

Personality trait differences in law enforcement officers

The impact of career-related stress and lengths of service

Darin J. Challacombe

*Department of Psychology, Fort Hays State University,
Hays, Kansas, USA*

Michelle Ackerman

*Department of Psychology,
Northcentral University, San Jose, California, USA, and*

Andjelka Stones

*School of Social and Behavioral Sciences,
Northcentral University, San Jose, California, USA*

Personality
trait
differences

Received 3 January 2019
Revised 29 June 2019
25 July 2019
Accepted 15 August 2019

Abstract

Purpose – Law enforcement is a stressful career, especially to US-based officers. Officers are typically 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 purpose of this paper is to investigate 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 model (FFM) 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 authors found the current sample had a higher mean stress level than any previously reported law enforcement officer sample. The personality trait agreeableness was significantly correlated with extraversion, and extraversion was significantly correlated with openness to new experiences. The authors found significant differences in several FFM traits for both career-related stress and length of service. The 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.

Design/methodology/approach – 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.

Findings – The authors 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, $r(159) = 0.36, p < 0.000$; and, extraversion was significantly correlated with openness to new experiences, $r(159) = 0.28, p < 0.000$. The authors found significant differences in several FFM traits for both career-related stress and length of service.

Research limitations/implications – 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.

Practical implications – It is recommended law enforcement administrators be more aware of this potential and consider findings strategies to mitigate these trait differences.

Originality/value – This is the first study to examine how personality may differ in law enforcement officers (LEOs) with both high stress and long careers. Logical follow-ups to this study would be longitudinal studies on LEOs.

Keywords Personality, Five-factor model, Law enforcement officers, Police stress

Paper type Research paper



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 *et al.*, 2014; Spielberger *et al.*, 1981). Many studies have focused on understanding the unique stressors law enforcement officers encounter, such as operating in potentially dangerous situations and frequent exposure to death or injury (Hamel, 2015; Lim and Kim, 2015; Rose and Unnithan, 2015; Violanti *et al.*, 2016, 2017).

The USA is home to just over 750,000 law enforcement officers (Banks *et al.*, 2016). In 2018, a reported 163 officers died or were killed in career-related situations; an additional 159 committed suicide (Lohr, 2019; Officer Down Memorial Page, 2019). The suicide rate of officers is approximately 23 per 100,000, considerably higher than the 14 per 100,000 for the general population (Roufa, 2019). These statistics demonstrate the levels of stress law enforcement officers routinely face, and it is this stress that is believed to be the cause for the higher suicide rate (Lohr, 2019; Roufa, 2019).

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 *et al.*, 2016). Researchers have found law enforcement officers' personality tends to differ from general population samples (Detrick *et al.*, 2016; Lyutykh and Konopleva, 2016). Using the Minnesota Multiphasic Personality Inventory (MMPI-2; Butcher *et al.*, 2001), researchers found police officer candidates' have substantially lower mean personality dimension scores (Tarescavage, Fischler, Cappel, Hill, Corey, Ben-Porath, 2015), more positive adjustment (Aamodt, 2004), and increased defensiveness (Aamodt, 2004; Visweswaran *et al.*, 2003) than the general public.

The personality differences between American law enforcement professionals and the general public are often easy to find since a majority of US-based law enforcement agencies require a psychological screening in order to evaluate if an individual is fit for duty (Detrick *et al.*, 2016). The revised MMPI-2 or the MMPI-2 Restructured Form (MMPI-2-RF; Ben-Porath and Tellegen, 2008/2011) are fundamental components of law enforcement officer personality screening (Butcher *et al.*, 2001; Detrick *et al.*, 2016; Tarescavage, Fischler, Cappel, Hill, Corey, Ben-Porath, 2015; Tarescavage, Corey, Ben-Porath, 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 with the MMPI-2-RF to provide a more comprehensive psychological evaluation (Detrick and Chibnall, 2013; Garbarino *et al.*, 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 *et al.*, 2017; Judge and 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 *et al.*, 2006).

Personality researchers have often debated trait stability over time (Anusic and Schimmack, 2016; Debast *et al.*, 2014; Wills and Schulberg, 2016). In addition to Debast *et al.*'s (2014) literature review, many other researchers (Wills and Schulberg, 2016; Wu, 2016; Wu *et al.*, 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 and Schulberg, 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 *et al.*, 2017; Steiner and 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.

Temple's (2009) seminal research 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 *et al.*, 2015; Zamanian *et al.*, 2015; Zhou *et al.*, 2014).

Additionally, other researchers have examined length of service as a factor in law enforcement behavior (Balmer *et al.*, 2014; Donner *et al.*, 2017; Ogaz, 2015; Parker, 2015; Wills and Schuldberg, 2016). Wills and Schuldberg (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. Balmer *et al.* (2014) found length of service to be negatively correlated to psychological resilience. These findings suggest longer lengths of service help to exacerbate personality and behavior differences.

The current research investigated 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 and 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 found among various populations. The findings support research indicating stress is known to impact biological, physiological and mental processes (Hirokawa *et al.*, 2015; Sur and Ng, 2014; Zamanian *et al.*, 2015; Zhou *et al.*, 2014).

The law enforcement officer career is very stressful (Craun *et al.*, 2014; Rose and 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 (Hamel, 2015; Lim and Kim, 2015; Spielberger *et al.*, 1981; Van Hasselt *et al.*, 2008). 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 and Baier, 2016; Wachi *et al.*, 2016; Wills and 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.

Theoretical/conceptual framework

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

Karasek'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) are linked to higher levels of stress (Fila *et al.*, 2017; Karasek, 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 the job demand-control 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. We used this as for our first two hypotheses:

- H1a.* 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.
- H2a.* 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.

While the job demand-control model appears to explain personality trait level changes reported in several studies, other studies showed specific trait increases and decreases. For example, 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 scored higher on FFM dimensions extraversion, agreeableness, conscientiousness and neuroticism, and lower on openness than less experienced ones. Therefore, based on the findings of Wu (2016), Young (2016), and Temple (2009), as well as several informal discussions 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. Building upon this data, we test the following hypotheses:

- H1b.* There will be significantly higher Extraversion, Conscientiousness, Agreeableness, and Neuroticism and 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.
- H2b.* There will be significantly higher Extraversion, Conscientiousness, Agreeableness and Neuroticism and 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.

In order to account for potential interaction between our independent variables, we included a third main hypothesis:

- H3.* 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.

Method

We recruited sworn law enforcement officers from law enforcement officer-focused social networking sites. 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). After viewing the recruitment flyer, potential participants clicked on a link which took them to the online survey (Qualtrics) site.

They were then provided with a shortened copy of the recruitment flyer and the three knockout 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 these questions were taken to the survey completion page. If the potential participant clicked yes to all three, they were taken to the Informed Consent. After agreeing, participants were taken to the demographics page. The participant 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 participants completed the survey, they were taken to a standard survey completion page. Institutional Review Board (IRB) was obtained prior to collecting data.

Population

Our recruitment flyer was posted on PoliceOne and Reddit’s forums, and it was sent out via two online E-Bulletins from the International Law Enforcement Educators and Training Association (ILEETA). To increase the reliability of our findings, we aimed to collect a convenience sample of approximately 128 participants based on 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; and, a power of 0.8. We collected 208 responses to our survey. Participants were excluded if they failed to complete the entire survey. This left us with 159 participants (2.5 percent female; mean age of 31.92, SD = 8.14). See Table I for details on participants.

Measures

Our online survey consisted of a demographics questionnaire, the Mini-IPIP, and the LEOSS.

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
Race	Doctorate	0.6	1
	American Indian or Alaskan Native	0	0
	Asian	5.7	8
	Black or African American	0.6	1
	Native Hawaiian or Other Pacific Islander	1.3	2
	Other	2.5	4
Ethnicity	White	89.9	143
	Hispanic or Latino	5.7	9
Region	Not Hispanic or Latino	93.7	149
	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

Table I.
Demographic
characteristics of
study participants

Mini-IPIP. The Mini-IPIP (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 α coefficient (Cronbach, 1951) of $M=3.39$, $SD=0.87$, $\alpha=0.81$; Agreeableness: $M=4.16$, $SD=0.61$, $\alpha=0.69$; Conscientiousness: $M=3.42$, $SD=0.73$, $\alpha=0.60$; Neuroticism: $M=2.67$, $SD=0.85$, $\alpha=0.76$; and, Intellect/Imagination: $M=3.72$, $SD=0.75$, $\alpha=0.70$ (Donnellan *et al.*, 2006). The Intellect/Imagination subscale is often referred to as Openness or Openness to New Experiences (Donnellan *et al.*, 2006; John and Srivastava, 1999). The Mini-IPIP is in the public domain and free for use (Goldberg, 2017). 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. The higher the score, the more pronounced the dimension in the individual’s personality.

LEOSS. The LEOSS (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 (Can and Hendy, 2014) vs the seven-point scale. Each of the 25 scenarios are rated on both likelihood and difficulty, with the respective scores multiplied. The lowest score an individual could receive on the LEOSS was 25, with the highest being 625. The summed scenarios serve as a rating of exposure to police stressors (Can and Hendy, 2014); a higher score meant more stress. This was used to measure the independent variable of career-related stress.

Demographics. The demographic questionnaire was structured to include age, gender, marital status, education level, region of the USA, and the month and year they first began working as a law enforcement officer or entry-on-duty (EOD) date. 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 in months.

Results

Validity and reliability of the data

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

For the independent variable of career-related stress, we summed the Law Enforcement Officer Stress Scale (LEOSS; Van Hasselt *et al.*, 2008) likelihood and difficulty scales, then multiplied this sum 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. We coded the summed LEOSS score into low stress (e.g. LEOSS total score of 140 or less) and high stress (e.g. total score of 141 or higher) categories. Since the sample’s mean was considerably higher than previous reported sample means, we created another variable, LEOSSA. We coded the new variable low stress as being the mean (205) and lower, and high stress being 206 and higher. Table II 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). We 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.

To create the individual Mini-IPIP scores (e.g. Openness to New Experiences; Agreeableness; Extraversion; Neuroticism and Conscientiousness), we created a sum of each dimensions’ four questions based on the measures’ instructions. We also ran a correlation of the Mini-IPIP dimensions against each other (see Table III). The results indicated Agreeableness was significantly correlated with Extraversion in the sample, $r(159) = 0.36$, $p < 0.00$. Extraversion was also correlated with Openness to New Experience, $r(159) = 0.28$, $p < 0.00$. No other FFM dimension was correlated with another.

We used both one-way and two-way ANOVAs for the main analyses. We chose the ANOVA to evaluate the continuous dependent variable with categorical independent variables. Using a between groups design, we compared the five personality trait dimensions individually between the low and high levels of both length of service and career-related stress, respectfully. Additionally and based on Ping’s (2008) seminal discussion, we examined the effect of an interaction between the two independent variables (both together and separately) on each of the five personality dimensions. We 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. We then plotted the data to evaluate normality and error variance (Haverkamp and Beauducel, 2017).

H1

We evaluated this hypothesis by running 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. Only Conscientiousness showed a significant difference between high and low career-related stress groups, $F(1, 158) = 5.98$, $p = 0.02$, $\eta^2 = 0.04$. Using the alternative stress variable, we found Neuroticism was significantly different, $F(1, 158) = 4.57$, $p = 0.03$, $\eta^2 = 0.03$. Therefore, *H1a* was supported (see Table IV). Given that only Conscientiousness was significantly different, we rejected *H1b*.

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

Table II.
Frequencies and
descriptive statistics
for the two
independent variables

Dimension	Correlation matrix					Descriptives		
	<i>O</i>	<i>A</i>	<i>E</i>	<i>C</i>	<i>N</i>	<i>M</i>	SD	Range
Openness	1					15.08	2.91	7–20
Agreeableness	0.10	1				11.28	3.37	4–20
Extraversion	0.28**	0.36**	1			13.68	2.89	7–20
Conscientiousness	-0.05	-0.12	-0.05	1		15.60	2.54	7–20
Neuroticism	-0.07	-0.01	0.10	-0.12	1	9.02	2.75	4–17

Table III.
Correlation between
the independent
variables with
descriptive statistics

Notes: $n = 59$. **Correlation was significant at the 0.01 (two-tailed) level

Variable	Sum of squares			<i>F</i> (1,158)	<i>p</i>	η^2
	Between	Within	Total			
<i>LEOSS</i>						
Openness	14.90	1,327.04	1,341.94	1.76	0.19	0.01
Agreeableness	9.08	1,786.75	1,795.82	0.80	0.37	0.01
Extraversion	0.10	1,318.55	1,318.64	0.01	0.92	0.00
Conscientiousness	37.37	980.67	1,018.04	5.98	0.02	0.04
Neuroticism	21.22	1,173.72	1,194.94	2.84	0.09	0.02
<i>LEOSSA</i>						
Openness	2.59	1,339.35	1,341.94	0.30	0.58	0.00
Agreeableness	7.09	1,788.74	1,795.82	0.62	0.43	0.00
Extraversion	6.42	1,312.23	1,318.62	0.77	0.38	0.00
Conscientiousness	0.70	1,017.33	1,018.04	0.11	0.74	0.00
Neuroticism	33.78	1,161.16	1,194.94	4.57	0.03	0.03

Table IV. One-way ANOVA for the FFM, the LEOSS and the LEOSSA variables

H2

We conducted a one-way ANOVA with the FFM individual dimensions against the length of service variable categories of high and low (see Table V). Both Openness to New Experience and Neuroticism show significance, $F(1, 158) = 3.85, p = 0.05, \eta^2 = 0.02$, and $F(1, 158) = 4.36, p = 0.04, \eta^2 = 0.03$, respectively. In this case, *H2A* was supported and *H2B* was rejected.

H3

We conducted a two-way ANOVA on each individual Mini-IPIP-FFM dimensions against the length of service (LOS) and career-related stress (LEOSS). No significant group differences were found (see Table VI). We also ran the two-way ANOVA again in order to determine if the alternative career-related stress variable (LEOSSA) and (LOS) had different results, but, again, found no significant group differences (see Table VII). Therefore, *H3* was rejected.

As seen in Table VI, the main effect of LOS on Conscientiousness was not significant ($F(1,155) = 3.44, p = 0.07$), but the main effect of career-related stress (LEOSS) on Conscientiousness was significant, $F(1, 155) = 7.39, p = 0.01$. Additionally in Table VII, the main effect of career-related stress (LEOSSHL) on Neuroticism was not significant ($F(1, 155) = 2.95, p = 0.09$), but the main effect of LOS on Neuroticism was significant, $F(1, 155) = 4.13, p = 0.04$.

Discussion

This study investigated how law enforcement officer personality traits differed based on their career-related stressors and lengths of service. We found significant personality differences for both career-related stress and length of service. Our results paralleled Temple (2009) who found FFM traits neuroticism and conscientiousness level differences

Variable	Sum of squares			<i>F</i> (1, 158)	<i>p</i>	η^2
	Between	Within	Total			
Openness	32.13	1,309.80	1,341.94	3.85	0.05	0.02
Agreeableness	0.06	1,795.76	1,795.82	0.01	0.94	0.00
Extraversion	8.24	1,310.40	1,318.64	0.99	0.32	0.00
Conscientiousness	12.30	1,005.74	1,018.04	1.92	0.17	0.01
Neuroticism	32.27	1,162.67	1,194.94	4.36	0.04	0.03

Table V. One-way ANOVA for FFM and LOS variables

Source	SS	df	MS	F	P
<i>Openness</i>					
LEOSS	24.22	1	24.22	2.92	0.09
LOS	0.00	1	0.00	0.00	1.0
LEOSS × LOS	15.05	1	15.05	1.82	0.18
Error	1,284.48	155	8.29		
Total	37,508.00	159			
<i>Agreeableness</i>					
LEOSS	0.66	1	0.66	0.06	0.81
LOS	3.70	1	3.70	0.32	0.57
LEOSS × LOS	6.16	1	6.16	0.54	0.47
Error	1,780.57	155	11.49		
Total	22,015.00	159			
<i>Extraversion</i>					
LEOSS	2.99	1	2.99	0.36	0.55
LOS	10.99	1	10.99	1.30	0.26
LEOSS × LOS	3.81	1	3.81	0.45	0.50
Error	1,306.15	155	8.43		
Total	31,071.00	159			
<i>Conscientiousness</i>					
LEOSS	45.57	1	45.57	7.39*	0.01
LOS	21.22	1	21.22	3.44	0.07
LEOSS × LOS	6.59	1	6.59	1.07	0.30
Error	955.87	155	6.17		
Total	39,731.00	159			
<i>Neuroticism</i>					
LEOSS	15.93	1	15.93	2.16	0.14
LOS	3.74	1	3.74	0.51	0.48
LEOSS × LOS	2.06	1	2.06	0.28	0.60
Error	1,144.96	155	7.39		
Total	14,128.00	159			

Note: * $p < 0.01$

Personality
trait
differences

Table VI.
Two-Way ANOVAs
for each FFM
dimension, LOS and
LEOSS Variables

associated with coping and strain in officers. 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.

In the past several decades, researchers have found personality trait changes can occur over time (Li *et al.*, 2014; Wille *et al.*, 2014; Wills and Schuldberg, 2016; Woods *et al.*, 2013; Wu, 2016; Wu *et al.*, 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; Steiner and Wooldredge, 2015). Several researchers (see Temple, 2009; Wills and Schuldberg, 2016; Wu, 2016) have found support for this job demand-control model. We also found statistically significant support for this model. Our results indicated the personality differences existed between law enforcement officers with longer (vs shorter) lengths of service and more (vs less) career-related stress.

While other researchers have seen specific FFM trait differences (e.g. higher Extraversion, Conscientiousness, Agreeableness and Neuroticism; lower Openness), the

PIJPSM

Source	SS	df	MS	F	p
<i>Openness</i>					
LEOSSHL	29.85	1	29.85	3.59	0.06
LOS	0.13	1	0.13	0.02	0.90
LEOSSHL × LOS	20.20	1	20.20	2.43	0.12
Error	1,287.44	155	8.31		
Total	37,508.00	159			
<i>Agreeableness</i>					
LEOSSHL	0.05	1	0.05	0.00	0.95
LOS	11.60	1	11.60	1.01	0.32
LEOSSHL × LOS	6.05	1	6.05	0.53	0.47
Error	1,782.59	155	11.50		
Total	22,015.00	159			
<i>Extraversion</i>					
LEOSSHL	8.20	1	8.20	1.00	0.32
LOS	9.72	1	9.72	1.16	0.28
LEOSSHL × LOS	3.48	1	3.48	0.42	0.52
Error	1,300.14	155	8.39		
Total	31,071.00	159			
<i>Conscientiousness</i>					
LEOSSHL	12.99	1	12.99	2.01	0.16
LOS	0.00	1	0.00	0.00	0.99
LEOSSHL × LOS	4.71	1	4.71	0.73	0.39
Error	1,000.18	155	6.45		
Total	39,731.00	159			
<i>Neuroticism</i>					
LEOSSHL	30.02	1	30.02	4.13*	0.04
LOS	21.44	1	21.44	2.95	0.09
LEOSSHL × LOS	2.61	1	2.61	0.36	0.55
Error	1,127.84	155	7.28		
Total	1,4128.00	159			

Table VII.
Two-way ANOVAs
for each FFM
Dimensions, LOS and
LEOSSHL variables

Note: * $p < 0.05$

current study did not find these dimension differences. Additionally, the current study did not support our belief both career-related stress and length of service, together, would see significant personality dimension differences.

The current research was limited by two factors: The non-experimental design and the self-report measures. The non-experimental design prohibited the ability for the data to suggest causality (Tumlinson *et al.*, 2014). We chose this design methodology primarily 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 *et al.*, 2014; Detrick and Chibnall, 2013). However, this limitation was counteracted by the use of the robust measures and offering anonymity (Baldasaro *et al.*, 2013; McCusker and Gunaydin, 2015; Van Hasselt *et al.*, 2008; Ward *et al.*, 2017).

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 (namely., Balmer *et al.*, 2014; de la Fuente Solana *et al.*, 2013; Kuo, 2015; Lim and Kim, 2015; Porter and Prenzler, 2017). Other studies that included length of service as a variable (see Grubb *et al.*, 2015; Kaur *et al.*, 2013; Lim and Kim, 2015; Porter and Prenzler, 2017; Wills and Schuldberg, 2016) classified the variable into discrete groups vs a continuous model.

This study was limited by the recruitment process, with the relatively low length of service overall potentially being the result recruiting solely on the internet.

Considerations 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 statistically significant personality differences in officers with higher (vs lower) stress or longer (vs shorter) service lengths. The research's findings can have some great implications for the law enforcement community. If law enforcement officers' personality traits can change over time based on career-related stress or length of service, then police administrators must be more conscientious about during an officer's career.

Following along with similar research designs (namely, Craun *et al.*, 2014; Wills and 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. It may also be possible to utilize the MMPI-2 Restructured Form (MMPI-2-RF; Ben-Porath and Tellegen, 2008/2011), a baseline component of law enforcement officer personality screening (Butcher *et al.*, 2001; Detrick *et al.*, 2016; Taescavage, Fischler, Cappo, Hill, Corey, Ben-Porath, 2015; Taescavage, Corey, Ben-Porath, 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.

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 and 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.

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. This research used a quantitative methodology and anonymously surveyed 159 US-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. Comparing 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, we found both career-related stress and length of service significantly related to personality differences.

References

- Aamodt, M.G. (2004), *Research in Law Enforcement Selection*, Brown Walker Press, Boca Raton, FL.
- Anusic, I. and Schimmack, U. (2016), "Stability and change of personality traits, self-esteem, and well-being: introducing the meta-analytic stability and change model of retest correlations", *Journal of Personality and Social Psychology*, Vol. 110 No. 5, pp. 766-781, available at: <https://doi.org/10.1037/pspp0000066>
- Baldasaro, R.E., Shanahan, M.J. and Bauer, D.J. (2013), "Psychometric properties of the Mini-IPIP in a large, nationally representative sample of young adults", *Journal of Personality Assessment*, Vol. 95 No. 1, pp. 74-84, available at: <https://doi.org/10.1080/00223891.2012.700466>
- Balmer, G.M., Pooley, J.A. and Cohen, L. (2014), "Psychological resilience of Western Australian police officers: relationship between resilience, coping style, psychological functioning and demographics", *Police Practice and Research*, Vol. 15 No. 4, pp. 270-282, available at: <https://doi.org/10.1080/15614263.2013.845938>
- Banks, D., Hendrix, J., Hickman, M. and Kyckelhahn, T. (2016), "National sources of law enforcement employment data", Program Report No. NCJ 249681, US Department of Justice, Office of Justice Programs, Bureau of Justice Statistics, Washington, DC.
- Ben-Porath, Y.S. and Tellegen, A. (2008/2011), *MMPI-2-RF: Manual for Administration, Scoring and Interpretation*, University of Minnesota Press, Minneapolis, MN.
- Bureau of Justice Statistics (2016), "National sources of law enforcement employment data" (Program Report No. NCJ 249681), Bureau of Justice Statistics, Washington, DC.
- Butcher, J., Graham, J.R., Ben-Porath, Y.S., Tellegen, A., Dahlstrom, G.W. and Kaemmer, B. (2001), *Minnesota Multiphasic Personality Inventory-2: Manual for Administration, Scoring, and Interpretation*, University of Minnesota Press, Minneapolis, MN.
- Can, S.H. and Hendy, H.M. (2014), "Police stressors, negative outcomes associated with them and coping mechanisms that may reduce these associations", *Police Journal*, Vol. 87 No. 3, pp. 167-177, available at: <https://doi.org/10.1350/pojo.2014.87.3.676>
- Capps, L.E. (2014), "Perspective: characteristics of an ideal police officer [WWW Document]", FBI, Quantico, VA, available at: <https://leb.fbi.gov/2014/december/perspective-characteristics-of-an-ideal-police-officer> (accessed April 26, 2017).
- Chow, P.I. and Roberts, B.W. (2014), "Examining the relationship between changes in personality and changes in depression", *Journal of Research in Personality*, Vol. 51, pp. 38-46.
- Costa, P.T. Jr. and McCrae, R.R. (1985), "Concurrent validation after 20 years: implications of personality stability for its assessment", in Butcher, J.N. and Spielberger, C.D. (Eds), *Advances in Personality Assessment*, Vol. 4, Erlbaum, Hillsdale, NJ, pp. 31-54.
- Costa, P.T. Jr. and McCrae, R.R. (1992), *NEO Personality Inventory: Revised Professional Manual*, Psychological Assessment Resources, Odessa, FL.
- Craun, S.W., Bourke, M.L., Bieri, D.M. and Williams, K.S. (2014), "A longitudinal examination of secondary traumatic stress among law enforcement", *Victims & Offenders*, Vol. 9 No. 3, pp. 299-316, available at: <https://doi.org/10.1080/15564886.2013.848828>
- Cronbach, L. (1951), "Coefficient alpha and the internal structure of tests", *Psychometrika*, Vol. 16 No. 3.
- Dang, C., Denis, C., Gahide, S., Chariot, P. and Lefèvre, T. (2016), "Violence at work: forensic medical examination of police officers assaulted while on duty: comparisons with other groups of workers in two centres of the Paris area, 2010–2012", *International Archives of Occupational and Environmental Health*, Vol. 89 No. 5, pp. 755-765, available at: <https://doi.org/10.1007/s00420-016-1113-y>

- de la Fuente Solana, E.I., Aguayo Extremera, R. and Vargas Pecino, C. (2013), "Prevalence and risk factors of burnout syndrome among Spanish police officers", *Psicothema*, Vol. 25 No. 4, pp. 488-493, available at: <https://doi.org/10.7334/psicothema2013.81>
- de Vries, R.E., Zettler, I. and Hilbig, B.E. (2014), "Rethinking trait conceptions of social desirability scales: impression management as an expression of honesty-humility", *Assessment*, Vol. 21 No. 3, pp. 286-299, available at: <https://doi.org/10.1177/1073191113504619>
- Debast, I., van Alphen, S.P.J. (Bas) Rossi, G., Tummars, J.H.A., Bolwerk, N., Derksen, J.J.L. and Rosowsky, E. (2014), "Personality traits and personality disorders in late middle and old age: do they remain stable? A literature review", *Clinical Gerontologist*, Vol. 37 No. 3, pp. 253-271, available at: <https://doi.org/10.1080/07317115.2014.885917>
- Detrick, P., Ben-Porath, Y.S. and Sellbom, M. (2016), "Associations between MMPI-2-RF (Restructured Form) and Inwald Personality Inventory (IPI) Scale Scores in a law enforcement preemployment screening sample", *Journal of Police and Criminal Psychology*, Vol. 31 No. 2, pp. 81-95, available at: <https://doi.org/10.1007/s11896-015-9172-7>
- Detrick, P. and Chibnall, J.T. (2013), "Revised NEO personality inventory normative data for police officer selection", *Psychological Services*, Vol. 10 No. 4, pp. 372-377, available at: <https://doi.org/10.1037/a0031800>
- Donnellan, M.B., Oswald, F.L., Baird, B.M. and Lucas, R.E. (2006), "The mini-IPIP scales: tiny-yet-effective measures of the big five factors of personality", *Psychological Assessment*, Vol. 18 No. 2, pp. 192-203, available at: <https://doi.org/10.1037/1040-3590.18.2.192>
- Donner, C.M., Maskaly, J., Piquero, A.R. and Jennings, W.G. (2017), "Quick on the draw: assessing the relationship between low self-control and officer-involved police shootings", *Police Quarterly*, Vol. 20 No. 2, pp. 213-234, available at: <https://doi.org/10.1177/1098611116688066>
- Ellrich, K. and Baier, D. (2016), "The influence of personality on violent victimization: a study on police officers", *Psychology, Crime & Law*, Vol. 22 No. 6, pp. 538-560, available at: <https://doi.org/10.1080/1068316X.2016.1168424>
- Fila, M.J., Purl, J. and Griffeth, R.W. (2017), "Job demands, control and support: meta-analyzing moderator effects of gender, nationality, and occupation", *Human Resource Management Review*, Vol. 27 No. 1, pp. 39-60, available at: <https://doi.org/10.1016/j.hmr.2016.09.004>
- Garbarino, S., Chiorri, C., Magnavita, N., Piattino, S. and Cuomo, G. (2012), "Personality profiles of special force police officers", *Journal of Police and Criminal Psychology*, Vol. 27 No. 2, pp. 99-110, available at: <https://doi.org/10.1007/s11896-011-9099-6>
- Goldberg, L.R. (1999), "A broad-bandwidth, public domain, personality inventory measuring the lower-level facets of several five-factor models", in Mervielde, I., Deary, I., De Fruyt, F. and Ostendorf, F. (Eds), *Personality Psychology in Europe*, University Press, Tilburg, pp. 7-28.
- Goldberg, L.R. (2017), "IPIP home [WWW Document]", International Personality Item Pool, available at: <http://ipip.ori.org/> (accessed October 21, 2017).
- Grey, J.A. (1981), "A critique of Eysenck's theory of personality", in Eysenck, H.J. (Ed.), *A Model for Personality*, Springer-Verlag, Berlin, pp. 246-276.
- Grey, J.A. (1990), "Brain systems that mediate both emotion and cognition", *Cognition and Emotion*, Vol. 4 No. 3, pp. 269-288.
- Grubb, A., Brown, S. and Hall, P. (2015), "Personality traits and coping styles in UK police officers. Do negotiators differ from their non-negotiator colleagues?", *Psychology, Crime & Law*, Vol. 21 No. 4, pp. 347-374, available at: <https://doi.org/10.1080/1068316X.2014.989165>
- Hall, A.V., Hall, E.V. and Perry, J.L. (2016), "Black and blue: exploring racial bias and law enforcement in the killings of unarmed black male civilians", *American Journal of Psychology*, Vol. 71 No. 3, pp. 175-186, available at: <https://doi.org/10.1037/a0040109>
- Hamel, K.E. (2015), "Impact of physical fitness on law enforcement officer stress and coping skills", Doctoral dissertation, Capella University, Minneapolis, MN.

- Haverkamp, N. and Beauducel, A. (2017), "Violation of the sphericity assumption and its effect on type-I error rates in repeated measures ANOVA and multi-level linear models (MLM)", *Frontiers in Psychology*, p. 8, available at: <https://doi.org/10.3389/fpsyg.2017.01841>
- Hirokawa, K., Taniguchi, T. and Fujii, Y. (2015), "Job stress and agentic-communal personality traits related to serum cortisol levels of male workers in a Japanese medium-sized company: a cross-sectional study", *International Journal of Behavioral Medicine*, Vol. 22 No. 1, pp. 11-17, available at: <https://doi.org/10.1007/s12529-014-9403-9>
- Hope, L. (2016), "Evaluating the effects of stress and fatigue on police officer response and recall: a challenge for research, training, practice and policy", *Journal of Applied Research in Memory and Cognition*, Vol. 5 No. 3, pp. 239-245, available at: <https://doi.org/10.1016/j.jarmac.2016.07.008>
- Isler, L., Fletcher, G.J.O., Liu, J.H. and Sibley, C.G. (2017), "Validation of the four-profile configuration of personality types within the five-factor model", *Personality and Individual Differences*, Vol. 106, pp. 257-262, available at: <https://doi.org/10.1016/j.paid.2016.10.058>
- John, O. and Srivastava, S. (1999), "The big five trait taxonomy: history, measurement, and theoretical perspectives", in Pervin, L.A. and John, O.P. (Eds), *Handbook of Personality: Theory and Research*, Guilford Press, New York, NY, pp. 102-138.
- Judge, T.A. and Zapata, C.P. (2015), "The person-situation debate revisited: effect of situation strength and trait activation on the validity of the Big Five personality traits in predicting job performance", *Academy of Management Journal*, Vol. 58 No. 4, pp. 1149-1179, available at: <https://doi.org/10.5465/amj.2010.0837>
- Karasek, R.A. Jr (1979), "Job demands, job decision latitude, and mental strain: implications for job redesign", *Administrative Science Quarterly*, Vol. 24 No. 2, pp. 285-308.
- Kaur, R., Chodagiri, V. and Reddi, N. (2013), "A psychological study of stress, personality and coping in police personnel", *Indian Journal of Psychological Medicine*, Vol. 35 No. 2, p. 141, available at: <https://doi.org/10.4103/0253-7176.116240>
- Kuo, S.-Y. (2015), "Occupational stress, job satisfaction, and affective commitment to policing among Taiwanese police officers", *Police Quarterly*, Vol. 18 No. 1, pp. 27-54, available at: <https://doi.org/10.1177/1098611114559039>
- Li, W.D., Fay, D., Frese, M., Harms, P.D. and Gao, X.Y. (2014), "Reciprocal relationship between proactive personality and work characteristics: a latent change score approach", *Journal of Applied Psychology*, Vol. 99 No. 5, pp. 948-965, available at: <https://doi.org/10.1037/a0036169>
- Lim, H.J. and Kim, L.J. (2015), "Organizational stressors associated with six aspects of police officer stress in South Korea", *Health Science Journal*, Vol. 10 No. 1, pp. 1-11.
- Lohr, D. (2019), "For third straight year, police suicides outnumber line-of-duty deaths [WWW Document]", Huffpost, available at: www.huffpost.com/entry/for-third-straight-year-police-suicides-outnumber-line-of-duty-deaths_n_5c2d110de4b05c88b70542fa (accessed June 29, 2019).
- Lyutykh, V.A. and Konopleva, I.N. (2016), "Individual psychological features of law enforcement officers convicted of crimes", *Psychology and Law*, Vol. 6 No. 10, pp. 128-141, available at: <https://doi.org/10.17759/psylaw.2016060210>
- McCrae, R.R. and Costa, P.T. Jr. (2008), "The five-factor theory of personality", in John, O.P., Robins, R. W. and Pervin, L.A. (Eds), *Handbook of Personality: Theory and Research*, 3rd ed., Guilford Press, New York, NY, pp. 159-181.
- McCusker, K. and Gunaydin, S. (2015), "Research using qualitative, quantitative or mixed methods and choice based on the research", *Perfusion*, Vol. 30 No. 7, pp. 537-542, available at: <https://doi.org/10.1177/0267659114559116>
- Milojev, P. and Sibley, C.G. (2014), "The stability of adult personality varies across age: evidence from a two-year longitudinal sample of adult New Zealanders", *Journal of Research in Personality*, Vol. 51, pp. 29-37, available at: <https://doi.org/10.1016/j.jrp.2014.04.005>
- Officer Down Memorial Page (2019), "Honoring officers killed in 2018 [WWW Document]", available at: www.odmp.org/search/year/2018 (accessed June 29, 2019).

-
- Ogaz, R. (2015), "A quantitative analysis of the relationships between gender, length of service, and aggression levels for police officers", Doctoral dissertation, The Chicago School of Professional Psychology, Chicago, IL.
- Parker, K.A. (2015), "A paradigm of police stress from the lens of retired police officers: a phenomenological study", doctoral dissertation, Capella University, Minneapolis, MN.
- Ping, R.A. (2008), "Interactions may be the rule rather than the exception, but ...: a note on issues in estimating interactions in theoretical model tests", *AMA Summer Educators' Conference Proceedings*, p. 109.
- Porter, L.E. and Prenzler, T. (2017), "Police officer gender and excessive force complaints: an Australian study", *Policing and Society*, Vol. 27 No. 8, pp. 865-883, available at: <https://doi.org/10.1080/10439463.2015.1114616>
- Rose, T. and Unnithan, P. (2015), "In or out of the group? Police subculture and occupational stress", *Policing*, Vol. 38 No. 2, pp. 279-294.
- Roufa, T. (2019), "Officer down: exploring the problem of police suicide [WWW Document]", Balance Careers, available at: www.thebalancecareers.com/exploring-the-problem-of-police-suicides-974877 (accessed June 29, 2019).
- Spielberger, C.D., Westberry, L.G., Grier, K.S. and Greenfield, G. (1981), "The Police Stress Survey: sources of stress in law enforcement", Human Resources Institute Monograph Series Three, No. 6, University of South Florida, College of Social and Behavioral Sciences, Tampa, FL.
- Steiner, B. and Wooldredge, J. (2015), "Individual and environmental sources of work stress among prison officers", *Criminal Justice and Behavior*, Vol. 42 No. 8, pp. 800-818, available at: <https://doi.org/10.1177/0093854814564463>
- Strahler, J. and Ziegert, T. (2015), "Psychobiological stress response to a simulated school shooting in police officers", *Psychoneuroendocrinology*, Vol. 51, pp. 80-91, available at: <https://doi.org/10.1016/j.psyneuen.2014.09.016>
- Sur, S. and Ng, E.S. (2014), "Extending theory on job stress: the interaction between the 'Other 3' and 'big 5' personality traits on job stress", *Human Resource Development Review*, Vol. 13 No. 1, pp. 79-101, available at: <https://doi.org/10.1177/1534484313492332>
- Tarescavage, A.M., Corey, D.M. and Ben-Porath, Y.S. (2015), "Minnesota multiphasic personality inventory-2-restructured form (MMPI-2-RF) predictors of police officer problem behavior", *Assessment*, Vol. 22 No. 1, pp. 116-132, available at: <https://doi.org/10.1177/1073191114534885>
- Tarescavage, A.M., Fischler, G.L., Cappo, B.M., Hill, D.O., Corey, D.M. and Ben-Porath, Y.S. (2015), "Minnesota multiphasic personality inventory-2-restructured form (MMPI-2-RF) predictors of police officer problem behavior and collateral self-report test scores", *Psychological Assessment*, Vol. 27 No. 1, pp. 125-137, available at: <https://doi.org/10.1037/pas0000041>
- Temple, R.A. (2009), "Law enforcement officers' personality and perceptions of organizational stress: an SEM study", Tennessee State University Nashville, TN.
- Thomasson, J., Gorman, D.R., Lirgg, C.D. and Adams, D.J. (2014), "An analysis of firearms training performance among active law enforcement officers in the USA", *Police Journal*, Vol. 87 No. 4, pp. 225-233, available at: <https://doi.org/10.1350/pojo.2014.87.4.685>
- Tumlinson, S.E., Sass, D.A. and Cano, S.M. (2014), "The search for causal inferences: Using propensity scores post hoc to reduce estimation error with nonexperimental research", *Journal of Pediatric Psychology*, Vol. 39 No. 2, pp. 246-257, available at: <https://doi.org/10.1093/jpepsy/jst143>
- Van Hasselt, V.B., Sheehan, D.C., Malcolm, A.S., Sellers, A.H., Baker, M.T. and Couwels, J. (2008), "The law enforcement officer stress survey (LEOSS): evaluation of psychometric properties", *Behavior Modification*, Vol. 32 No. 1, pp. 133-151, available at: <https://doi.org/10.1177/0145445507308571>
- Violanti, J.M., Fedekulegn, D., Andrew, M.E., Hartley, T.A., Charles, L.E., Miller, D.B. and Burchfiel, C.M. (2017), "The impact of perceived intensity and frequency of police work occupational stressors on the cortisol awakening response (CAR): findings from the BCOPS study", *Psychoneuroendocrinology*, Vol. 75, pp. 124-131, available at: <https://doi.org/10.1016/j.psyneuen.2016.10.017>

-
- Violanti, J.M., Fekedulegn, D., Hartley, T.A., Charles, L.E., Andrew, M.E., Ma, C.C. and Burchfiel, C.M. (2016), "Highly rated and most frequent stressors among police officers: gender differences", *American Journal of Criminal Justice*, Vol. 41 No. 4, pp. 645-662, available at: <https://doi.org/10.1007/s12103-016-9342-x>
- Visweswaran, C., Ones, D.S., Cullen, M.J., Drees, S.A. and Langkamp, K. (2003), "Appropriate police officer norms on personality scales", in Spilberg, S.W. and Ones, D.S. (Eds), *Personality and Work Behaviors of Police Officers. Presented at the 18th Annual Meeting of the Society of Industrial and Organizational Psychology*, Orlando, FL.
- Wachi, T., Watanabe, K., Yokota, K., Otsuka, Y. and Lamb, M.E. (2016), "The relationship between police officers' personalities and interviewing styles", *Personality and Individual Differences*, Vol. 97, pp. 151-156, available at: <https://doi.org/10.1016/j.paid.2016.03.031>
- Ward, M.K., Meade, A.W., Allred, C.M., Pappalardo, G. and Stoughton, J.W. (2017), "Careless response and attrition as sources of bias in online survey assessments of personality traits and performance", *Computers In Human Behavior*, Vol. 76, pp. 417-430, available at: <https://doi.org/10.1016/j.chb.2017.06.032>
- Wille, B., Hofmans, J., Feys, M. and De Fruyt, F. (2014), "Maturation of work attitudes: correlated change with big five personality traits and reciprocal effects over 15 years", *Journal of Organizational Behavior*, Vol. 35 No. 4, pp. 507-529, available at: <https://doi.org/10.1002/job.1905>
- Wills, J.L. and Schuldberg, D. (2016), "Chronic trauma effects on personality traits in police officers: Trauma exposure effects on personality traits", *Journal of Traumatic Stress*, Vol. 29 No. 2, pp. 185-189, available at: <https://doi.org/10.1002/jts.22089>
- Woods, S.A., Lievens, F., De Fruyt, F. and Wille, B. (2013), "Personality across working life: the longitudinal and reciprocal influences of personality on work", *Journal of Organizational Behavior*, Vol. 34, Supplement 1, pp. S7-S25, available at: <https://doi.org/10.1002/job.1863>
- Wu, C.-H. (2016), "Personality change via work: a job demand-control model of Big-five personality changes", *Journal of Vocational Behavior*, Vol. 92, pp. 157-166, available at: <https://doi.org/10.1016/j.jvb.2015.12.001>
- Wu, C.-H., Griffin, M.A. and Parker, S.K. (2015), "Developing agency through good work: longitudinal effects of job autonomy and skill utilization on locus of control", *Journal of Vocational Behavior*, Vol. 89, pp. 102-108, available at: <https://doi.org/10.1016/j.jvb.2015.05.004>
- Young, A.T. (2016), "Police hostage (crisis) negotiators in the US: a national survey", *Journal of Police and Criminal Psychology*, Vol. 41 No. 3, doi: 10.1007/s11896-016-9193-x.
- Zamanian, Z., Zakian, S., Jamali, M. and Kouhnavard, B. (2015), "The relationship between personality traits, stress, and job satisfaction of Iran telecom companies", *Muhandis- Bihdasht- Hirfahit*, Vol. 1 No. 4, pp. 11-18.
- Zhou, Z.E., Meier, L.L. and Spector, P.E. (2014), "The role of personality and job stressors in predicting counterproductive work behavior: a three-way interaction: personality, stressors, and CWB", *International Journal of Selection and Assessment*, Vol. 22 No. 3, pp. 286-296, available at: <https://doi.org/10.1111/ijsa.12077>

Corresponding author

Darin J. Challacombe can be contacted at: djchallacombe@fhsu.edu

For instructions on how to order reprints of this article, please visit our website:

www.emeraldgroupublishing.com/licensing/reprints.htm

Or contact us for further details: permissions@emeraldinsight.com