type (i.e. 0.51 for a close person killed vs. 0.91 robbed), the items endorsed across administrations were correlated at .70. Therefore, although some items demonstrated adequate reliability, others seemed to represent catch all categories indicating a high amount of variability in responses. Since then test-retest studies have revealed kappa coefficients that have ranged from good to excellent (Kappas = .61 – 1.00; Hooper, Stockton, Krupnick, & Green, 2011). Studies assessing the instrument's interrater reliability have demonstrated that the THQ-R is reliable across separate occasions (Kappas = fair to excellent; Hooper et al., 2011). Concerning validity, the THQ-R was not assessed alongside other trauma exposure measures since it is not a traditional scale wherein particular event types are expected to be equivalent. See Appendix E for the THQ-R.

Sources of Social Support (SOSS). The SOSS is a 9-item self-report tool that uses a Likert scale ranging from “Strongly Disagree” 0 to “Strongly Agree” 4 to measure amount of perceived social support from friends and relatives. The SOSS is scored by summing participant responses and comparing individual scores to the total sample's mean score. Since psychometric data are not available for the SOSS, the investigator of the current study ran an analysis to assess for internal consistency which was demonstrated to be good as evidenced by a Cronbach's alpha level of .85. See Appendix F for the SOSS.

Sources of Occupational Stress (SOOS-14). Adapted from Beaton and Murphy's (1993) 57-item measure, the SOOS-14 is a reliable and valid 14-item measure that was tailored to more efficiently assess firefighter related occupational stressors (Kimbrel, Steffan, Meyer, Kruse, Knight, Zimering, & Gulliver, 2011; Beaton & Murphy, 1993). Firefighters rated how bothered

they were by certain stressors using a 5-item Likert scale (1 “not at all bothered” to 5 “extremely bothered”). Additionally, participants were given the option to mark “not applicable.” The SOOS-14 was then scored by summing all the items to create a total score. Higher total scores represent elevated levels of occupational stress.

Psychometrically, the original measure demonstrated good test re-test reliability ($r = .63$) and internal consistency ($\alpha = .95$) and adequate concurrent validity (Beaton & Murphy, 1993; Murphy et al., 2002). In addition to being more efficient, the SOOS-14 boasts very good internal consistency ($\alpha = .86$; Kimbrel, Steffan, Meyer, Kruse, Knight, Zimering, & Gulliver, 2011). However, internal consistency for the SOOS-14 subscales were poor (.31 for Poor Health Habits, .40 for Second Job Stress, .43 for Tedium, and .50 for Family/Financial Strain). Similarly, although the SOOS-14 factor structure was an improvement compared to the original 57-item version of the SOOS, the model provided a poor overall fit for the data (Kimbrel, Steffan, Meyer, Kruse, Knight, Zimering, & Gulliver, 2011). Conversely, the correlation between the SOOS-14 and the original SOOS was high ($r = .96, p < .001$) indicating that the two measures perform similarly. See Appendix G for the SOOS-14.

Lifestyle Questionnaire (LQ). When Project Recruit was created no single assessment tool that measured religion, healthy diet, exercise, and humor was available. Accordingly, the Lifestyle Questionnaire, a 14-item self-report questionnaire with a 4-point Likert scale ranging from “Never 0” to “Routinely 3”, was developed by Gulliver, Zimering, and the Project Recruit team based on other health measures available at the time. The LQ is scored by summing participant responses on four subscales and comparing the participant’s total score to the total sample mean. The LQ produces the following four subscales: Religion, Healthy Diet, Exercise, and Humor. Since no psychometric data have been conducted on this measure to the

investigator's knowledge, the investigator ran preliminary analyses to determine whether or not this measure is reliable. Internal consistency at baseline for the total score was in the acceptable range ($\alpha = .79$). Accordingly, internal consistency was considered excellent for the religion subscale ($\alpha = .90$) and acceptable for the humor subscale ($\alpha = .72$); however, internal consistency for the exercise subscale was considered "questionable" ($\alpha = .68$). In order to correct for this issue, investigators revised the LQ in subsequent data gathering periods of the study. Therefore, test-retest reliability analyses reflect these measures changes. Test-retest reliability was assessed by running a correlation between the baseline assessment (pre-academy) and each annual assessment: Baseline to Annual 1 ($r = .35$; $p < .001$), Annual 1 to Annual 2 ($r = .65$; $p < .001$), Annual 2 to Annual 3 ($r = .62$; $p < .001$). See Appendix H for the LQ.

Short-Form Health Survey (SF-12). The SF-12 is a 12-item self-report measure of generic health status that was developed from a longer 36-item health survey (Jenkinson, Layte, Jenkinson, Lawrence, Peterson, Paice, & Stradling, 1997). Both surveys aim to measure "physical functioning, role limitations due to physical health problems, bodily pain, general health vitality (energy/fatigue), social functioning, role limitations due to emotional problems, and mental health (psychological distress and psychological well-being; Ware, Kosinski, & Keller, 1996)." The SF-12 and SF-36 each contain two summary scales: the physical component summary and mental component summary (PCS and MCS).

Since the SF-12 was normed among U.S. men and women ($N = 2,329$) with groups differing in age and sex, norm-based scoring methods are used to summarize findings. The scaled scores yield standardized scores with a mean of 50 and a standard deviation of 10. The SF-12 has been validated using a procedure called "known groups" validity (Ware, Kosinski, & Keller, 1996). RV coefficients for MCS-12 ranged from 0.93 to 0.98 and PCS-12 RV

coefficients were 0.89 in the U.S. sample and 0.86 in the U.K. sample. The MCS-12 scale scores demonstrated reliability coefficients of 0.76 and 0.77 for the U.S. and U.K. samples respectively (Ware, Kosinski, & Keller, 1996). See Appendix I for the SF-12.

CHAPTER 3

RESULTS

Data were analyzed using the Statistical Package for the Social Sciences software (SPSS). Since this study was originally powered to address the original aims of FFR&R, a power analysis was conducted to ensure that there would be adequate power (i.e., alpha level of .05) for the current analyses. Based on an a priori power analysis with an effect size of .3 and a power level of .80, a minimum of 82 participants were needed.

Data Cleaning

Before conducting the planned analyses, correlations among all the variables were run in order to assess the dataset for multicollinearity. None of the variables were greater than .8; therefore, multicollinearity between variables was not a concern. Subsequently, participant scores were converted to z-scores. Twenty-seven univariate outliers greater than ± 3 standard deviations from the mean were removed. Unfortunately, multivariate outliers could not be assessed using Mahalanobis distance squared due to presence of missing values in the data set (Tabachnick & Fidell, 2007).

The data set was then assessed for normality of distributions. It was observed that a number of variables had elevated skewness and kurtosis primarily due to a restricted range of scores. These variables were excluded from the canonical correlation and dichotomized. T-tests

of dependent variables were conducted using these dichotomized variables to determine whether or not differences between groups existed between those with high versus low scores on symptoms of depression at baseline, days with significant emotional problems at baseline, and days of nicotine use. Results from these follow-up analyses will be discussed after primary findings are reported.

Analyses

Correlations

In order to examine how the variables in hypothesis 1 and 2 were related, correlations among all the variables were conducted. The correlation matrix was then assessed, which revealed several significant relationships between independent variables and dependent variables. These significant relationships signified that certain variables were more important than other variables when assessing clusters.

Canonical Correlation

A canonical correlation was then used to assess the influence of biological, psychological, and social factors along with occupational stress on behavioral health outcomes. Specifically, the investigator assessed whether the combined group of covariates (i.e., family mental health problems as demonstrated on the FIGS, number of PTSD symptoms demonstrated by the PCL-C, number of pre-academy drinking episodes in 12 weeks, trauma history as shown

using the THQ, and familial social support) were related to the dependent variables (diet, exercise, and total health score as indicated by the SF-12; Figure 1). This canonical correlation incorporated 121 cases. Findings from this initial canonical correlation revealed that the relationship between these variables was statistically significant, Wilks' lambda = .65, $R_c^2 = .35$, Approximate $F(18, 317.27) = 2.92, p < .001$. Given this finding, the first function was extracted. Table 1 shows eigenvalues, percentages of variance explained, and the squared canonical correlations for each function. The first function accounted for approximately 90% of the explained variance, and the second function added somewhat more than 7% to that. The dimension reduction analysis indicated that the first function was statistically significant. Additionally, according to the Cramer-Nicewander (1979) index, the predictor variates explained approximately 12% of the variance of the dependent variates.

The structure coefficients for the first function for the predictor and dependent variates are listed in Table 2. The predictor function is associated with lower levels of family mental health problems and occupational stress and higher levels of familial social support. The dependent function is associated with a higher total health score. This first function indicated that a lower occupational stress score in the first year, better familial social support before entering the academy, and less family mental health problems were predictive of a better overall total health score in the third year of fire service.

Multiple Regression

Based on the outcome of the canonical correlation, occupational stress in the first year, familial social support pre-academy, and family mental health ratio were used to predict total

health score using a multiple regression. These variables predicted total health score in the third year, $F(3, 124) = 22.507, p < .001, R^2 = .353$.

T-Tests

As previously mentioned, significant emotional problems at baseline, days of nicotine use in the third year of fire service, and symptoms of depression at baseline were dichotomized due to non-normality of distributions. Subsequently, t-tests were performed to assess potential differences between participants who endorsed having 0 days versus 1-90 days of significant emotional problems, and between those who smoked 0 days in comparison to those who smoked between 1-365 days of the year in regard to total health score. These tests were not statistically significant. However, significant differences were observed on the overall health scores of the SF-12 when comparing participants who endorsed depressive symptoms ($M = 39.69, SD = 5.57$) to participants who denied experiencing any depressive symptoms ($M = 42.76, SD = 3.74$); $t(155) = 4.13, p < .001$. See Table 3 for results of these t-tests including means, standard deviations, and t-statistics.

CHAPTER 4

DISCUSSION

The purpose of this study was to determine whether or not various individual pre-academy factors and level of occupational stress following the first year of fire service predicted health outcomes after three years of service. Specifically, it was hypothesized that firefighters with a positive pre-academy biopsychosocial background would evidence more healthy behavioral outcomes, when compared to firefighters with negative pre-academy biopsychosocial backgrounds. It was also hypothesized that firefighters with lower occupational stress scores after the first year would demonstrate more healthy behavioral outcomes in the third year of service when compared to their peers with higher occupational stress scores.

Using the data collected from 121 fire service respondents, a canonical correlation revealed which pre-academy variables were most salient in predicting health outcomes after the third year of service. The subsequent multiple linear regression analysis corroborated that participants who endorsed more social support from their family prior to entry into the academy, had a smaller ratio of family members with mental health diagnoses, and who reported less occupational stress after their first year of fire service demonstrated a higher total health score by their third year of service. Finally, fire recruits who endorsed symptoms of depression upon entry into the academy were less healthy than those who denied experiencing any symptoms of depression by their third year of service. As such, it appears that level of pre-academy familial

social support, family history of mental health problems, symptoms of depression prior to entry into service, and occupational stress scores following the first year of service may be salient predictor variables in estimating health outcomes during the third year of a high-stress occupation.

These findings are consistent with a large body of literature demonstrating the utility of social support as a buffer for health outcomes (Berkman, Glass, Brissette, & Seeman, 2000; Frasure-Smith et al., 2000; Reblin, & Uchino, 2008). A person's family background has long been thought of as a key predictor of a person's well-being. Although many studies have focused on this relationship between an individual and his or her family in childhood and adolescence, this study indicates that this finding carries into the workplace even in adulthood. Moreover, these findings indicate that work stress may play an important role in development of health risk behaviors above and beyond that of other demographic variables. While this study is not the first to discuss the relationship between work stress and health outcomes, it helps to clarify the degree to which this variable is predictive of health outcomes above and beyond a cluster of other variables.

Similarly, previous studies have indicated positive relationships between depression scores measured by the BDI and various medical symptoms such as headaches and upset stomachs (Armstrong, Goldenberg, & Stewart, 1980; Beck, Steer, & Garbin, 1988; Cavanaugh, 1983). Additionally, many studies examining work stress and employee health have focused on depression as a noteworthy product of physiological and psychological stressors (Ganster & Rosen, 2013). However, the present study expands on the current perspective by demonstrating that depressive symptoms may be a useful predictive factor in terms of health outcomes. Moreover, studying these factors longitudinally among firefighters, a group that has rigorous

physical ability standards for employee entry, reveals the potential utility of depressive symptoms as indicators of long-term health status prior to entry into the academy. Further, the results of these analyses represent a useful point of reference for disentangling the relationship between pre-existing risk factors and determination of future vulnerabilities among those in high-risk, high-stress occupations. Despite the fact that this study was conducted using responses from firefighters, findings may apply to those in a number of high-risk occupations. More specifically, the highlighted predictor variables indicate potential vulnerabilities where targeted prevention efforts and psychoeducation during early professional training could prove useful.

While results from several of the analyses noted above were significant, results from this study should be interpreted with caution. Notably, some of the key variables (e.g., depressive symptoms, days with significant emotional problems, days participants used nicotine) were found to be skewed. How much this skewness ultimately influenced the final interpretations is unknown. Additionally, after removing outliers and missing data, the sample sizes of the independent variables (depressive symptoms, days with significant emotional problems) and dependent variable (days participants used nicotine) were fairly small posing a threat to statistical power. While this did not appear to have a notable impact on depressive symptoms, it is plausible that some of the analyses simply did not have the power needed to detect a difference between these groups.

Accordingly, further research in this area is warranted to determine the degree to which these variables have an impact on health behaviors. This line of research may lead to an opportunity to explore two areas that might mitigate the impact of these potential vulnerabilities on health outcomes among those in high-risk, high-stress occupations: 1) efficacious prevention efforts and 2) interventions after the first year of service. First, prevention curricula may aid in

building resistance to development of unhealthy behavior patterns among those who demonstrate low levels of familial social support, endorse depressive symptoms prior to entry into the academy, and/or endorse a high ratio of family mental health issues. Given the high cost of onboarding, gaining an understanding of whether such targeted prevention efforts are more helpful than more traditional psychoeducation in terms of overall health outcomes in subsequent years of service is likely to be useful. Additionally, it may be helpful to conduct research to determine whether building other facets of a person's health habits may ameliorate the influence of the "at-risk" categories revealed in the present study. Second, using high occupational stress scores to check-in with new recruits after the first year of service, may be a useful practice. As such, these findings support research into different types of interventions which may be helpful for those who have completed their first year of service and who endorse elevated occupational stress scores.

Overall, it appears that higher levels of social support, fewer family mental health concerns, and lower occupational stress after the first year of service were the best predictors of health in the third year of fire service above and beyond a number of other biopsychosocial background features. Further, findings indicated that those who endorse depressive symptoms prior to entry into a high stress occupation may be at risk for poorer health status both physically and mentally after 3 years of service. These findings represent potentially useful vulnerability markers that can be used as targets for prevention efforts prior to entry into a high-stress, high-risk occupation.

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LIST OF TABLES AND FIGURES

Table 1

Eigenvalues, Cumulative Percentage of Explained Variance, and Squared Canonical Correlations for Each Canonical Function

<u>Function</u>	<u>Eigenvalue</u>	<u>Percent Variance Explained</u>	<u>Squared Canonical Correlation</u>
1	.47	90.39	.32
2	.04	7.99	.04
3	.01	1.62	.01

Table 2

Structure Coefficients for the First Function for the Predictor and Dependent Variates

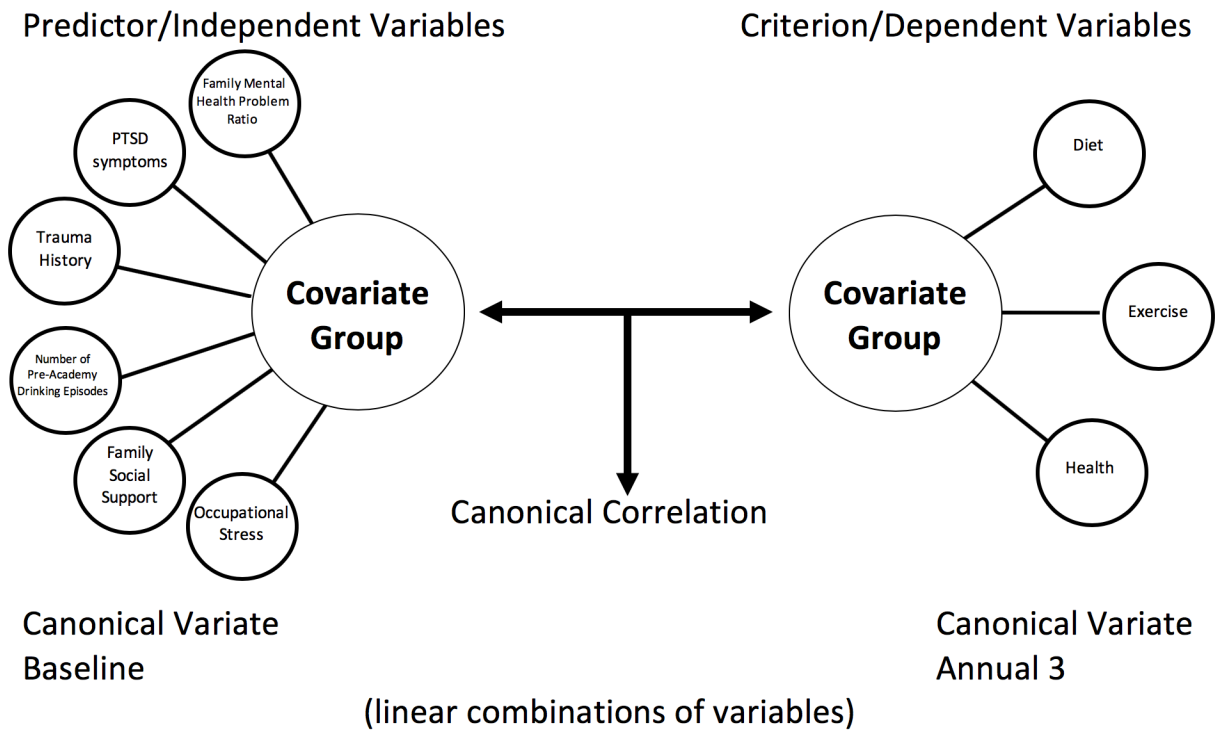
<u>Predictor Variates</u>	<u>Function 1</u>
Baseline Family Mental Health Ratio	-.56
Baseline PCL-C Total Score	-.44
Baseline Number of Pre-Academy Drinking Days	-.19
Baseline Trauma History Questionnaire Total Score	-.22
Baseline Social Support from Family	.56
Occupational Stress Total Score – Year 1	-.82
<u>Dependent Variates</u>	
Diet	-.50
Exercise	-.29
Total Health in Year 3	.97

Table 3

Results of T-Tests

		Baseline BDI-PC Total Score						95% CI for		
		Non-Symptomatic			Symptomatic			Mean		
		M	SD	n	M	SD	n	Difference	t	df
		42.76	3.74	95	39.69	5.57	62	1.60, 4.53	4.13	155
		Baseline Days with Significant Emotional Problems								
		0 Days			1-90 Days					
Annual 3 Total Health Score		M	SD	n	M	SD	n		t	df
		41.78	4.69	139	39.21	5.54	14	-.08, 5.20	1.92	151
	Annual 3 Days of Nicotine Use									
		0 Days			1-365 Days					
		M	SD	n	M	SD	n		t	df
		41.86	4.68	110	41.42	4.18	38	-1.25, 2.14	.52	146

Figure 1. Canonical Variates



LIST OF APPENDICES

APPENDIX A: BECK DEPRESSION INVENTORY-PRIMARY CARE (BDI-PC)

Instructions: This questionnaire consists of 7 groups of statements. Please read each group of statements carefully, and then pick out the one statement in each group that best describes the way you have been feeling during the past two weeks, including today. Fill in the bubble beside the statement you have picked. If several statements in the group seem to apply equally well, fill in the bubble that corresponds to the highest number for that group. Be sure that you do not choose more than one statement for any group.

<p>1. Sadness</p> <ul style="list-style-type: none"> <input type="radio"/> I do not feel sad. <input type="radio"/> I feel sad much of the time. <input type="radio"/> I am sad all the time. <input type="radio"/> I am so sad or unhappy that I can't stand it.
<p>2. Pessimism</p> <ul style="list-style-type: none"> <input type="radio"/> I am not discouraged about my future. <input type="radio"/> I feel more discouraged about my future than I used to be. <input type="radio"/> I do not expect things to work out for me. <input type="radio"/> I feel my future is hopeless and will only get worse.
<p>3. Past Failure</p> <ul style="list-style-type: none"> <input type="radio"/> I do not feel like a failure. <input type="radio"/> I have failed more than I should have. <input type="radio"/> As I look back, I see a lot of failures. <input type="radio"/> I feel I am a total failure as a person.
<p>4. Loss of Pleasure</p> <ul style="list-style-type: none"> <input type="radio"/> I get as much pleasure as I ever did from the things I enjoy. <input type="radio"/> I don't enjoy things as much as I used to. <input type="radio"/> I get very little pleasure from the things I used to enjoy. <input type="radio"/> I can't get any pleasure from the things I used to enjoy.
<p>5. Self-Dislike</p> <ul style="list-style-type: none"> <input type="radio"/> I feel the same about myself as ever. <input type="radio"/> I have lost confidence in myself. <input type="radio"/> I am disappointed in myself. <input type="radio"/> I dislike myself.
<p>6. Self-Criticalness</p> <ul style="list-style-type: none"> <input type="radio"/> I don't criticize or blame myself more than usual. <input type="radio"/> I am more critical of myself than I used to be. <input type="radio"/> I criticize myself for all of my faults. <input type="radio"/> I blame myself for everything bad that happens.
<p>7. Suicidal Thoughts or Wishes</p> <ul style="list-style-type: none"> <input type="radio"/> I don't have any thoughts of killing myself. <input type="radio"/> I have thoughts of killing myself, but I would not carry them out. <input type="radio"/> I would like to kill myself. <input type="radio"/> I would kill myself if I had the chance.

APPENDIX B: FAMILY INTERVIEW FOR GENETIC STUDIES (FIGS)

FIGS: FACE SHEET

**FAMILY INTERVIEW FOR GENETIC STUDIES
(FIGS)**

Interview date: — —
Month Day Year

Family last name: _____ Family ID Number:

Informant name: _____
First Middle Last
 Informant ID:

Person being described name: _____
First Middle Last
 Person being described ID:

Relationship to Informant: _____

Birthdate of person described, if known: — —
Month Day Year
No Yes Unk

Is person being described living? 0 1 9
Age Year
 Age and Year when last seen or known about, or died: in

If deceased, cause of death: _____
No Yes Unk

Suicide? 0 1 9

INTERVIEWER: Refer to General Screening Questions if necessary.

1. **(Probe:** has he/she had any psychiatric or personality problems like those we mentioned earlier?) 0 1 9
 Write narrative:

FIGS: FACE SHEET

FIGS
11-Feb-1999

Continue Narrative:

FIGS: OTHER DISORDERS

1. Indicate any disorder not in the checklists and complete questions 1.a-f for the disorder.

Specify: _____

Code Response

1.a) Code and describe professional treatment:

0 1 2 3 4 9

0. None

1. Inpatient: _____

2. Outpatient: _____

3. ECT: _____

4. Medication: _____

9. Unknown

1.b) Age of onset

Age	

1.c) Number of episodes

Episodes		

1.d) Duration of longest episode in weeks

Weeks		

Code

Response

1.e) Rate and code impairment or incapacitation:

0 1 2 9

0. None

1. Impaired

2. Incapacitated

9. Unknown

1.f) Interviewer judgement on reliability of this information:

1 2 3

1. Good

2. Fair

3. Poor

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FIGS: GENERAL SCREENING QUESTIONS

Interview date: — —
Month Day Year

Use One Per Informant

Family last name: _____ Family ID Number:

Informant name: _____ ID:
First MI Last

INTERVIEWER: Before you begin, you need to generate or obtain a pedigree on which to record all of the responses to the following General Screening Questions. (See FIGS Manual for details.)

Step 1: *Let's go over your family tree.* (Include spouse and his/her parents and siblings, offspring, parents, siblings, aunts, uncles, cousins, grandparents, as well as any other relatives the informant can recall.)

Step 2: *Now I am asking you to keep in mind all those in your family tree as I go through this list of questions.* (Note all positive responses on the pedigree.)

Was anyone adopted?

Was anyone mentally retarded?

Did anyone:

Have problems with their nerves or emotions? Take medicine or see a doctor for it? Take lithium?

Feel very low for a couple of weeks or more, or have a diagnosis of depression?

Attempt or complete suicide?

Seem overexcited (or manic) day and night, or have a diagnosis of mania?

Have visions, hear voices, or have beliefs that seem strange or unreal?

Have unusual or bizarre behavior, or have a diagnosis of schizophrenia?

Have trouble with the police, with completing school, or with keeping a job?

Have alcohol or drug use that caused problems (with health, family, job, or police)? Go to AA or NA, or have treatment for this?

(Was anyone) hospitalized for psychiatric problems, or for drug or alcohol problems?

Have inherited medical diseases such as Huntington's disease or seizure disorder or any other disorders of the brain or nervous system?

(Did anyone) have few friends, or seem to be a loner?

(Did anyone) seem odd or eccentric in behavior or appearance?

(Was anyone) extremely jealous, or suspicious, or believe in magic, or see special meanings in things that no one else saw?

Step 3: Complete a Face Sheet for each of the informant's first degree relatives and spouse. If he/she knows well other affected relatives, also complete a Face Sheet for them. In addition, for each of these given a positive response in the General Screening, complete the symptom checklist for any suspected: Depression/Mania, Alcohol/Drug Abuse, Psychosis, or Paranoid/Schizoid/Schizotypal Personality.

Interview date: — —
 Month Day Year

Family last name: _____ Family ID Number:

Informant name: _____ ID:
 First MI Last

Person being described name: _____ ID:
 First MI Last

Code for a single episode (best recalled, worst episode if possible).

		No	Yes	Unk
1.	<i>During depression...</i>			
1.a)	<i>...was he/she depressed most of the day, nearly every day, for as long as a week or more?</i>	0	1	9
1.b)	<i>...did he/she lose interest in things or become unable to enjoy most things, for as long as a week?</i>	0	1	9
1.c)	<i>...did he/she have a change in appetite or weight without trying to?</i>	0	1	9
1.d)	<i>...did he/she have a change in sleep patterns (either too much or too little)?</i>	0	1	9
1.e)	<i>...did he/she become unable to work, go to school, or take care of household responsibilities?</i>	0	1	9
If yes: Describe: _____		<div style="border: 1px solid black; padding: 2px; display: inline-block;">Discontinue this checklist</div>		

1.f)	<i>...did he/she move or speak more slowly than usual?</i>	0	1	9
1.g)	<i>...did he/she pace or wring his/her hands?</i>	0	1	9
1.h)	<i>...did he/she have less energy or feel tired out?</i>	0	1	9
1.i)	<i>...did he/she feel guilty, worthless or blame himself/herself?</i>	0	1	9
1.j)	<i>...did he/she have trouble concentrating or making decisions?</i>	0	1	9
1.k)	<i>...did he/she talk of death or suicide? Or try suicide?</i>	0	1	9
1.l)	<i>...did he/she have visions, or hear voices, or have beliefs or behavior that seem strange or unusual, at the same time as (symptoms above)? (If YES, complete a Psychosis Checklist after this one.)</i>	0	1	9

FIGS: DEPRESSION CHECKLIST

	Code Response						
<p>2. Code and describe professional treatment:</p> <p style="margin-left: 20px;">0. None</p> <p style="margin-left: 20px;">1. Inpatient: _____</p> <p style="margin-left: 20px;">2. Outpatient: _____</p> <p style="margin-left: 20px;">3. ECT: _____</p> <p style="margin-left: 20px;">4. Medication: _____</p> <p style="margin-left: 20px;">9. Unknown</p>	<p>0 1 2 3 4 9</p>						
<p>3. Age of onset</p>	<table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td colspan="2" style="text-align: center;">Age</td> </tr> <tr> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> </tr> </table>	Age					
Age							
<p>4. Number of episodes</p>	<table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td colspan="3" style="text-align: center;">Episodes</td> </tr> <tr> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> </tr> </table>	Episodes					
Episodes							
<p>5. Duration of longest episode in weeks</p>	<table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td colspan="3" style="text-align: center;">Weeks</td> </tr> <tr> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> </tr> </table>	Weeks					
Weeks							
<p>6. Rate and code impairment or incapacitation:</p> <p style="margin-left: 20px;">0. None</p> <p style="margin-left: 20px;">1. Modified RDC Impairment</p> <p style="margin-left: 20px;">2. Modified RDC Incapacitation</p> <p style="margin-left: 20px;">3. RDC Minor Role Dysfunction</p> <p style="margin-left: 20px;">4. Change from previous functioning</p> <p style="margin-left: 20px;">9. Unknown</p>	<p>0 1 2 3 4 9</p>						
<p>7. Interviewer judgement on reliability of this information:</p> <p style="margin-left: 20px;">1. Good</p> <p style="margin-left: 20px;">2. Fair</p> <p style="margin-left: 20px;">3. Poor</p>	<p>1 2 3</p>						

FIGS: MANIA CHECKLIST

Interview date: — —

Month Day Year

Family last name: _____ Family ID Number:

Informant name: _____ ID:

First MI Last

Person being described name: _____ ID:

First MI Last

	<u>No</u>	<u>Yes</u>	<u>Unk</u>
1. <i>For most of the time day and night over several days, did he/she (more than usual) ...</i>			
1.a) <i>...seem too happy/high/excited?</i>	0	1	9
1.b) <i>...become so excited or agitated it was impossible to converse with him/her?</i>	0	1	9
1.c) <i>...act very irritable or angry?</i>	0	1	9
1.d) <i>...need less sleep without feeling tired?</i>	0	1	9
1.e) <i>...show poor judgement (e.g., spending sprees, sexual indiscretions?)</i>	0	1	9
If yes: Describe: _____			

Discontinue this checklist ←			
1.f) <i>...behave in such a way as to cause difficulty for those around him/her (obnoxious/manipulative)?</i>	0	1	9
1.g) <i>...feel that he/she had special gifts or powers?</i>	0	1	9
1.h) <i>...become more talkative than usual?</i>	0	1	9
1.i) <i>...jump from one idea to another?</i>	0	1	9
1.j) <i>...become easily distracted?</i>	0	1	9
1.k) <i>...get involved in too many activities at work or school?</i>	0	1	9
1.l) <i>...have visions? hear voices? have beliefs or behavior that seem strange or unusual? at the same time as (above symptoms)? (If YES, complete a Psychosis Checklist after this one.)</i>	0	1	9

FIGS: MANIA CHECKLIST

	Code Response						
<p>2. Code and describe professional treatment:</p> <p style="margin-left: 20px;">0. None</p> <p style="margin-left: 20px;">1. Inpatient: _____</p> <p style="margin-left: 20px;">2. Outpatient: _____</p> <p style="margin-left: 20px;">3. ECT: _____</p> <p style="margin-left: 20px;">4. Medication: _____</p> <p style="margin-left: 20px;">9. Unknown</p>	<p>0 1 2 3 4 9</p>						
<p>3. Age of onset</p>	<table style="margin: auto; border-collapse: collapse;"> <tr> <td colspan="2" style="text-align: center;">Age</td> </tr> <tr> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> </tr> </table>	Age					
Age							
<p>4. Number of episodes</p>	<table style="margin: auto; border-collapse: collapse;"> <tr> <td colspan="3" style="text-align: center;">Episodes</td> </tr> <tr> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> </tr> </table>	Episodes					
Episodes							
<p>5. Duration of longest episode in weeks</p>	<table style="margin: auto; border-collapse: collapse;"> <tr> <td colspan="3" style="text-align: center;">Weeks</td> </tr> <tr> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> </tr> </table>	Weeks					
Weeks							
<p>6. Rate and code impairment or incapacitation:</p> <p style="margin-left: 20px;">0. None</p> <p style="margin-left: 20px;">1. Impaired</p> <p style="margin-left: 20px;">2. Incapacitated</p> <p style="margin-left: 20px;">9. Unknown</p>	<table style="margin: auto; border-collapse: collapse;"> <tr> <td colspan="2" style="text-align: center;">Code Response</td> </tr> <tr> <td style="border-top: 1px solid black; border-bottom: 1px solid black; width: 20px; height: 20px;"></td> <td style="border-top: 1px solid black; border-bottom: 1px solid black; width: 20px; height: 20px;"></td> </tr> <tr> <td style="text-align: center;">0</td> <td style="text-align: center;">1 2 9</td> </tr> </table>	Code Response				0	1 2 9
Code Response							
0	1 2 9						
<p>7. Interviewer judgement on reliability of this information:</p> <p style="margin-left: 20px;">1. Good</p> <p style="margin-left: 20px;">2. Fair</p> <p style="margin-left: 20px;">3. Poor</p>	<p>1 2 3</p>						

Interview date: — —
Month Day Year

Family last name: _____ Family ID Number:

Informant name: _____ ID:
First MI Last

Person being described name: _____ ID:
First MI Last

ALCOHOLISM

Code for a single episode (best recalled, worst episode if possible).

	<u>No</u>	<u>Yes</u>	<u>Unk</u>
1. <i>Because of drinking, did he/she ever have problems such as...</i>			
1.a) <i>...being unable to stop or cut down on drinking?</i>	0	1	9
1.b) <i>...spending a lot of time drinking or being hung over?</i>	0	1	9
1.c) <i>...being unable to work, go to school, or take care of household responsibilities?</i>	0	1	9
1.d) <i>...being high from drinking when he/she could get hurt?</i>	0	1	9
1.e) <i>...accidental injuries?</i>	0	1	9
1.f) <i>...reducing or giving up important activities?</i>	0	1	9
1.g) <i>...objections from the family or friends, at work or school?</i>	0	1	9
1.h) <i>...legal problems more than once (DWIs, arrests)?</i>	0	1	9
1.i) <i>...blackouts more than once?</i>	0	1	9
1.j) <i>...binges or benders more than once?</i>	0	1	9
1.k) <i>...physical health problems (liver disease, pancreatitis)?</i>	0	1	9
1.l) <i>...emotional or psychological problems (uninterested, depressed, suspicious/paranoid, having strange ideas)?</i>	0	1	9
1.m) <i>...withdrawal symptoms (shakes, seizures/convulsions, DTs)?</i>	0	1	9

Code Response

2. *Did he/she go to AA or have any kind of treatment? (Code and describe all that apply)* 0 1 2 3 4 9

- 0. None
- 1. Inpatient: _____
- 2. Outpatient: _____
- 3. AA or other self-help: _____
- 4. Medication: _____
- 9. Unknown

Describe details and/or other treatment:

3. *Does he/she currently have a problem with alcohol?* No Yes Unk
0 1 9

FIGS: ALCOHOL & DRUG ABUSE CHECKLIST

4. Record age he/she began to have alcohol-related problems. Ons Age

--	--
5. Record age he/she stopped drinking heavily. Rec Age

--	--

DRUG ABUSE/DEPENDENCE

6. Which drugs did he/she have trouble with?
Specify: _____
7. Because of his/her drug use, did he/she have... No Yes Unk
- 7.a) ... physical health problems (hepatitis, overdose, withdrawal symptoms, accidental injuries)? 0 1 9
- 7.b) ... emotional or psychological problems (uninterested, depressed, suspicious/paranoid, having strange ideas)? 0 1 9
- 7.c) ... legal problems (arrests for possessing, selling, or stealing drugs)? 0 1 9
- 7.d) ... problems with family or friends? 0 1 9
- 7.e) ... troubles at work or school? 0 1 9

Code Response

8. Did he/she go to NA or have any kind of treatment? (Code and describe all that apply) 0 1 2 3 4 9
0. None
1. Inpatient: _____
2. Outpatient: _____
3. NA or other self-help: _____
4. Medication: _____
9. Unknown

Describe details and/or other treatment:

9. Does he/she currently have a problem with drugs? No Yes Unk
0 1 9

10. Record age he/she began to have drug-related problems. Ons Age

--	--

11. Record age he/she stopped using drugs heavily. Rec Age

--	--

Code
Response

12. Interviewer judgement on reliability of this information: 1 2 3
1. Good
2. Fair
3. Poor

FIGS: PSYCHOSIS CHECKLIST

Interview date: — —
Month Day Year

Family last name: _____ Family ID Number:

Informant name: _____ ID:
First MI Last

Person being described name: _____ ID:
First MI Last

PSYCHOSIS

Code for a single episode (best recalled, worst episode if possible).

1. *What were his/her unusual beliefs or experiences?*

Specify: _____

<i>Did he/she ever...</i>	<u>No</u>	<u>Yes</u>	<u>Unk</u>
1.a) <i>...believe people were following him/her, or that someone was trying to hurt or poison him/her?</i>	0	1	9
1.b) <i>...believe someone was reading his/her mind?</i>	0	1	9
1.c) <i>...believe he/she was under the control of some outside person or power or force?</i>	0	1	9
1.d) <i>...believe his/her thoughts were broadcast, or that an outside force took away his/her thoughts or put thoughts into his/her head?</i>	0	1	9
1.e) <i>...have any other strange or unusual beliefs?</i>	0	1	9

If yes: Describe: _____

1.f) <i>...see things that were not really there?</i>	0	1	9
1.g) <i>...hear voices or other sounds that were not real?</i>	0	1	9

If yes: Describe: _____

Skip to question 1.h ←

FIGS: PSYCHOSIS CHECKLIST

	<u>No</u>	<u>Yes</u>	<u>Unk</u>
1.g.1) (Code YES if: voice with content having no relation to depression or elation, or voice keeping up running commentary on subject's behavior or thoughts, or two or more voices conversing.)	0	1	9

1.h) ...speak in a way that was difficult to make sense of? 0 1 9

If yes: Describe: _____

1.i) ...seem to be physically stuck in one position, or move around excitedly without any purpose? 0 1 9

1.j) ...appear to have no emotions, or inappropriate emotions? 0 1 9

2. How long did the longest of these experiences last?

Weeks

--	--	--

INTERVIEWER: If less than 1 week (unless successfully treated), STOP HERE. Otherwise continue, if informant is knowledgeable about this person.

INTERVIEWER: If subject did NOT have any episode of Major Depression or Mania (by FIGS checklists from this informant), skip to question 6.

	<u>No</u>	<u>Yes</u>	<u>Unk</u>
3. When any (SX above) happened, did he/she also have the mood disturbance we discussed before, <u>at the same time</u> ?	0	1	9

Skip to question 6

INTERVIEWER: For the rest of this checklist, "illness duration" refers to total time of illness, including active and prodromal and/or residual symptoms and/or treatment (include time on medication).

	<u>No</u>	<u>Yes</u>	<u>Unk</u>
4. (Probe and code YES if mania and/or depression lasted at least 30% of <u>total</u> duration of illness described above, or medication for it.)	0	1	9

5. (Probe and code **YES** if illness described above, or medication for it, was ever present for as long as one week, without depression and/or mania.) 0 1 9

Skip to question 6

5.a) (Code **YES** if the above was true for as long as two weeks.) 0 1 9

FIGS: PSYCHOSIS CHECKLIST

- | | Code Response |
|---|---------------|
| 6. Code and describe professional treatment (Code and describe all that apply): | 0 1 2 3 4 9 |
| 0. None | |
| 1. Inpatient: _____ | |
| 2. Outpatient: _____ | |
| 3. ECT: _____ | |
| 4. Medication: _____ | |
| 9. Unknown | |

Describe details and/or other treatment:

- | | | | | | | | | | | |
|---|---|----|----------|---|---|--|--|---|--|--|
| 7. Age of onset | | | Age | <table border="1" style="margin: auto;"> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> </table> | | | | | | |
| | | | | | | | | | | |
| 8. Number of episodes (Code 001 if chronic symptoms and/or treatment since onset) | | | Episodes | <table border="1" style="margin: auto;"> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> </table> | | | | | | |
| | | | | | | | | | | |
| 9. <u>Total</u> illness duration (<u>all</u> episodes, includes active and prodromal and/or residual symptoms and/or treatment.) | Weeks | OR | Years | Code Response | | | | | | |
| | <table border="1" style="margin: auto;"> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> </table> | | | | <table border="1" style="margin: auto;"> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> </table> | | | <table border="1" style="margin: auto;"> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> </table> | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| 10. Rate and code impairment or incapacitation: | | | | 0 1 2 9 | | | | | | |
| 0. None | | | | | | | | | | |
| 1. Impaired | | | | | | | | | | |
| 2. Incapacitated | | | | | | | | | | |
| 9. Unknown | | | | | | | | | | |
| 11. Interviewer judgement on reliability of this information: | | | | 1 2 3 | | | | | | |
| 1. Good | | | | | | | | | | |
| 2. Fair | | | | | | | | | | |
| 3. Poor | | | | | | | | | | |

INTERVIEWER: If informant apparently does not know subject well enough to give information on Prodromal/Residual symptoms, STOP HERE.

If duration criterion for DSM III-R Schizophrenia, Chronic Type, already met, (question 9, total illness duration > 2 years), STOP HERE.

FIGS: PSYCHOSIS CHECKLIST

INTERVIEWER: Use this page only if Schizo-affective is ruled out (by questions 3 to 5 above), or if the psychosis symptoms lasted at least one week (or shorter duration if successfully treated).

Establishing the Prodromal Period:

16. *Now I would like to ask you about the year before his/her (psychotic symptoms) started. During that time did he/she...*

(Ask after completing question 16.a-n for the Prodromal period:
Establishing the Residual Period:

Now I would like to ask you about the year after his/her (psychotic symptoms) stopped. During that time did he/she...

	Prodromal Period			Residual Period		
	<u>No</u>	<u>Yes</u>	<u>Unk</u>	<u>No</u>	<u>Yes</u>	<u>Unk</u>
16.a) ...stay away from family and friends, become socially isolated?	0	1	9	0	1	9
16.b) ...have trouble doing his/her job, going to school, or doing work at home?	0	1	9	0	1	9
16.c) ...do something peculiar like talking to self in public?	0	1	9	0	1	9
16.d) ...neglect hygiene and grooming?	0	1	9	0	1	9
16.e) ...appear to have no emotions or inappropriate emotions?	0	1	9	0	1	9
16.f) ...speak in a way that was hard to understand, or was he/she at a loss for words?	0	1	9	0	1	9
16.g) ...have unusual beliefs or ideas?	0	1	9	0	1	9
16.h) ...have unusual perceptions, like sensing the presence of a person not actually present?	0	1	9	0	1	9
16.i) ...have no interests, no energy?	0	1	9	0	1	9
16.j) ...find special meaning in TV, radio, or newspaper articles?	0	1	9	0	1	9
16.k) ...feel nervous with other people?	0	1	9	0	1	9
16.l) ...worry that people were out to get him/her?	0	1	9	0	1	9
17.a) <i>How long did he/she have these experiences?</i>	Weeks					

INTERVIEWER: Return to top of question 16 to establish the Residual period and code in Residual Column.

	Weeks		
	<u>No</u>	<u>Yes</u>	<u>Unk</u>
17.b) <i>How long did he/she have these experiences after his/her (Active psychotic features) stopped?</i>			
18. <i>Was he/she always this way?</i>	0	1	9

**FIGS: PARANOID/SCHIZOID/SCHIZOTYPAL
PERSONALITY CHECKLIST**

SITE OPTIONAL

Interview date: — —
Month Day Year

Family last name: _____ Family ID Number:

Informant name: _____ ID:

Person being described name: _____ ID:
First MI Last First MI Last

PARANOID PERSONALITY

Code for a single episode (best recalled, worst episode if possible).

	<u>No</u>	<u>Yes</u>	<u>Unk</u>
1. <i>Does he/she...</i>			
1.a) <i>...often keep an eye out to stop people from taking advantage of him/her?</i> Expects, without sufficient basis, to be exploited/harmed by others.	0	1	9
1.b) <i>...get concerned that friends or co-workers are not really loyal or trustworthy?</i> Questions, without justification, loyalty of friends or associates.	0	1	9
1.c) <i>...often pick up hidden threats or put-downs from what people say or do?</i> Reads hidden demeaning or threatening meanings into benign remarks or events.	0	1	9
1.d) <i>...take a long time to forgive someone if they have insulted or hurt him/her?</i> Bears grudges or unforgiving of insults/slightings.	0	1	9
1.e) <i>...seem to believe it is best not to let other people know much about him/her?</i> Reluctant to confide in others because of unwarranted fear that information will be used against him/her.	0	1	9
1.f) <i>...often get angry about being insulted or slighted?</i> Easily slighted, quick to react with anger or counterattack.	0	1	9
1.g) <i>...seem to be a jealous person? Ever suspected that his/her spouse/partner was unfaithful?</i> Questions, without justification, fidelity of spouse or sexual partner.	0	1	9

SCHIZOID PERSONALITY

	<u>No</u>	<u>Yes</u>	<u>Unk</u>
2. <i>Does he/she...</i>			
2.a) <i>...seem not to want or enjoy close relationships, like with family or friends?</i> Neither desires nor enjoys close relationships, including family.	0	1	9
2.b) <i>...prefer to do things alone rather than with other people?</i> Almost always chooses solitary activities.	0	1	9
2.c) <i>...hardly ever seem to have strong feelings, like being very angry or very happy?</i> Rarely, if ever, claims or appears to experience strong emotions, anger/joy.	0	1	9
2.d) <i>...seem uninterested in being sexually involved with another person?</i> Little if any desire to have sexual experiences with another person (age taken into account).	0	1	9

**FIGS: PARANOID/SCHIZOID/SCHIZOTYPAL
PERSONALITY CHECKLIST**

SITE OPTIONAL

	<u>No</u>	<u>Yes</u>	<u>Unk</u>
2.e) <i>...seem not to care if people praise or criticize him/her?</i> Indifferent to praise and criticism from others.	0	1	9
2.f) <i>...have no one to be really close to or confide in, or just one person, outside of the immediate family?</i> No close friends or confidants, or only one, other than first-degree relatives.	0	1	9
2.g) <i>...act cold or distant, hardly ever smile or nod back at people?</i> Constricted affect, aloof, cold, rarely reciprocates gestures or expressions.	0	1	9

SCHIZOTYPAL PERSONALITY

3. <i>Does he/she...</i>			
3.a) <i>...wonder if people talking to each other are talking about him/her? Say that a common event or object is a special sign for him/her?</i> Ideas of reference (not delusions of reference).	0	1	9
3.b) <i>...often act nervous in a group of unfamiliar people?</i> Excessive social anxiety.	0	1	9
3.c) <i>...reports experiences with the supernatural? Believe in astrology, seeing the future, UFOs, ESP or a "sixth sense"?</i> Odd beliefs or magical thinking, influencing behavior and inconsistent with subcultural norms.	0	1	9
3.d) <i>...mistake objects or shadows for people, or noises for voices? Have a sense that some invisible person or force is around? See faces change before his/her eyes?</i> Unusual perceptual experiences.	0	1	9
3.e) <i>...behave in odd or eccentric ways? Look peculiar or untidy, have unusual mannerisms, talk to him/herself?</i> Odd, eccentric, peculiar behavior or appearance.	0	1	9
3.f) <i>...sometimes make it hard to follow what he/she is saying? Ramble off the subject, talk in vague or abstract terms?</i> Odd speech (without loosened associations or incoherence).	0	1	9
3.g) <i>...sometimes act silly, not in keeping with the situation? Or tend not to show any feelings in response to people?</i> Inappropriate or constricted affect (e.g., silly or aloof).	0	1	9

INTERVIEWER: If any YES to any Personality Disorders, ask the following questions (to be used for research, not diagnosis).

IMPAIRMENT/DISTRESS

4. <i>Does he/she have problems because of this behavior or thinking or feeling—either with the family or socially, or at work or school?</i> Significant social or occupational impairment.	0	1	9
5. <i>Does this behavior or thinking or feeling cause the person unhappiness?</i> Significant subjective distress.	0	1	9
	<u>Code Response</u>		
	1	2	3
6. Interviewer judgement on reliability of this information: 1. Good 2. Fair 3. Poor			

APPENDIX C: Timeline Followback (TLFB; FORM 90-AIR/ED)

1. BAC:

2. For period from / / (90 days prior to 1st training day)

through / / (first day of training)

Today's date / /

3. Male Female

4. Number of days in full assessment period: (90 prior days + 1st day through today)

5. Current body weight in pounds:

"I'd like to begin by reminding you that whatever you say here is confidential. I am going to be asking you some specific questions concerning the period of time from three months prior to your first day at the fire training academy through today. [Place calendar in front of client.] Here is a calendar to help you remember this period of time. First of all, when was your first day of training at the fire academy? [Count back 89 days from this day, and cross out with Xs the days preceding this period. Record the starting date in Item 2 above]. So the period I'm going to be asking you about is from [beginning date, 89 days prior to first day at training academy] up through today."

"I realize that this is a long period of time to remember things that happened, so we will use this calendar to help you remember things that happened. Notice that a few events are already printed on the calendar. [Point out some specific events already printed on the calendar.] Were there any particularly memorable things that happened during this time – any birthdays, accidents, anniversaries, parties, things like that?" [Record on calendar.]

"Now, the rest of the questions that I will ask you are also about this time period, from _____ up until 1st day of training. I'll be asking you about your drinking in a few minutes, but first I'd like to ask you about a few other things. Feel free to take your time in answering, since it is important for you to remember as accurately as you can. Let me know if you're not sure what I am asking, or what I mean by a particular question, OK?"

HEALTHCARE

“Now I’d like to ask you a few questions about your significant other’s use of various healthcare services. Please refer to the calendar to help you remember.” [Mark all overnight stays and visits on calendar]

1. During this time period has your significant other spent the night in the hospital in order to receive care?

(skip to question 6) NO YES

- Hm** a) How many nights did he or she stay in the hospital?
nights

[Mark overnight stays on the calendar as Hm]

- b) Of those nights, how many were alcohol, drug abuse,
or mental health related?

 nights

2. During this period has your significant other spent the night at any other treatment facility to receive alcohol, drug abuse, or mental healthcare for himself or herself? (e.g., residential treatment center)? Please exclude halfway houses and other sober residences without treatment staff.

(skip to question 7) NO YES

- Rt** a) For how many nights did he or she stay to receive this care?

 nights

[Mark overnight stays on the calendar as Rt]

3. During this period has your significant other made a visit to the emergency room or urgent care treatment facility for health treatment?

(skip to question 8) NO YES

- a) How many visits did he or she make?

 visits

- b) Of these visits, how many were alcohol, drug abuse, or mental health related? (Include all injuries and conditions resulting from and associated with alcohol and drug abuse.)

 visits

- c) About how long did it typically take your significant other to get to the emergency room or urgent care treatment facility?

 mins

- d) About how long did your significant other typically spend at the emergency room or urgent care treatment facility?

 hours

(Include time in the waiting room)

 mins

HEALTHCARE

9. Excluding visits you've already told me about, has your significant other visited any other healthcare professionals to receive outpatient treatment or counseling during this period?

(skip to question 10) NO YES

- a) How many visits did your significant other make? visits
- b) Of these visits, how many were alcohol, drug abuse, or mental health related? visits
- c) About how long did it typically take your significant other to get to the healthcare provider they saw most often for these visits? mins
- d) About how long did your significant other typically spend at the healthcare provider they saw most often? (Include time in the waiting room.) hours
 mins

MEDICATIONS

"During this period, on how many days did your significant other take any medications that were prescribed by a physician?"

10. to treat a medical problem (including dental)? days
Specify: _____
11. to help your significant other keep from drinking? days
Specify: _____
12. to help your significant other detoxify/come off alcohol or another drug? days
Specify: _____
13. for psychological or emotional problems? days
Specify: _____

MEDICATIONS

14. During this time period has your significant other participated in AA or another 12-step program?

(skip to question 15) NO YES

a) How many meetings did your significant other attend? meetings

b) About how long did it typically take your significant other to get to these meetings? mins

c) How much time did your significant other typically spend at these meetings? mins

15. During this period has your significant other participated in other self-help alcohol recovery programs other than the 12-step program (e.g., RR, SMART Recovery, SOS, Women for Sobriety)?

(skip to question 16) NO YES

a) How many meetings did your significant other attend? meetings

b) About how long did it typically take your significant other to get to These meetings? mins

c) How much time did your significant other typically spend at these Meetings? mins

16. During this period, how many days has your significant other experienced significant emotional problems? days

Notes:

“Now I’d like to ask you some questions about your significant other’s involvement with the police. Please refer to the calendar if it will help you remember.”

17. During this period has your significant other been arrested?

(skip to question 18) NO YES

a) How many times has your significant other been arrested? times
Of those arrests, how many were for:

b) DUI? times

c) Other traffic violations? times

d) Public drunkenness/disorderly conduct?
times

e) Assault (aggravated, sexual, or other)? times

f) Motor vehicle theft? times

g) Burglary? times

h) Robbery? times

18. During this period did your significant other have any court appearances?

(skip to question 19) NO YES

a) How many times did your significant other appear in court? times

19. During this period was your significant other on parole or probation?

(skip to question 20) NO YES

a) How many times did your significant other visit their parole/probation officer? times

b) About how long did it typically take your significant other to get to their parole/probation officer? mins

20. During this period was your significant other jailed or incarcerated overnight? [Mark incarcerated on calendar]

(skip to next section) NO YES

In a) How many nights did your significant other spend in jail or incarcerated? nights
[Mark overnight stays on calendar as In]

MOTOR VEHICLE ACCIDENTS

“Now I’d like to ask you a question about your significant other’s driving record during this period. Please refer to the calendar to help you remember.”

21. During this period has your significant other had any automobile accidents?

(skip to next section) NO YES

a) How many automobile accidents has your significant other had?
accidents

LABOR MARKET

“Now I’d like to ask you some questions about your significant other’s employment activity during this period. Please refer to the calendar if it will help you remember.”

22. Which of the following statements best describes your significant other’s current work situation?

- Working (**skip to question 24**)
- Have a job, but not working (extended illness, maternity leave, strike, seasonal work, temp layoff, etc.) (**skip to question 24**)
- Unemployed or permanently laid-off and looking for work
- Unemployed or permanently laid-off and **not** looking for work
- Full-time homemaker
- In school or training program
- Retired
- Disabled, unable to work
- Other, specify: _____

23. Was your significant other employed at any point during this period?

(**skip to question 27**) NO YES

-

24. During this period how many weeks was your significant other employed at any job?

Please include weeks spent on paid leave such as vacation or paid maternity leave.

There have been _____ weeks in this period. (**Interviewer:** please calculate number of weeks as

the number of Sundays that occurred in this period).

weeks employed

25. During this period how many hours a week did your significant other . hours/week

usually work?

26. During this period how many workdays did your significant other miss days because of alcohol?

27. Finally, I’d like you to think about the 12 months prior and tell me approximately how much income before taxes and deduction was received by all family members who live with you, including yourself. Please include money from all sources (check one).

- \$0-\$15,000
- \$15,001-\$30,000
- \$30,001-\$50,000
- \$50,001-\$75,000
- \$75,001-\$100,000
- More than \$100,000

ALCOHOL USE

First query period of abstinence:

“Now I’d like to ask you about your significant other’s drinking during this same period. The things already on this calendar here may help you to remember better. First of all, were there any periods of days when your significant other had nothing to drink at all?” **Mark indicated abstinent days as “A” on calendar.**

28. Date of first drink in the last 90 days: / /

29. Date of most recent drink in the last 90 days: / /

“During this period of time, when your significant other was drinking, was your significant other’s pattern at all similar from one week to the next, at least for some of these weeks? I realize that drinking varies from day-to-day and from week-to-week, but I want to know if there was any similarity among weeks. Was there any consistency to your significant other’s drinking from week-to-week?”

IF NO, GO TO CALENDAR. IF YES, CONTINUE TO COMPLETE PAGE 11 AND, IF APPROPRIATE, PAGE 12.

“Could you describe for me a usual or typical week of drinking? In a typical week, let’s start with weekdays: Monday through Friday. What did your significant other normally drink in the morning from the time he/she got up until about lunch time?” [Record on grid.]

“Now how about weekday evenings? What did your significant other normally drink with dinner, up through the rest of the weekend days [Saturdays and Sundays]. Then locate P1 weeks:

“Now which are the weeks on this calendar when your significant other’s drinking was like this?” [Record these weeks as P1 on the calendar.]

Occasionally, a second steady pattern grid (P2) will be needed. If so, repeat the above procedure for P2 and record these weeks as P2 on the calendar.

ALCOHOL USE

When you have completed the grid(s), or if there was no steady pattern, proceed to fill in other drinking days on the calendar.

“Now that we have your significant other’s steady pattern, I’d like you to tell me about the times during this period when your significant other’s drinking was different. Look at the calendar again, and think back over this period. When were the times that your significant other had more or less than the regular amount to drink?”

Or

“If your significant other didn’t have a regular pattern from week-to-week, tell me about the times when your significant other did drink during the period on the calendar.”

P1 STEADY PATTERN CHART 1

	Morning	Afternoon	Evening
Monday			
Tuesday			
Wednesday			
Thursday			
Friday			
Saturday			
Sunday			

Enter all days of this pattern on calendar as P1.

****If the above pattern does not describe all drinking weeks, ask:**

“Now on the other weeks when your significant other was drinking, was his or her drinking at all the same from week to week?”

If YES, complete grid P2 on next page. If NO, go back to calendar.

P2 STEADY PATTERN CHART 2

	Morning	Afternoon	Evening
Monday			
Tuesday			
Wednesday			
Thursday			
Friday			
Saturday			
Sunday			

OTHER DRUG USE

Current Period:

“Now I’m going to show you this set of cards. Each card names a kind of drug that people sometimes use. I’d like you to sort them into piles for me. In a pile on the left [indicate position], I’d like you to place those cards that name a kind of drug that your significant other has tried at least once during the period we’ve been talking about on this calendar, from _____ up through today. In a pile on the right [indicate position], place the cards that name the types of drugs that your significant other did not use at all during this period.”

For each of the YES cards, specify the specific drug(s) used during this recent period, and ask:

“During this period, on how many days would you say he or she used _____?” [Record days of use under Current Period on the drug chart. Repeat for all YES cards.]

Nicotine-specific questions:

If the client has used nicotine, record number of days of use (i.e., 45 days of smoking cigarettes = 45 days; 90 days of nicotine patch use = 90 days) and follow-up, if appropriate, with the two nicotine-specific questions.

“During this period of time, how many cigarettes would you say your significant other smoked per day, on average (on days when he or she did smoke)?” [Record only cigarette use.]

And

“From the time your significant other woke up, how long was it before he or she had his or her first cigarette or other nicotine?”

[Record for all nicotine use.] [For 24 hour nicotine patch use, enter 0.]

Lifetime Use:

[If a drug was used during Current Period, record by checking “YES” on the drug chart under Lifetime Use.]

To inquire about additional lifetime drug use, hand the NO cards back to the client to re-sort. [give cards to client IN NUMERICAL ORDER.]

“Now these are the drugs that you say your significant other has not used during the current period (90 days). I’d like you to sort them into two piles for me. If he or she has tried the drug at least once during his or her lifetime, put it in a pile here [indicate position], and if he or she has never tried the drug, put it in a pile here.” [indicate position.] [Record on drug chart under Lifetime Use.]

OTHER DRUG USE

	CURRENT PERIOD Last 90 Days	LIFETIME USE?
35. Nicotine Specify:	<input type="text"/> <input type="text"/> <input type="text"/> Days <input type="text"/> <input type="text"/> <input type="text"/> Cigs/Day Time between waking and first cigarette or other nicotine use: <input type="text"/> <input type="text"/> <input type="text"/> mins	No <input type="radio"/> Yes <input type="radio"/>
36. Cannabis Specify:	Days <input type="text"/> <input type="text"/> <input type="text"/>	No <input type="radio"/> Yes <input type="radio"/>
37. Sedatives/tranquilizers Specify:	Days <input type="text"/> <input type="text"/> <input type="text"/>	No <input type="radio"/> Yes <input type="radio"/>
38. Hypnotics Specify:	Days <input type="text"/> <input type="text"/> <input type="text"/>	No <input type="radio"/> Yes <input type="radio"/>
39. Steroids Specify:	Days <input type="text"/> <input type="text"/> <input type="text"/>	No <input type="radio"/> Yes <input type="radio"/>
40. Amphetamines Specify:	Days <input type="text"/> <input type="text"/> <input type="text"/>	No <input type="radio"/> Yes <input type="radio"/>
41. Cocaine (including crack) Specify:	Days <input type="text"/> <input type="text"/> <input type="text"/>	No <input type="radio"/> Yes <input type="radio"/>
42. Hallucinogens Specify:	Days <input type="text"/> <input type="text"/> <input type="text"/>	No <input type="radio"/> Yes <input type="radio"/>
43. Inhaled toxicants Specify:	Days <input type="text"/> <input type="text"/> <input type="text"/>	No <input type="radio"/> Yes <input type="radio"/>
44. Opiates Specify:	Days <input type="text"/> <input type="text"/> <input type="text"/>	No <input type="radio"/> Yes <input type="radio"/>
45. Other drugs Specify:	Days <input type="text"/> <input type="text"/> <input type="text"/>	No <input type="radio"/> Yes <input type="radio"/>

Cannabis:

Marijuana, hashish (“hash”), THC, “pot”, “grass”, “weed”, “reefer”

Sedatives/tranquilizers-hypnotics-anxiolytics: (“downers”)

Quaalude (“ludes”), Seconal (“reds”), Valium, Xanax, Librium, barbituates, Miltown, Ativan, Dalmane, Hacion, Restoril

Amphetamines/Stimulants: (“uppers”)

“speed”, crystal meth, dexadrine, Ritalin, diet pills, “ice”

Cocaine:

Snorting, IV, freebase, crack, “speedball”

Hallucinogens: (“psychedelics”)

LSD (“acid”), mescaline, peyote, psilocybin, STP, mushrooms, Extasy, MDMA

Opioids:

Heroin, morphine, opium, Methadone, Darvon, codeine, Percodan, Demerol, Dilaudid

PCP (has hallucinogenic effects; can be smoked, snorted, or eaten):

“angel dust”

Other:

Steroids, “glue”, ethyl chloride, paint, inhalants, nitrous oxide (“laughing gas”), amyl or butyl nitrate (“poppers”), Special K, nonprescription sleep or diet pills

APPENDIX D: PTSD CHECKLIST - CIVILIAN VERSION (PCL-C)

Instructions: Below is a list of problems and complaints that people sometimes have in response to stressful life experiences. Please read each one carefully, then fill in the circle of the response to indicate how much you have been bothered by that problem, *in the past month*. Please fill in ONE option only for each question.

		Not at all 0	A little bit 1	Moderately 2	Quite a bit 3	Extremely 4
1.	Repeated, disturbing memories, thoughts, or images of a stressful experience from past?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.	Repeated, disturbing dreams of a stressful experience from the past?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3.	Suddenly acting or feeling as if a stressful experience from was happening again (as if you were reliving it)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4.	Feeling very upset when something reminded you of a stressful experience from the past?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.	Having physical reactions (e.g., heart pounding, trouble breathing, or sweating) when something reminded you of a stress experience from the past?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.	Avoid thinking about or talking about a stressful experience from the past or avoid having feelings related to it?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7.	Avoid activities or situations because they remind you of a stressful experience from the past?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8.	Trouble remembering important parts of a stressful experience from the past?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9.	Loss of interest in things that you used to enjoy?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10.	Feeling distant or cut off from other people?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11.	Feeling emotionally numb or being unable to have loving feelings for those close to you?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12.	Feeling as if your future will somehow be cut short?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13.	Trouble falling or staying asleep?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14.	Feeling irritable and having angry outbursts?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15.	Having difficulty concentrating?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16.	Being “super alert” or watchful or on guard?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17.	Feeling jumpy or easily startled?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

APPENDIX E: TRAUMA HISTORY QUESTIONNAIRE (THQ-R)

Instructions: The following is a series of questions about serious or traumatic life events. The questionnaire is divided into questions concerning crime experiences, general disaster and trauma questions, and questions about physical and sexual experiences.

For each event, please indicate whether it happened, and if it did, the number of times and your approximate age when it happened (give your best guess if you are not sure). Also note the nature of your relationship to the person involved, and the specific nature of the event, if appropriate.

<u>Crime-Related Events</u>	<u>If Yes</u>			
	NO	YES	# of Times	Approx. Age
1. Has anyone ever tried to take something from you by using force or threat of force, such as a stick-up or mugging?				
	NO	YES		
2. Has anyone ever attempted to rob you or actually robbed you (i.e. stolen your personal belongings)?				
	NO	YES		
3. Has anyone ever attempted to or succeeded in breaking into your home				
	NO	YES		
4. Has anyone ever tried to or succeeded in breaking into your home while you <u>were</u> there?				
<u>General Disaster and Trauma</u>				
	NO	YES		
5. Have you ever had a serious accident at work, in a car, or somewhere else? <u>If yes</u> , please specify:				
	NO	YES		
6. Have you ever experienced a natural disaster such as a tornado, hurricane, flood, major earthquake, etc., where you felt you or your loved ones were in danger of death or injury? <u>If yes</u> , please specify:				
	NO	YES		
7. Have you ever experienced a “man-made” disaster such as a train crash, building collapse, bank robbery, fire, etc., where you felt you or your loved ones were in danger of death or injury? <u>If yes</u> , please specify:				
	NO	YES		
8. Have you ever been exposed to dangerous chemicals or radioactivity that might threaten your health?				

			If Yes	
	NO	YES	# of Times	Approx. Age
9. Have you ever been in any other situation in which you were seriously injured? <u>If yes</u> , please specify:				
	NO	YES		
10. Have you ever been in any other situation in which you feared you <u>might</u> be killed or seriously injured? <u>If yes</u> , please specify:				
	NO	YES		
11. Have you ever seen someone seriously injured or killed? <u>If yes</u> , please specify who:				
	NO	YES		
12. Have you ever seen dead bodies (other than at a funeral) or had to handle dead bodies for any reason? <u>If yes</u> , please specify who:				
	NO	YES		
13. Have you ever had a close friend or family member murdered or killed by a drunk driver? <u>If yes</u> , please specify relationship (e.g. mother, grandson, etc.):				
	NO	YES		
14. Have you ever had a spouse, romantic partner, or child die? <u>If yes</u> , please specify relationship:				
	NO	YES		
15. Have you ever had a serious or life-threatening illness? <u>If yes</u> , please specify:				
	NO	YES		
16. Have you ever received news of a serious injury, life-threatening illness, or unexpected death of someone close to you? <u>If yes</u> , please indicate:				
	NO	YES		
17. Have you ever had to engage in combat while in military service in an official or unofficial war zone? <u>If yes</u> , please indicate where:				
			If Yes	
<u>Physical and Sexual Experiences</u>	NO	YES	Was it Repeated?	Approx. How Often & What Age(s)
18. Has anyone ever made you have intercourse, oral or anal sex against your will? <u>If yes</u> , please indicate nature of relationship with person (e.g. stranger, friend, relative parent, sibling):				

			If Yes	
	NO	YES	Was it Repeated?	Approx. How Often & What Age(s)
19. Has anyone ever touched private parts of your body, or made you touch theirs, under force or threat? <u>If yes</u> , please indicate nature of relationship with person (e.g. stranger, friend, relative, parent, sibling):				
	NO	YES		
20. Other than incidents mentioned in question 18 and 19, have there been any other situations in which another person tried to force you to have unwanted sexual contact?				
	NO	YES		
21. Has anyone, including family members or friends, ever attacked you with a gun, knife or some other weapon?				
	NO	YES		
22. Has anyone, including family members or friends, ever attacked you <u>without</u> a weapon and seriously injured you?				
	NO	YES		
23. Has anyone in your family ever beaten, spanked, or pushed you hard enough to cause injury?				
<u>Other Events</u>				
	NO	YES		
24. Have you ever experienced any other extraordinarily stressful situation or event that is not covered above? <u>If yes</u> , please specify:				

APPENDIX F: SOURCES OF SOCIAL SUPPORT (SOSS)

Instructions: The statements below are about the amount of support you receive from friends and relatives. Please answer each item by filling in the appropriate number to the right of each statement.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1. I am carefully listened to and understood by family members or friends.					
2. Among my friends or relatives, there is someone who makes me feel better when I am feeling down.					
3. I have problems that I can't discuss with family or friends.					
4. Among my friends or relatives, there is someone I can go to when I need advice.					
5. There are people I can talk to about my firefighter experiences.					
6. The people I know respect the fact that I am a firefighter.					
7. I know people who would lend me money if I needed it.					
8. If I were unable to do my daily chores, there is someone who would help me with these tasks.					
9. If I were ill, there are friends or family members who would help me.					

APPENDIX G: SOURCES OF OCCUPATIONAL STRESS (SOOS-14)

Instructions: There are many sources of on-the-job stress that affect firefighters on a regular basis. The items that follow in this questionnaire are examples of some of these possible stressors. Thinking aback over the PAST FOUR MONTHS, read each, and then choose how bothered you felt about experiencing that type of on-the-job-stress by marking in the little circle under the column that best fits your answer. By “bothered” we mean frustrated, annoyed, irritated, etc. If you did not experience the on-the-job stressor in the past four months, mark in the circle under N/A (Not applicable to me).

In the past four months, how bothered have you been by:

	Not at All Bothered	A Little Bit Bothered	Moderately Bothered	Quite a Bit Bothered	Extremely Bothered	N/A (Not Applicable)
1. Concerns about adequate skills.						
2. Concerns about making mistakes on the job.						
3. Conflict with Chief Administrative Officer(s).						
4. Conflict with immediate supervisors.						
5. Conflicts with co-workers and team members.						
6. Working with a sub-standard co-worker.						
7. Working with sub-standard equipment.						
8. Working with malfunctioning or improperly maintained equipment.						
9. Reduction in force.						

APPENDIX H: LIFESTYLE QUESTIONNAIRE (LQ)

Instructions: Please respond to each item as accurately as possible, and do not skip any items. Indicate the frequency with which you engage in each behavior by filling in the appropriate circle.

		Never 0	Sometimes 1	Often 2	Routinely 3
1.	I follow a regular exercise program.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.	I put my trust in God/higher power.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3.	I eat a balanced diet.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4.	I exercise vigorously for 20 or more minutes at least three times a week (such as brisk walking, bicycling, running).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.	I ask God/higher power for help.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.	I am able to find humor in situations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7.	I take part in light to moderate physical activity (such as sustained walking 30-40 minutes, 5 or more times a week).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8.	I practiced meditation or prayer.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9.	I have a good sense of humor.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10.	I take part in leisure-time or recreational physical activities, such as swimming, dancing, or bicycling.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

APPENDIX I: SHORT-FORM HEALTH SURVEY (SF-12)

Instructions: This survey asks for your views about your health. This information will help keep track of how you feel and how well you are able to do your usual activities.

Please answer every question by filling in one circle. If you are unsure about how to answer, please give the best answer you can.					
	Excellent	Very Good	Good	Fair	Poor
1. In general, would you say your health is:					
The following items are about activities you might do during a typical day. Does <u>your health now limit you</u> in these activities? If so, how much?					
		Yes, limited a lot	Yes, limited a little	No, not limited at all	
2. Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling or playing golf?					
3. Climbing several flights of stairs?					
During the <u>past 4 weeks</u>, have you had any of the following problems with your work or other regular daily activities <u>as a result of your physical health</u>?					
				Yes	No
4. Accomplished less than you would like.					
5. Were limited in the kind of work or other activities.					
During the <u>past 4 weeks</u>, have you had any of the following problems with your work or other regular daily activities <u>as a result of any emotional problems</u> (such as feeling depressed or anxious)?					
				Yes	No
6. Accomplished less than you would like.					
7. Didn't do work or other activities as carefully as usual.					
	Not at all	A little bit	Moderately	Quite a bit	Extremely
8. During the <u>past 4 weeks</u> , how much did <u>pain</u> interfere with your normal work (including both work outside the home and housework)?					
These questions are about how you feel and how things have been with you <u>during the past 4 weeks</u>. For each question, please give the one answer that comes closest to the way you have been feeling.					

How much of the time during the <u>past 4 weeks...</u>						
	All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	None of the time
9. Have you felt calm and peaceful?						
10. Did you have a lot of energy?						
11. Have you felt downhearted and blue?						
12. During the <u>past 4 weeks</u> , how much of the time has your <u>physical health or emotional problems</u> interfered with your social activities (like visiting with friends, relatives, etc.)?						

VITA
VICTORIA A. TORRES, B. A.
Graduate Student
University of Mississippi

EDUCATION

Undergraduate Baylor University, Waco, Texas, 2010-2014
Psychology, B.A., May 2014

Post-Undergraduate Training August 2014 – January 2016
Research Development and Scholarship Series
Hosted by the Office of Academic Research Development
Baylor Scott & White Health

Advanced Degree The University of Mississippi, Oxford, Mississippi, 2016 – Present
Clinical Psychology (APA approved)

AWARDS AND HONORS

- Dean's List, Baylor University – Fall 2011, 2012, 2013; Spring 2013
- Dean's Gold Scholarship – based on class rank and SAT scores

CERTIFICATIONS

- Collaborative IRB Training Initiative (CITI) Program – February 2021

MEMBERSHIP IN SOCIETIES

Member, Psi Chi National Honor Society in Psychology - 2012 – 2014

Member, Society of Behavioral Medicine (SBM) – 2016 - Present

Member, American Psychological Association (APA) – 2016 - Present

- Health Psychology - Division 38
- Society of Addiction Psychology - Division 50
- Trauma Psychology - Division 56

Member, International Society for Traumatic Stress Studies (ISTSS) – 2017 - Present

PEER REVIEWED PUBLICATIONS

1. **Torres, V. A.**, Synett, S. J., Pennington, M. L., Kruse, M., Sanford, K., & Gulliver, S. B. (2016). The risks and rewards of marriage for fire fighters: A literature review with implications for EAP. *EASNA Research Notes*, 5, 3. Available from: <https://www.easna.org/wp-content/uploads/2010/08/EASNA-Research-Notes-Vol-5-No-3-August-2016.pdf>
2. Sanford, K., Kruse, M. I., Proctor, A., **Torres, V. A.**, Pennington, M. L., Synett, S. J., & Gulliver, S. B. (2017). Couple resilience and life wellbeing in firefighters. *Journal of Positive Psychology*, 1-7.
3. Pennington, M. L., Carpenter, T., Synett, S. J., **Torres, V. A.**, Teague, J., Morissette, S. B., Knight, J., Kamholz, B. W., Keane, T. M., Zimering, R. T., & Gulliver, S. B. (2017). The influence of exposure to natural disasters on depression and PTSD symptoms among firefighters. *Prehospital and Disaster Medicine*.
4. Gulliver, S. B., Pennington, M. L., **Torres, V. A.**, Steffen, L. E., Mardikar, A., Leto, F., Ostiguy, W., Kimbrel, N. A., & Zimering, R. T. (2018). Behavioral health programs in fire service: Surveying access and preferences. *Psychological Services*.

CHAPTERS

1. Gulliver, S. B., Pennington, M. L., & **Torres, V. A.** (2017). Alcohol use disorder: Psychological factors. In A. Wenzel (Ed.), *The SAGE encyclopedia of abnormal and clinical psychology*. Thousand Oaks, CA: SAGE Publications.
2. **Torres, V. A.**, Cohen, L. M., & Gulliver, S. B. (Accepted). Tobacco use disorder and its treatment. In L. Cohen (Ed.), *Wiley Encyclopedia of Health Psychology*. (Vol. 3). John Wiley & Sons, Inc.

COMPLETED RESEARCH SUPPORT

Baylor Scott & White Health Research Mentorship Award Torres (PI)

Identifying Frequency of Mild Traumatic Brain Injury (mTBI) in Firefighters

The goal of this study is to provide initial incidence and prevalence data concerning mTBI and post-concussive syndrome symptoms in firefighters.

Funding Period: 10/16/2015 – 10/15/2016

Total Direct Costs: \$880

Role: Principal Investigator

FEMA Fire Prevention & Safety Grant Award Gulliver (PI)

Stamp Out Stigma: A National Campaign to Decrease Stigma and Increase Behavioral Health in Fire Service

The goal of this project is to decrease perceived stigma in relationship to behavioral health programs in fire service through the development and delivery of an evidence-based anti-stigma intervention campaign called STAMP OUT STIGMA (SOS).

Funding Period: 07/31/15 - 07/30/17

Total Direct Costs: \$1,394,953

Role: Research Technician

FEMA Fire Prevention & Safety Grant Award Gulliver (PI)

In the Wake of Suicide: Evaluating Standard Operating Procedure for Postvention

The aim of this project was to develop a standard operating procedure (SOP) for suicide postvention in Fire Service. In this project, an SOP developed by the New York City Fire Department Counseling Service Unit was expanded upon based on feedback from an expert review group. Next, six focus groups reviewed the SOP, and feedback was used to create the final product.

Funding Period: 7/08/2013 – 1/01/2015

Total Direct Costs: \$639,362

Role: Research Technician

PRESENTATIONS

Veteran's One Stop Coalition Meeting

August 7th, 2014

Hosted by The Heart of Texas Veterans One Stop, Military Veteran Peer Network and McLennan County Veteran Service Office

Waco, TX

- Discussed research options for veterans through The Warriors Research Institute

- Collaborated with other Veteran’s Affairs organizations to aid veterans with substance use disorders

Warriors Research Institute Open House

July 29th, 2015

Event Coordinator

Waco, TX

- Planned all aspects of event
- Invited local dignitaries, Baylor Scott & White Health leadership, noted research professionals and veterans’ affairs organizations to attend
- Discussed importance of behavioral health research for first responders and veterans with attendees
- Collaborated with Baylor Scott & White Health’s Marketing leadership to facilitate media coverage
- Responsible for purchasing all needed supplies
- Orchestrated and participated in mock interviews simulating participant and therapist involvement at the WRI
- Followed-up with attendees and interested community members

ABSTRACTS

1. Pennington, M. L., Synett, S. J., **Torres, V. A.**, & Gulliver, S. B. (2015, April). *Does Exposure to Natural Disaster Increase Risk and Vulnerability to Health Problems and Depression in an at Risk Population?* Poster presented at the 36th Annual Meeting of Society of Behavioral Medicine, San Antonio, TX.
2. **Torres, V. A.**, Pennington, M. L., Synett, S. J., Kimbrel, N., & Gulliver, S. B. (2015, April). *Project Reach Out Results: Who do firefighters try to help?* Poster presented at the 36th Annual Meeting of Society of Behavioral Medicine, San Antonio, TX.*
3. Gulliver, S. B., Pennington, M. L., **Torres, V. A.**, Synett, S., & Zimering, R. T. (2015, February). *Health risk behaviors in a risky profession: The tobacco and alcohol use of firefighters in their first years of service.* Poster presented at the 21st Annual Meeting of the Society for Research on Nicotine and Tobacco, Philadelphia, PA.
4. Proctor, A., Sanford, K., Kruse, M., **Torres, V. A.**, Pennington, M. L., Synett, S. J., & Gulliver, S. B. (2015, November). *Dimensions of Couple Resiliency in a Sample of Firefighters.* Poster presented at Association for Behavioral and Cognitive Therapies 49th Annual Convention, Chicago, IL.

5. **Torres, V. A.**, Pennington, M. L., Kruse, M. I., Kimbrel, N., Dolan, S., & Gulliver, S. B. (2017, March). *A First Look at Mild Traumatic Brain Injury (mTBI) Symptom Frequency Among U.S. Firefighters*. Poster presented at Society of Behavioral Medicine 38th Annual Meeting, San Diego, CA.
6. Gomez, D. R., **Torres, V. A.**, Thomason, P. M., Denman, T. C., Pennington, M. P., Maness, A. G., & Gulliver, S. B. (2017, April). *Sleep problems and posttraumatic stress disorder in fire service*. Poster to be presented at the 5th annual Baylor Scott & White Health Central Texas Research Day, Temple, TX.
7. Gomez, D. R., **Torres, V. A.**, Thomason, P. M., Denman, T. C., Pennington, M. P., Maness, A. G., & Gulliver, S. B. (2017, November). *Sleep problems and posttraumatic stress disorder in fire service*. Poster to be presented at the 33rd Annual Meeting of the International Society for Traumatic Stress Studies (ISTSS), Chicago, IL.

*Indicates that abstract was published.

MANUSCRIPTS IN PREPARATION

1. **Torres, V. A.**, Pennington, M. L., Kruse, M., Kimbrel, N., Dolan, S., & Gulliver, S. B. (in preparation). Identifying Frequency of Mild Traumatic Brain Injury (mTBI) in Firefighters.

PROFESSIONAL EXPERIENCE

**Warriors Research Institute
Waco, TX**

February 2014 – July 2016

Research Assistant

Supervisor: Dr. Suzy Bird Gulliver

- Collaborated with research team to write and submit grants
- Created and submitted study protocols for IRB approval
- Supervised all aspects of multiple research studies
- Recruited participants efficiently and effectively
- Strategized with research team to implement innovative procedures
- Managed personnel travel
- Managed and purchased research study supplies
- Aided in transcribing focus group information
- Collected, entered, and analyzed data for multiple federally funded research projects
- Served as marketing liaison
- Disseminated research findings through published manuscripts, posters, and book chapters

- Administered an array of assessments to study participants
- Served as the original developer of WRI Website (wri.sw.org)
- Conducted routine web maintenance
- Managed all office scheduling including volunteer, research therapist and director agendas
- Actively participated in weekly meetings pertaining to team science
- Authored quarterly newsletter

Language Acquisition Center (LAC)
Baylor University, Waco TX
Laboratory Assistant
Supervisor: Bill Dooley

January 2011 - May 2014

- Worked closely with language students and faculty to solve technological problems
- Proctored language placement exams
- Created Spanish worksheets for students
- Converted language videos from VHS to DVD format
- Trained new LAC Assistants

The Julianna Poor Memorial Counseling Center
Houston, TX
Paid Intern

Summer 2010 & 2011

Supervisors: Adam Mason, Greg Curnutte, Huston McComb

- Entered data into two software programs: Theramanager and Medisoft
- Archived and organized client files
- Scheduled client appointments
- Prepared outstanding balance letters
- Created counseling forms in English and Spanish
- Observed multiple counseling sessions with adults and children
- Coordinated bilingual parenting workshop

RESEARCH EXPERIENCE

Warriors Research Institute
Dr. Suzy Bird Gulliver
Waco, TX
Research Assistant

February 2014 - Present

Study: Stamp Out Stigma (Project SOS): A National Campaign to Decrease Stigma and Increase Behavioral Health in Fire Service (PI: Dr. Suzy Bird Gulliver)

- Collaborated with team on project and grant development
- Drafted “Cost Benefit” section of grant
- Coordinated collaborator travel

Study: Identifying Frequency of Mild Traumatic Brain Injury (mTBI) in Firefighters (PI: Victoria A. Torres)

- Collaborated with experts to design research study
- Modified measures to fit self-report design
- Coded self-report measures
- Wrote code in SPSS for scoring raw data
- Negotiated reduced Qualtrics licensing fee
- Developed efficient budget
- Applied and received grant funding for project
- Submitted detailed study protocol to IRB for approval
- Professionally sought fire department and union approval for firefighter participation
- Responsible for all study aspects
- Planned and proctored research study meetings
- Communicated with IRB on ethical issues and legal department on data use agreements
- Met with mentor, Dr. Suzy Bird Gulliver, weekly

Study: Testing Family Interventions to Motivate Veterans to Seek Treatment (PI: Dr. Suzy Bird Gulliver)

- Gathered study materials including binders and packets of measures
- Participated in Training Days oriented towards educating therapists about Community Reinforcement and Family Training
- Advertised research study
- Administered multiple assessments to participants including informed consent, the Form 90, the MINI, and the Columbia Suicide Severity Scale
- Entered and cleaned data

- Prepared manuscripts from project

Study: First Responder Couples Resilience Project (PIs: Dr. Suzy Bird Gulliver & Dr. Keith Sanford)

- Conducted initial literature search on current research in the field
- Collaborated with research team to streamline assessments
- Assembled participant assessment packets
- Co-authored study protocol for timely IRB submission

Study: Pathways of Risk and Resilience in Firefighter Recruits (FFR&R) (PI: Dr. Suzy Bird Gulliver)

- Entered, cleaned and analyzed data for nicotine use in fire service replication study
- Wrote, created and supervised FFR&R newsletter
- Aided in manuscript preparation

Baylor University Social Psychology Laboratory
Dr. Jo-Ann Tsang
Waco, TX
Research Assistant

August 2012 – January 2015

Study: The Effects of Empathy on Self-Forgiveness (PI: Thomas P. Carpenter)

- Served as a lead research assistant on study
- Involved in all aspects of study
- Conducted literature search and summarized articles for study design
- Assisted with hypotheses
- Assisted with IRB application preparation
- Collaborated with doctoral student to create study script and to refine protocols
- Ran participants through research study and collected data
- Trained other undergraduate research assistants to run research study
- Entered, cleaned and analyzed data using SPSS

Study: Personality Factors of Awe and Allophilia (PI: Daniel Straussberger)

- Ran participants through study, carefully following protocols
- Took detailed laboratory notes and reported to the research team

Baylor University Mind Body Medicine Research Lab
Dr. Gary Elkins
Waco, TX

January 2013 – May 2014

Research Assistant

- Provided administrative assistance
- Participated in all lab meetings and training sessions
- Discussed team science with lab members to develop new research trajectories

Study: An Investigation of the Feasibility of Mindfulness-based Hypnosis for Stress and Anxiety

(PI: Nik Olendzki)

- Completed lengthy literature search on mindfulness, stress and anxiety
- Aided in preparation for launching study

Study: Hypnosis as Treatment for Fatigue in Cancer Patients (PI: Gary Elkins)

- Facilitated intake procedures for new participants (including disclosure, initial assessment and informed consent)

Study: Elkin's Hypnotizability Scale in College Students (PI: Gary Elkins)

- Used mindfulness and hypnosis techniques to assess hypnotizability in college students

INVITED PRESENTATIONS

Torres, V. A. (2016, October). *Neurocognitive Disorders*. Guest lecturer at the University of Mississippi.

ADDITIONAL RELEVANT SKILLS

- Spanish - Complete comprehension, functional speaking and writing ability, capable of translating items from English to Spanish and vice versa
- Proficient in the following programs:
 - SPSS
 - Qualtrics
 - Client scheduling programs: Theramanager, Medisoft
 - Concur Travel, online booking tool
- Psychological Assessments
 - Columbia Suicide Severity Scale
 - Dyskinesia Identification System Condensed User Scale (DISCUS)

- Dementia Screening Questionnaire for Individuals with Intellectual Disabilities (DSQIID)
- MINI International Neuropsychiatric Interview (M.I.N.I.)
- Mental Status Exam (MSE)
- Timeline Followback (TLFB)
- Wechsler Adult Intelligence Scale-Fourth Edition (WAIS-IV)
- Wechsler Individual Assessment Test-Third Edition (WIAT-III)