

Examining Law Enforcement Officers' Personality Trait
Differences Based Upon Their Career-Related Stress and Lengths of Service

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DARIN JAY CHALLACOMBE

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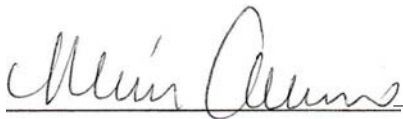
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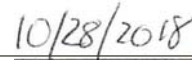
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Darin J. Challacombe

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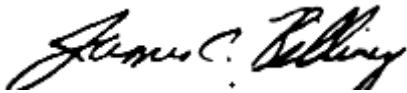


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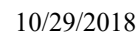


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Certified by:



Dean of School: James Billings, Ph.D.



Date

Abstract

Within the past decade, public scrutiny of law enforcement officers in the United States has increased. The majority of these officers are psychologically screened and declared fit for duty prior to completing training. Current personality research has demonstrated the potential for traits to increase or decrease due to a variety of factors, including time and stress levels. The present online anonymous research study investigates how officers' personality traits may differ based upon their levels of stress and lengths of service. This quantitative non-experimental research design recruited potential participants from several online-based, law enforcement officer-centric channels. Participants then completed a five-factor personality measure, the Law Enforcement Officer Stress Scale, and an accompanying demographic questionnaire. The participants' FFM personality trait levels (dependent variable) were measured and compared to other participants' trait levels based upon the independent variables of lengths of service and stress levels. The researcher found the current sample had a higher mean stress level than any previously report law enforcement officer sample. The personality trait agreeableness was significantly correlated with extraversion, $r(159) = .36, p < .000$; and, extraversion was significantly correlated with openness to new experiences, $r(159) = .28, p < .000$. While the difference did not reach statistical significant ($p < .01$), officers with higher career-related stress tended to have greater differences in conscientiousness and neuroticism compared to those with lower stress; and, officers with longer lengths of service had higher levels of neuroticism compared to those with lower lengths. These findings support previous research, contribute to the job demand-control model, and suggest the continued stress of the job may psychologically impact an officer. It is recommended law enforcement administrators be more aware of this potential and consider findings strategies to mitigate these trait differences.

Acknowledgements

This has by far been one of the most intensive undertakings of my life. This document represents the culmination of six years of graduate-level courses post-Master's degree. During this time, I have experienced several significant life changes; but, through all of this, the desire to finish this education acted as an insatiable motivator to keep me going.

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No man is an island. I have been mentored to be who I am by several incredible people, including, of course, my parents, Ron and Suzanne. They have helped to instruct me to be resilient and tenacious. I want to thank my brothers, their wives, and my nephew for supporting and loving me. Also, I want to thank my friend Jessica for her support and encouragement throughout the past several years.

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Table of Contents

Chapter 1: Introduction	1
Statement of the Problem	4
Purpose of the Study	5
Theoretical/Conceptual Framework.....	6
Nature of the Study	7
Hypotheses.....	9
Significance of the Study	12
Definitions of Key Terms.....	13
Summary.....	14
Chapter 2: Literature Review	15
Theoretical Framework	16
Personality	19
Mini-IPIP.....	20
Personality Stability.....	23
The Five Dimensions.....	25
Impression Management.....	29
Purposeful Personality Change.....	29
Law Enforcement Officer Considerations.....	31
Mental Health Considerations.....	32
Police Culture.....	35
Career-related Stress and Personality.....	35
Physical Health.....	36
Traumatic Stress.....	37
Burnout.....	39
Mental Health	41
Family Relations	43
Religious and Moral Considerations.....	44
Cultural Considerations.....	45
Support Officers.....	48
Stress Mitigators	49
Section Summary	50
Length of Service and Personality	50
Summary.....	54
Chapter 3: Research Method	57
Hypotheses.....	60
Research Methodology and Design	63
Population and Sample.....	65
Materials/Instrumentation.....	67
Operational Definitions of Variables	68
Study Procedures	71
Data Collection and Analysis	72
Assumptions	74
Limitations.....	74
Delimitations.....	75

Ethical Assurances	75
Summary.....	76
Chapter 4: Findings.....	77
Validity and Reliability of the Data	78
Results	80
Evaluation of the Findings.....	88
Summary.....	90
Chapter 5: Implications, Recommendations, and Conclusions	91
Implications	93
Recommendations for Practice.....	97
Recommendations for Future Research	98
Conclusions	100
References	102
Appendices	136
Appendix A: Recruitment Flyer	137
Appendix B: Permission for Participant Recruitment from PoliceOne	139
Appendix C: Permission for Participant Recruitment from Reddit.....	140
Appendix D: Permission for Participant Recruitment from ILEETA.....	141
Appendix E: Demographics Questionnaire	142
Appendix F: Mini-IPIP.....	145
Appendix G: Law Enforcement Officer Stress Scale	147
Appendix H: Permission to Use Mini-IPIP	149
Appendix I: Permission to Use the LEOSS.....	150
Appendix J: Informed Consent.....	151
Appendix K: Qualtrics Privacy Statement	155
Appendix L: Abridged Recruitment Flyer	159
Appendix M: Normality Tests for Dependent Variables	160
Appendix N: Individual LEOSS Scores.....	168

List of Tables

Table 1. The Five Factor Personality Dimensions.....	21
Table 2. Demographic Characteristics of Study Participants.....	79
Table 3. Frequencies and Descriptive Statistics for the Two Independent Variables	79
Table 4. Correlation Between the Independent Variables with Descriptive Statistics	80
Table 5. One-Way ANOVA for the FFM and LEOSS Variables	83
Table 6. One-Way ANOVA for the FFM and LEOSSHL Variables	83
Table 7. One-Way ANOVA for the FFM and LOS Variables.....	85
Table 8. Two-Way ANOVAs for each FFM Dimensions, LOS, and LEOSS Variables	87
Table 9. Two-Way ANOVAs for each FFM Dimensions, LOS, and LEOSSHL Variables	88

Chapter 1: Introduction

The law enforcement career is one with an ever evolving set of tasks, opportunities, and threats (Hope, 2016). The individuals who serve in this career often experience significant stress (Craun, Bourke, Bierie, & Williams, 2014; Spielberger, Westberry, Grier, & Greenfield, 1981). Many studies have focused on understanding the unique stressors law enforcement officers encounter, such as operating in potentially dangerous situations and frequent exposure death or injury (Can & Hendy, 2014; Hamel, 2015; Heath, 2014; Lim & Kim, 2015; Rose & Unnithan, 2015; Thomasson, Gorman, Lirgg, & Adams, 2014; Van Hasselt et al., 2008; Violanti et al., 2017, 2016).

The United States is home to just over 750,000 law enforcement officers (Banks, Hendrix, Hickman, & Kyckelhahn, 2016). In 2016, a reported 144 officers died or were killed in career-related situations; an additional 110 committed suicide (Kulbarsh, 2017; Officer Down Memorial Page, 2017). While this is only fractionally representative of the entire population, these statistics demonstrate the levels of stress law enforcement officers routinely face.

Career law enforcement officers tend to share similar personality traits as the career can appeal to individuals who appreciate structure, order, and control, as well as ethics and integrity (Capps, 2014; Hall, Hall, & Perry, 2016). Researchers have found law enforcement officers tend to have similar personality characteristics which often vary from the levels reported for the general public (e.g., non-law enforcement officers; see Detrick, Ben-Porath, & Sellbom, 2016; Lyutykh & Konopleva, 2016; Tarescavage, Fischler, et al., 2015; Tarescavage, Corey, & Ben-Porath, 2015; Thomasson, Gorman, Lirgg, & Adams, 2014). For example, Tarescavage, Fischler, et al. (2015) found police officer candidates' mean personality scores on a version of

the Minnesota Multiphasic Personality Inventory (MMPI-2; Butcher et al., 2001) were substantially lower than the means of the general public.

The personality differences between American law enforcement professionals and the general public are often easy to find since a majority of U.S.-based law enforcement agencies require a psychological screening in order to evaluate if an individual's fitness for duty (Detrick et al., 2016). The revised MMPI-2 or the MMPI-2 Restructured Form (MMPI-2-RF; Ben-Porath & Tellegen, 2008/2011) are fundamental components of law enforcement officer personality screening (Butcher et al., 2001; Detrick et al., 2016; Tarescavage, Fischler, et al., 2015; Tarescavage, Corey, et al., 2015). In addition to the MMPI-2 or MMPI-2-RF, Costa and McCrae's (1992) NEO Personality Inventory-Revised (NEO-PI-R) is also often paired to provide a more comprehensive psychological evaluation (Detrick & Chibnall, 2013; Garbarino, Chiorri, Magnavita, Piattino, & Cuomo, 2012).

The NEO-PI-R is based on Costa and McCrae's (1985) seminal work developing the five-factor model or "big five" (FFM) personality theory. The FFM evaluates five personality dimensions: openness to new experiences/imagination, conscientiousness, extraversion, agreeableness, and neuroticism (Isler, Fletcher, Liu, & Sibley, 2017; Judge & Zapata, 2015; Wu, 2016). Pivoting off initial FFM designs, other researchers have developed shorter, more concise tests to measure these traits, including the 20-item Mini-International Personality Item Pool (Mini-IPIP; Donnellan, Oswald, Baird, & Lucas, 2006).

Personality researchers have often debated trait stability over time (Anusic & Schimmack, 2016; Debast et al., 2014; Wills & Schuldberg, 2016). In addition to Debast et al.'s (2014) literature review, many other researchers (Li, Fay, Frese, Harms, & Gao, 2014; Wille, Hofmans, Feys, & De Fruyt, 2014; Wills & Schuldberg, 2016; Woods, Lievens, De Fruyt, &

Wille, 2013; Wu, 2016; Wu, Griffin, & Parker, 2015) have illustrated personality trait change can occur over time. These trait changes may be caused by general work experiences (Woods et al., 2013), locus of control (Wu et al., 2015), job demands (Li et al., 2014), stress (Wu, 2016), traumatic events (Wills & Schuldberg, 2016), or attitude (Wille et al., 2014). Karasek's (1979) job demand-control model proposed time demands and lack of control over demands increased mental strain (Fila, Purl, & Griffeth, 2017; B. Steiner & Wooldredge, 2015). Wu (2016) found individuals in high job-demand positions experienced FFM agreeableness, conscientiousness, and openness trait changes over just a five-year time period.

In her seminal work, Temple (2009) found American law enforcement officers' personal strain and coping were significantly linked to FFM traits, supporting a non-causal connection between stress and personality traits. Wills and Schuldberg (2016) found NEO-PI-R trait mean reductions over time in a small sample of law enforcement officers who indicated experiencing post-traumatic stress symptoms. These results parallel stress-related research demonstrating physical or psychological changes can increase levels of stress (Hirokawa, Taniguchi, & Fujii, 2015; Zamanian, Zakian, Jamali, & Kouhnavard, 2015; Zhou, Meier, & Spector, 2014).

In addition to research connecting stress and personality, other researchers have examined length of service as a factor in law enforcement behavior (Balmer, Pooley, & Cohen, 2014; Donner, Maskaly, Piquero, & Jennings, 2017; Ogaz, 2015; Parker, 2015; Wills & Schuldberg, 2016). While most studies did not find any significant correlations with other variables, Balmer et al. (2014) found length of service to be negatively correlated to psychological resilience.

While the current study is unable to add to the literature regarding personality change in law enforcement officers over time, it evaluated a law enforcement officer sample to determine if

career-related stress and length of service may explain personality differences in law enforcement officers.

Statement of the Problem

The problem addressed by this study was investigating how law enforcement officer personality traits may differ based on their career-related stressors and lengths of service. Recent occupational research has demonstrated personality traits levels can appear to change over time (Li et al., 2014; Wille et al., 2014; Wills & Schuldberg, 2016; Woods et al., 2013; Wu, 2016; Wu et al., 2015). Wu (2016) proposed job demands create certain stressors; these stressors were the antecedents to the trait level changes he found among various populations. His findings support research indicating stress is known to impact biological, physiological, and mental processes (Hirokawa et al., 2015; Sur & Ng, 2014; Zamanian et al., 2015; Zhou et al., 2014).

The law enforcement officer career is very stressful (Craun et al., 2014; Rose & Unnithan, 2015; Thomasson et al., 2014). Researchers have shown law enforcement-specific stressors can impact an officer in various ways, such as negative physical, psychological, or social outcomes (Can & Hendy, 2014; Hamel, 2015; Heath, 2014; Lim & Kim, 2015; Spielberger et al., 1981; Van Hasselt et al., 2008; Violanti et al., 2017, 2016; Webster, 2013). For example, Wills and Schuldberg (2016) found well-being along with other personality trait means decreased over time in a law enforcement officer sample. Previously, Balmer et al. (2014) had reported lower psychological resilience in officers with longer lengths of service.

Most literature to date has focused on personality differences between law enforcement officer and the general public (see Ellrich & Baier, 2016; Wachi, Watanabe, Yokota, Otsuka, & Lamb, 2016; Wills & Schuldberg, 2016); however, if and how law enforcement officer-related stressors and lengths of service are related to officer personality differences is unknown. The

current research provides law enforcement administrators understanding on how personality trait differences are related to career-related stressors or lengths of service. This study also provides a foundation for future longitudinal personality change research and contribute to a greater understanding of the job demand-control model.

Purpose of the Study

The purpose of this quantitative non-experimental study was to investigate how law enforcement-related stressors and lengths of service may explain officers' personality differences. The study compared the dependent variable FFM personality traits of law enforcement officers based upon the independent variables length of service as an officer and career-related stress as measured by the Law Enforcement Officer Stress Scale (LEOSS; Van Hasselt et al., 2008). For a voluntary sample, the researcher placed advertising in law enforcement specific online forums and a social networking site to recruit the required 128 participants for adequate statistical power. The required 128 participants was based on a G*Power a priori analysis of an analysis of variance (ANOVA) with two predictor variables (e.g., length of service and career-related stress) with two levels (e.g., high vs. low) each; an alpha of 0.05; a medium effect size (viz., 0.25); and, a power of 0.8. The U.S.-based law enforcement officers completed the Mini-IPIP FFM personality inventory, the LEOSS, and a demographic questionnaire that included a length of service measure. The researcher then used SPSS to conduct the ANOVA for a between groups design; the personality test results were compared to other officers based upon the mean length of service for the sample (e.g., low vs. high lengths of service relative to the sample mean) and career-related stress (e.g., low career-related stress relative to the sample mean). This study intends to inform the job demand-control theory in relation to law enforcement officers.

Theoretical/Conceptual Framework

Many researchers see personality, especially FFM personality trait levels, as relatively stable over time (McCrae & Costa, 2008; Chow & Roberts, 2014). Several recent studies have challenged this view by examining personality trait differences over time (W. Li et al., 2014; Milojev & Sibley, 2014; Wille et al., 2014; Wills & Schulberg, 2016; Woods et al., 2013; Wu, 2016; Wu et al., 2015).

Karasek, Jr.'s (1979) job demand-control model provided a framework for explaining career-related stress. This theory posits higher job time demand (e.g., work load, time pressure) and lower job control (e.g., autonomy) is linked to higher levels of stress (Fila et al., 2017; Karasek, Jr., 1979; Wu, 2016). Using this model, Wu (2016) found FFM trait level differences over time in participants who indicated higher job time demand and higher stress. In this case, the job demand-control model was only partially supported as low job control was not shown to be correlated to higher levels of stress. Interestingly, Wu (2016) had predicted, based on Grey's (1981, 1990) biopsychological theory of personality, stress would in turn be associated with differences of neuroticism and extraversion (higher and lower, respectively). This prediction was supported. Wu found higher job stress reporting participants more neurotic and less extraverted after five years.

This study builds upon Karasek, Jr.'s (1979) model by determining to what degree law enforcement officer-related stresses and lengths of service can explain personality differences in the officers. Presumably, law enforcement officer-related stressors that parallel higher job time demand and lower job control will, over time, increase the potential for these factors to be manifested by personality trait differences in officers with shorter lengths of service vs. longer lengths of service.

This job demand-control model appears to explain personality trait level changes reported in several studies. Temple (2009) found FFM traits neuroticism and conscientiousness level differences associated with coping and strain in officers; and, Young (2016) found more experienced law enforcement officers (e.g., crisis negotiators) scored higher on FFM dimensions extraversion, agreeableness, conscientiousness and neuroticism, and lower on openness than less experienced ones (e.g., patrol officers).

Based on the findings of Wu (2016), Young (2016), and Temple (2009), as well as several interviews with current and former law enforcement officers, it is believed the job demand-control model can explain higher extraversion, conscientiousness, agreeableness, and neuroticism coupled with a decrease in openness in officers with longer lengths of service.

Nature of the Study

This quantitative non-experimental research design had participants complete the Mini-IPIP, the LEOSS, and an accompanying demographic questionnaire. The participants were asked to complete these online, voluntarily, and anonymously. The participants' FFM personality trait levels (dependent variable) were measured and compared to other participants' trait levels based upon the independent variables of lengths of service and stress levels. The researcher chose this design given the inability to randomly assign participants into lengths of service and career-related stress categories. Additionally, since the research was focused on personality trait differences (vice trait changes), causality was not determined.

Researchers have continued to utilize FFM model variations for personality research (Isler et al., 2017). The Mini-IPIP (Donnellan et al., 2006) provides a comprehensive scoring of the FFM in a short, 20-item measure. Since this measure has been used in dozens of studies

since its creation (see Baldasaro, Shanahan, & Bauer, 2013; Isler et al., 2017; Z. Li, Sang, Wang, & Shi, 2012), the Mini-IPIP was used for the current study to measure the dependent variable.

The LEOSS was developed in order to provide a “comprehensive stress prevention and intervention approach” for law enforcement officers (Van Hasselt et al., 2008, p. 135). Using Spielberger et al.’s (1981) *Police Stress Survey* (PSS), the LEOSS halved the number of questions with significant reliability and validity scores (Van Hasselt et al., 2008). This measure was used to evaluate the career-related stress independent variable.

The demographic questionnaire was structured to include basic age, gender, and race/ethnicity, as well as a question regarding the participants’ entry on duty date and their region of the country. The entry on duty date was used for the length of service independent variable.

This study focuses on US-based law enforcement officers. For the volunteer sampling procedure, the researcher placed advertising in law enforcement specific online forums and on social networking sites. Participation was entirely voluntary and anonymous.

For this study’s non-probability sampling procedure, the researcher obtained the target sample size of 128 participants based on an a priori analysis. The researcher used the Northcentral University Qualtrics online survey tool to anonymously collect data for this experiment, and then he utilized SPSS for data analysis.

Research Questions

The following are the study research questions. When evaluating personality, the researcher examined each of the five FFM traits (e.g., agreeableness; conscientiousness; extraversion; neuroticism; and, openness to new experience) separately.

RQ1. How do personality traits differ between law enforcement officers with high levels of career-related stress compared to law enforcement officers with low levels of career-related stress?

RQ2. How do personality traits differ between law enforcement officers with lengths of service lower than the sample mean compared to those law enforcement officers with lengths of service at or greater than the sample mean?

RQ3. What is the effect of the interaction of length of service and career-related stressor on personality traits differences among law enforcement officers?

Hypotheses

H1₀. There is no significant difference in personality traits among law enforcement officers with high levels of career-related stress compared to law enforcement officers with low levels of career-related stress.

H1_{A1}. There will be a significant difference in personality traits among law enforcement officers with high levels of career-related stress compared to law enforcement officers with low levels of career-related stress.

H1_{A2}. There will be significantly lower Openness to New Experiences scores among law enforcement officers with high levels of career-related stress compared to law enforcement officers with low levels of stress.

H1_{A3}. There will be significantly higher Agreeableness scores among law enforcement officers with high levels of career-related stress compared to law enforcement officers with low levels of stress.

H1A4. There will be significantly higher Extraversion scores among law enforcement officers with high levels of career-related stress compared to law enforcement officers with low levels of stress.

H1A5. There will be significantly higher Conscientiousness scores among law enforcement officers with high levels of career-related stress compared to law enforcement officers with low levels of stress.

H1A6. There will be significantly higher Neuroticism scores among law enforcement officers with high levels of career-related stress compared to law enforcement officers with low levels of stress.

H20. There is no significant difference in personality traits among law enforcement officers with lengths of service at or greater than the sample mean compared to law enforcement officers with lengths of service below the sample mean.

H2A1. There will be a significant difference in personality traits among law enforcement officers with lengths of service at or greater than the sample mean compared to law enforcement officers with lengths of service below the sample mean.

H2A2. There will be significantly lower Openness to New Experiences scores among law enforcement officers with lengths of service at or greater than the sample mean compared to law enforcement officers with lengths of service below the sample mean.

H2A3. There will be significantly higher Agreeableness scores among law enforcement officers with lengths of service at or greater than the sample mean compared to law enforcement officers with lengths of service lower than the sample mean.

H2A4. There will be significantly higher Extraversion scores among law enforcement officers with lengths of service at or greater than the sample mean compared to law enforcement officers with lengths of service lower than the sample mean.

H2A5. There will be significantly higher Conscientiousness scores among law enforcement officers with lengths of service at or greater than the sample mean compared to law enforcement officers with lengths of service lower than the sample mean.

H2A6. There will be significantly higher Neuroticism scores among law enforcement officers with lengths of service at or greater than the sample mean compared to law enforcement officers with lengths of service lower than the sample mean.

H30. There will be no significant interactions among law enforcement officers based on length of service or career-related stress.

H3A1. There will be a significant difference in personality traits among law enforcement officers with both high levels of career-related stress and lengths of service at or greater than the sample mean compared to law enforcement officers with low levels of career-related stress and lengths of service lower than the sample mean.

H3A2. There will be significantly lower Openness to New Experiences scores among law enforcement officers with both high levels of career-related stress and lengths of service at or greater than the sample mean compared to law enforcement officers with low levels of career-related stress and lengths of service lower than the sample mean.

H3A3. There will be significantly higher Agreeableness scores among law enforcement officers with both high levels of career-related stress and lengths of service at or greater than the sample mean compared to law enforcement officers with low levels of career-related stress and lengths of service lower than the sample mean.

H3A4. There will be significantly higher Extraversion scores among law enforcement officers with both high levels of career-related stress and lengths of service at or greater than the sample mean compared to law enforcement officers with low levels of career-related stress and lengths of service lower than the sample mean.

H3A5. There will be significantly higher Conscientiousness scores among law enforcement officers with both high levels of career-related stress and lengths of service at or greater than the sample mean compared to law enforcement officers with low levels of career-related stress and lengths of service lower than the sample mean.

H3A6. There will be significantly higher Neuroticism scores among law enforcement officers with both high levels of career-related stress and lengths of service at or higher than the sample mean compared to law enforcement officers with low levels of career-related stress and lengths of service lower than the sample mean.

Significance of the Study

The American law enforcement officer faces increasingly stressful situations on a regular basis (Craun et al., 2014; Spielberger et al., 1981). Multiple personality theories, including the job demand-control model (Karasek, Jr., 1979), have suggested stress over time may impact personality trait means. While this study was not able to address if personality change occurs because of career-related stress and length of service, the study tried to explain these factors as related to personality differences among law enforcement officers.

This study is useful to help fill the research void on whether career-related stress and length of service, either together or individually, are related to differences in law enforcement officers' personality. This research may help spur discussion in future longitudinal designed studies to understand how these factors can explain personality changes. This study may also

help to provide foundation for future longitudinal studies on law enforcement officer personality change, and will be useful in explaining if career-related stress or length of service can cause personality change.

Definitions of Key Terms

Career-related Stress: Stress experienced by law enforcement officers during their day-to-day interactions with the public and related to the potentially traumatic incidents they encounter (Arble, Lumley, Pole, Blessman, & Arnetz, 2017).

Five-Factor Model. Costa and McCrae's (1988) personality theory grouping the following five traits together to have a comprehensive overview of a person: Agreeableness, Conscientiousness, Extraversion, Neuroticism, and Openness to New Experiences. The Mini-IPIP (Donnellan et al., 2006) will be used to evaluate these five-factors.

Job Demand-Control Model: A theoretical model suggesting a causal relationship between job stress and both higher job time demands and lower autonomy (Karasek, Jr., 1979).

Law enforcement officer. A term synonymous with police officer which describes an individual who is empowered by their local, state, tribal, or federal government to enforce laws. These individuals work in police departments, sheriff's offices, highway patrol offices, state agencies, and federal agencies.

Length of service. This is the time, measured in months and years, an individual is employed as a law enforcement officer.

Personality. Generally considered an amalgam of characteristics or traits—behaviors, emotions, or reactions—that make individuals unique (Möttus, Kandler, Bleidorn, Riemann, & McCrae, 2017).

Summary

Law enforcement officers experience unique career-related stressors. Concordant with research examining personality differences, officers who experience higher career-related stressors may have personality trait differences than officers who experience lower career-related stressors. Additionally, officers who have served in a law enforcement position may have personality trait differences than officers who have served for less time. This study attempted to evaluate if career-related stress and length of service could explain any personality differences seen in a sample of law enforcement officers.

Chapter 2: Literature Review

The present study's purpose is to investigate how law enforcement officers' personalities may differ based on career-related stressors and length of service. The personality differences, as the dependent variable, will be measured using the Mini-International Personality Item Pool—Five Factor Model (Mini-IPIP; Donnellan et al., 2006) personality inventory. The independent variable of career-related stress will be measured using the seminal Law Enforcement Officer Stress Scale (LEOSS; Van Hasselt et al., 2008) and the length of service variable will be calculated using the self-reported month and year the participant first became employed as a law enforcement officer. This study helps clarify how the job demand-control theory applies to law enforcement officers.

This literature review begins with a conceptual framework followed by examinations of the following topics: Personality theories and the Five Factor Model (FFM); law enforcement officer-associated research; career-related stress and personality; and, length of service and personality. After reviewing salient elements, this review synthesizes current literature on the topic and present critical analyses.

In an effort to identify all relevant literature pertaining to this topic, the author utilized the Northcentral University Library to review the following databases and collections:

Academic Search Complete; CINAHL Complete; Directory of Open Access Journals; Ebook Central; PsycBOOKS; Gale Criminal Justice Collection; GreenFile; Homeland Security Digital Library; MEDLINE Complete; NCU Dissertations; Published International Literature on Traumatic Stress (PILOTS); ProQuest ABI/INFORM Collection; ProQuest Criminal Justice Database; ProQuest Dissertations & Theses Global; ProQuest Health & Medical Collection; ProQuest Psychology Database; ProQuest Public Health Database; ProQuest Social Science

Database; ProQuest Sociology Database; PsycARTICLES; PsycINFO; PsychiatryOnline; SAGE Journals; SAGE Navigator; Taylor & Francis Online; and, Wiley Online Library. The searches were limited to academic, peer-reviewed journals published since 2012. The following terms and term combinations were used: “personality”; “personality traits”; “personality +FFM”; “personality +NEO”; “personality change”; “personality change +FFM”; “personality differences”; “personality differences +FFM”; “personality +Mini-IPIP”; “Mini-IPIP”; “LEOSS”; “LEOSS +stress”; “Law enforcement officer stress scale”; “length of service”; “stress +length of service”; “personality +length of service”; and, “Mini-IPIP +length of service”.

Additional to the structure search parameters above, the author conducted recursive searches based upon the seminal works included in the literature review. The author also setup email alerts on searches relating to LEOSS and Mini-IPIP in order to identify newly published articles on these topics.

Theoretical Framework

Originally designed as a stress-management model, Karasek’s (1979) job demand-control (JDC) model described the interplay between job demands or stressors and the discretion to manage these demands available to the employee. As found through this seminal work, employees in positions with high demands but low latitude for autonomy expressed the highest job dissatisfaction, life dissatisfaction, pill consumption, and sick leave ratings. In other words, higher job time demand (e.g., work load, time pressure) and lower job control (e.g., autonomy) was linked to higher levels of stress (Karasek, 1979). A recent meta-analysis involving 141 studies ($N_{Total} = 145,424$) demonstrated JDC’s validity over the past nearly 40 years (Fila et al., 2017).

With JDC's strong validity, researchers have examined the theory's additional nuances and mediators, especially in relation to career-related stress (W. Li et al., 2014; Verhofstadt, Baillien, Verhaest, & De Witte, 2017; Wu, 2016), gender (Fila et al., 2017; Luchman & González-Morales, 2013), job autonomy (Wu et al., 2015), length of service (Verhofstadt et al., 2017), and occupation (Fila et al., 2017). Verhofstadt et al. (2017) found self-reported stress declined over time as workers adapted to career-related stressors; however, Wu (2016) found participants reporting higher job stress were more neurotic and less extraverted after five years. The different results may be explained by methodological variations of the samples (e.g., Verhofstadt et al.'s [2017] were between ages 23 and 26, vs. Wu's [2016] participants were aged 15 to 76 years) or stress measure (e.g., the focus on the job demand-control model vs. reliance on two stress related questions, respectfully). Fila's (2016) literature review showed how extensively the JDC has been linked to career-related stress, referring to the JDF as a "bedrock" (p. 36).

Law enforcement officers tend to have unique JDC experiences compared with other populations (Fila et al., 2017). For instance, Wu et al. (2015) found increased job autonomy corresponded to workers feeling in control of their lives, which high autonomy is something law enforcement officers often lack (Smoktunowicz et al., 2015). Smoktunowicz et al. (2015) found no strong link between autonomy or high job control and work behavior. Mitigating this is Fila et al.'s (2017) finding law enforcement officers have a stronger control-support relationship than any other occupation identified in their meta-analysis. In other words, law enforcement officers' peer and supervisor support manifested in greater feelings of job control, even if the officers did not have as much autonomy as other occupations.

Linking JDC with personality theories, Wu (2016) found FFM trait level differences over time in participants who indicated higher job-time demand and higher stress. JDC was only partially supported as low job control was not shown to be correlated to higher levels of stress. Based on Grey's (1981, 1990) biopsychological theory of personality, Wu (2016) had correctly predicted stress would be associated with differences of neuroticism and extraversion (higher and lower, respectively). While Wu found higher job stress reporting participants more neurotic and less extraverted after five years, this finding currently lacks reliability. Additionally and as seen in other JDC studies using law enforcement participants, it is possible career law enforcement officers may experience a different personality reaction to high job stress over time.

An alternative to the JDC is correlated change, which is the theoretical foundation of personality change within and between individuals (Allemand & Martin, 2016). This theory suggests there are multiple potential causes of personality change: Adjustment and maintenance; personality growth; dynamic transactions; and, personal constructs. Wille et al. (2014) examined young professionals' correlated change by surveying them twice: Once at the onset and once 15 years later. The author was only able to find correlated change research which involved longitudinal designs (Allemand & Martin, 2016; Nye, Allemand, Gosling, Potter, & Roberts, 2016; Wille et al., 2014). This theory is not as appropriate to the current research focus of explaining personality differences—the *correlated change* theory focuses on personality change over time. For this model to be appropriate, the researcher would need multiple touchpoints and multiple additional variables, including several variables that examine sensitive personal topics. This type of study would require additional safeguards and still not evaluate personality differences as well as the JDC.

Other researchers, such as Le, Donnellan, and Conger (2014), suggested workplace conditions are the antecedents to personality change, an extension of Caspi, Roberts, and Shiner's (2005) seminal *corresponsive change* theory. This theory proposes life experiences amplify corresponding personality characteristics (e.g., an individual with in a sales environment will obtain greater extraversion over time, etc.). This theory is similar to JDC, but the corresponding change theory requires longitudinal design in order to assess.

The researcher also considered Hobfoll's (1989, 2001) *conservation of resources* theory, which suggests resource loss is the primary cause of stress. As Hobfoll (2001) pointed out, this theory does not adequately account for personality differences, such as higher neuroticism. Given this exclusion of personality, this theory was deemed to be not as appropriate for the current study.

Personality

A personality trait is a “stable dispositions towards action, belief and attitude formation” (Centellegher, López, Saramäki, & Lepri, 2017, p. 2). From childhood, individuals develop levels of comfort interacting in various situations. For ease, personality theorists and researchers have developed clusters of traits to help describe an individual's interactions. Out of dozens of theories, the most ubiquitous personality trait clusters is the “Big Five” or Five Factor Model (FFM; Allemand & Martin, 2016; Digman, 1990). According to Digman's (1990) seminal historical research, the FFM personality trait cluster's origins date to around the mid-1920s. Over the years, several sets of researchers independently arrived at a FFM theory, including both Tupes/ Christal (1992) and Costa/ McCrae (1976). Using data from eight studies and over 1,800 participants, Tupes and Christal's (1992) seminal work conducted a factor analysis of personality descriptions to identify five factors: Surgency, agreeableness, dependability, emotional stability,

and culture. Costa and McCrae (1976) used 969 adult male participants to independently identify the *openness to experience* factor along with two familiar dyadic dimensions, *anxiety-adjustment* and *introversion-extraversion*. Over time and certainly around the 1950s, the term “big five” became commonplace as a description for the following traits: Agreeableness; conscientiousness; extraversion; neuroticism/emotional stability; and, openness to new experiences (Digman, 1990). Table 1 illustrates some of the individual traits associated with the five dimensions.

Mini-IPIP. As the FFM provides an inclusive approach to describing individuals, there has been considerable research conducted on the cluster, including the development of several measures (see Barford & Smillie, 2016; Robinson, Nofle, Guo, Asadi, & Zhang, 2015; Table 2). The Revised NEO Personality Inventory (NEO-PI-R; Costa & McCrae, 1992), the International Personality Item Pool – Five Factor Model (IPIP-BF; Goldberg, 1999), and the Ten-Item Personality Inventory (TIPI; Gosling, Rentfrow, & Swann, Jr., 2003) are all well-known measures of the FFM. Significant drawbacks to the former two are their size: the NEO-PI-R contains 240-items and the IPIP-BF has 100-items. Gosling et al.’s (2003) own research on the TIPI suggests this scale be used if personality is not a key research element. In their seminal work, Donnellan, Oswald, Baird, and Lucas (2006) created a shortened version of Goldberg’s (1999) International Personality Item Pool – Five Factor Model (IPIP-BF). Named the Mini-IPIP, this 20-question measure rated similar to the longer version in convergent, divergent, and criterion-related validity (Donnellan et al., 2006).

In the past five years, multiple researchers have examined the reliability and validity of the Mini-IPIP. Baldasaro, Shanahan, and Bauer (2013), while finding the model to be acceptable, argued in their seminal work more analysis on the Mini-IPIP was needed, especially

Table 1

The Five Factor Personality Dimensions (Donnellan et al., 2006)

Five Factor Dimension	Facet
Extraversion	Friendliness Gregariousness Assertiveness Activity Level Excitement Seeking Cheerfulness
Agreeableness	Trust Morality Altruism Cooperation Modesty Sympathy
Conscientiousness	Self-Efficacy Orderliness Dutifulness Achievement Striving Self-Discipline Cautiousness
Neuroticism	Anxiety Anger Depression Self-Consciousness Immoderation Vulnerability
Openness	Imagination Artistic Interest Emotionality Adventurousness Intellect Liberalism

since it has been historically applied to largely college students-centric samples. While not addressing this request, multiple studies have utilized the Mini-IPIP with mixed feedback. For example, Balakrishnan and Saklofske (2015) used the Mini-IPIP with the Brief Emotional

Intelligence Scale (BEIS-10; Davies, Lane, Devonport, & Scott, 2010) to determine correlations between similar markers, but suggested the Mini-IPIP was not robust enough to identify specific (and subtle) variations on the BEIS-10 scales. On the other hand, other recent studies (Chung & Munson, 2017; Gerson, Plagnol, & Corr, 2017; Perera, Granziera, & McIlveen, 2018) have found the Mini-IPIP to be acceptable in providing an overall personality profile. And, a recent researcher felt the Mini-IPIP was acceptable in understanding subtle maladaptive personality inventory variations in a population of Swedish adults (Kajonius, 2017). Multiple researchers have lauded the Mini-IPIP's size as a combatant to survey attrition (Ward, Meade, Allred, Pappalardo, & Stoughton, 2017). Overall, while Baldasaro et al. (2013) brought forth criticism, it appears an overwhelming majority of recent researchers have agreed the Mini-IPIP is an acceptable measure of FFM personality.

Assuming the Mini-IPIP's effectiveness, this measure has been utilized to hone in on specific traits, trait clusters, or corollaries like anger (Gerhart et al., 2016), compulsion (Quinones, Griffiths, & Kakabadse, 2016), and stress (Luo, Derringer, Briley, & Roberts, 2017). Gerhart et al. (2016) found male participants higher in Mini-IPIP-rated neuroticism showed more anger to their physicians following a diagnosis of prostate cancer. Another study (Quinones et al., 2016) linked Mini-IPIP-rated neuroticism to compulsive internet usage and working compulsively. In Luo et al.'s (2017) extensive ($N = 1104$) twin study, genetic factors appeared to largely shape perceived stress and Mini-IPIP-specified personality factors. Independent of the concerns regarding the Mini-IPIP's size, these additional and the over 100 studies in the past five years using this measure provide support for the Mini-IPIP.

Out of the over 100 studies, the author only identified two studies within the past five years using a law enforcement officer sample: One had law enforcement officers complete a

high-stress task to measure heart-rate changes (Yao et al., 2016); and, the other involved the Mini-IPIP's neuroticism scale to evaluate work-family conflict and burnout (Haines, Harvey, Durand, & Marchand, 2013). Similarly, the author was unable to find any studies involving military populations within the past five years using the full Mini-IPIP scale. Regardless, and even taking into consideration Baldasaro et al.'s (2013) concerns, the Mini-IPIP will provide an acceptable personality profile to understand Karasek's (1979) JDC model.

Personality Stability. While personality theorists and researchers have historically viewed personality as relatively stable over time (see Chow & Roberts, 2014; Costa & McCrae, 1988), multiple recent studies have challenged this theory (see Allemand & Martin, 2016; Nye, Allemand, Gosling, Potter, & Roberts, 2016; Wills & Schuldberg, 2016; Wu, 2016). Earlier in this theoretical space, researchers focused on personality trait differences based on age or maturity (Debast et al., 2014; Milojev & Sibley, 2014; Nye et al., 2016; Wille et al., 2014), seeing what was described as a *la dolce vita* (viz., "the good life") effect where older adults were more agreeable and amenable compared to their younger counterparts (Marsh, Nagengast, & Morin, 2013). Since then, most researchers have used longitudinal research designs to focus on specific underlying variables which may explain personality changes, like job demands (W. Li et al., 2014; Wu, 2016), job autonomy (Kandler, Kornadt, Hagemeyer, & Neyer, 2015; Wu et al., 2015), and even witnessing traumatic events in the case of law enforcement officers (Wills & Schuldberg, 2016).

Bisecting the debate of personality remaining consistent over time is the delineation of personality rank-order stability vs. personality trait level stability (Allemand & Martin, 2016; Milojev & Sibley, 2014). Rank-order stability – the consistency of individuals to have similar personality trait levels in relation to others of the same population – is generally regarded as

unchangeable from late adolescence to older adulthood (Borghuis et al., 2017; Dobewall & Aavik, 2016). Dobewall and Aavik (2016) conducted a three-year longitudinal study examining both self-reports and observations by others familiar with the participants; the researchers found both rank-order and personality trait level stability as well as consistency between self-reports and informant observations. Borghuis et al. (2017) focused on adolescents and found their personality rank-order stability fluctuated greatly between ages 13 and 18. Whereas Borghuis et al. (2017) focused on adolescents with self-reporting, Dobewall and Aavik's (2016) population was slightly older (viz., the average age was 33.1) with both self-reports and informant (or friend-based) reporting. Additionally, the latter researchers used a small sample ($N = 53$) with a female gender majority (e.g., 7 males, 46 females). This gender bias may have skewed the results.

Other longitudinal research designs have provided support for both the rank-order vs. trait level stability debate. Milojev and Sibley (2014) conducted a longitudinal study of adult New Zealanders ($N = 3901$) to examine personality trait stability over time. Using a shortened version of the Big Six personality inventory (specifically, Mini-IPIP6; Sibley et al., 2012), Milojev and Sibley (2014) found that five of the six traits increased rank-order stability in early adult life (e.g., ages 20 to 59), but decreased for later adult life (ages 60 to 80), which, the researchers conjectured, may be interpreted as personality being influenced by factors such as social or environmental pressures. This contradicts Wille et al.'s (2014) findings on their 15-year longitudinal study on Flemish persons ($N = 504$) to examine work attitudes. Those researchers found participants, as they grew older, showed higher Conscientiousness and Agreeableness and lower Neuroticism and Openness to Experience. The differences in these findings could relate to the samples' locations (as posited in Fila et al.'s [2017] meta-analysis),

the samples' recruitment methods (viz., the former recruited a sample from eligible voters vs. the latter study which initially recruited from college students), or even the sample sizes. Boyette, Nederlof, Meijer, de Boer, and de Haan (2015), in their three-year FFM personality trait stability study of individuals with psychotic disorders (N=91) to a control group (N=32), found trait mean-level stability with the exception of an increase in conscientiousness. Therefore, even among strong variations of populations, recruitment strategies, and longitudinal design times, researchers have found mixed results.

The Five Dimensions. Fundamental to understanding FFM and the Mini-IPIP is an exploration on each of the five dimensions: Agreeableness, conscientiousness, extraversion, neuroticism, and openness to new experiences (Isler et al., 2017; Templer, 2012).

Agreeableness. Among the synonyms for agreeableness are altruism, curtesy, cooperativeness, and trust (Digman, 1990; Valchev et al., 2014). Retired Assistant Police Chief Larry Capps described an ideal law enforcement candidate as one who, among other skillsets, had good communication skills, civility, and humility, all of which could be considered aspects of agreeableness (Capps, 2014). In fact, it is important for law enforcement officers to be seen as curtesy when interacting with the public. Valchev et al. (2014) described agreeableness as an “element of effortful control, accounting for a suppression of self-interest and negative affect in interpersonal settings” (p. 18).

Recent research on agreeableness suggest individuals high in this trait are more likely to be cooperative and less prejudiced (Huang et al., 2017); whereas, individuals low in this tend to have deviant workplace and anti-social behavior (Giluk & Postlethwaite, 2015). In a three-part study, Huang et al. (2017) found employees high in both agreeableness and conscientiousness believed they were treated more justly because they had developed a stronger, positive

relationship with their supervisors. Giluk and Postlethwaite (2015) found students higher in agreeableness also were less likely to cheat. Interestingly, both these studies underscore the importance of the confluence between FFM traits of agreeableness with conscientiousness. Another recent study (Schippers, 2014) demonstrated individuals higher in agreeableness were less likely to be social loafers. Using a population of first-year business students, Schippers (2014) identified how agreeableness was important to team work. All three recent studies demonstrate individuals higher in agreeableness possess characteristics beneficial to what Capps (2014) might describe as an ideal police officer.

Conscientiousness. The conscientiousness trait is synonymous with order, achievement, and dependability (Salgado, Moscosa, & Berges, 2013), with aspects of obsessive compulsive disorder being seen in individuals with extremely high conscientiousness (Carter, Guan, Maples, Williamson, & Miller, 2016). Among the FFM, conscientiousness is seen as the strongest determinant of police officer behavior (Detrick & Chibnall, 2013; Grubb, Brown, & Hall, 2015). Capps (2014) identifies controlled temper, initiative, sense of ethics, and respect and knowledge of laws – all aspects of conscientiousness – as integral for law enforcement officers. Interestingly, conscientiousness is related to job performance, task performance, and orderliness only when viewed as a composite factor, vs. viewing individual facets of conscientiousness (Salgado et al., 2013).

Conscientiousness, when viewed outside a law enforcement lens, is seen as largely positive (Roberts, Hill, & Davis, 2017). Higher levels of conscientiousness were linked to better occupational success (Egan, Daly, Delaney, Boyce, & Wood, 2017), relationship success (Hill, Nickel, & Roberts, 2014), and physical health (Hampson, Edmonds, Goldberg, Dubanoski, &

Hillier, 2013). While these studies focused mainly on Western populations, their results speak volumes to the important aspect higher levels of conscientiousness play in future success.

Extraversion. Extraversion is seen as high levels of talkativeness, assertiveness, and sociability (Chan & Cheung, 2016). Extraversion is seen as an important aspect of law enforcement officer success (Detrick & Chibnall, 2013; Grubb et al., 2015); and, having excellent communication skills is important for law enforcement officers (Capps, 2014). Higher levels of extraversion and agreeableness were found in Japanese law enforcement officers who interviewed suspects of violent crimes (Wachi et al., 2016). Certainly, an officer who is better at communicating will succeed more than one lacking communication skills (Detrick & Chibnall, 2013; Wachi et al., 2016).

Extraversion's facets, such as social potency and gregariousness, are aspects seen in successful entrepreneurial careers (Blickle et al., 2015). There appears to be a tradeoff, though, as high levels of extraversion may facilitate individuals to make unethical choices (Titze, Blickle, & Wihler, 2017). Sales people ($N = 150$) characterized as having stable extraversion, or, as characterized by Titze et al. (2017), fearless dominance, were most successful when they had moderate levels (vs. extremely high or low extraversion). These were the sales people most sociable, cheerful, and optimistic; and, they tended to have low neuroticism scores (e.g., the individuals were described as being calm, relaxed; Titze et al., 2017).

Neuroticism. Positively characterized as emotional stability, neuroticism consists of a collection of negative emotions such as anxiety, vulnerability, and sadness (Shiner, Allen, & Masten, 2017). Law enforcement populations are shown to have lower neuroticism than the general public; additionally, these officers suffered less of the negative physical or mental strains typically associated with law enforcement work (Garbarino, Chiorri, & Magnavita, 2014; Grubb

et al., 2015). Emotional stability is likely what Capps (2014) described as having a controlled temper.

Higher neuroticism, outside of a law enforcement domain, is linked to poor career performance (Arora & Rangnekar, 2015); conversely, lower neuroticism is related to thriving in situations such as job deprivation (Ren, Yunlu, Shaffer, & Fodchuk, 2015). In their seminal meta-analysis linked FFM traits to mental health issues, Kotov, Gamez, Schmidt, and Watson (2010) found all common mental health disorders (e.g., major depressive disorder, panic disorder, substance use disorder, etc.) were linked to high levels of neuroticism. Therefore, and following along law enforcement-related literature, emotional stability is an important characteristic of any screening process (Detrick et al., 2016; Detrick & Chibnall, 2013).

Openness to new experiences. Often branded as intellect or culture, openness to new experiences facets include imagination, intelligence, creativity, tolerance, and experiencing (Connelly, Ones, & Chernyshenko, 2014). Connelly et al. (2014) describe this FFM dimension as an “eyesore” in personality and five factor research (p. 1) as the definition has changed over time (Costa & McCrae, 1988; Digman, 1990; Shiner et al., 2017). From a law enforcement officer perspective, Capps (2014) described this as both a thirst for new knowledge and common sense. While openness has been associated with stronger grades in law enforcement cadets, Detrick and Chibnall (2013) did not find any significant association to this dimension.

Higher openness does not appear to be related to increased mental health issues (Kotov et al., 2010) or other negative facets. In fact, individuals higher in openness tended to be mindful of their mortality salience, or the awareness of death, compared to low openness individuals who exhibited defensive responses (Boyd, Morris, & Goldenberg, 2017). This curiosity may make a

person more prone to ask questions and have higher analytical abilities (Kao, 2016), which is an important aspect of law enforcement work (Detrick et al., 2016).

Impression Management. For law enforcement officers who are required to undergo initial psychological screening, the candidate attempts to display a positive impression (Detrick & Chibnall, 2013). This impression management is something other, more robust personality measures like the seminal Minnesota Multiphasic Personality Inventory-2 (MMPI-2; Butcher, Graham, Ben-Porath, Tellegen, Dahlstrom, & Kaemmer, 2001) take into consideration when generating overall scores (Detrick & Chibnall, 2014). While some researchers argue impression management may be an aspect of higher conscientiousness (Zettler, Hilbig, Moshagen, & de Vries, 2015), others claim this impression management may be linked to higher virtue-related traits as opposed to deceptive behavior (de Vries, Zettler, & Hilbig, 2014). These studies illustrate the importance of understanding self-reporting may lend itself to skewed results if participants feel obligated to present themselves in a positive light.

Purposeful Personality Change. Another aspect to consider in this research field are individuals who are purposefully attempting to change their personality (e.g., volitional personality change). Robinson et al. (2015) evaluated planned personality change of college students over a 12-month time, with the majority of the participants focused to change their personality traits for the better. However, participants at the 12-month mark often saw their personality traits negatively changed; and, the researchers saw an increase in negative subjective well-being (SWB) or happiness (Robinson et al., 2015). Hudson and Fraley (2016) attempted to further identify if the desire to change created an atmosphere of negative SWB or if the SWB compelled the desire to change. The researchers were unable to tease out antecedent behavior in relation to volitional personality change and SWB (Hudson & Fraley, 2016). Other researchers

(Quintus, Egloff, & Wrzus, 2017) focused on why individuals desired for personality changes, finding younger adults more eager to change vs. older adults. They concluded the older adults may have already experienced considerable personality trait change over time. All three studies illustrate that individuals, regardless of age, typically have a desire to have different personality trait levels. What is lacking from these studies is a baseline personality score based upon the participant's location, occupation, or other factor. That is, Robinson et al. (2015) and Quintus et al. (2017) discuss the participants' desires to improve agreeableness, but they fail to discuss if the status quo for the participants' populations consists of higher agreeableness ratings or whether the participant is just wanting to enhance agreeableness to be different. This detail, vice the SWB or other antecedent identification, is important in understanding the core of what is driving the participant to make this change.

Another important variation of personality change literature centers around adaptation or homeostasis with others in the same career. As will be discussed further in the section regarding law enforcement officer-specific personality, there are often similar elements or personality trait levels among individuals in the same career (Perera et al., 2018; Zurlo, Pes, & Capasso, 2016). The education career is often used to illustrate this aspect, as dozens of studies have demonstrated collective personality types among educators (Cirtautienė, 2016). Using Lithuanian pre- and comprehensive school educators, Cirtautienė (2016) found similarities in social boldness (e.g., extraversion) and emotional stability. Zurlo et al. (2016) found innovation (e.g., openness to new experiences) as an important aspect in Italian educators' coping strategies. Perera et al. (2018) found rigidity (viz., described as above-average neuroticism, below-average extraversion, and considerably below-average agreeableness, conscientiousness, and openness) in Australian teachers as related to lower job satisfaction. All three studies examined elements of

various educators' personality traits, and all concluded by suggesting key elements of a collective personality profile for educators.

Law Enforcement Officer Considerations

As outlined in other areas of this chapter, numerous studies have honed in on the law enforcement officer population. Law enforcement officers often experience traumatic or stressful events on a routine basis (Can & Hendy, 2014; Wills & Schuldberg, 2016), and, in turn, these unique occupational factors have created a police subculture separating law enforcement officers from civilians (Rose & Unnithan, 2015). As one study surmised, "police officers are often in a state of psychological inflexibility faced with a multitude of difficult and challenging work demands" (Violanti et al., 2017, p. 125). When examining a law enforcement officer sample, it is important to consider these factors.

The MMPI-2 is the most frequently used LEO psychological screening tools utilized currently (Tarescavage, Brewster, Corey, & Ben-Porath, 2015). From the results of several dozen studies, an MMPI-2 version can help screeners specifically identify future negative performance issues in LEO candidates. For example, Weiss, Vivian, Weiss, Davis, and Rostow (2013) found that LEOs who scored 8 or higher on the MMPI-2 L or "lie" scale had significantly more performance trouble (e.g., weapons use problems, arrest/criminal behavior, citizen complaints, forced resignation, etc.) than those with scores of 7 or lower. However, other researchers, including Laguna, Agliotta, and Mannon (2013), have had less success using specific MMPI-2 scales, like the K scale, to predict future public safety performance, finding no significant correlation between the K scale and future performance.

Despite Weiss et al. (2013) and others, some researchers (see Detrick et al., 2016; Detrick & Chibnall, 2014) view the MMPI-2 and variations, including the MMPI-2-RF (Restructured

Form) Police Candidate Interpretive Report (PCIR; Corey & Ben-Porath, 2014) as an important tool in law enforcement officer screening. Researchers and practitioners are quick to note there is no one, perfect screening tool available, and it is important that screeners use a variety of methods to assess potential law enforcement officer candidates.

Mental Health Considerations. The main purpose of law enforcement officer pre-employment screening is to identify either already present or potential mental health concerns before they impact the candidate or others (Tarescavage, Brewster, et al., 2015). While mental health is a concern in most careers, a law enforcement officer is often in ambiguous situations and may be required to exercise responses from verbal to physical to deadly force (Hansson, Hurtig, Lauritz, & Padyab, 2017). Multiple studies have identified law enforcement officers as prone to suffer from high levels of stress (Frank, Lambert, & Qureshi, 2017), anger (Bergman, Christopher, & Bowen, 2016), depression (Violanti et al., 2013), PTSD (Marchand, Nadeau, Beaulieu-Prévost, Boyer, & Martin, 2015), substance use (Chopko, Palmieri, & Adams, 2013), and suicide (Bishopp & Boots, 2014).

Stress. Stress in law enforcement officers is seen as a universal consideration or problem (Frank et al., 2017). In addition to just the nature of the law enforcement position being stressful (Karaffa & Koch, 2016), it is possible the requirements to be gregarious or extraverted may also cause depressive symptoms (Kushner, Bagby, & Harkness, 2017). While low extraversion (and high neuroticism) has been traditionally linked to perceived stress (Kim et al., 2016), Kushner et al. (2017) found both low and high extraversion was linked to perceived stress in adolescents already exhibiting signs of major depressive disorder. The comorbidity of depression may explain the latter researchers' findings. A review of career-related stress and its varied effects can be found later in this chapter.

Anger. The effects of excessive anger in law enforcement officers include poor problem solving, unethical decision making, and a desire to punish more harshly (Bergman et al., 2016). While excessive anger is a component of neuroticism (Wills & Schuldberg, 2016), individuals with low agreeableness (Bergman et al., 2016) and possibly low extraversion (Bak, 2016) may also exhibit anger. Rumination on stressful situations is often seen as continuing anger arousal (Bergman et al., 2016). As with other self-help strategies, journaling may provide some reprieve for officers' increased anger (Morland et al., 2016; Scullin, Krueger, Ballard, Pruett, & Bliwise, 2018). If an officer with excessive anger issues is not screened out prior to their training, it is important for law enforcement management to take steps to either rehabilitate or remove these officers from duty.

Depression. Anxiety or depression is a condition screened for in law enforcement officer candidates, as it is also associated with high levels of neuroticism (Detrick & Chibnall, 2013). Even if a candidate is not exhibiting depression during the screening, it is possible, over time and because of the stress of the law enforcement position, the candidate may start to exhibit depression (Violanti et al., 2013). In addition to the stressors of the job, their confluence with poor family relationships or shift work may exacerbate depressive symptoms (Detrick et al., 2016). Violanti et al. (2013) focused mainly on the impact of physical conditions on depressive symptoms instead of evaluating how depression in officers can negatively impact their employment or duties; whereas, Detrick et al. (2016) focused on how the MMPI-2's EID (e.g., Emotional/Internalizing Dysfunct) scale could predict depression. These two studies did not specifically evaluate officers and depression.

PTSD. Post-traumatic stress disorder (PTSD) is also associated with law enforcement careers due to the frequent exposure to life-or-death situations (Marchand et al., 2015). Most law

enforcement officers report exposure to traumatic events and experience some post traumatic symptoms (Wills & Schuldberg, 2016). As similar with other negative mental health conditions, PTSD appears to be linked to high neuroticism scores (Garbarino et al., 2014). However, the question still remains on whether high neuroticism is an antecedent to PTSD or if exposure to the stress may increase neuroticism in law enforcement officers. As described in other sections, PTSD is common in law enforcement officers post-traumatic event exposure (Bride, Robinson, Yegidis, & Figley, 2004; Verbeek & van der Velden, 2016), but is likely not seen too often in officer candidates without prior military experience.

Substance Use. Substance use, and, most notable, alcohol consumption, is a serious problem in law enforcement officer groups (Chopko et al., 2013). Alcohol and other substance use may be the result of officers trying to cope with the stressful situations of their positions with the lack of clear positive strategies (Chopko et al., 2013; Donnellan et al., 2006). In fact, officers who were unaware of employee assistance programs designed to help provide access to positive resources and coping strategies were typically the ones who reported higher alcohol usage (Donnellan et al., 2006). Even law enforcement officers with other methods of coping, including strong religious strategies, were not immune from problematic alcohol consumption (Zavala & Curry, 2018). This may suggest even with the stringent psychological screening involved in law enforcement officer candidates, there are still potential for the high levels of stress to create an atmosphere for substance use.

Suicide. Suicide is problematic among law enforcement officers, with 108 officers taking their own lives in 2016 (Kulbarsh, 2017). Officers are expected to be trained to identify those who may exhibit signs of suicidal ideation (Marzano, Smith, Long, Kisby, & Hawton, 2016), yet it is often law enforcement officer peers who are at more risk of suicide (Bishopp &

Boots, 2014). From a personality standpoint, individuals high in neuroticism and low in extraversion were most likely to experience suicide ideation (DeShong, Tucker, O'Keefe, Mullins-Sweatt, & Wingate, 2015). As candidate screening often accounts for this FFM variation, it is possible the constant and persistent stress of the career may have a tendency to increase neuroticism over time.

Police Culture. Within law enforcement officers is a culture or subculture of in-group vs. out-group (Rose & Unnithan, 2015). As the position and stressors for law enforcement are unique to this career, often officers adhere to higher opinions regarding their peers (Detrick et al., 2016; Garbarino et al., 2014). While this creates a comradery or *esprit de corps* not seen in other career groups, there are downsides to this culture. For example, the stigma of mental health may prevent officers from seeking out treatment (Karaffa & Koch, 2016). This culture may also create distrust among the public (Silver, Roche, Bilach, & Bontrager Ryon, 2017) or exclusion of individuals not seen as traditional police officers (Natarajan, 2014).

Career-related Stress and Personality

The current research supports personality trait level differences between participants may be explained by career-related stress. According to Karasek, Jr.'s (1979) job demand-control model, higher job time demand (e.g., work load, time pressure) and lower job control (e.g., autonomy) is linked to higher levels of stress (Fila et al., 2017; Karasek, Jr., 1979; Wu, 2016). Since numerous studies (see Shiner, Allen, & Masten, 2017; Shields, Toussaint, & Slavich, 2016; Wang, Tian, Fujiki, & Bordon, 2017; Wu, 2016) have demonstrated personality changes over time based upon stress, it is hypothesized varying career-related stress levels in the current study's sample may explain personality differences.

This section focuses on career-related stress and its impact. Most studies have demonstrated career-related stressors impact physical and mental health; these impacts, largely negative, reportedly vary in intensity based on the officers' position or rank, gender, family situation, and other factors, as described below.

Physical Health. Multiple studies have demonstrated the adverse health effects of long-term stress (Czaja-Mitura, Merecz-Kot, Szymczak, & Bortkiewicz, 2013; Garbarino & Magnavita, 2015; Tyagi & Lochan Dhar, 2014). Tyagi and Lochan Dhar (2014) accurately predicted organizational politics, or “social influence attempts directed at those who can provide rewards that will help promote or protect the self-interests of the actor” (Kacmar & Carlson, 1997, p. 629), and work overload was positively correlated with increased job stress, and, subsequently, decreased employee health in Indian law enforcement officers. In a 5-year longitudinal study, Garbarino and Madnavita (2015) found the majority of law enforcement officers had high stress levels; those officers with the highest stress had lower levels of HDL-cholesterol and higher levels of triglycerides. This study's sample focused on Genoa, Italy-based rapid deployment officers (i.e., similar to US-based Special Weapons and Tactics [SWAT] officers): These individuals were not only extensively trained by in top physical condition. Czaja-Mitura et al. (2013) found Polish law enforcement officers who reported high levels of stress were at an increased risk for cardiovascular diseases. These studies found similar results in regards to the negative impact stress has on physical health.

Other researchers have attempted to understand occupational stress and its impact on physical stress. With an atomistic approach, Marcatto et al. (2016) sampled Italian public servants and used a measure evaluating multiple scales, including demand, control, peer support, relationships, and role. This showcased how higher demands scores significantly increased risk

of physical pain, anxious, and depressive symptoms. Another study used a Swiss law enforcement officer sample and found how life change stress mediates negative physical symptoms (Habersaat, Geiger, Abdellaoui, & Wolf, 2015). Mumford, Taylor, and Kubu's (2015) pilot study on a law enforcement sample an increase in alcohol usage, mental disorders, and post-traumatic stress disorder (PTSD) compared to the general population rate. Similarly, George and Gow (2014) found South African law enforcement officers were a higher risk for HIV infections given reported risky sexual behaviors due to stress and other factors. These seven studies which focused primarily on how stress impacts physical health found such a linkage. Foundationally, the link appears to deal with increased stress decreasing self-control, which, in turn, leads to riskier behaviors. All of these studies used different measures in order to evaluate career-related stress; this leads to potential validity issues. This also identifies the plethora of measures available designed to evaluate career-related stress. With the exception of Mumford et al. (2015), the six other studies used international samples, indicating the cross-cultural importance of the extent to which career-related stress mediates physical health.

Traumatic Stress. Law enforcement officers are constantly immersed in situations which bring trauma to others—from burglaries to rapes to homicides (Turgoose, Glover, Barker, & Maddox, 2017). This type of stress is often referred to as *secondary traumatic stress* and is defined as “problematic behaviors and emotions that result from the knowledge of a traumatic event experienced by another” (Craun et al., 2014, p. 299). In their longitudinal study, Craun et al. (2014) found this secondary traumatic stress did not change over time: This stress did not increase or decrease in the roughly 2.5 years and three data collection points. Turgoose, Glove, Barker, and Maddox (2017) found law enforcement officers who worked with rape and sexual assault victims experienced more secondary traumatic stress than officers not assigned to these

investigative roles. And, different than Craun et al. (2014), Turgoose et al. (2017) did see an increase in this type of stress over time. Wills and Schuldberg (2016) saw declines in several positive personality traits as potentially correlated with post-traumatic stress symptoms. These findings would support the notion that law enforcement officers involved in traumatic situations experience higher levels of career-related stress than their counterparts. The difference between Craun et al. (2014) and Turgoose et al. (2017) regarding a stable vs. changeable secondary stress level appears to be due to the latter researchers' methodology: The time between the initial and final data collection points was approximately 10 weeks. This is considerably shorter than the formers' 28 months between the initial and final data collection points.

As research in the field of traumatic career-related stress is not new, others have focused on finding ways to greater understand and prevent the impact of these stressors. Dang, Denis, Gahide, Chariot, and Lefèvre (2016) examined Parisian individuals who had experienced workplace violence episodes. Interestingly, while law enforcement officers reported experiencing higher rates of this type of violence, these officers reported less psychological disturbances than other career-related groups. The researchers considered this may be due to heightened resilience in law enforcement officers (Dang et al., 2016). Strahler and Ziegert (2015) simulated scenarios in which the law enforcement officer participants were responding to school shootings. Examining both psycho- and biological factors, these researchers did not find any significant differences in the participants before and after responding to the scenario. The scenario-based training model has also been used to train trauma prevention. Adopting a model originally piloted in Sweden, Arble, Lumley, Pole, Blessman, and Arnetz (2017) conducted training with Detroit-based law enforcement officers. After one year, these officer participants were reassessed and found to have better coping skills than before completing the training.

While using law enforcement officer samples for all three studies, Dang et al. (2016) conclude the officers are more resilient, instead of focusing on other explanations for officers reporting lower psychological effects. Stahler and Ziegert (2015) conclude simulating school shooting scenarios is a valid way to understand stress, even though there were no significant findings from their scenario situation. Arble et al. (2017) focused on increasing coping strategies for this type of stress as opposed to just evaluating it. Sadulski (2017) found US-based law enforcement officers who experienced traumatic incidents relied upon, in this order, their training, family, peer support, and other factors as part of their coping strategies. These two latter researchers moved beyond just recognizing the impact of secondary traumatic stress to attempting to find solutions to mitigate it. Assumptions or not, the numerous studies in this field have shown traumatic situations impact not only those directly involved but also others on the peripheral; and, it is important to create valid coping mechanisms to increase resilience in the responders to these traumatic situations. Sadulski (2017) recommends overall stress management techniques could be effective in understanding successful stress mitigation.

Burnout. Often thought of as being multi-faceted exhaustion with doing one's job effectively, burnout is a psychological condition seen in nearly every occupation (Turgoose et al., 2017). In their seminal work, Maslach and Jackson (1981) created the Maslach Burnout Inventory (MBI), which evaluates three components of burnout: Emotional exhaustion, depersonalization, and personal accomplishment. Numerous studies have utilized the MBI to assess burnout in law enforcement personnel. Houdmont (2013) found occupation-related burnout to be higher in UK-based custody officers (e.g., the equivalent of corrections officers or jailers in the US); and, these officers' burnout was higher than comparable law enforcement samples from Canadian and Dutch studies. Some researchers have accounted for higher burnout

to be potentially caused by stress of conscience—the feeling as if the law enforcement officer may not be doing the right thing (Padyab, Backteman-Erlanson, & Brulin, 2016). Regardless of the cause, Ellrich (2016) found officers with higher emotional exhaustion to be at a greater risk of being violently victimized. Another researcher found job burnout mediated the role of negative health concerns on Polish law enforcement officers who reported higher job demands (Baka, 2015). Different from Ellrich (2016), Padyab et al (2016), and Baka (2015), Houdmont (2013) used less than 40 participants to support a higher UK-based burnout rate. This research results are questionable at best and pale in comparison to the three or four-digit participant counts for the other researchers.

Even as the MBI has been utilized extensively, Brady (2017) and others have suggested a need for updated versions. Basing a new Spanish-language version off the MBI, de la Fuente et al. (2013) found their Granada Burnout Questionnaire or Spanish *Cuestionario Burnout Granada* (CBG) to be adequately matched and valid with the MBI. Other researchers, like Duxbury, Higgins, and Halinski (2015) did not even utilize the MBI, but instead used a multi-phased, mixed method approach to develop another burnout evaluation. Still, researchers continue to utilize mostly variants of the MBI, like McCarty (2013) who found female law enforcement officers to have higher rates of emotional exhaustion (vs. their male counterparts) but lower rates of depersonalization (again, vs. the male counterparts). Using a sample of US-based police chiefs, Brady (2017) found personal demands (e.g., work-family balance) and organizational factors to be more of an career-related burnout antecedent than specific personal characteristics. Duxbury et al. (2015) found five antecedents to account for nearly 65% of their work-role overload, including competing demands, understaffing, and non-supportive culture. While the tools utilized to research occupational burnout in law enforcement officers varies, it does appear

law enforcement officers are at a potentially higher risk for burnout, and, as both Ellrich (2016) and Baka (2015) identify, possible corresponding health concerns.

Mental Health. Just as career-related stress has been linked to physical health and burnout, it has also been considered a potential antecedent to mental health (Garbarino, Cuomo, Chiorri, & Magnavita, 2013). While mental health screening of potential law enforcement officers is common (see Hansson et al., 2017; Tarescavage, Brewster, et al., 2015), currently serving officers' positions often exacerbate mental health issues (Nelson & Smith, 2016). Nelson and Smith (2016) reported Jamaican police officers reported increased levels of depression among those with high negative work characteristics, low positive work factors, and emotion-focused coping styles. Using a sample of Italian special force police officers, Garbarino et al. (2013) found they reported lower rates of depression, but still believed occupational hazards may cause mental health issues. Another factor in how career-related stress may impact mental health issues is regarding psychological resilience (van der Meulen, van der Velden, Setti, & van Veldhoven, 2018). This recent study found resilience scores, over time, which dramatically decreased over time predicted mental health disturbances. Biggs, Brough, and Barbour (2014) examined the role of a natural disaster and its impact on career-related stress and mental health in law enforcement officers. These researchers found the officers who were personally impacted by the natural disaster experienced the most psychological stress, not necessary those assisting others with this stress. Clearly, the screening procedures in place assist to prevent those with significant mental health issues from entering police service; however, it is important to be aware that career-related stressors, over time, may decrease resilience (as seen in van der Meulen et al., 2018) or increase depression if officers do not have proper coping mechanisms (Nelson & Smith, 2016). Coping strategies are important to also prevent officers

from succumbing to other negative mental health disorders like substance abuse and suicide ideation.

Alcohol Abuse. According to the literature, career-related stress is seen as an antecedent to alcohol abuse across the occupational spectrum (Chopko et al., 2013) and, more specifically, in law enforcement officers (Zavala & Kurtz, 2017). Chopko et al. (2013) officers' problems with alcohol was not as widespread as originally thought: Only 22.5% of her US-based sample reported being at risk of alcohol problems, and only 20.4% of officers reported binge drinking (e.g., five or more drinks in one sitting). Another study found similar rates of alcohol abuse risks among law enforcement officers (Ménard & Arter, 2014). Zavala and Kurtz (2017) believed the law enforcement officers' alcohol abuse issues may be due to lower self-control, which was supported by their study. Additionally, they found increased exposure to traumatic stressors significantly reduced self-control, leading to potentially greater risk of alcohol abuse (Zavala & Kurtz, 2017). Using Agnew's (1992) seminal general strain theory (GST), Yun and Lee (2015) was unable to support their hypotheses on career-related stress mediating increased alcohol abuse in South Korean law enforcement officers; however, these researchers did find the South Korean officers appeared to drink more than their American counterparts. These four studies demonstrate there may be linkage between career-related stress and alcohol abuse, but there are still questions on this link as being causal. And, as Ménard and Arter (2014) point out, the rates for self-reported alcohol abuse risk takers is lower in the US compared to Australia, Canada, the UK, and New Zealand, which leads to questions on if American officers do not accurately report their issues with alcohol usage.

Suicidal Ideation. Another potential result of career-related stressors in law enforcement is suicidal ideation (Bishopp & Boots, 2014; Chae & Boyle, 2013; Stanley, Hom, & Joiner,

2016). The literature in this field, from Stanley et al.'s (2016) systematic review, indicates police officers and other first responders may be at an elevated suicide ideation and thought risk, which seems counterintuitive based on the often-rigorous screening process prior to employment. Chae and Boyle (2013) present similar review findings, suggesting that low-level stress, as seen in law enforcement officers, often permeates from work life into family and relationship life. This low-level stress appears to be a main contributor to increased suicide ideation. Using Agnew's (1992) GST, Bishopp and Boots (2014) showed officers with greater strain had higher suicidal ideation; and, when considering officers with strain and maladaptive depression or anger, these officers had significantly higher suicide ideation. When looking at gender, the GST was unable to predict suicide ideation in female officers (Bishopp & Boots, 2014). All three studies noted the need for further research in order to understand potential casual relationships.

Family Relations. The relationship between a law enforcement officer and their family can often be strained due to the stressors of police work (Karaffa et al., 2015; Roberts et al., 2017; Zavala, Melander, & Kurtz, 2015). Karaffa et al. (2015) found American law enforcement officers reported stressors from financial concerns and the work-life balance to be the most prevalent. In this study which surveyed both the police officer and their spouse, found the spouses reported may be ambivalent to the officer's career, especially in light of recent negative publicity regarding police work. Goodmark (2016) argued law enforcement officers, given the masculinity of the position and how officers are trained and socialized, were more likely to engage in intimate partner violence (IPV). IPV is often linked to law enforcement officers' responses to critical incident stressors (Zavala et al., 2015). Zavala (2013) found American law enforcement officers who had been abused when they were children were more likely to report yelling or shouting toward family members or even IPV. In a follow-up study, Zavala et al.

(2015) found about 9% of American law enforcement officers sampled reported engaging in IPV, which, while low, is similar to other findings. Roberts et al. (2017) had law enforcement officers and their spouses participate in structured, laboratory-based discussions. For officers with greater career-related stress, the researchers found the officers were less hostile, less synchronic with their spouses' hostility, and more synchronic with their spouses' affection; the spouses reported greater synchrony with the officers' hostility and less with the officers' affection. This dichotomy, argued by Roberts et al. (2017) as a potential coping strategy, may be a cause of increased marital strife. As discussed in other areas of this literature review, self-report methodology can lead to skewed results if the participants used impression management techniques; and, it is possible officers would be reticent to report about IPV. Goodmark's (2016) IPV review appeared to oversimplify it to gender-based effects, as opposed to focusing on the career-related stressors.

Religious and Moral Considerations. While researchers have largely focused on career-related stresses' negative aspects, several have attempted to explore how religion and other belief systems may help a person cope or mitigate these factors (Clark-Miller & Brady, 2013; Moran, 2017). Intuitively, one would expect a more religious officer to be more able to cope with career-related stress; however, Clark-Miller and Brady (2013) did not find this result. Instead, these researchers found an officers' belief in their deity's personality impacted their coping strategy—if the officer believed God was loving or just, the officer would be able to cope better than officers who believed God was punishing or abandoning. Moran's (2017) content analysis suggested workplace spirituality was beneficial when utilized for police wellness and community policing, as well as coping with stressors. While Moran (2017) took an ecumenical approach, Clark-Miller and Brady (2013) looked at Catholic officers vs. Protestant officers,

finding the Protestant officers had a great belief in a loving or just God. Moran found the personal nature of the officers' relationship to their deity as being foundational to a greater value system, and, in turn, better policing. This area still needs exploring, as these two studies do not seem to conclude an officer's religiosity has any impact on their coping with career-related stressors.

Cultural Considerations. Much career-related stress research focuses on law enforcement officers outside the United States. In this section, the author will evaluate studies by region to parse out any cultural or geographic considerations.

Asia. Law enforcement officers in Asia face similar career-related stressors as their Western counterparts: The term *karoshi*, meaning "death by overwork", is reportedly a commonplace term in both South Korean and Japanese workplace settings (Yun, Kim, Jung, & Borhanian, 2013, p. 788). Examining a sample of South Korean law enforcement officers, Lim and Kim (2015) found gender, location (rural/suburban vs. urban), marriage, and years of service were related to different career-related stressors. The researchers found bureaucratic concerns also impacted these stressors in this sample. Yun et al. (2013) determined work-family conflicts and victimization predicted somatization symptoms, as measured by the seminal Brief Symptoms Inventory (BSI; Derogatis & Melisaratos, 1983). Additionally, the researchers found other stressors such as negative police image or poor working conditions did not predict physical symptoms, which is notably different than Western-based findings. As discussed above, Yun and Lee (2015) found high levels of alcohol abuse in South Korean officers, which partially supported Agnew's (1992) general strain theory. Overall, these research findings show several similarities but also several considerable differences to career-related stress literature examining Western samples. South Korean law enforcement is different: Yun et al. (2013) notes the South

Korean Police Agency is a unified, nationwide police service. This centralized command structure is different than US-based law enforcement; and, it is possible this structure provides better, more homogeneous officers.

In China, other researchers have found similar differences between Asia-based officers and those in Western countries. Similar to Western studies, Chinese law enforcement officers' job satisfaction was negatively associated with career-related stress (Lu, Liu, Sui, & Wang, 2015). Different than other studies, less than one quarter of these Chinese officers expressed satisfaction with their jobs, and over a third (37%) expressed career-related stress. Lu et al. (2015) suggest the police position in China's culture may be a determinant for these results. Hu et al. (2015) found career-related stress to be an antecedent to job burnout in Chinese correctional officers. And, in a comparison with Australian and Canadian officers, Robinson, MacCulloch, and Arentsen (2014) found Chinese males had significantly higher stress levels than female counterparts in all three countries. This finding is considerably different than other career-related stress studies which have shown female officers experience the highest levels of stress. In a sample of Taiwanese officers, Kuo (2015) found officers' peer relationships, supervisor relationships, and perceptions about their department's promotional system were important in determining job satisfaction and occupational commitment. This study also showed length of service, specifically and counterintuitively, longer lengths of service were important in officers' commitment to work. Irniza, Emilia, Muhammad Saliluddin, and Isha (2014) created and evaluated a Malay-version of a law enforcement-specific occupational questionnaire. The researchers reported similar reliability and validity scores as with other, Western-based studies. These studies showcase several differences between Chinese and other Eastern Asian-based law enforcement officers' career-related stressors. Robinson et al.'s (2014) interesting finding

regarding male Chinese officers' stress levels may have been skewed given their small sample size ($N = 83$) in the study.

Researchers who focused on Indian-based law enforcement officers found results very much similar to those in Western populations (Kumar, 2017; Kumar & Kamalanabhan, 2017; Singh, 2017). Kumar and Kamalanabhan (2017) found similar stressors were factors in officer burnout. Specifically, long, inflexible work hours, work overload, role ambiguity, and perceived unfairness were chief among the career-related stressors identified. Kumar (2017) found greater rank to translate to greater job satisfaction. Similarly, another researcher found constables (e.g., front-line workers) to have higher career-related stressors than their superiors (Singh, 2017). While these findings show some similarities to those from Western-based studies, the historical aspects of Indian law enforcement (e.g., former British colonialism) may have been a factor in these studies' results (Kumar, 2017).

Europe. Similar to Asian-based studies, those studies originating from European countries tended to have findings similar to Western studies. For example, Hansson et al. (2017) reviewed how job strain, general mental health, and work-related social supports interplayed in a Swedish law enforcement officer sample. Arnetz, Arble, Backman, Lynch, and Lublin (2017) focused on increasing resilience on police cadets by providing special psychological and technical training. After 18 months, these candidates reported less health symptoms and more problem-based coping as compared to their non-trained peers. In another Scandinavian-based study, Fyhn, Fjell, and Johnsen (2016) found Norwegian officers' psychological hardiness or grit was a strong predictor of burnout. These researchers also saw investigators of assault experienced higher scores on subjective health complaints as well as grit, social support, and meaningfulness as compared to other investigators. The latter two studies focused on mitigators

to career-related stress like grit and resilience. All three studies, however, need to be placed in perspective that homicides rates in both Sweden and Norway are considerably lower than rates in the United States (United Nations Office on Drugs and Crime, 2013).

Spanish and Italian law enforcement officers also share similar characteristics to other Western officers. Spanish police officers shared similarities to Singh (2017) in that lower-ranked officers experienced greater career-related stress (Luceño-Moreno, García-Albuerne, & Talavera-Velasco, 2016). Verbeek and van der Velden (2016) found PTSD to be an understudied topic in Spanish-language literature on career-related stressors, even though multiple studies in this field have determined similar stress rates. Studies on Italian officers also showed similar levels of career-related stressors, including more reported stress by female officers (D. Acquadro Maran, Varetto, Zedda, & Ieraci, 2015; Daniela Acquadro Maran, Varetto, Zedda, & Franscini, 2014). And, as reviewed above, Garbarino and colleagues have showed specialized law enforcement officers still experience some physical side-effects of heightened stress (Garbarino et al., 2013; Garbarino & Magnavita, 2015). Viotti (2016) described how Italian correctional officers also reported high levels of career-related stressors. These studies illustrate how European-based officers, while having to deal with less homicide than in the United States, also experience these unique stressors.

Support Officers. As discussed in other sections, correctional officers and crime scene technicians often experience similar career-related stressors as front line law enforcement officers (Hu et al., 2015; Viotti, 2016). Hu et al. (2015) found correctional officers who reported higher levels of career-related stress were often more likely to report burnout. Viotti (2016), using a qualitative methodology, found Italian correctional officers were at a heightened risk of stress, especially in regards to the correctional officers' relationships with their inmates. In a

United States-based study, correctional officers also reported career-related stressors, but focused on the supervisory relationships and the officers' role in the organization (Finney, Stergiopoulos, Hensel, Bonato, & Dewa, 2013). Crime scene technicians, whose focus is to collect physical evidence in often intense crime scenes, are often exposed to death (Pavšič Mrevlje, 2016; Sollie, Kop, & Euwema, 2017). Both researchers reported these technicians experienced health problems and other career-related stress symptoms.

Stress Mitigators. Throughout the literature, many researchers have focused on ways to improve job satisfaction and reduce the career-related stress law enforcement officers experience. Many law enforcement agencies utilized Employee Assistance Programs (EAPs) in order to provide counseling and resources to officers (Donnelly, Valentine, & Oehme, 2015); yet, these researchers found officers did not utilize these EAPs very frequently. Similarly, some researchers have argued the "sense of coherence", a belief system which incorporates optimism and control, may be useful as a coping strategy (Dåderman & Colli, 2014). These researchers found this belief system, paired with salutogenesis (e.g., well-being's origin), may provide a strong coping strategy. As described above, Sadulski (2017), found training, family, and peer support as strong factors in coping. Patterson, Chung, and Swan (2014), in their meta-analysis, evaluated stress management techniques; they found most studies had small effect sizes and generally did not show any meaningful differences. Among the literature in this area, there is a considerable lack of conclusive support that any one coping strategy is better than another. Arnetz et al. (2013), however, showed a training program administered to police cadets was effective at reducing career-related stresses' impact. The trainers of this program were senior law enforcement officers, which may have been part of the reason why it was so effective. As far as this author has found, researchers have not yet evaluated whether coping mechanisms are

more effective when they are patterned by other law enforcement officers vs. individuals outside the law enforcement field. There is a need to determine if mentorship may supercharge mitigation techniques.

Section Summary. As described, numerous studies have reported heightened career-related stressors in law enforcement officer populations (Czaja-Mitura et al., 2013; Garbarino & Magnavita, 2015; George & Gow, 2014). Researchers have linked these stressors to both physical and mental health concerns, including substance abuse (Chopko et al., 2013; Zavala & Curry, 2018), suicidal ideations (Bishopp & Boots, 2014; Stanley et al., 2016), and burnout (Houdmont, 2013; Padyab et al., 2016). Family relations, often cited as a coping strategy, is not immune to the impacts officers' career-related stressors (Roberts et al., 2017; Zavala et al., 2015). Studies with samples from other countries or regions report similar occupational stress levels and stressors, even though many of these countries have lower crime rates (Fyhn et al., 2016; Singh, 2017; Verbeek & van der Velden, 2016). While multiple coping strategies have been proposed, there is still a considerable lack of information regarding the effectiveness of these strategies (Dåderman & Colli, 2014; Sadulski, 2017). However, just as career-related stress can impact multiple aspects, this stress may also impact a law enforcement officer's personality.

Length of Service and Personality

Over the past five years, several researchers have examined length of service as being a variable—either as a control variable, or, in at least one case, as a confounding variable (viz., Garbarino et al., 2014). Of the studies examined, most appear to show a negative relationship to the length of service variable (cf. Balmer et al., 2014; Porter & Prenzler, 2017), but there were exceptions. Lim and Kim (2015), using a sample of South Korean law enforcement officers,

found their participants with shorter lengths of service had higher hostility and obsessive-compulsive tendencies than officers with greater lengths. Using a Spanish law enforcement officer sample, officers with less than 10 years of service expressed significantly more personal accomplishment burnout (e.g., competence feelings) than officers with 10 to 20 years (de la Fuente Solana et al., 2013). Often, studies attempted to support the notion length of service does not impact other variables, including Donner, Fridell, and Jennings (2016) did not find length of service being statistically associated with self-reported police misconduct in a sample of US-based law enforcement officers. These three studies demonstrate the extensive associations researchers have attempted to make between lengths of service and other variables.

Most studies have shown some connection between a law enforcement officer's length of service with another variable (e.g., police misconduct, stress, etc.; Lim & Kim, 2015; Porter & Prenzler, 2017). Wills and Schulberg (2016) found declines in well-being, good impression, independence, and empathy over time, but they did not attribute any of the change to be related to length of service. Similarly, Kaur, Chodagiri, and Reddi (2013) found over one-third of their law enforcement officer sample suffered from psychological stress, the stress was not related to either the marital status or the officer's length of service. Another study obtained the length of service variable, but either did not discuss the results, failed to use length of service in the analyses, or looped this variable into a variable evaluating rank (Shafiq, Ohlsson, & Mathias, 2016). Grubb et al. (2015) examined personality traits and coping styles in UK law enforcement officer and hostage negotiator samples, but also failed to compare (or report) lengths of service to any of the variables. These four studies utilized law enforcement samples from both India-, UK-, and US-based populations, which helps mitigate questions regarding US-based law enforcement officers being different than other worldwide law enforcement populations. But,

interestingly, all four studies classified the length of service variable into discrete groups (e.g., one to three years, four to six years, etc.) vs. a continuous model inclusive of both a month and year police service began. This forced discrete nature of the length of service variable may have inadvertently created these cases in which this variable did not statistically relate to other variables. Additionally, the latter two appeared to just use lengths of service as a demographic variable contrary to a control or independent variable.

Among the dozen studies within the past five years which utilized the length of service variable were a few with interesting results in regards to coping strategies, resilience, and stress. Using a population of Slovenia-based crime scene technicians, Pavšič Mrevlje (2016) found participants in the youngest group (e.g., 0 to 5 years of service) used the coping strategy of seeking alternative rewards less than the second oldest group (e.g., 12 to 19 years). Balmer, Pooley, and Cohen (2014) found Western Australian police officers reported lower resilience scores as age, rank, and lengths of service increased. This same pattern followed in regards to the participants' coping strategies. Terpstra and Schaap (2013) found interesting interplays with lengths of service and other variables from a sample of Dutch officers: Participants became both more conservative and averse to intellectualism as their police tenure increased. As length of service increased, officers reported a desire for less excitement, action, and physical strength. These results appear to show increasing lengths of service are related to decreasingly healthy behaviors like coping strategies or physical fitness. Some medical researchers found absenteeism for Brazilian military police officers followed a bell curve in respect to length of service: Officers with less than 11 years and officers with more than 20 years of service were absent less than officers between 11 and 20 years (Suele Bravo, Karan Barbosa, & Calamita Calamita, 2017). While initially this parallels the former three studies results, the decrease in

absenteeism as officers' tenure increased past 20 years, tends indicate a possible increased vigilance as the officer nears the end of their career. Both Pavšič Mrevlje (2016) and Balmer et al. (2014) used samples in which officers with more than 20 years of service were well-represented (viz., 29% and 40%, respectively), yet both showed continued decreases in coping activities. The one consideration to these studies is both lumped the participants with over 20 years in a single category, as opposed to further parsing out the participants into more groups.

As lengths of service increased, some researchers have found a continued decrease in positive police behavior. Porter and Prenzler (2017) found length of service, especially with male law enforcement officers in an all Australian sample, related to excessive force complaints. Specifically, male officers had a greater chance to receive allegations later in their police career than female officers. Other researchers, while examining the roles a subject's race affects law enforcement encounters, found US-based officers with greater lengths of service were more likely to use increasing levels of force, according to the regression analyses (Fridell & Lim, 2016). In undercover assignments, the lengths of these assignments corresponded to decreases in lengths of service as law enforcement officers (Kowalczyk & Sharps, 2017). US-based officers who served in an undercover capacity were five times more likely to leave police service than those officers who did not serve undercover. These studies tend to show a decreasing pattern of positive behavior. Yet still, several researchers have proposed the need for greater understanding of how length of service as a potential predictor for negative law enforcement behavior. In their critique on risk assessment and management, Worden, Harris, and McLean (2014) relate length of service's association with police misconduct to the age-crime curve, where crime prevalence peaks then subsequently declines after several years. These researchers would suggest police

misconduct would also peak then decline if length of service was graphed linearly, which would parallel the literature trends.

Similar to the personality research, there are exceptions to any gross categorization of law enforcement officer behaviors or patterns. Certainly, the vast majority of research utilizing length of service as a variable tends to show inclinations to decreasingly positive behavior, but, as both Lim and Kim (2015) and de la Fuente Solana et al. (2013) show, greater experience may translate into a positive for police behavior. Another factor not considered is the propensity of law enforcement officers to increase in rank with their increase in service length. Only one of these studies (viz., Balmer et al., 2014) examined samples which included a rank higher than patrol officer. This may be a factor, as is the potential for officers who do not increase in rank to become less physically active or averse to intellectualism (Terpstra & Schaap, 2013).

Summary

Karasek's (1979) JDC outlined how an individual's job demands, control, and support model can increase career-related stress and potentially change personality. Several researchers have found using longitudinal designs that individuals over time adapted to career-related stressors (Verhofstadt et al., 2017; Wu, 2016). The current research is focused on investigating how personalities may differ based on career-related stressors and lengths of service, specifically in a law enforcement population.

Researchers have defined and evaluated personality using a variety of different measures. Among the most common in law enforcement research are the MMPI-2 and the FFM (Garbarino et al., 2014; Tarescavage, Brewster, et al., 2015). The Mini-IPIP is a short FFM with good reliability and validity (Donnellan et al., 2006). Using FFMs and other tests, researchers have demonstrated personality may not be as stable over time as formerly thought (Allemand &

Martin, 2016; Nye et al., 2016; Wu, 2016). In addition to considering this lack of stability is due to purposeful personality change, it is possible these fluctuations are due to impression management techniques employed by the test taker (de Vries et al., 2014; Hudson & Fraley, 2016; Robinson et al., 2015; Zettler et al., 2015). It is also possible personality change occurred due to the career-related stress and length of service.

Among populations, law enforcement officers provide unique challenges and considerations (Can & Hendy, 2014; Wills & Schuldberg, 2016). Potential officers are often initially screened to prevent those with significant mental health concerns from being hired (Tarescavage, Brewster, et al., 2015; Violanti et al., 2017). The police culture is often one where officers are reluctant to share feelings, ask for help, or admit their failures and weaknesses (Detrick et al., 2016; Karaffa & Koch, 2016; Rose & Unnithan, 2015). These two factors limit researchers' abilities to truly evaluate law enforcement officers in traditional data collection methodologies.

Like in other fields, the impact of career-related stress has been widely studied in law enforcement populations (Czaja-Mitura et al., 2013; Garbarino & Magnavita, 2015). Researchers have identified physical and mental health associations with heightened career-related stress (Garbarino et al., 2013; Habersaat et al., 2015; Marcatto et al., 2016; Nelson & Smith, 2016). Career-related stress, including traumatic stressors, can affect officers' to the point of burnout and suicide ideation (Bishopp & Boots, 2014; Houdmont, 2013; Padyab et al., 2016; Stanley et al., 2016; Turgoose et al., 2017). Some officers attempt to cope with these stressors by substance abuse and taking out the stress on their families (Chopko et al., 2013; Roberts et al., 2017; Zavala & Kurtz, 2017; Zavala et al., 2015). Others seek out religious assistance or other meditation-based coping strategies (Clark-Miller & Brady, 2013; Dåderman

& Colli, 2014). When examining this topic from an international perspective, different country and regional cultures do not have strong differences with US-based research findings, including stress levels in countries with lower homicide rates (Fyhn et al., 2016; Hansson et al., 2017; T. Kumar, 2017; Yun et al., 2013).

Personality has been shown to be associated with an officer's length of service or time on the job. Several studies have shown lengths of service can be linked to both positive and negative outcomes (Lim & Kim, 2015; Porter & Prenzler, 2017; Wills & Schuldberg, 2016). Even the extent to which officers utilize coping strategies appears to vary based upon the officer's length of service (Balmer et al., 2014; Pavšič Mrevlje, 2016; Terpstra & Schaap, 2013).

Previous literature has evaluated aspects of the current study, but the author has not found any research that has evaluated personality differences in law enforcement officers based on their career-related stress and their length of service. The current study may also help to clarify how the job demand-control theory applies to a law enforcement officer sample.

Chapter 3: Research Method

Researchers have found career law enforcement officers tend to share similar personality trait patterns with each other that are often dissimilar to the personality trait patterns reported in the general public (Detrick et al., 2016; Lyutykh & Konopleva, 2016; Tarescavage, Fischler, et al., 2015; Tarescavage, Corey, et al., 2015; Thomasson et al., 2014). Personality researchers have recently reported personality trait level changes can occur over time based on general work experiences (Woods et al., 2013), job demands (W. Li et al., 2014), stress (Wu, 2016), and traumatic events (Wills & Schuldberg, 2016), among other factors. Several researchers, focused specifically on the law enforcement officer population, have documented stress (Temple, 2009; Wills & Schuldberg, 2016) and possibly length of service (Balmer et al., 2014) as potential factors in personality trait levels. The current study evaluated a law enforcement officer population sample to determine if personality traits differ based on career-related stress and length of service.

The problem addressed by this study was investigating how law enforcement officer personality traits may differ based on their career-related stressors and lengths of service. Recent occupational research has demonstrated personality traits levels can appear to change over time (Li et al., 2014; Wille et al., 2014; Wills & Schuldberg, 2016; Woods et al., 2013; Wu, 2016; Wu et al., 2015). Wu (2016) proposed job demands create stressors; these stressors were the antecedents to the trait level changes he found among various populations. His findings support research indicating stress is known to impact biological, physiological, and mental processes (Hirokawa et al., 2015; Sur & Ng, 2014; Zamanian et al., 2015; Zhou et al., 2014).

The law enforcement officer career is very stressful (Craun et al., 2014; Rose & Unnithan, 2015; Thomasson et al., 2014). Researchers have shown these law enforcement-

specific stressors can impact an officer in various ways, such as negative physical, psychological, or social outcomes (Can & Hendy, 2014; Hamel, 2015; Heath, 2014; Lim & Kim, 2015; Spielberger et al., 1981; Van Hasselt et al., 2008; Violanti et al., 2016, 2017; Webster, 2013). For example, Wills and Schuldberg (2016) reported well-being as well as other personality trait means decrease over time in a limited sample of law enforcement officers. Balmer et al. (2014) saw decreases lower psychological resilience in officers with longer lengths of service.

Most literature to date has focused on personality differences between law enforcement officer and the general public (see Ellrich & Baier, 2016; Wachi, Watanabe, Yokota, Otsuka, & Lamb, 2016; Wills & Schuldberg, 2016); however, if and how law enforcement officer-related stressors and lengths of service are related to officer personality differences is unknown. The current research provides law enforcement administrators understanding on how personality trait differences are related to career-related related stressors or lengths of service. This study also provides a foundation for future longitudinal personality change research and contribute to a greater understanding of the job demand-control model.

The purpose of this quantitative non-experimental study was to understand how law enforcement officer personality traits may differ based on their career -related stressors and lengths of service. The study compared the dependent variable FFM personality traits of law enforcement officers based upon the independent variables length of service as an officer and stress as measured by the Law Enforcement Officer Stress Scale (LEOSS; Van Hasselt et al., 2008). For this volunteer sampling procedure, the researcher placed advertising in law enforcement specific online forums and on social networking sites to recruit more than the required 128 participants in order to obtain adequate statistical power. The requirement for 128 participants was based on a G*Power a priori analysis of an analysis of variance (ANOVA) with

two predictor variables (e.g., length of service and career-related stress) with two levels (e.g., high vs. low) each; an alpha of 0.05; a medium effect size (viz., 0.25); and, a power of 0.8. The U.S.-based law enforcement officers completed the Mini-IPIP FFM personality inventory, the LEOSS, and a demographic questionnaire using the anonymous survey tool Qualtrics. Using SPSS to conduct an analysis of variance (ANOVA) for a between groups design, the researcher compared the personality test results to other officer participants' results based upon career-related stress (e.g., low career-related stress is being at or below the LEOSS relative to the sample mean) and the lengths of service (e.g., low vs. high lengths of service relative to the sample mean). This study may inform the job demand-control theory in relation to law enforcement officers.

Research Questions

The following are the study research questions. When evaluating personality, the researcher examined each of the five FFM traits (e.g., agreeableness; conscientiousness; extraversion; neuroticism; and, openness to new experience) separately.

RQ1. How do personality traits differ between law enforcement officers with high levels of career-related stress compared to law enforcement officers with low levels of career-related stress?

RQ2. How do personality traits differ between law enforcement officers with lengths of service lower than the sample mean compared to those law enforcement officers with lengths of service at or greater than the sample mean?

RQ3. What is the effect of the interaction of length of service and career-related stressor on personality traits differences among law enforcement officers?

Hypotheses

H1₀. There is no significant difference in personality traits among law enforcement officers with high levels of career-related stress compared to law enforcement officers with low levels of career-related stress.

H1_{A1}. There will be a significant difference in personality traits among law enforcement officers with high levels of career-related stress compared to law enforcement officers with low levels of career-related stress.

H1_{A2}. There will be significantly lower Openness to New Experiences scores among law enforcement officers with high levels of career-related stress compared to law enforcement officers with low levels of stress.

H1_{A3}. There will be significantly higher Agreeableness scores among law enforcement officers with high levels of career-related stress compared to law enforcement officers with low levels of stress.

H1_{A4}. There will be significantly higher Extraversion scores among law enforcement officers with high levels of career-related stress compared to law enforcement officers with low levels of stress.

H1_{A5}. There will be significantly higher Conscientiousness scores among law enforcement officers with high levels of career-related stress compared to law enforcement officers with low levels of stress.

H1_{A6}. There will be significantly higher Neuroticism scores among law enforcement officers with high levels of career-related stress compared to law enforcement officers with low levels of stress.

H2₀. There is no significant difference in personality traits among law enforcement officers with lengths of service at or greater than the sample mean compared to law enforcement officers with lengths of service below the sample mean.

H2_{A1}. There will be a significant difference in personality traits among law enforcement officers with lengths of service at or greater than the sample mean compared to law enforcement officers with lengths of service below the sample mean.

H2_{A2}. There will be significantly lower Openness to New Experiences scores among law enforcement officers with lengths of service at or greater than the sample mean compared to law enforcement officers with lengths of service below the sample mean.

H2_{A3}. There will be significantly higher Agreeableness scores among law enforcement officers with lengths of service at or greater than the sample mean compared to law enforcement officers with lengths of service lower than the sample mean.

H2_{A4}. There will be significantly higher Extraversion scores among law enforcement officers with lengths of service at or greater than the sample mean compared to law enforcement officers with lengths of service lower than the sample mean.

H2_{A5}. There will be significantly higher Conscientiousness scores among law enforcement officers with lengths of service at or greater than the sample mean compared to law enforcement officers with lengths of service lower than the sample mean.

H2_{A6}. There will be significantly higher Neuroticism scores among law enforcement officers with lengths of service at or greater than the sample mean compared to law enforcement officers with lengths of service lower than the sample mean.

H3₀. There will be no significant interactions among law enforcement officers based on length of service or career-related stress.

H3A1. There will be a significant difference in personality traits among law enforcement officers with both high levels of career-related stress and lengths of service at or greater than the sample mean compared to law enforcement officers with low levels of career-related stress and lengths of service lower than the sample mean.

H3A2. There will be significantly lower Openness to New Experiences scores among law enforcement officers with both high levels of career-related stress and lengths of service at or greater than the sample mean compared to law enforcement officers with low levels of career-related stress and lengths of service lower than the sample mean.

H3A3. There will be significantly higher Agreeableness scores among law enforcement officers with both high levels of career-related stress and lengths of service at or greater than the sample mean compared to law enforcement officers with low levels of career-related stress and lengths of service lower than the sample mean.

H3A4. There will be significantly higher Extraversion scores among law enforcement officers with both high levels of career-related stress and lengths of service at or greater than the sample mean compared to law enforcement officers with low levels of career-related stress and lengths of service lower than the sample mean.

H3A5. There will be significantly higher Conscientiousness scores among law enforcement officers with both high levels of career-related stress and lengths of service at or greater than the sample mean compared to law enforcement officers with low levels of career-related stress and lengths of service lower than the sample mean.

H3A6. There will be significantly higher Neuroticism scores among law enforcement officers with both high levels of career-related stress and lengths of service at or higher than the

sample mean compared to law enforcement officers with low levels of career-related stress and lengths of service lower than the sample mean.

In summary, this chapter discusses this study's quantitative research methodology including this methodology's justification. It then focuses on the population and sample, including the purpose for choosing this population. Next, it details out the materials and how they relate to the operational definitions of the variables. Following, the chapter provides an in-depth explanation for the study procedures, data collection, and analysis. The chapter concludes by describing the assumptions, limitations, delimitations, and ethical concerns of the study.

Research Methodology and Design

The present study explored how law enforcement officer personality traits may differ based on their career-related stressors and lengths of service by using a quantitative, correlational research design. The researcher chose the quantitative survey methodology because it was considered the gold standard for personality research (Lundmann & Villadsen, 2016), despite Cronbach's (1948) seminal work on personality and his suggestion to assess personality qualitatively. Multiple researchers have validated the FFM and career-related stress measures (Can & Hendy, 2014; Shields, Toussaint, & Slavich, 2016; Zamanian et al., 2015). Quantitative research design also allowed for generalization of the results (Rahman, 2016). The author chose a non-experimental design due to ethical and NCU program requirements. Specifically, it would have been unethical to randomly assign participants into high or low stress situations; and, NCU program's requirements restricted the use of a longitudinal design which may allow for varying lengths of service to be manipulated experimentally. As outlined in Thompson and Panacek's (2007) seminal work and more recently by Steiner and Wong (2016), the non-experimental

research design was best suited to answer comparison-based research questions similar to this study's RQs.

One drawback for this design methodology was the potential for participants' subjective term understandings to distort the results (Lundmann & Villadsen, 2016). In their study, Lundmann and Villadsen (2016) interpreted the potential for this type of error to occur while utilizing a 10-item FFM measure. This drawback mirrors Cronbach's (1948) position supporting qualitative design since a qualitative design methodology can allow a researcher to probe for better understanding of the terminology. Whereas a qualitative methodology may help mitigate this concern, a qualitative approach could potentially introduce subjective researcher biases to data collection (McCusker & Gunaydin, 2015; Thompson & Panacek, 2007). Combining the efficient quantitative research method with the more robust Mini-IPIP (vs. Lundmann & Villadsen's [2016] 10-item FFM measure) attempted to help ameliorate concerns regarding participant term understanding and potential participant survey attrition (Donnellan et al., 2006; McCusker & Gunaydin, 2015; Ward et al., 2017). Therefore, this research design was the most suitable design for this study.

This study utilized an anonymous online survey. Anonymous surveys encourage participants to be more honest when completing the survey, especially if the survey topic is sensitive (Murdoch et al., 2014). Online surveys provide nearly instantaneous access to participants compared with traditional paper mailing methods (Kılınç & Fırat, 2017). However, this survey method did provide a challenge as potential participants who are not as computer savvy as their younger counterparts may be reluctant to complete an online survey (Heiervang & Goodman, 2011).

The researcher considered several alternative designs and methodologies. As discussed above, a qualitative or mixed-method design was initially considered in which the researcher or a third-party would conduct structured interviews of the participants. For this design, the researcher would not be able to guarantee participants' anonymity. Therefore, as participants may be reluctant to honestly answer potential questions, this mixed-method design was not considered viable. Another alternative was to sample only law enforcement officers in a particular department or city. As with the aforementioned alternative, this research method might inadvertently identify participants by the results. It would also be possible law enforcement department managers would likely want to have access to the redacted data, which might prevent even anonymous participants from being authentic in their responses. A third alternative would be to use the NEO-PI-R instead of the Mini-IPIP FFM measure. The NEO-PI-R is proprietary measure and would require significant financial resources and personnel changes (e.g., required to be administered by a trained, licensed professional). Therefore, this third alternative was not considered viable.

Overall, this research design provided a viable pathway to responding to the problem.

Population and Sample

Depending on the source, an estimated 1 million individuals are employed in a law enforcement capacity in the United States. The U.S. Department of Justice's Bureau of Justice Statistics reported there 1,076,054 fulltime officers as of 2012, with 750,340 officers being sworn officers (Bureau of Justice Statistics, 2016). Sworn officers "carry a firearm and a badge, have full arrest powers, and are paid from government funds set aside specifically for sworn law enforcement staff" (Bureau of Justice Statistics, 2016, p. 2).

The U.S. Census operates a periodic probability sampled survey called the American Community Survey (ACS; United States Census Bureau, 2016). According to the ACS, there were 737,263 officers in 2015 with the majority, demographically, being White males in their late 30s. The ACS (2016) reported officers' race or ethnicity as the following: Alaska Native (79; 0.01%); American Indian (4,663; 0.63%); Asian (16,561; 2.25%); Black (93,937; 12.7%); Hawaiian (1,460; 0.20%); Other (21,949; 2.98%); Other Native (1,092; 0.15%); two or more (17,207; 2.33%); and, White (580,315; 78.7%). The median age was 39.7, with 539,368 (73.2%) being male and 197,895 (26.8%) female. The data did not report an "other" gender category. Data on stress levels or lengths of service were not available.

This study utilized sworn law enforcement officers recruited from social networks in the United States. According to the Bureau of Justice Statistics (2016), sworn officers "carry a firearm and a badge, have full arrest powers, and are paid from government funds set aside specifically for sworn law enforcement staff" (p. 2). These participant requirements assumed a security guard or safety inspector self-identifying as a law enforcement would not complete the survey (see Assumptions). As this research was focused on examining how law enforcement officers' personality traits may differ based on their lengths of service and career-related stress, this specific participant population responds to the problem, purpose, and research questions. G*Power a priori analysis was utilized to identify the appropriate sample size for an ANOVA with two predictor variables (e.g., length of service and stress) with two levels (e.g., high vs. low) each (viz., 4 groups), an alpha of 0.05, a medium effect size (viz., 0.25), numerator degrees of freedom of 1, and a power of 0.8 in order to come up with a suggested target sample of 128 participants.

The researcher will utilize a convenience sampling procedure by posting the recruitment flyer (see Appendix A) on the forums of PoliceOne (<https://www.policeone.com/police-forums/>), and an abridged version (see Appendix L) on Reddit (<https://www.reddit.com/r/LEO/>) and two online E-Bulletins from the International Law Enforcement Educators and Training Association (ILEETA). The researcher obtained site permission for posting to all three sites (Appendices B, C, and D). This sampling procedure successfully recruited the required 128 participants in order to obtain adequate statistical power.

As indicated on the recruitment flyer (Appendix A), potential participants were asked if they are at least 18 years old, currently employed as law enforcement officers, and currently serving within the United States. Potential participants were then directed to an anonymous survey hosted on the Northcentral University Qualtrics site.

Materials/Instrumentation

As described above, the online survey consisted of a demographics questionnaire (Appendix E), the Mini-IPIP (Appendix F), and the LEOSS (Appendix G). The demographics questionnaire consisted of questions regarding age, gender, marital status, education level, region of the United States, and the month and year they first began working as a law enforcement officer.

Mini-IPIP. The Mini-IPIP (see Appendix F; Donnellan et al., 2006) is a 20-item measure developed from the 50-item International Personality Item Pool—Five Factor Model measure (IPIP-FFM; Goldberg, 1999). This measure has five subscales—Intellect/Imagination; Agreeableness; Extraversion; Neuroticism; and, Conscientiousness—and a Cronbach's coefficient alpha (Cronbach, 1951) of $M = 3.39$, $SD = .87$, $\alpha = .81$; Agreeableness: $M = 4.16$, $SD = .61$, $\alpha = .69$; Conscientiousness: $M = 3.42$, $SD = .73$, $\alpha = .60$; Neuroticism: $M = 2.67$, $SD = .85$,

$\alpha = .76$; and, Intellect/Imagination: $M = 3.72$, $SD = .75$, $\alpha = .70$ (Donnellan et al., 2006). The Intellect/Imagination subscale is often referred to as Openness or Openness to New Experiences (Donnellan et al., 2006; John & Srivastava, 1999). The Mini-IPIP is in the public domain and free for use (Goldberg, 2017; Appendix H).

LEOSS. The LEOSS (see Appendix G; Van Hasselt et al., 2008) was developed in order to provide a “comprehensive stress prevention and intervention approach” for law enforcement officers (Van Hasselt et al., 2008, p. 135). The LEOSS halved the measure size of Spielberger et al.’s (1981) *Police Stress Survey* (PSS) with significant reliability and validity scores. For this study, the LEOSS utilized a five-point Likert scale (see Can & Hendy, 2014) versus the seven-point scale. Each of the 25 scenarios are rated on both likelihood and difficulty, with the respective scores multiplied. The summed scenarios serve as a rating of exposure to police stressors ($\alpha = 0.923$; Can & Hendy, 2014). This was used to measure the independent variable of career-related stress. The researcher obtained permission to use this from Dr. Van Hasselt on October 23, 2017 (Appendix I).

Demographics. The demographic questionnaire (see Appendix E) was structured to include age, gender, marital status, education level, region of the United States, and the month and year they first began working as a law enforcement officer. The EOD was used for the independent variable length of service. This variable was calculated as the difference between the survey completion date and the EOD.

Operational Definitions of Variables

For this study, the main variables were personality (DV), length of service (IV), and career-related stress (IV).

Personality. For this study, personality was measured using the Mini-IPIP (Donnellan et al., 2006). The Mini-IPIP (see Appendix F) is a 20-question five-factor model measure designed to be both reliable and short. The Mini-IPIP evaluates five dimensions: Agreeableness (“A”), conscientiousness (“C”), extraversion (“E”), neuroticism (“N”), and openness to new experiences (“O”). These five factors provide a robust overview of the key salient aspects of personality (Barford & Smillie, 2016; Donnellan et al., 2006; Robinson et al., 2015). The Mini-IPIP has four questions for each dimension, with two of each four being reverse scored. Appendix F contains the measure questions, their respective dimension, and an indicator if the question is reverse scored. The questions are scored on a five-point Likert scale (e.g., 1 = “never” to 5 = “always”); therefore, the highest score an individual could score on each dimension would be 20, with the lowest being 4. That is, if an individual scored 5 or “always” to the two regular coded conscientiousness questions and “never” to the two reverse coded questions, the individual received a C score of 20. The Mini-IPIP has been utilized for hundreds of studies with consistently reliable scores; one of the most recent studies found acceptable coefficient alpha reliability scores for the five dimensions (Perera et al., 2018): A ($\alpha = 0.850$); C ($\alpha = 0.691$); E ($\alpha = 0.726$); N ($\alpha = 0.735$); and, O ($\alpha = 0.807$). For this study, personality traits were assessed using each of the five individual dimensions. The range for each of the five scales was between 4 and 20.

Length of service. As part of the demographics questionnaire, participants were requested to enter the month and year they began serving as a law enforcement officer. This date was subtracted from the survey completion date to get a number (in months) of service length, and it served as one of the independent variables. Instead of proscribing a specific number of months for the “low” or “high” length of service categories, the researcher assign participants in

these categories based upon the sample mean. That is, participants with lengths of service below the mean were considered in the “low length of service” category; and, participants at the mean or above were placed in the “high length of service” category. Other studies (Gillet, Huart, Colombat, & Fouquereau, 2013; Kowalczyk & Sharps, 2017; Marzano et al., 2016; Ogaz, 2015) have shown the mean length of service varies considerably based upon the sample. Dividing the sample by its mean length of service allowed the variable’s categorization (e.g., high vs. low) to be relative instead of static, avoiding the potential lengths of service are skewed at one end or the other.

Career-related stress. This independent variable was measured using the LEOSS (Van Hasselt et al., 2008) score. The LEOSS is a 25-item measure to operationalize career-related stress in police officers (see Appendix G). For each of the 25 questions, the participant rated the scenario on a five point Likert scale for both likelihood (e.g., 1 = “not at all” to 5 = “always”) and difficulty (e.g., 1 = “not at all” to 5 = “very much”). The LEOSS likelihood and difficulty scales were summed, then this sum was multiplied to create a final stress score. The lowest score an individual could receive on the LEOSS was 25, with the highest being 625. Reliability coefficients, as reported by the original authors, were strong for the likelihood ($\alpha = 0.874$), difficulty ($\alpha = 0.908$), and full scale ($\alpha = 0.874$). Van Hasselt et al. (2008) found a mean of 288.56 in the original study using a seven-point Likert scale. Using a seven-point Likert, LEOSS would scale out of 1225; therefore, Van Hasselt et al.’s (2008) mean of 288 is 23.5% of the full score. This study’s five-point Likert would give a top score of 625, with 23.5% of this score being 146 as an equivalent mean. Can and Hendy (2014) also used a five-point Likert, finding unmarried officers had lower LEOSS scores ($M = 125.42$, $SD = 77.4$) than married officers ($M = 152.26$, $SD = 66.4$). Averaging these three means and rounding to the nearest double digit, the

approximate LEOSS aggregate mean is 140. For this study, a participant who scored at or below 140 points on the LEOSS was considered in the “low stress” category; whereas, any participant scoring 141 or above was considered in the “high stress” category.

Study Procedures

As described above, the researcher recruited voluntary participants using a convenience sampling processes. The researcher provided the recruitment script (see Appendix A) and an abridged recruitment script (see Appendix L) to the appropriate individuals to post on the forums of PoliceOne, Officer.com, and Reddit.

After viewing the recruitment flier on the social media page, interested individuals were asked to access the Qualtrics survey using the following link:

https://ncu.co1.qualtrics.com/jfe/form/SV_00e1IxzPD1FGxA9. Once at the Qualtrics site, potential participants were provided with a shortened copy of the recruitment flyer and the three screening questions (e.g., “Are you currently serving as a sworn law enforcement officer?”; “Are you currently serving within the United States?”; and, “Are you 18 years old or older?”).

Potential participants who clicked no to any of the screening questions were survey completion page. If the potential participant clicked yes to all three, they were taken to the Informed Consent (see Appendix J). On that page, the potential participant had the option to include their name with the study and to sign-up for a copy of the survey results. Once the potential participants clicked the “Agree” button to indicate their consent to participate in this study, the participant was taken to the demographics page. Overall, 267 individuals viewed or completed the Informed Consent. The demographics page and the additional measures are on a separate Qualtrics survey, located here: https://ncu.co1.qualtrics.com/jfe/form/SV_cuTenD05E9tAWHP.

If a potential participant clicked “Disagree”, they were taken to a standard survey completion page.

The online survey consisted of a demographics questionnaire (see Appendix E), the Mini-IPIP (Appendix F), and the LEOSS (Appendix G). The user experience for the survey consisted of six pages: The screening page; the informed consent document; the first page of the demographics questionnaire; the second part of the demographics questionnaire; the Mini-IPIP; and, the LEOSS. Participants could choose to terminate participation in the survey at any time by closing the survey window. Once the participant completed the survey, they were taken to a standard survey completion page.

At the completion of the study, the data was downloaded from Qualtrics and analyzed using SPSS 24.

Data Collection and Analysis

This research utilized the online survey tool Qualtrics as administered by Northcentral University. Qualtrics, a robust quantitative research platform developed in 2002, has been utilized in various personality research studies (Barford & Smillie, 2016; Robinson et al., 2015). Further information on how Qualtrics protects and secures data can be found in Appendix K.

At the conclusion of the data collection phase, the researcher downloaded the full survey data from the Qualtrics site and onto an Integral 4GB Crypto Drive FIPS 197 Encrypted USB thumb drive. This thumb drive was encrypted and password protected. The researcher then removed any participant-provided names or email addresses (from the Informed Consent screen) and moved those to a separate file on the encrypted flash drive. The researcher then re-saved the data to ensure any personally identifying information had been sanitized from survey data. The researcher will keep this information on this secured, encrypted USB thumb drive for 7 years, at

which point the researcher will physically destroy the drive using a hammer or hydraulic press. At no point during the study was any data be printed.

The researcher accessed the anonymized data from the encrypted USB thumb drive and imported it into SPSS. At this point, the researcher examined each variable to examine the level of measurement; then, the researcher conducted data preparation to ensure accurate data. As part of the data preparation, the researcher combined the individual items in the Mini-IPIP to create the five-dimension scores; the researcher also combined the individual LEOSS items together to generate the career-related stress score. The researcher created the length of service variable by subtracting the reported EOD month and year from the current month and year.

Next, the researcher conducted variable analysis, beginning initially with univariate analysis to obtain means, mediums, modes, and other descriptive statistics. The length of service mean for the sample was used to code participants in either a low (e.g., below the mean) or high (e.g., at or above the mean) length of service IV variable. The combined LEOSS score was used to categorize participants in either the low (e.g., at or below 140 points) or high (e.g., above 140 points) career-related stress level.

The ANOVA was the primary analysis. Using a between groups design, the five personality trait dimensions (e.g., agreeableness; conscientiousness; extraversion; neuroticism; and, openness to new experiences) individually were compared to the low and high levels of both length of service and career-related stress. Additionally and based on Ping's (2008) seminal discussion, the researcher examined the effect of an interaction between the two independent variables (both together and separately) on each of the five personality dimensions. To ensure the assumptions of the ANOVA were met, the researcher plotted the data to evaluate normality and error variance (Haverkamp & Beauducel, 2017).

Assumptions

One assumption for this study was that law enforcement officers have varying personality scores as measured by the FFM. This assumption was based up previous, multiple studies where groups of individuals, regardless of professions, have different FFM personality scores (Kim et al., 2016; Quinones et al., 2016; Shields et al., 2016; Wu, 2016). Previous researchers, however, have found aggregated personality trait scores of law enforcement officers tend to be clustered (Detrick et al., 2016).

A second assumption was that potential participants would only complete the study if they were current, sworn law enforcement officers. This was an assumption with self-reported surveys (Kelley, Edens, & Morey, 2017). It is probable that non-sworn law enforcement officers completed the study, but the researcher assumed this would not be a large number of participants. In order to mitigate this potential, the researcher would have to remove the anonymity allowance from the study, introducing other potential effects.

Another assumption was that the law enforcement participants would answer the survey questions honestly, instead of trying to overanalyze the results. To counteract this limitation, the participants filled out the survey anonymously. This allowed them to be free from worry of negative repercussions by answering the questions honestly.

Limitations

While careful attention was paid to the research methodology selection, there were several limitations to this design. The first was the decision for a nonexperimental design which prohibits the ability to suggest causality (Tumlinson, Sass, & Cano, 2014). Secondly, self-report measures always carry inherent potentials for errors, although the researcher attempted to limit

this by using robust measures and an anonymous survey (McCusker & Gunaydin, 2015; Ward et al., 2017). The anonymity encouraged the participants to respond accurately to the measures.

Delimitations

The main delimitation of this study was the focus on only America-based law enforcement officers. While research has shown other officials serving in a law enforcement role (e.g., crime scene technician; support officers) may experience similar types of career-related stress (Finney et al., 2013; Hu et al., 2015; Sollie et al., 2017), the exclusion of any participant except a sworn law enforcement officer reduced the potential for other confounding variables. If the results indicate significant differences, it is possible these differences may not be universal. Another delimitation is the recruitment process: the recruitment flyers may only cater to those who are more technologically savvy vice a good representation of law enforcement officers. As Ward et al. (2017) identify, some potential participants may feel reluctant to accurately complete online-based surveys vs. paper surveys.

Ethical Assurances

This study received approval from Northcentral University's Institutional Review Board (IRB) on May 11, 2018, prior to collecting data. The research was based upon *The Belmont Report's* ethical principles (United States, 1978). After informed consent was sought from all voluntary participants, the participants, by default, had their data collect anonymously. If the participant elected to include their name, their personal information was kept strictly confidential to the full extent allowed by the law (American Psychological Association, 2017). Each participant indicated their permission to participate in the study from the online survey's cover page. The data from the study, post analysis using SPSS, was be stored securely on a password

protected thumb drive. Data will be retained for a period of five years. But, most importantly, the researcher will be open and honest with participants and all others involved in this study.

Summary

The purpose of this quantitative non-experimental study is to evaluate a law enforcement population sample to determine if personality traits differ based on career-related stressors and lengths of service. As described above, the study will recruit a minimum of 128 participants using several law enforcement-focused online websites and direct them to an anonymous survey hosted on NCU's Qualtrics platform. This online survey will consist of a demographics questionnaire, the Mini-IPIP, and the LEOSS, in order to obtain the two independent and dependent variables. Following the completion of the data collection, the researcher will review, clean, and analyze the data using univariate, ANOVA, and interaction-focused statistics.

Chapter 4: Findings

The purpose of this quantitative non-experimental study was to understand how law enforcement officer personality traits may differ based on their career-related stressors and lengths of service. Using a population of law enforcement officers, this study examined the effects of lengths of service and career-related stress on five factor model (FFM) personality dimension differences.

The population for this study was approximately 1 million sworn law enforcement officers aged 18 and older working within the United States. The researcher provided the recruitment script (see Appendix A) and an abridged recruitment script (see Appendix L) to the appropriate individuals to post on the law enforcement officer-specific forums of PoliceOne, Officer.com, and Reddit. The recruitment scripts directed potential participants to an anonymous survey hosted on NCU's Qualtrics platform. The survey consisted of a demographics questionnaire, the 20-question Mini-IPIP, and the Law Enforcement Officer Stress Scale (LEOSS; Van Hasselt et al., 2008). The current research's requirement for at least 128 participants was predicated upon a G*Power a priori analysis with an analysis of variance (ANOVA) using two independent variables (e.g., length of service and career-related stress) each with two levels (e.g., high vs. low); an alpha of 0.05; a medium effect size (viz., 0.25); and, a power of 0.8.

The raw data were downloaded from Northcentral University's Qualtrics to a secured, password-protected flash drive. The researcher used Microsoft Excel for Mac version 16.14 to clean the data. For data cleaning, the researcher sorted and identified those cases in which the participant completed the study. The researcher then created variables for age and lengths of service based upon the date the survey was completed. Finally, the researcher created summed

variables for each of the five FFM dimensions and a total variable for the LEOSS. Once this was complete, the researcher imported the data into IBM SPSS version 24 to run analyses.

This chapter presents the details of on the process and results of data collection, descriptive and inferential statistics, hypothesis testing, and a summary of the findings.

Validity and Reliability of the Data

Using the cleaned data described above, the researcher used SPSS to conduct normality tests on both the independent and dependent variables. Normality was also assessed via visual inspections of P-P plots, Q-Q plots, and histograms (see Appendix M). The current data were found to satisfy the assumptions as discussed below.

For the independent variable of career-related stress, the Law Enforcement Officer Stress Scale (LEOSS; Van Hasselt et al., 2008) likelihood and difficulty scales were summed, then this sum was multiplied to create a final stress score. The lowest score an individual could receive on the LEOSS was 25, with the highest being 625. Reliability coefficients, as reported by the original authors, were strong for the likelihood ($\alpha = 0.874$), difficulty ($\alpha = 0.908$), and full scale ($\alpha = 0.874$). Reliability coefficients for this study were similarly strong: Likelihood ($\alpha = 0.825$), difficulty ($\alpha = 0.891$), and full scale ($\alpha = 0.880$). The mean LEOSS for this sample was 205.11 with a standard deviation of 65.54. Individual LEOSS item scores can be found in Appendix N. The summed LEOSS score was coded into low stress (e.g., LEOSS total score of 140 or less) and high stress (e.g., total score of 141 or higher). Since the sample's mean was considerably higher than previous reported sample means, the researcher created another variable, LEOSSHL. This new variable coded low stress as being the mean (205) and lower, and high stress being 206 and higher. Table 4 shows frequencies and descriptive statistics of these two variables.

For the length of service (LOS) independent variable, the sample included participants with from one month of service to over 42 years (504 months), with an average of 81.18 months (SD = 90.58). The researcher coded high and low length of service categories using the sample mean: Participants with lengths of service below the mean were considered in the “low length of service” category; and, participants at the mean or above were placed in the “high length of service” category (see Table 2).

Table 2

Frequencies and Descriptive Statistics for the Two Independent Variables

Variable	Low		High	
	Count	Percent	Count	Percent
LEOSS	23	14.5	136	85.5
LEOSSHL	84	52.8	75	47.2
LOS	110	69.2	49	30.8

To create the individual Mini-IPIP scores (e.g., Openness to New Experiences; Agreeableness; Extraversion; Neuroticism; and, Conscientiousness), the researcher created a sum of each dimensions’ four questions based on the measures’ instructions. The researcher also ran a correlation of the Mini-IPIP dimensions against each other (see Table 3). The results indicated Agreeableness was significantly correlated with Extraversion in the sample, $r(159) = .36, p <$

Table 3

Correlation Between the Independent Variables with Descriptive Statistics (N = 159)

Dimension	Correlation Matrix					Descriptives		
	O	A	E	C	N	M	SD	Range
Openness	1					15.08	2.91	7 – 20
Agreeableness	.10	1				11.28	3.37	4 – 20
Extraversion	.28**	.36**	1			13.68	2.89	7 – 20
Conscientiousness	-.05	-.12	-.05	1		15.60	2.54	7 – 20
Neuroticism	-.07	-.01	.10	-.12	1	9.02	2.75	4 – 17

Note: ** Indicates the correlation was significant at the 0.01 (2-tailed) level.

.000. Extraversion was also correlated with Openness to New Experience, $r(159) = .28, p <$

.000. No other FFM dimension was correlated with another.

Results

A total of 208 respondents participated in the survey. While 208 participants began the survey, only the 159 participants who completed the demographics questionnaire (Appendix E), Mini-IPIP (Appendix F), and LEOSS (Appendix G) were included in the analyses. The average age was 31.92 (SD = 8.14); demographic statistics are found in Table 4.

Table 4

Demographic Characteristics of Study Participants

Characteristic	Category	%	<i>N</i>
Gender	Females	2.5%	4
	Males	97.5%	155
Education Level	High school graduate, diploma, etc.	3.8%	6
	Some college credit, no degree	20.8%	33
	Trade/technical/vocational Training	1.3%	2
	Associate's	13.2%	21
	Bachelor's	51.6%	82
	Master's	8.8%	14
	Doctorate	.6%	1
Race	American Indian or Alaskan Native	0%	0
	Asian	5.7%	8
	Black or African American	.6%	1
	Native Hawaiian or Other Pacific Islander	1.3%	2
	Other	2.5%	4
	White	89.9%	143
Ethnicity	Hispanic or Latino	5.7%	9
	Not Hispanic or Latino	93.7%	149
Region	Mid-Atlantic	11.9%	19
	Midwest	20.8%	33
	New England	5.0%	8
	South	28.9%	46
	Southwest	8.8%	14
	West	24.5%	39

The researcher used both one-way and two-way ANOVAs for the main analyses. The ANOVA was chosen to evaluate the continuous dependent variable with categorical independent variables. Using a between groups design, the five personality trait dimensions individually were compared between the low and high levels of both length of service and career-related stress, respectively. Additionally and based on Ping's (2008) seminal discussion, the researcher examined the effect of an interaction between the two independent variables (both together and separately) on each of the five personality dimensions. The researcher ensured the assumptions of the ANOVA were met by having a continuous dependent variable and categorical independent variables which were independent of observation and free from significant outliers. The researcher also plotted the data to evaluate normality and error variance (Haverkamp & Beauducel, 2017).

Research Question 1/Hypotheses. How do personality traits differ between law enforcement officers with high levels of career-related stress compared to law enforcement officers with low levels of career-related stress?

H1₀. There is no significant difference in personality traits among law enforcement officers with high levels of career-related stress compared to law enforcement officers with low levels of career-related stress.

H1_{A1}. There will be a significant difference in personality traits among law enforcement officers with high levels of career-related stress compared to law enforcement officers with low levels of career-related stress.

H1A2. There will be significantly lower Openness to New Experiences scores among law enforcement officers with high levels of career-related stress compared to law enforcement officers with low levels of stress.

H1A3. There will be significantly higher Agreeableness scores among law enforcement officers with high levels of career-related stress compared to law enforcement officers with low levels of stress.

H1A4. There will be significantly higher Extraversion scores among law enforcement officers with high levels of career-related stress compared to law enforcement officers with low levels of stress.

H1A5. There will be significantly higher Conscientiousness scores among law enforcement officers with high levels of career-related stress compared to law enforcement officers with low levels of stress.

H1A6. There will be significantly higher Neuroticism scores among law enforcement officers with high levels of career-related stress compared to law enforcement officers with low levels of stress.

To evaluate this research question, the researcher ran a one-way ANOVA using the individual FFM dimensions as the dependent variables and the measure for career-related stress (LEOSS) as the independent variable. None of the FFM dimensions showed significant difference between high and low career-related stress groups (see Table 5) using the Bonferroni adjusted significance level ($p < .01$). Therefore, the null hypothesis was not rejected and no support existed for the alternates.

The researcher then conducted another one-way ANOVA to evaluate the FFM dimensions against the independent variable LEOSSHL scores (see Table 6). As described above, the LEOSSHL was created to better categorize the current samples' LEOSS results into

Table 5

One-Way ANOVA for the FFM and LEOSS Variables

Variable	Sum of Squares			F (1,158)	p	η^2
	Between	Within	Total			
Openness	14.90	1327.04	1341.94	1.76	.19	.01
Agreeableness	9.08	1786.75	1795.82	.80	.37	.01
Extraversion	.10	1318.55	1318.64	.01	.92	.00
Conscientiousness	37.37	980.67	1018.04	5.98	.02	.04
Neuroticism	21.22	1173.72	1194.94	2.84	.09	.02

Table 6

One-Way ANOVA for the FFM and LEOSSHL Variables

Variable	Sum of Squares			F (1,158)	p	η^2
	Between	Within	Total			
Openness	2.59	1339.35	1341.94	.30	.58	.00
Agreeableness	7.09	1788.74	1795.82	.62	.43	.00
Extraversion	6.42	1312.23	1318.62	.77	.38	.00
Conscientiousness	.70	1017.33	1018.04	.11	.74	.00
Neuroticism	33.78	1161.16	1194.94	4.57	.03	.03

high and low; this variable based made the low categorization based on the sample mean (e.g., ≤ 205) and high as above the sample mean. Again, using the Bonferroni adjusted significance level ($p < .01$), no significant differences were show. The null hypothesis was not rejected and no support existed for the alternates.

Research Question 2/Hypotheses. How do personality traits differ between law enforcement officers with lengths of service lower than the sample mean compared to those law enforcement officers with lengths of service at or greater than the sample mean?

H2₀. There is no significant difference in personality traits among law enforcement officers with lengths of service at or greater than the sample mean compared to law enforcement officers with lengths of service below the sample mean.

H2_{A1}. There will be a significant difference in personality traits among law enforcement officers with lengths of service at or greater than the sample mean compared to law enforcement officers with lengths of service below the sample mean.

H2_{A2}. There will be significantly lower Openness to New Experiences scores among law enforcement officers with lengths of service at or greater than the sample mean compared to law enforcement officers with lengths of service below the sample mean.

H2_{A3}. There will be significantly higher Agreeableness scores among law enforcement officers with lengths of service at or greater than the sample mean compared to law enforcement officers with lengths of service lower than the sample mean.

H2_{A4}. There will be significantly higher Extraversion scores among law enforcement officers with lengths of service at or greater than the sample mean compared to law enforcement officers with lengths of service lower than the sample mean.

H2_{A5}. There will be significantly higher Conscientiousness scores among law enforcement officers with lengths of service at or greater than the sample mean compared to law enforcement officers with lengths of service lower than the sample mean.

H2_{A6}. There will be significantly higher Neuroticism scores among law enforcement officers with lengths of service at or greater than the sample mean compared to law enforcement officers with lengths of service lower than the sample mean.

The researcher conducted a one-way ANOVA with the FFM individual dimensions against the length of service variable categories of high and low (see Table 7). The null hypothesis was not rejected and no support existed for the alternates.

Research Question 3/Hypotheses. What is the effect of the interaction of length of service and career-related stressor on personality traits differences among law enforcement

Table 7

One-Way ANOVA for FFM and LOS Variables

Variable	Sum of Squares			F (1,158)	p	η^2
	Between	Within	Total			
Openness	32.13	1309.80	1341.94	3.85	.05	.02
Agreeableness	.06	1795.76	1795.82	.01	.94	.00
Extraversion	8.24	1310.40	1318.64	.99	.32	.00
Conscientiousness	12.30	1005.74	1018.04	1.92	.17	.01
Neuroticism	32.27	1162.67	1194.94	4.36	.04	.03

officers?

H3₀. There will be no significant interactions among law enforcement officers based on length of service or career-related stress.

H3_{A1}. There will be a significant difference in personality traits among law enforcement officers with both high levels of career-related stress and lengths of service at or greater than the sample mean compared to law enforcement officers with low levels of career-related stress and lengths of service lower than the sample mean.

H3_{A2}. There will be significantly lower Openness to New Experiences scores among law enforcement officers with both high levels of career-related stress and lengths of service at or greater than the sample mean compared to law enforcement officers with low levels of career-related stress and lengths of service lower than the sample mean.

H3A3. There will be significantly higher Agreeableness scores among law enforcement officers with both high levels of career-related stress and lengths of service at or greater than the sample mean compared to law enforcement officers with low levels of career-related stress and lengths of service lower than the sample mean.

H3A4. There will be significantly higher Extraversion scores among law enforcement officers with both high levels of career-related stress and lengths of service at or greater than the sample mean compared to law enforcement officers with low levels of career-related stress and lengths of service lower than the sample mean.

H3A5. There will be significantly higher Conscientiousness scores among law enforcement officers with both high levels of career-related stress and lengths of service at or greater than the sample mean compared to law enforcement officers with low levels of career-related stress and lengths of service lower than the sample mean.

H3A6. There will be significantly higher Neuroticism scores among law enforcement officers with both high levels of career-related stress and lengths of service at or higher than the sample mean compared to law enforcement officers with low levels of career-related stress and lengths of service lower than the sample mean.

The researcher conducted a two-way ANOVA on each individual Mini-IPIP FFM dimensions against the length of service (LOS) and career-related stress (LEOSS). Using the Bonferroni adjusted significance level ($p < .01$), no significant group differences were found. Therefore, the null hypothesis was not rejected and no support existed for the alternates (see Table 8).

The researcher also ran the two-way ANOVA again in order to determine if the alternative career-related stress variable (LEOSSHL) and (LOS) had different results. The

Table 8

Two-Way ANOVAs for each FFM Dimension, LOS, and LEOSS Variables

Source	SS	df	MS	F	P
Openness					
LEOSS	24.22	1	24.22	2.92	.09
LOS	.00	1	.00	.00	1.0
LEOSS*LOS	15.05	1	15.05	1.82	.18
Error	1284.48	155	8.29		
Total	37508.00	159			
Agreeableness					
LEOSS	.66	1	.66	.06	.81
LOS	3.70	1	3.70	.32	.57
LEOSS*LOS	6.16	1	6.16	.54	.47
Error	1780.57	155	11.49		
Total	22015.00	159			
Extraversion					
LEOSS	2.99	1	2.99	.36	.55
LOS	10.99	1	10.99	1.30	.26
LEOSS*LOS	3.81	1	3.81	.45	.50
Error	1306.15	155	8.43		
Total	31071.00	159			
Conscientiousness					
LEOSS	45.57	1	45.57	7.39*	.01
LOS	21.22	1	21.22	3.44	.07
LEOSS*LOS	6.59	1	6.59	1.07	.30
Error	955.87	155	6.17		
Total	39731.00	159			
Neuroticism					
LEOSS	15.93	1	15.93	2.16	.14
LOS	3.74	1	3.74	.51	.48
LEOSS*LOS	2.06	1	2.06	.28	.60
Error	1144.96	155	7.39		
Total	14128.00	159			

* $p < .01$

LEOSSHL evaluated the LEOSS in the high/low categories as divided by the sample mean.

Using the Bonferroni adjusted significance level ($p < .01$), no significant group differences were found. Therefore, the null hypothesis was not rejected (see Table 9).

Table 9

Two-Way ANOVAs for each FFM Dimensions, LOS, and LEOSSHL Variables

Source	SS	df	MS	F	p
Openness					
LEOSSHL	29.85	1	29.85	3.59	.06
LOS	.13	1	.13	.02	.90
LEOSSHL*LOS	20.20	1	20.20	2.43	.12
Error	1287.44	155	8.31		
Total	37508.00	159			
Agreeableness					
LEOSSHL	.05	1	.05	.00	.95
LOS	11.60	1	11.60	1.01	.32
LEOSSHL*LOS	6.05	1	6.05	.53	.47
Error	1782.59	155	11.50		
Total	22015.00	159			
Extraversion					
LEOSSHL	8.20	1	8.20	1.00	.32
LOS	9.72	1	9.72	1.16	.28
LEOSSHL*LOS	3.48	1	3.48	.42	.52
Error	1300.14	155	8.39		
Total	31071.00	159			
Conscientiousness					
LEOSSHL	12.99	1	12.99	2.01	.16
LOS	.00	1	.00	.00	.99
LEOSSHL*LOS	4.71	1	4.71	.73	.39
Error	1000.18	155	6.45		
Total	39731.00	159			
Neuroticism					
LEOSSHL	30.02	1	30.02	4.13*	.04
LOS	21.44	1	21.44	2.95	.09
LEOSSHL*LOS	2.61	1	2.61	.36	.55
Error	1127.84	155	7.28		
Total	14128.00	159			

* $p < .05$

Evaluation of the Findings

Research Question 1. This research question did not result in any significant findings.

Based on the results of the one-way ANOVA on the FFM dimensions against the LEOSS score

with the high/low cutoff based on previous academic literature, Conscientiousness was the strongest of the five variables, $F(1,157) = 5.98, p = .02$ (Bonferroni corrected alpha to exceed for significance was .01). This value at a univariate level would be significant; however, the researcher had to adjust the p value in order to avoid making a Type II error (e.g., Bonferroni correction; see Shaffer, 1995). The researcher also considered alternative corrections instead of Bonferroni (see Feise, 2002), but decided a more conservative correction was appropriate for this study. Using a LEOSS score with a high/low cutoff based on the sample mean, Neuroticism was the strongest of the five variables, $F(1,157) = 4.57, p = .03$ (Bonferroni corrected alpha to exceed for significance was .01), but it was not significant. These results parallel Temple (2009) who found FFM traits neuroticism and conscientiousness level differences associated with coping and strain in officers. Wu also found higher job stress reporting participants more neurotic and less extraverted after five years.

Research Question 2. This research question also did not result in any significant findings. Neuroticism was the strongest of the variables, $F(1,157) = 4.36, p = .04$ (Bonferroni corrected alpha to exceed for significance was .01). Similar to above, the researcher avoided the familywise error by increasing the stringency of the p value based on the number of cases. Balmer et al. (2014) found Western Australian police officers reported lower resilience scores as age, rank, and lengths of service increased; and, Porter and Prenzler (2017) found length of service, especially with male law enforcement officers in an all Australian sample, related to excessive force complaints. Both of these elements (e.g., lower resilience and excessive force complaints) could be tied to higher levels of neuroticism.

Research Question 3. This research question did not result in any significant interaction results. The strongest interaction, not significant, was of Conscientiousness, $F(1,155) = 6.59, p =$

.30. As seen in Table 8, the main effect of LOS on Conscientiousness was not significant ($F(1,155) = 3.44, p = .07$), but the main effect of career-related stress (LEOSS) on Conscientiousness was significant, $F(1,155) = 7.39, p = .01$. Additionally in Table 9, the main effect of career-related stress (LEOSSHL) on Neuroticism was not significant ($F(1,155) = 2.95, p = .09$), but the main effect of LOS on Neuroticism was significant, $F(1,155) = 4.13, p = .04$. Career-related stress on conscientiousness being significant follows along with both Temple's (2009) and Young's (2016) results. Young (2016) found more experienced law enforcement officers (e.g., crisis negotiators) scored higher on FFM dimensions extraversion, agreeableness, conscientiousness and neuroticism, and lower on openness than less experienced ones (e.g., patrol officers). Wille et al. (2014) also found higher conscientiousness scores in individuals with longer careers.

Summary

A total of 159 participants completed the study. While not significant using the Bonferroni adjusted significance level ($p < .01$), the researcher found law enforcement officers with higher career-related stress tended to have greater differences in conscientiousness ($F(1,157) = 5.98, p = .02$) and neuroticism ($F(1,157) = 4.57, p = .03$) than officers with lower stress. Officers with greater lengths of service tended to also have differences in neuroticism ($F(1,157) = 4.36, p = .04$) than officers with lower stress. Additionally, two simple main effects in the two-way ANOVAs were significant (viz., career-related stress on conscientiousness; and, length of service on neuroticism). The null for all three research questions was not rejected.

Chapter 5: Implications, Recommendations, and Conclusions

The problem addressed by this study was investigating how law enforcement officer personality traits may differ based on their career-related stressors and lengths of service. This quantitative non-experimental research design recruited participants by using advertising in law enforcement specific online forums and a social networking site. The recruited participants were asked to complete the Mini-IPIP FFM measure, the LEOSS, and an accompanying demographic questionnaire; these measures were completed online, voluntarily, and anonymously. The participants' FFM personality trait levels (dependent variable) were measured and compared to other participants' trait levels based upon the independent variables of lengths of service (high vs. low) and stress levels (high vs. low) using 15 one-way ANOVAs and ten two-way ANOVAs. This study intended to inform the job demand-control theory in relation to law enforcement officers.

The data did not find support for any of the alternative hypotheses. While main effects and interactions of the ten two-way ANOVAs were not statistically significant using the Bonferroni adjusted significance level ($p < .01$), the study did produce some interesting results. First, the FFM dimension agreeableness was significantly correlated with extraversion; and, extraversion was significantly correlated with openness to new experiences. Second, law enforcement officers with higher career-related stress tended to have greater differences in conscientiousness ($F(1,157) = 5.98, p = .02$) and neuroticism ($F(1,157) = 4.57, p = .03$) than their lower-stress peer officers; and, officers with longer lengths of service tended to also have greater neuroticism ($F(1,157) = 4.36, p = .04$) than officers with shorter lengths of service. Using the Bonferroni alpha correction method, all three results were not statistically significant ($p \leq .01$ required after correction). Finally, two simple main effects in the two-way ANOVAs

were statistically significant: Career-related stress on conscientiousness; and, length of service on neuroticism.

In the past several decades, researchers have found personality trait changes can occur over time (Li, Fay, Frese, Harms, & Gao, 2014; Wille, Hofmans, Feys, & De Fruyt, 2014; Wills & Schulberg, 2016; Woods, Lievens, De Fruyt, & Wille, 2013; Wu, 2016; Wu, Griffin, & Parker, 2015). Karasek's (1979) job demand-control model suggested time demands and lack of control over demands increased mental strain, which may exacerbate these changes (Fila et al., 2017; B. Steiner & Wooldredge, 2015). Several researchers (see Temple, 2009; Wills & Schulberg, 2016; Wu, 2016) have found support for this job demand-control model; however, the current research was unable to provide additional statistically significant support for this model.

The current research was limited by two factors: The nonexperimental design and the self-report measures. The nonexperimental design prohibited the ability for the data to suggest causality (Tumlinson, Sass, & Cano, 2014). As discussed in Chapter 3, this design methodology was primarily used due to ethical considerations (e.g., it would be unethical to randomly assign a law enforcement officer to a lower or greater stress assignment). The second limitation was the use of self-report measures. Numerous studies have shown self-reporting may lead to skewed results (de Vries, Zettler, & Hilbig, 2014; Detrick & Chibnall, 2013). However, this limitation was counteracted by the use of the robust measures and offering anonymity (Baldasaro, Shanahan, & Bauer, 2013; McCusker & Gunaydin, 2015; Van Hasselt et al., 2008; Ward, Meade, Allred, Pappalardo, & Stoughton, 2017).

Implications

The current research did not produce any statistically significant main effect findings using the Bonferroni alpha correction; therefore, the results did not support Karasek's (1979) job demand-control theory. However, the study did show some interesting results: The samples' career-related stress levels were higher than any previously reported in the academic literature; and, length of service did not relate to higher levels of career-related stress.

Research Question 1. The first research question focused on five factor personality trait differences based on career-related stress. This question was predicated by Karasek, Jr.'s (1979) job demand-control model theory, which suggested higher job time demand (e.g., work load, time pressure) and lower job control (e.g., autonomy) was linked to higher levels of stress (Fila et al., 2017; Karasek, Jr., 1979; Wu, 2016). Wu (2016) found FFM trait level differences over time in participants who indicated higher job time demand and higher stress. Wu's findings only partially supported the model as low job control was not shown to be correlated to higher levels of stress. Wu (2016) successfully predicted stress would be associated with differences of neuroticism and extraversion (higher and lower, respectively), based on Grey's (1981, 1990) biopsychological theory of personality. Wu found higher job stress reporting participants more neurotic and less extraverted after five years. In other associated research, Temple (2009) found FFM traits neuroticism and conscientiousness level differences associated with coping and strain in officers; and, Young (2016) found more experienced law enforcement officers (e.g., crisis negotiators) scored higher on FFM dimensions extraversion, agreeableness, conscientiousness and neuroticism, and lower on openness than less experienced ones (e.g., patrol officers).

While there were no statistically significant personality trait differences, the current research's sample did score higher in career-related stress than in previously reported samples.

Van Hasselt et al.'s (2008) found an equivalent LEOSS mean of 146, and Can and Hendy (2014) found unmarried officers had lower LEOSS scores ($M = 125.42$, $SD = 77.4$) than married officers ($M = 152.26$, $SD = 66.4$). The current study had a mean of 205.11 ($SD = 65.54$), which is more than 30% higher than the previously reported means. It is possible the current environment of law enforcement officers' actions being scrutinized by the media and public have increased their career-related stress.

As discussed above, one of this study's limitations was the usage of self-report measures. While the LEOSS was chosen because of its brevity compared to Spielberger et al.'s (1981) *Police Stress Survey* (PSS), the use of this self-report measure, and, more specifically, the instructions on how to complete it, may not have been clear for participants. This, along with the placement of the LEOSS at the end of the study measurements, may have made participants complete the measure less accurately than in previous studies (Can & Hendy, 2014; Van Hasselt et al., 2008).

These results were consistent with theories suggesting personality is stable over time (see Chow & Roberts, 2014; Costa & McCrae, 1988), which are generally accepted. These findings mirror Dobewall and Aavik's (2016) three-year longitudinal study that found both rank-order and personality trait level stability. The current literature has mixed findings, even using variations of populations, recruitment strategies, and design methodologies.

Research Question 2. This research question evaluated personality differences based upon length of service. Multiple studies have evaluated length of service as a variable, with the majority showing a negative relationship. Balmer et al. (2014) found Western Australian police officers reported lower resilience scores as age, rank, and lengths of service increased, and Porter and Prenzler (2017) found length of service, especially with male law enforcement officers in an

all Australian sample, related to excessive force complaints. Verhofstadt et al. (2017) found self-reported stress declined over time as workers adapted to career-related stressors. Based on these findings, it was believed length of service would be related to differences in personality. This was not found.

The current study's sample had a mean length of service of 81.18 months (SD = 90.54), or 6.75 years. This is a relatively short length of service compared to other similar studies (viz., Balmer et al., 2014; de la Fuente Solana, Aguayo Extremera, & Vargas Pecino, 2013; Kuo, 2015; Lim & Kim, 2015; Porter & Prenzler, 2017). Therefore, it is possible the current sample's relative shorter lengths of service can explain how the results did not support Karasek, Jr.'s (1979) model as specific to the length of service variable. Other studies that included length of service as a variable (see Grubb, Brown, & Hall, 2015; Kaur, Chodagiri, & Reddi, 2013; Lim & Kim, 2015; Porter & Prenzler, 2017; Wills & Schuldberg, 2016) classified the variable into discrete groups vs. a continuous model. This study attempted to negate this by obtaining length of service as a continuous variable. The researcher conducted analyses using this continuous variable and a bifurcated, high/low variable based on the sample mean. Neither sets of analyses produced significant results.

This question appears to have been limited by the recruitment process. The sample had a relatively low length of service overall. This may have been the byproduct of recruiting solely on the internet. Perhaps if the study would have contained a paper-based recruitment method, the overall length of service may have matched previously reported lengths. While the researcher considered the potential for this study to only recruit individuals savvy on the computer or internet, the reality that computers are present and used ubiquitously in most law enforcement agencies appeared to counteract this limitation (VanderSloot, Wheaton, & Halderman, 2016). It

may have been that while a law enforcement officer knows how to use a computer, they do not choose to utilize one when not working. And, since the sites where the recruitment material was placed were not necessarily work-related, an officer who uses a computer solely for work may not have made the decision to seek out an internet-based survey after their shift.

Research Question 3. The final research question evaluated personality differences based on both length of service and career-related stress. While the results of the two-way ANOVAs were not significant, two simple main effects were significant. First, officers with higher career-related stress showed significant differences in their conscientiousness scores than officers with lower career-related stress. This finding follows along with both Temple's (2009) and Young's (2016) results. Wille et al. (2014) also found higher conscientiousness scores in individuals with longer careers. The second statistically significant simple main effect was in regards to length of service: Officers with greater longer of service had higher neuroticism than officers with shorter lengths. DeShong et al. (2015) found higher neuroticism linked to increased suicide ideation, and as comorbid with PTSD (Garbarino, Chiorri, & Magnavita, 2014).

This question was limited by many factors. First, the nonexperimental design limited the potential for officers to be randomly assigned to groups. Law enforcement officers are already in a high stress career (Garbarino & Magnavita, 2015; Habersaat, Geiger, Abdellaoui, & Wolf, 2015; Marcatto et al., 2016); and, this career choice often puts them in a greater risk category for tangential physical or psychological harm (e.g., HIV, PTSD, etc.; Dang, Denis, Gahide, Chariot, & Lefèvre, 2016; George & Gow, 2014; Turgoose, Glover, Barker, & Maddox, 2017). Therefore, while the nonexperimental design was a limitation, it was a necessary one.

The second limitation was the use of self-report measures. Numerous studies have shown self-reporting may lead to skewed results (de Vries et al., 2014; Detrick & Chibnall, 2013, 2014; Zettler, Hilbig, Moshagen, & de Vries, 2015). However, this limitation was counteracted by offering participants anonymity (Baldasaro et al., 2013; McCusker & Gunaydin, 2015; Van Hasselt et al., 2008; Ward et al., 2017). It would appear this limitation was mitigated or eliminated, as the sample reported higher than previously-report career-related stress levels. We would expect low stress levels if the sample was limited by self-reporting.

The final limitation was the sample itself. While the sample size recruited ($N = 159$) met the suggested requirement, the sample represented less than .01% of the population. A majority of the sample (over 75%) was younger than 40 years old and male. The current research's sample differed from the American Community Survey (ACS; United States Census Bureau, 2016), which had reported the median law enforcement officer age was 39.7 and more than a fourth female (26.8%). With the younger population, the age effects typically seen in personality difference literature (e.g., Debast et al., 2014; Milojev & Sibley, 2014; Nye, Allemand, Gosling, Potter, & Roberts, 2016; Wille et al., 2014) may have skewed the results.

Recommendations for Practice

The current research found career-related stress was higher in the study sample compared to previously reported samples. This is a unique finding in that this result may indicate contemporary law enforcement officers in the United States are under greater stress than they were previously. It is well documented the law enforcement career is stressful (Craun et al., 2014; Spielberger et al., 1981); and, these stressors are often unique to the elements of the career (Can & Hendy, 2014; Hamel, 2015; Heath, 2014; Lim & Kim, 2015; Rose & Unnithan, 2015; Thomasson et al., 2014; Van Hasselt et al., 2008; Violanti et al., 2017, 2016).

Career-related stress can impact a person in many ways. Long-term stress can lead to adverse health conditions, like cardiovascular disease (Czaja-Mitura et al., 2013; Garbarino & Magnavita, 2015; Tyagi & Lochan Dhar, 2014). Officers often experience secondary traumatic stress (Craun et al., 2014; Turgoose et al., 2017). These officers may experience burnout (Houdmont, 2013; Maslach & Jackson, 1981; Padyab, Backteman-Erlanson, & Brulin, 2016), mental health issues (Garbarino, Cuomo, Chiorri, & Magnavita, 2013; Nelson & Smith, 2016; van der Meulen, van der Velden, Setti, & van Veldhoven, 2018), or even alcohol or substance use disorders (Zavala & Kurtz, 2017).

The higher stress levels obtained from the current sample may be related to the decreasing public support of law enforcement officers in general (Karaffa et al., 2015; Natarajan, 2014). Modern day officers' actions are being highly scrutinized by the media, civil rights organizations, and the public in general. Officers now have to contend with a public who increasingly records interactions with them. It is therefore important for police chiefs or administrators to understand this increased stress level and introduce ways to reduce the stress. Perhaps this would mean rotating officers in assignments or allowing more flexible hours.

Recommendations for Future Research

Using Karasek's (1979) job demand-control model as a framework, this study attempted to find personality differences in law enforcement officers based on career-related stress and lengths of service. The purpose was to see if there were statistical personality differences in officers with higher (vs. lower) stress or longer (vs. shorter) service lengths. Following along with similar research designs (viz., Craun et al., 2014; Wills & Schuldberg, 2016; Wu, 2016; Wu et al., 2015), future research should consider using a longitudinal design in order to ascertain if personality traits levels change in relation to career-related stress and length of service.

A longitudinal design would allow for future researchers to establish baseline personality trait scores than have periodic touchpoints evaluating the (then) current career-related stress levels. This design would allow for the participants' stress to be documented more accurately. It may also be possible to utilize the MMPI-2 Restructured Form (MMPI-2-RF; Ben-Porath & Tellegen, 2008/2011), a baseline component of law enforcement officer personality screening (Butcher et al., 2001; Detrick et al., 2016; Tarescavage, Fischler, et al., 2015; Tarescavage, Corey, et al., 2015), as the personality measure. This would allow a more robust parsing of personality trait data. The next logical step would be to find a large law enforcement agency and approach to see if the administration would be willing to allow for this type of longitudinal design.

Another suggestion for future research would be to recruit within specific law enforcement agencies. The current study recruited participants anonymously from around the United States. While optimal for reducing the potential of participant anxiety or harm, this method prevented the current researcher from obtaining a sample more representative of the population. By focusing on a specific department, future researchers could truly approach this subject systematically.

It is also possible using a different measure than the LEOSS would produce different results. As discussed above, the LEOSS may have been seen as being laborious for someone, especially when participants are not being rewarded with anything for participation. Therefore, a participant may have just chosen randomly in order to finish out the survey. Perhaps future research could further reduce the LEOSS to something smaller and quicker to complete.

There are several other variables which may be good to consider for future research. Previous studies have focused on how law enforcement officer participants are able to balance

out their stressors (Dang et al., 2016; Strahler & Ziegert, 2015). This should be a question for future research. The current sample had mean stress levels not before seen in academic literature. Are the stress levels so high because law enforcement is now a much more stressful career? Or, are the stress levels high because officers do not know how to properly handle stress? Regardless of the answer, future studies should attempt to determine what can best mitigate officers' career-related stress levels. This variable may actually end up helping officers consider the possible methods to de-stress.

Overall, the current research showed there were several potential avenues for improving upon the design for future research. Certainly considering the methodology and measures could help better evaluate the research questions.

Conclusions

The current study focused on how law enforcement officer personality traits may differ based on their career-related stressors and lengths of service. Previous literature had not evaluated the extent to which law enforcement officers in different positions or different levels of their career may have different personality trait levels.

Using a framework based on previous personality research, the current study hypothesized law enforcement officers in higher stress positions and with longer lengths of service would have significantly different personality trait levels than their colleagues. The researcher chose a quantitative methodology and anonymously surveyed 159 United States-based sworn law enforcement officers to obtain their personality using a five-factor measure, length of time as an officer, and career-related stress level. The researcher then compared the officers' personality trait differences based on high/low categories of length of service and career-related stress with multiple one-way and two-way ANOVAs. The researcher used a conservative

statistical interpretation, and, with it, was unable to show significant effects between personality trait differences and lengths of service or career-related stress. While not statistically significant, the researcher did find officers with higher career-related stress tended to have greater differences in conscientiousness and neuroticism than officers with low stress. Also, officers with greater lengths of service tended to have differences in neuroticism than officers with lower stress.

Karasek's (1979) job demand-control model suggested officers with higher stress levels may have greater personality differences. This study did not show support for this theory. While this study did not show statistically significant support for law enforcement officers having personality trait differences based on their length of service or career-related stress, it did find the law enforcement officer sample had higher levels of career-related stress than in previously reported samples. This may indicate contemporary officers are under more stress than in the past. This finding can be counterbalanced by the relatively shorter mean length of service compared to other similar studies. Overall, there study concluded with suggestions for future research to hone the methodology in order to better understand the theoretical framework as it applies to a law enforcement officer sample.

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Appendices

Appendix A: Recruitment Flyer

The following is the recruitment flyer to be used for this study:

Are you a current law enforcement officer?

Do you serve within the United States?

Are you 18 years old or older?



If so, please participate in this important anonymous online survey!

- Did you know your personality may be impacted by the stressors you face?
- Did you know your personality may be impacted by the length of time you serve?
- The purpose of this study is to examine three variables: personality, law enforcement-related stress, and length of service.

To participate, please click on the following link or type it into your Internet browser:

https://ncu.co1.qualtrics.com/jfe/form/SV_00e1IxzPD1FGxA9

Important Details

Hello, my name is Darin Challacombe. I am a doctoral candidate at Northcentral University. Please participate in this *anonymous* online survey. It will only take about 20 minutes to complete.

There is minimal risk in taking part in this survey. You can skip or stop answering questions at any time.

Your answers will not be shared with anyone. This is an anonymous survey: None of the information you submit can be traced to you. None of the information you submit can identify you. This is a research survey. This is not treatment. Please visit the study's website. The website has all inclusion and exclusion criteria.

Please contact me if you have additional questions. My email address is D.Challacombe7980@email.ncu.edu. The Institutional Review Board of Northcentral University has approved this study. They can be contacted at irb@ncu.edu or 1-888-327-2877, ext. 8014.

Recruitment Flyer Readability

Flesch Reading Ease: 48.6

Flesch-Kincaid Grade Level: 8.8

Appendix B: Permission for Participant Recruitment from PoliceOne

Permission from PoliceOne was obtained on October 30, 2017, from Nancy Perry, Editor-in-Chief:

From: Nancy Perry <Nancy.Perry@praetoriandigital.com>
To: Darin Challacombe <D.Challacombe7980@email.ncu.edu>
Subject: RE: P1 Editorial Inquiry

Dear Darin:

You are granted permission to post the recruitment flier and survey link to PoliceOne (<https://www.policeone.com>) upon IRB approval of your study.

Sincerely,

Nancy Perry

Editor-in-Chief – PoliceOne.com

Editor-in-Chief – CorrectionsOne.com

Office: [415-694-7030](tel:415-694-7030) Cell: [661-794-9045](tel:661-794-9045)

PoliceOne.com | FireRescue1.com | CorrectionsOne.com
EMS1.com | Military1.com | EfficientGov.com

Appendix C: Permission for Participant Recruitment from Reddit

Permission from Reddit/R/LEO/ was obtained on 04/05/2018 from moderator *fidelis_ad_mortem* (https://www.reddit.com/user/fidelis_ad_mortem):

fidelis_ad_mortem Permission to Post Academic Survey

[expand all](#) [collapse all](#)

[–] to **fidelis_ad_mortem** sent 5 hours ago

Hi Fidelis_ad_Mortem --

I am a former FBI intelligence analyst and current PhD student at [Northcentral University](www.ncu.edu). I am preparing for my dissertation research project. My dissertation is looking into law enforcement officer personality differences based on lengths of service and employment-related stress.

In preparation for this study, I must seek out permission to post this survey on the [/r/ProtectAndServe](#) sub prior to being approved to conduct the survey. Would you be able to provide me with permission?

The survey will be completely anonymous. It will take approximately 10-20 minutes to complete, and will be completed all online. The survey will consist of a personality measure (a 20-question five factor measure), a stress survey (the Law Enforcement Officer Stress Scale; Van Hasselt et al., 2008), and a demographics questionnaire asking for their age, their entry-on-duty year, etc.

Would you be able to respond back to this message by 1) identifying that you are indeed a moderator of [/r/ProtectAndServe](#), 2) you give me permission (in the future, when my study is approved) to post the survey link in the [/r/ProtectAndServe](#) sub, and 3) information on how NCU's Institutional Review Board can contact you if they need to.

I know I am asking a lot, but I really believe this study is important and hope the results can continue the discussion on personality and law enforcement officers.

Thank you for your consideration,

Darin Challacombe

[permalink](#)

[–] from **fidelis_ad_mortem** sent 2 hours ago

If your target audience is law enforcement members then posing it to the sub is a terrible idea. It's an open forum and anyone will have access to it. Including people who will want to screw with your data.

If you want I will post it to LEO which is a verified members only forum. Either way I don't know how many cops would actually take it.

[permalink](#) [delete](#) [report](#) [block user](#) [mark unread](#) [reply](#)

[–] to **fidelis_ad_mortem** sent an hour ago

OK. I only need 128 participants, and I am planning to post on two other sites. As a Reddit user, I wanted to provide another vector for law enforcement officers to access.

If you are a moderator of LEO and wouldn't mind posting it there for me (once it gets approved), I would appreciate that. Is this something you would do?

[permalink](#)

[–] from **fidelis_ad_mortem** sent an hour ago

Yep, that's fine. I appreciate you reaching out to us for this.

I am a moderator for both subs, [r/LEO](#) and [r/protectandserve](#). I give you permission to post the survey when it is approved.

My contact is either through my Reddit username or personal email: MegoDrDoom@gmail.com.

[permalink](#) [delete](#) [report](#) [block user](#) [mark unread](#) [reply](#)

Appendix D: Permission for Participant Recruitment from ILEETA

Permission from ILEETA was obtained on October 30, 2017, from Harvey V. Holden, Executive Director:

On Mon, Oct 30, 2017 at 8:57 PM, Harvey Hedden <hhedden@wi.rr.com> wrote:

Hello Mr. Challacombe,

Sorry we do not post research surveys on our web site. However, you are granted permission to post information about the survey and survey link to the ILEETA E-Bulletin upon IRB approval of your study.

We accept a short paragraph description of the survey, a contact email for those who might have a question and the link to the survey or a page that provides additional information about the survey and the link to the survey itself. The survey would be included in two E-Bulletins to ILEETA members. Please indicate if you only want members of specific countries.

Stay Safe,

Harvey V. Hedden
Executive Director

#[262-767-1406](tel:262-767-1406) Fax #[262-767-1813](tel:262-767-1813)

www.ileeta.org

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Union Station Hotel – St. Louis, MO

Live as if you were to die tomorrow. Learn as if you were to live forever.
Mahatma Gandhi

Appendix E: Demographics Questionnaire

Instructions: As indicated in the Informed Consent, this survey is entirely anonymous. The following answers will be utilized to understand the demographics of the participants.

What year were you born? _____

What year did you enter on duty as a law enforcement officer? _____yr

What month did you enter on duty as a law enforcement officer? ____ month.

What is your sex? Male Female

What is your marital status?

- Divorced
- Married or domestic partnership
- Separated
- Single
- Widowed

How do you identify your race?

- American Indian or Alaska Native
- Asian
- Black or African American
- Native Hawaiian or Other Pacific Islander
- Other
- White

How do you identify your ethnicity?

- Hispanic or Latino
- Not Hispanic or Latino

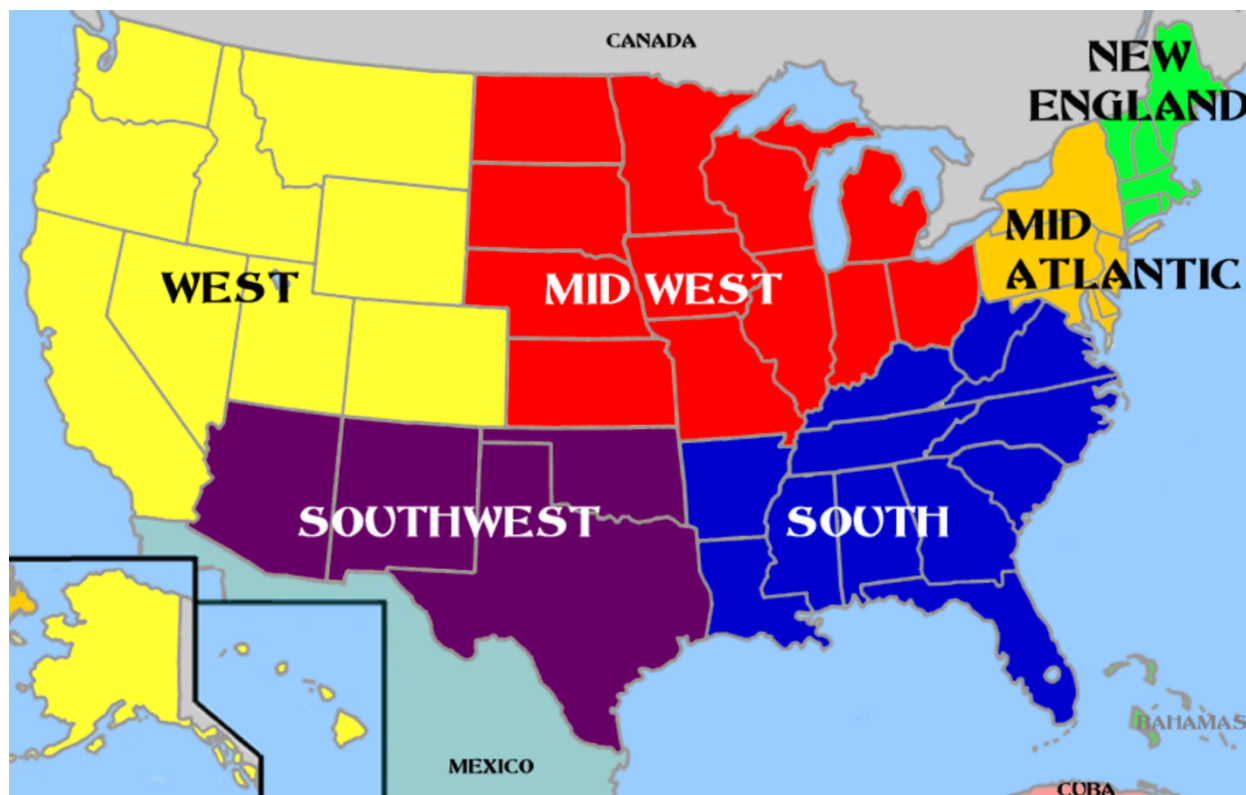
What is the highest degree or level of school you have completed?

- High school graduate, diploma, etc.
- Some college credit, no degree
- Trade/technical/vocational training
- Associate degree
- Bachelor's degree
- Master's degree
- Professional degree
- Doctorate degree

What region of the United States do you work in?

- Mid-Atlantic
- Midwest
- New England

- South
- Southwest
- West



Demographics Readability

Flesch Reading Ease: 63.4

Flesch-Kincaid Grade Level: 6.3

Appendix F: Mini-IPIP

Factor	Item	Never	2	3	4	Always
E	1	Am the life of the party.				
A	2	Sympathize with others' feelings.				
C	3	Get chores done right.				
N	4	Have frequent mood swings.				
O	5	Have a vivid imagination.				
E	6	Don't talk a lot. (Reverse)				
A	7	Am not interested in other people's problems. (Reverse)				
C	8	Often forget to put things back in their proper place. (Reverse)				
N	9	Am relaxed most of the time. (Reverse)				
O	10	Am not interested in abstract ideas. (Reverse)				
E	11	Talk to a lot of different people at parties.				
A	12	Feel others' emotions.				
C	13	Like order.				
N	14	Get upset easily.				
O	15	Have a rich vocabulary.				
E	16	Keep in the background. (Reverse)				
A	17	Am not really interested in others. (Reverse)				
C	18	Make a mess of things. (Reverse)				
N	19	Seldom feel blue. (Reverse)				
O	20	Do not have good imagination. (Reverse)				

Note. O = Openness to new experiences (Intellect/Imagination); C = Conscientiousness; E = Extraversion; A = Agreeableness; N = Neuroticism. Some items are reverse coded.

Mini-IPIP Readability

Flesch Reading Ease: 64.1

Flesch-Kincaid Grade Level: 5.4

Appendix G: Law Enforcement Officer Stress Scale

Instructions: The following is a list of situations officers may encounter. Please rate both the likelihood of encountering the situation and the difficulty of handling the situation. For likelihood, please rate on the scale of 1 being “never”, 3 being “sometimes”, and 5 being “always”; for difficulty, the scale is 1 being “not at all”, 3 is “neutral”, and 5 is “very much”.

	Likelihood					Difficulty				
	1	2	3	4	5	1	2	3	4	5
1 You are called to a burglary in progress. The assailant may be armed.										
2 You are called to respond to a silent alarm from a bank.										
3 You are executing an arrest warrant for a violent criminal and are unsure of his/her location.										
4 You are executing an arrest warrant when the suspect barricades himself/herself.										
5 You respond to a major motor vehicle accident with multiple injuries and possible fatalities.										
6 You are engaged in a promotional process.										
7 You have been brought up on civil rights violations which are untrue.										
8 You have plans with your family but work demands interfere and you are unable to go.										
9 You are responsible to notify the parents of a child killed by a hit and run driver.										
10 You are called to contain a public rally that is becoming agitated.										
11 You are recruited to investigate a fellow officer.										
12 You find that your subordinates did not complete the assignment you gave.										
13 You must rely on employees that you feel are not trustworthy or incompetent.										
14 You are trying to solve a high profile case while the public pressures for immediate results.										
15 You have spent hours putting data into your computer, only to have it go down and data is lost.										
16 You find that work is taking up more time, leaving you with little left for family and recreation.										
17 You are unable to work on a project because your supervisor keeps changing the direction.										
18 You are on your way to a high emergency call when the radio has interference.										
19 Changing shifts has interfered with your sleep patterns.										
20 You frequently argue with your spouse but are unable to resolve anything.										
21 You are making progress on a case when pulled off for political reasons.										
22 You are on a high pursuit chase in icy conditions.										
23 You are investigating an officer’s death in which suicide is suspected.										
24 You have been injured and your back-up is late responding.										
25 You respond to a shooting in progress between two gangs.										

Law Enforcement Officer Stress Scale Readability

Flesch Reading Ease: 62.4

Flesch-Kincaid Grade Level: 7.7

Appendix H: Permission to Use Mini-IPIP

The International Personality Item Pool's website, administered by Dr. Lewis Goldberg, has the following information regarding permission (found <http://ipip.ori.org/newPermission.htm>):

Asking Permission

Please don't!

One neat thing about the world of public domain is that NOTHING is a problem. You are free to use the IPIP items and/or scales in any way you want. You don't have to ask permission.

Cool, huh?

Appendix I: Permission to Use the LEOSS

from: Vincent Van Hasselt <vanhasse@nova.edu>
to: Darin Challacombe <D.Challacombe7980@email.ncu.edu>
date: Mon, Oct 23, 2017 at 9:38 AM
subject: RE: Permission to use LEOSS

Darin,

I give you permission to use the Law Enforcement Officer Stress Scale in your dissertation. I will be interested in hearing the results of your study.

Best,

Dr. Vincent Van Hasselt

Appendix J: Informed Consent

Introduction:

My name is Darin Challacombe. I am a doctoral student at Northcentral University. I am conducting a research study. My study is on personality differences in law enforcement officers. These differences may be based on their lengths of service and stress levels. I am completing this research as part of my doctoral degree. I invite you to participate.

Activities:

If you participate, you will be asked to complete an online survey. This survey will consist of three sections:

- 1) A personality measure (it will take 5 minutes to complete);
- 2) A stress measure (will take 10 minutes to complete); and,
- 3) A basic information form (will take 5 minutes to complete).

Eligibility:

You are eligible to participate in this research if you:

- 1) currently live in the United States;
- 2) currently serve as a sworn law enforcement officer; and,
- 3) are 18 years old or older.

You are not eligible to participate in this research if you:

- 1) do not live in the United States;
- 2) are not a sworn law enforcement officer; or,
- 3) are younger than 18 years old.

I hope to include 128 people in this research.

Risks:

There are minimal risks in this study. Some possible risks include:

- 1) Potential to think about your current stressors; or,
- 2) Discomfort while answering certain questions.

To decrease the impact of stressors, you can:

- 1) skip any question; or,
- 2) stop participation at any time.

Benefits:

If you decide to participate, there are no direct benefits to you. The potential benefits to others are to:

- 1) understand how stress impacts personality;
- 2) understand how length of service impacts personality; or,
- 3) help support future research on personality.

Confidentiality:

The information you provide will be kept confidential to the extent allowable by law. Some steps I will take to keep your identity confidential are:

- 1) I will not require for your name;
- 2) If you choose to provide it, I will keep your name separate from your answers;
- 3) I will not require your email address;
- 4) If you choose to provide it, I will keep your email address separate from your answers; and,
- 5) I will not ask for your workplace.

The people who will have access to your information are: myself. The Institutional Review Board may also review my research and view your information.

I will secure your information with these steps: Using an encrypted USB drive to store the data.

I will only keep your data for 7 years. Then, I will delete the electronic data and destroy paper data.

Contact Information:

If you have questions for me, you can contact me at:

D.Challacombe7980@email.ncu.edu or 571-393-1765.

My dissertation chair's name is Dr. Michelle Ackerman. She works at Northcentral University. Dr. Ackerman is supervising me on the research. You can contact her at: mackerman@ncu.edu or 334-467-8864.

If you contact us you will be giving us information like your phone number or email address. This information will not be linked to your responses if the study is anonymous.

If you have questions about your rights in the research, or if a problem has occurred, or if you are injured during your participation, please contact the Institutional Review Board at: irb@ncu.edu or 1-888-327-2877 ext. 8014.

Future Research:

Any information or specimens collected from you during this research may **not** be used for other research in the future, even if identifying information is removed.

Voluntary Participation:

Your participation is voluntary. There will be no penalty to you if:

- 1) you decide not to participate; or,
- 2) you stop participation after you start.

You will not lose any benefit to which you are otherwise entitled.

This study is anonymous. It is not the intention of the researcher to collect your name. However, you do have the option to provide your name voluntarily. Please know that if you do, it may be linked to your responses in this study. Any consequences are outside the responsibility of: the researcher; faculty supervisor; or, Northcentral University. If you do wish to provide your name, a space will be provided. Again, including your name is voluntary, and you can continue in the study if you do not provide your name.

If you would like to include your name with the study, please type it below.

Please type your email if you would like a copy of the results emailed to you post-study.

Agreement:

By clicking next, you are agreeing to the following:

- 1) you are eligible for this study;
- 2) you understand your rights;
- 3) you understand the risks of participation; and,
- 4) you are voluntarily participating in this study.

- Agree
- Disagree

Informed Consent Readability

Flesch Reading Ease: 51.8

Flesch-Kincaid Grade Level: 8.6

Appendix K: Qualtrics Privacy Statement

Qualtrics Privacy Statement was last updated on December 21, 2017. It can be found here: <https://www.qualtrics.com/privacy-statement/>

This privacy statement explains how Qualtrics handles personal data collected during the normal course of business (sales, marketing, and support), as well as how data are processed in its products and services. Qualtrics complies with the EU-U.S. Privacy Shield framework and the Swiss Privacy Shield framework, and retains the American Arbitration Association/International Centre for Dispute Resolution.

1. QUALTRICS PRODUCTS

Qualtrics creates the most advanced online survey software for corporations, research companies, and universities. The software is provided in an Application Service Provider (ASP) model, accessed using a modern browser via the Internet. All of Qualtrics products are self-service, whereby the end-users are solely responsible for what data to collect and from whom. Survey respondents may use mobile devices to complete a survey.

All customer data collected using the software are stored in a single secure data center; data do not “float” around in the cloud.

Surveys may be distributed in numerous ways: via email, a web link, or off-line mobile app. Surveys may require a password or other authentication by the respondent.

2. DATA COLLECTED DURING NORMAL BUSINESS TRANSACTIONS (UNRELATED TO THE SOFTWARE)

For the www.qualtrics.com site: Qualtrics collects and analyzes aggregate information of visitors, including the domain name, visited surveys, referring URLs, and other publicly available information. We use this information to help improve our website and services, and to customize the content of our pages for each individual customer. Cookies may be used to customize content delivered to website visitors.

Qualtrics does not sell or make available specific information about our customers or their clients except as requested by a valid court order or otherwise required by law. We maintain a database of user information which is used only for internal purposes such as technical support, marketing-related activities, and to notify customers of changes or enhancements to the services. Qualtrics uses secure services for online credit card payment transactions, and does not record or store credit card information on its site or servers.

3. DATA COLLECTED BY CUSTOMERS

For this section, customers are end-users with valid Qualtrics accounts. Customers own and control all information input into the Qualtrics software or generated on behalf of customers in connection with the Services (“Data”). Depending on how the Customer chooses to use the software, Data may include personal information. Customers manage all Data, as well as the users who create, manage, distribute, or report the Data.

Qualtrics treats all Data as highly confidential and does not classify or represent the Data because only the Customer itself knows what data it's collecting. In other words, Qualtrics provides the services, and Customers use the services as they wish. All Data are safeguarded using industry best security practices that prevent unlawful disclosure.

Qualtrics is presently undergoing certification under the FedRAMP program, the "gold standard" of security compliance. FedRAMP has over 900 controls based on the highly-regarded NIST 800-53, and requires constant monitoring and periodic independent assessments. More information is found at <https://www.fedramp.gov>

Qualtrics will process Data for the purpose of providing the software and services to customers. Qualtrics may also anonymize and/or aggregate the Data and use such anonymized and/or aggregated data for its business purposes, including but not limited to deriving statistical, usage data, and other data related to the functionality of the software and the services, improving the software and the services, developing and making available other products and services, and sharing such data with affiliates and business partners, and may combine or incorporate it with or into other data and information available, derived or obtained from other licensees, users, and/or any other sources. Customers must ensure that they follow applicable laws when distributing surveys. This includes following applicable law when collecting personal and health information, preventing unsolicited emails from being sent, and deleting personal information when no longer required.

Qualtrics will never transfer Data to a third-party without the written permission of the customer. In other words, there is no onward transfer.

Qualtrics employees do not actively view Data. Any access to Customer accounts requires consent by the end-user, and any exposure to personal information is incidental to providing the services. Customers have the ability to disable Qualtrics support from accessing their accounts. But by doing so, it may hinder timely responses and the quality of support.

4. COMPLAINTS AND INQUIRIES

Qualtrics is subject to the investigatory and enforcement powers of the Federal Trade Commission (FTC), and individuals have a right to contact the FTC regarding services provided by Qualtrics.

If you are an EU or Swiss citizen, and have questions about your personal information that may have been collected in a Qualtrics survey, please contact the entity that created or sent you the survey. Qualtrics is not responsible for any Data collected and only processes Data as controlled by the customer. If the survey creator is unresponsive with your inquiry, please contact Qualtrics Support.

General inquiries regarding this policy, or any complaints regarding surveys that are unresolved by the survey creator, may be sent to Qualtrics Support by visiting <https://www.qualtrics.com/support/> and clicking on "Contact Us" or by calling the number listed on the main www.qualtrics.com web site. There is no charge for this inquiry.

Qualtrics has a team of legal and technical staff to maintain compliance with this policy. For legal inquiries, please contact: notice@qualtrics.com

Independent Recourse Mechanism: Any disputes are handled by the International Centre for Dispute Resolution (details below). Inquiries are free of charge.

5. INFORMATION RELATED TO PRIVACY SHIELD

For details about the Privacy Shield program: <https://www.privacyshield.gov/>

Qualtrics complies with the EU-U.S. Privacy Shield Framework and the Swiss-U.S. Privacy Shield Framework as set forth by the U.S. Department of Commerce regarding the collection, use, and retention of personal information transferred from the European Union and Switzerland to the United States, respectively. Qualtrics has certified to the Department of Commerce that it adheres to the Privacy Shield Principles. If there is any conflict between the terms in this privacy policy and the Privacy Shield Principles, the Privacy Shield Principles shall govern.

The key goals of Privacy Shield are to inform individuals, both EU and Swiss individuals, about:

- the right of individuals to access their personal data
 - the choices and means your organization offers individuals for limiting the use and disclosure of their personal data
 - the requirement for your organization to disclose personal information in response to lawful requests by public authorities, including to meet national security or law enforcement requirements
- Qualtrics' Privacy Shield self-certification does not cover human resources data.

In compliance with the Privacy Shield Principles, Qualtrics commits to resolve complaints about our collection or use of your personal information. EU and Swiss individuals with inquiries or complaints regarding our Privacy Shield policy should first contact Qualtrics at: notice@qualtrics.com

Qualtrics has further committed to refer unresolved Privacy Shield complaints to the American Arbitration Association (AAA), an alternative dispute resolution provider located in the United States. If you do not receive timely acknowledgment of your complaint from us, or if we have not addressed your complaint to your satisfaction, please contact the AAA for more information or to file a complaint (contact details below). The services of the AAA are provided at no cost to you.

During the normal provisioning of the Qualtrics services, no data are transferred between geographical regions. All data are stored in a specific data center chosen by the customer/controller. If there is a case when personal data are transferred from the EU to the United States, it is solely for the purpose of processing as per instructions from the controller.

Qualtrics provides appropriate technical and organizational measures to protect personal data against accidental or unlawful destruction or accidental loss, alteration, unauthorized disclosure or access, and understands whether onward transfer is allowed.

Because adequate protection is provided by Privacy Shield participants, contracts with Privacy Shield participants for mere processing do not require prior authorization (or such authorization will be granted automatically by the EU Member States), as would be required for contracts with recipients not participating in the Privacy Shield or otherwise not providing adequate protection.

Qualtrics self-certifies with Privacy Shield. A self-assessment is signed by a company officer or other authorized representative of the organization at least once a year and made available upon request by individuals or in the context of an investigation or a complaint about non-compliance. Qualtrics is required to respond promptly to EU or Swiss individual inquiries, and other requests for information from the Department of Commerce relating to its adherence to the Privacy Shield Principles.

Under Privacy Shield, an individual has the possibility, under certain conditions, to invoke binding arbitration for complaints regarding Privacy Shield compliance not resolved by any of the other Privacy Shield mechanisms. Under Privacy Shield, Qualtrics must respond to individual complaints within 45 days. For additional information, visit:
<https://www.privacyshield.gov/article?id=ANNEX-I-introduction>

Qualtrics' Independent Dispute Resolution (IDR) Provider is:
American Arbitration Association
International Centre for Dispute Resolution
New York City, New York, USA
www.icdr.org

U.S. Department of Commerce:
<https://www.commerce.gov/news/fact-sheets/2016/07/fact-sheet-overview-eu-us-privacy-shield-framework>

Federal Trade Commission:
<https://www.ftc.gov/news-events/press-releases/2016/02/statement-ftc-chairwoman-edith-ramirez-eu-us-privacy-shield-0>

6. QUALTRICS EU DATA SILO

Qualtrics offers customers wishing to process all data in Europe the EU Data Silo option. The basis for this option is to keep all collected Data in an EU data center and provide all support from our Dublin, Ireland office. Please contact your Qualtrics account executive for more details.

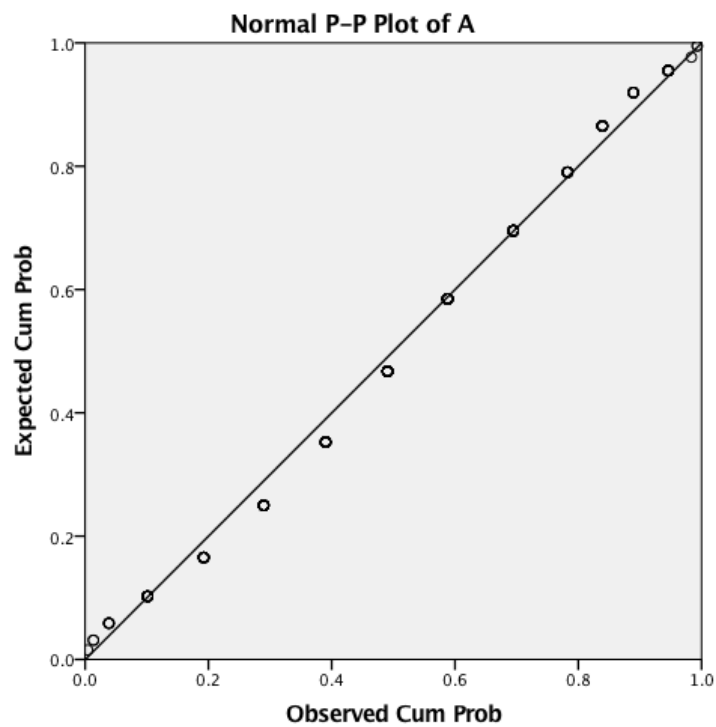
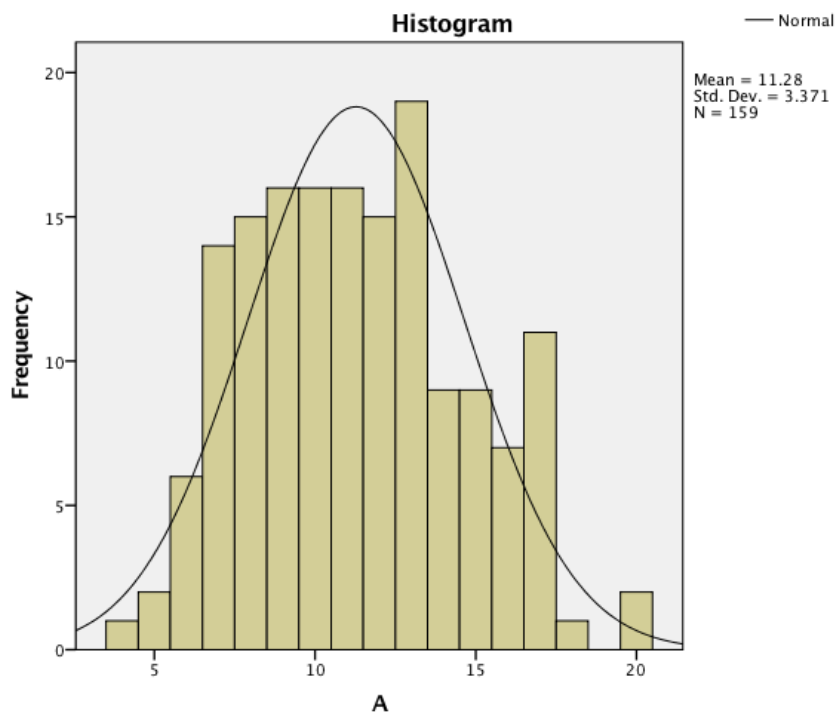
7. LIST OF SUB-PROCESSORS

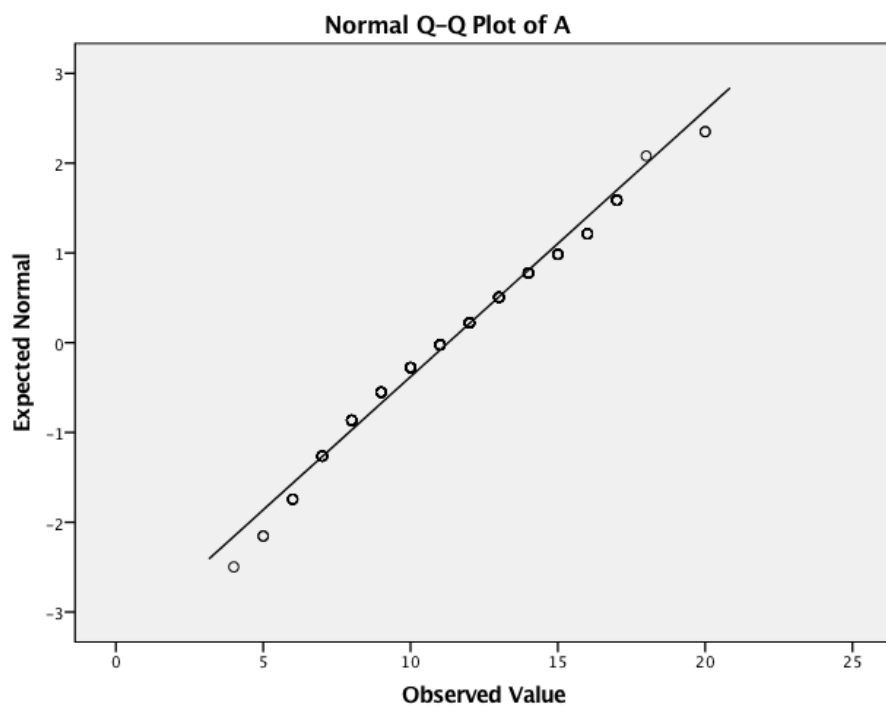
Presently, Qualtrics does not use sub-processors to process personal data in the Subscription Services.

Appendix L: Abridged Recruitment Flyer

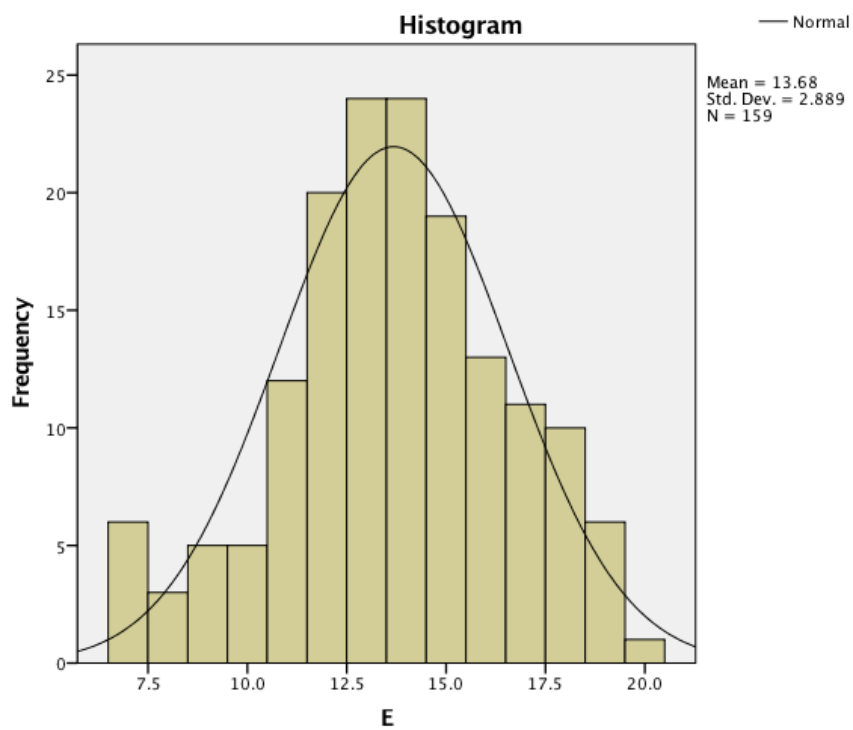
The editor of ILEETA reached back and requested an abridged version of the recruitment flyer. Below is the wording for this IRB amendment:

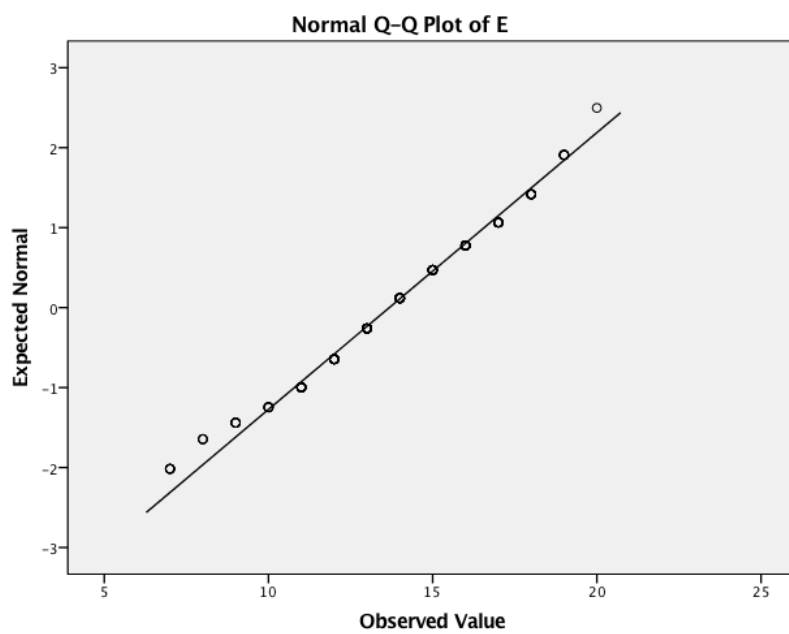
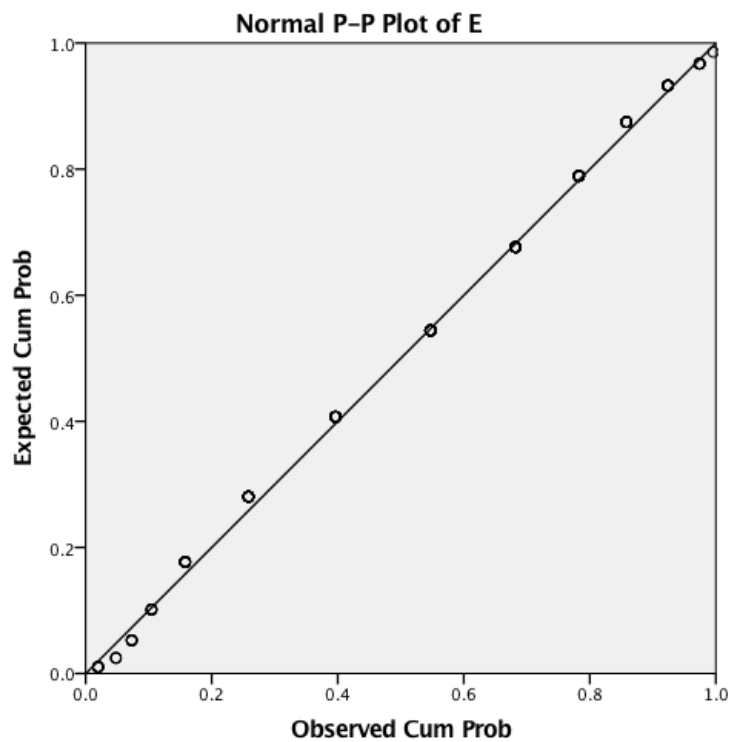
Are you a sworn law enforcement officer? Do you serve within the United States? If so, Northcentral University doctoral student Darin Challacombe needs your help. Please participate in this important anonymous research survey. The survey's purpose is to examine: personality; stress; and, length of service. For more information about this study, and to participate, click here: https://ncu.co1.qualtrics.com/jfe/form/SV_00e11xzPD1FGxA9

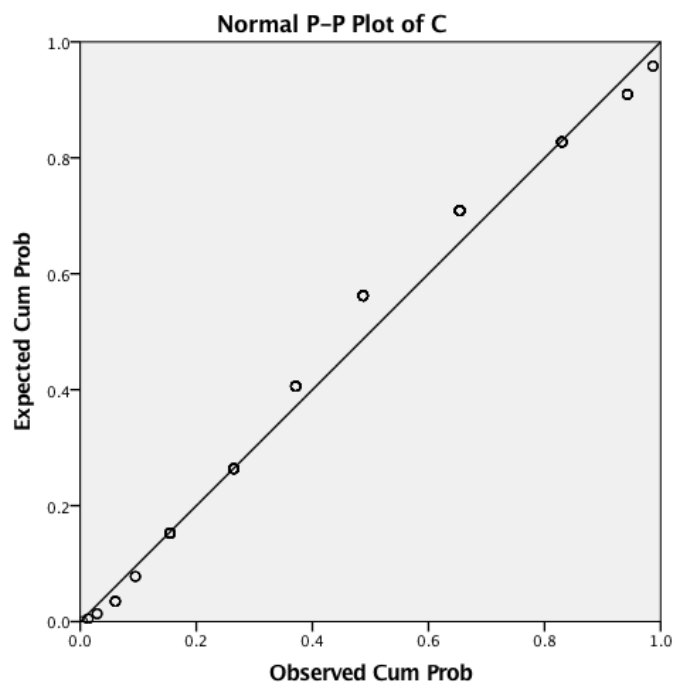
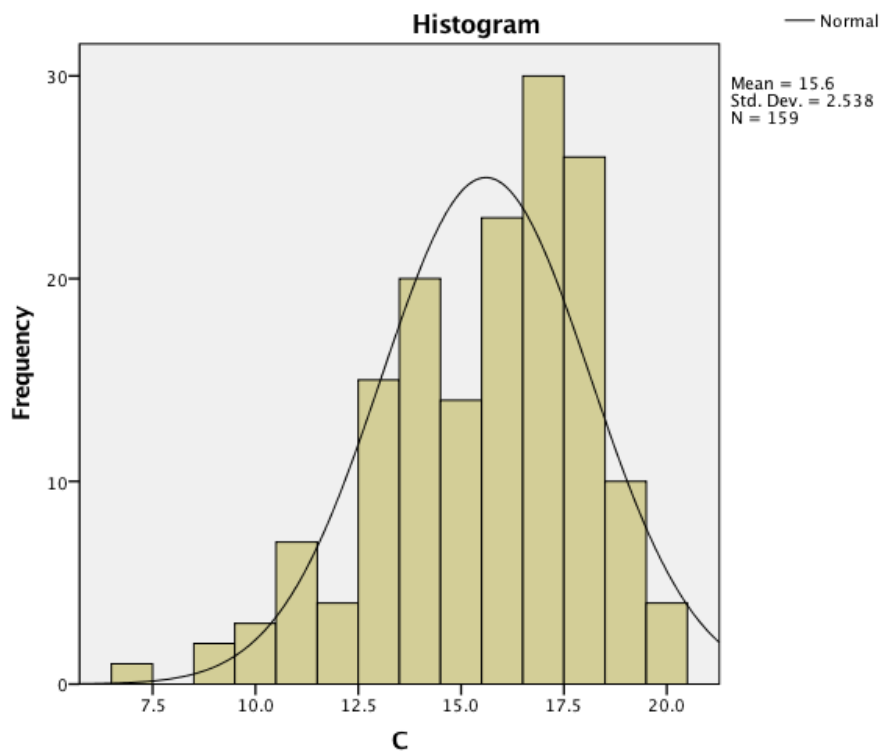
Appendix M: Normality Tests for Dependent Variables**Agreeableness (A)**

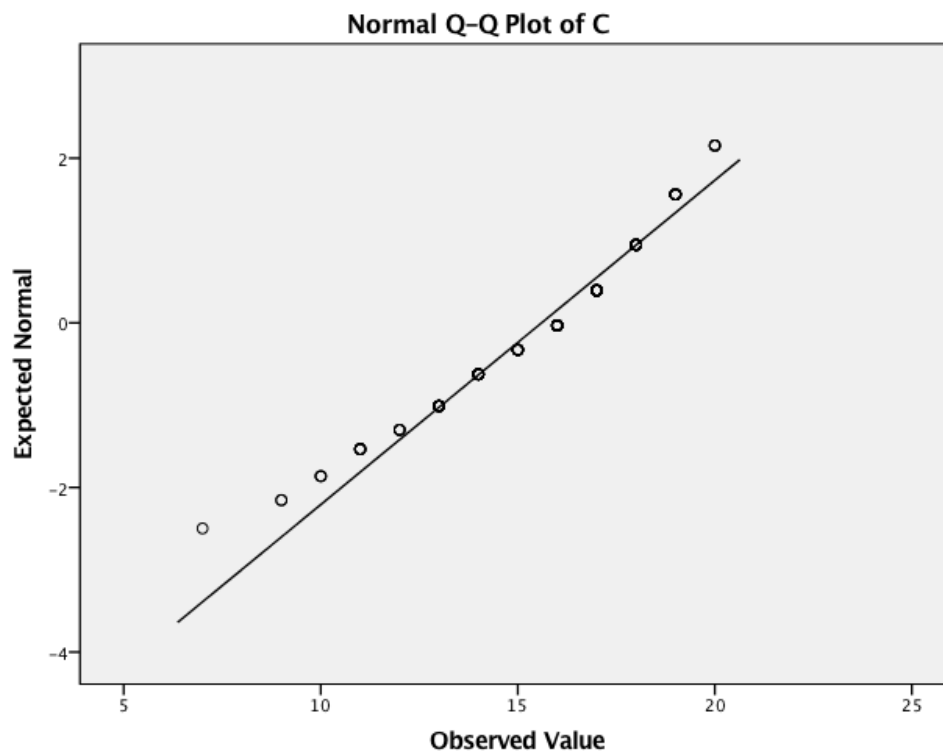


Extraversion (E)

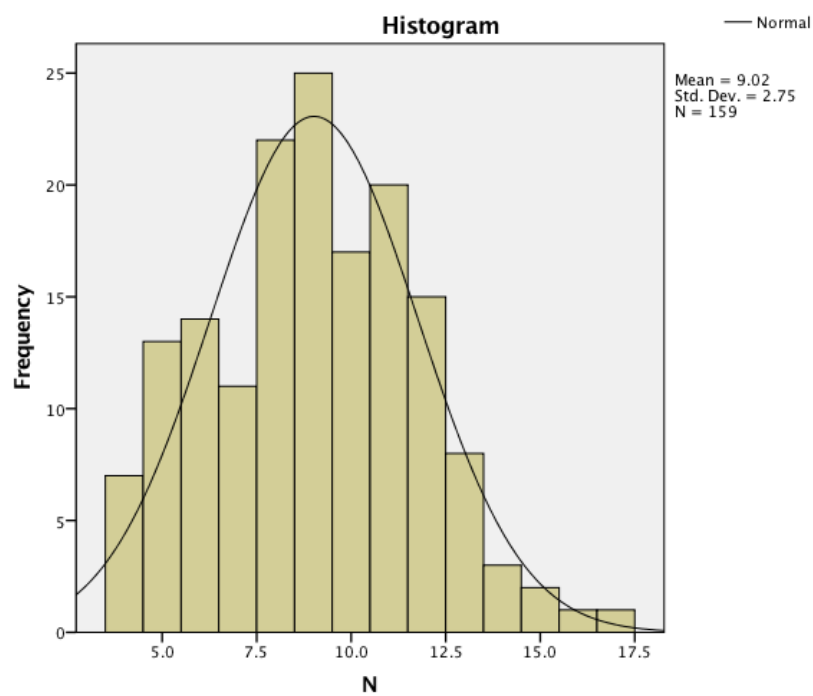


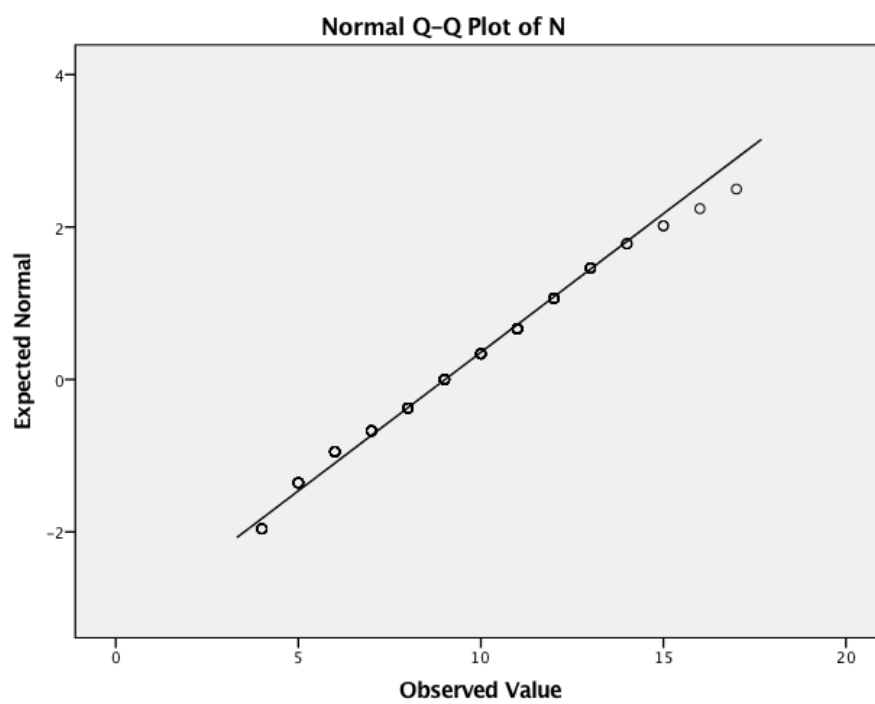
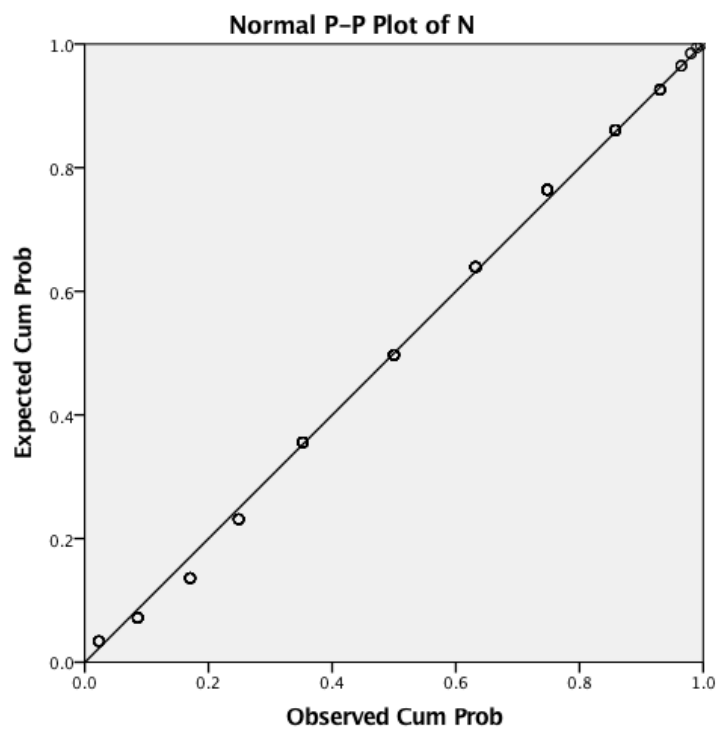


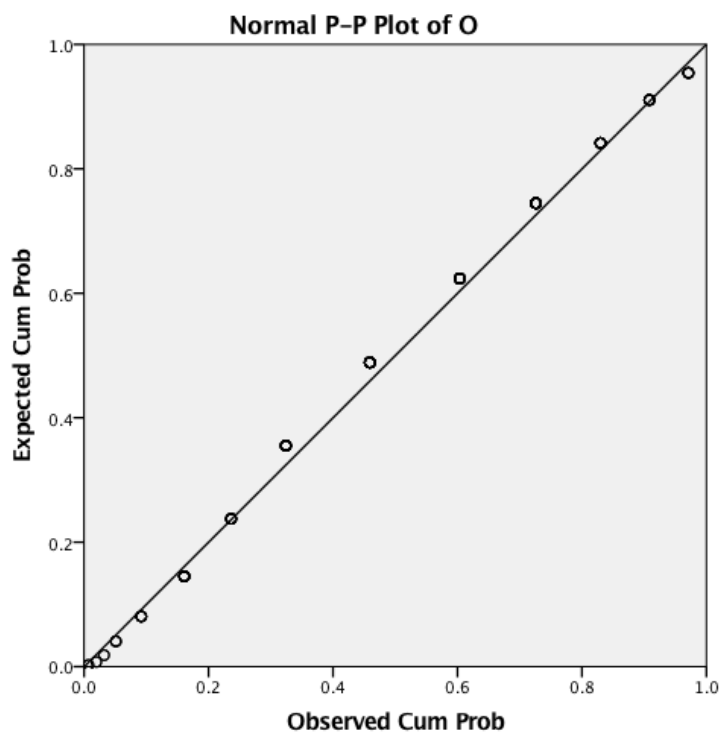
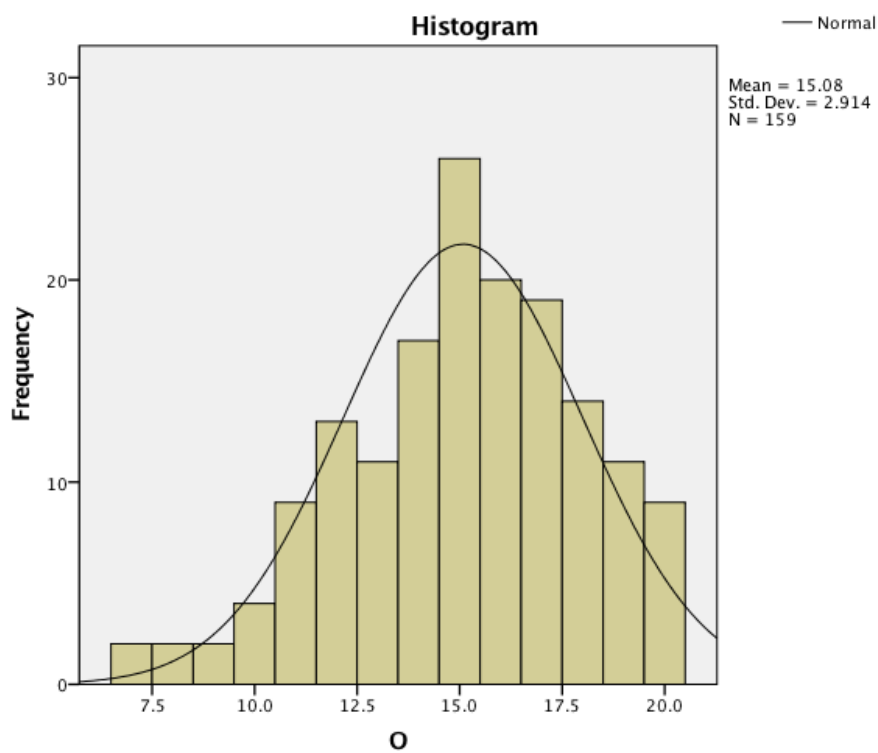
Conscientiousness (C)

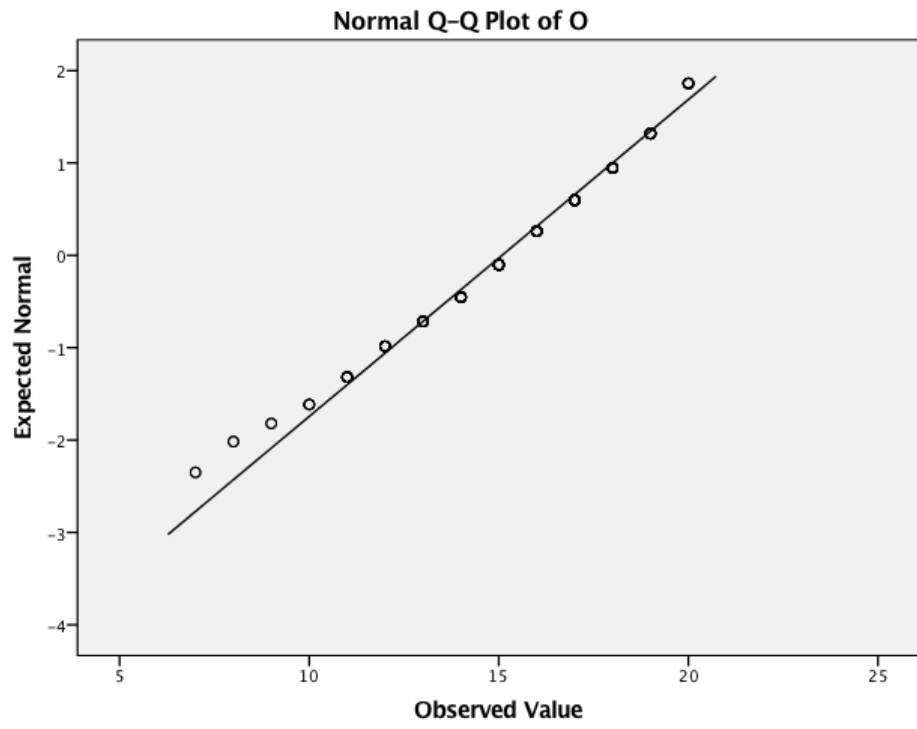


Neuroticism (N)





Openness to New Experiences (O)



Appendix N: Individual LEOSS Scores

Summary statistics for the individual Law Enforcement Officer Stress Scale variables (N = 159)

Item	<i>M</i>	<i>SD</i>
01 Burglary	9.71	4.67
02 Panic Alarm	7.34	4.19
03 Violent Criminal	10.58	5.61
04 Barricade	9.25	4.66
05 Accident	10.89	5.02
06 Promotion Process	7.03	4.57
07 Internal Affairs	6.69	5.01
08 Family	11.41	6.39
09 Death Notification	9.71	5.97
10 Containment	7.96	4.49
11 Recruited	5.16	3.79
12 Subordinates	4.63	3.74
13 Employees	9.52	6.25
14 High Profile Case	6.13	4.30
15 Lost Data	9.89	6.67
16 Overtime Hours	10.96	6.50
17 Project	6.74	5.46
18 Code 3	10.26	6.66
19 Sleep Patterns	10.72	8.07
20 Spouse	5.38	5.37
21 Political	4.40	5.00
22 High Pursuit	7.22	5.94
23 Suicide	6.06	4.65
24 Back-up	9.07	5.70
25 Two Gangs	8.39	5.29
Scale	205.11	65.54