Resilience in Retired Police Officers

4 **AUTHORS**, INCLUDING:

Madhur R Kulkarni

VA Palo Alto Health Care System

18 PUBLICATIONS **351** CITATIONS

SEE PROFILE

Traumatology

Resilience in Retired Police Officers

Nnamdi Pole, Madhur Kulkarni, Adam Bernstein and Gary Kaufmann

The online version of this article can be found at:

Published by:

$SAGE

Additional services and information for *Traumatology* can be found at:

Email Alerts: http://tmt.sagepub.com/cgi/alerts

Subscriptions: http://tmt.sagepub.com/subscriptions

Reprints: http://www.sagepub.com/journalsReprints.nav

Permissions: http://www.sagepub.com/journalsPermissions.nav

Citations: http://tmt.sagepub.com/content/12/3/207.refs.html

>> Version of Record - Sep 1, 2006

What is This?

Resilience in Retired Police Officers

Nnamdi Pole, Madhur Kulkarni, Adam Bernstein,
and Gary Kaufmann

Retired police officers are an important group to study to understand factors that contribute to resilience following exposure to duty-related critical incidents. The authors surveyed 21 trauma-exposed, retired, male Michigan police officers on a variety of demographic, personality, exposure, coping, nontraumatic work stress, posttraumatic growth, physical health, mental health, and interpersonal functioning measures. Resilience was defined as relatively good functioning in three domains: physical health, mental health, and interpersonal relationships. Among the many variables that characterized resilient retired police officers, the most important were sharing work-related matters with friends and family and refraining from distancing coping strategies. Taken together, these findings suggest that integrating the stress associated with police work into officers' daily social lives may sow seeds that can be reaped for a resilient retirement.

Keywords: police; resilience; personality; coping; posttraumatic growth

Policing is widely recognized to be one of the world's most stressful occupations (Alexander & Wells, 1991). A police officer may face a variety of critical incidents that the general public would consider traumatic such as threats to their lives and the lives of others or exposure to disasters, hostage situations, sexual and physical assaults, shootings, mutilation, carnage, and death (Henry, 2004; McCafferty, Domingo, & McCafferty, 1990; Paton & Violanti, 1996; Pole et al., 2001). Police officers also have abnormally high rates of stress-related negative outcomes such as alcoholism (Russell & Beigel, 1982), physical health problems (Beutler, Nussbaum, & Meredith, 1988), and divorce (Roberts & Levenson, 2001). Given these facts, it is tempting to assume that negative consequences of police work are inevitable. However, the epidemiological literature has taught us that people can be more resilient to trauma than we used to think (Yehuda & McFarlane, 1995). The challenge then is to determine what factors predict resilience to police work.

Conceptualizing and Predicting Resilience to Police Work

The term *resilience* has been used in many ways by many different investigators (e.g., King, King, Fairbank, Keane, & Adams, 1998; Rutter, 1985). Our thinking about resilience was influenced by the thoughtful work of Bonanno (2004), who conceptualized resilience as reflecting the ability to "maintain a stable equilibrium" in the face of adversity and to show healthy functioning across time. We also recognized that there can be trade-offs in resilience. That is, achieving resilience in one domain (e.g., mental health) may be at the expense of resilience in another domain (e.g., physical health). For example, an officer who does not express sadness or fear may be free of diagnosable mood and anxiety disorders but plagued by the physical health problems that accompany emotional suppression (e.g., high blood pressure). Although many measures have been developed to assess resilience (e.g., Bartone, Ursano, Wright, & Ingraham, 1989; Wagnild & Young, 1993), none have gained consensual acceptance as the preferred measure (Connor & Davidson, 2003). Therefore, we decided to define resilience as relatively good functioning in three important domains—mental health, physical health, and interpersonal relationships—and to measure it accordingly.

What factors promote resilience? The extant literature does not speak with one voice on this

From the University of Michigan, Ann Arbor (NP, MK, AB), and the Michigan State Police (retired; GK).

Address correspondence to: Nnamdi Pole, Department of Psychology, University of Michigan, 530 Church Street, 2260 East Hall, Ann Arbor, MI 48109-1043; e-mail: nnamdi@umich.edu.

question, but the following factors have been implicated in studies of both civilians and police: demographic variables (Pole, Best, Metzler, & Marmar, 2005; Pole et al., 2001), absence of family history of psychopathology (McFarlane, 1998), low neuroticism and high extraversion personality (Hart, Wearing, & Headey, 1995; Kohan & Matzmanian, 2003), active rather than passive coping (Beehr, Johnson, & Nieva, 1995; Biggam, Power, & MacDonald, 1997; Hart et al., 1995), and posttraumatic growth (Tedeschi & Calhoun, 1995). In addition to these factors, theorists have begun to acknowledge that resilience is a function not only of the individual but also of the circumstances and environment in which she or he finds herself or himself. To that end, we considered it important to examine exposure to duty-related and non–duty-related trauma (Carlier, Lamberts, & Gersons, 1997) and exposure to nontraumatic routine work stress (e.g., disagreements with police management; Hart, Wearing, & Headey, 1995; Liberman et al., 2002) as potential detractors from resilience.

The Present Study

We conducted the following study to determine what demographic, family history, personality, trauma exposure, coping, nontraumatic workplace stress, and posttraumatic growth variables account for resilience following a career in police work (as operationalized by relatively superior physical health, mental health, and interpersonal functioning). We chose to examine this question in retired police officers because they are (a) likely to have had extensive exposure to police-related stressors, (b) less susceptible to institutional pressures to minimize or underreport sources of stress, and (c) at an age when physical health problems may be more readily apparent. Based on previous findings in the posttraumatic stress disorder (PTSD) and police stress literatures, we expected that resilience would be associated with demographic variables, less family history of psychopathology, less neurotic and more extraverted personalities, less trauma exposure, active rather than passive coping, greater posttraumatic growth, and less routine work stress.

Method

Participants

Via professional newsletters, we recruited 21 male Caucasian retired police officers who had served in Michigan police departments to participate in an ongoing study of risk and resilience factors for postretirement adjustment. Participants were required to have been exposed to at least one critical incident of sufficient seriousness to meet *Diagnostic and Statistical Manual of Mental Disorders* (fourth edition; *DSM-IV*) criterion A1 for PTSD (American Psychiatric Association, 2000). Eligible participants gave written informed consent and were sent the following self-report questionnaires, which they completed in their homes for $50 reimbursement.

Measures of Predictor Variables

Demographics. Participants reported on their age, sexual orientation, years of education, religion, military history, years of police service, year of retirement, and marital status.

Reporting bias. Participants also completed a shortened version of the Marlowe-Crowne Social Desirability Scale (Reynolds, 1982), which consisted of eight true/false items designed to assess the respondent's tendency to answer potentially stigmatizing self-report items in socially acceptable rather than fully candid ways. The literature suggests that the culture of police work may predispose some officers to exhibit such a reporting bias (e.g., Pole et al., 2001).

Family history of mental illness. Participants indicated whether any of their close biological relatives (grandparents, parents, siblings, or children) had or have any of the following psychiatric conditions: unipolar depression, bipolar depression, anxiety problems, schizophrenia, substance abuse problems, eating disorder, attention deficit disorder, or anger problems. The measure was scored by summing the total number of reported mental health problems in the family.

Personality. We measured personality with the NEO Five-Factor Inventory (Costa & McCrae, 1989), a 60-item measure that assesses the Big Five factors of personality: extraversion (e.g., assertive, energetic, outgoing), openness to experience (e.g., wide interests, imaginative, curious), agreeableness (e.g., sympathetic, kind, affectionate), conscientiousness (e.g., organized, thorough, planful), and neuroticism (e.g., tense, anxious, moody).

Trauma exposure. We used an adaptation of the Trauma History Questionnaire (Green, 1996) to

assess lifetime exposure to non–duty-related traumatic events (e.g., accidents, sexual assaults, muggings, disasters). For the purposes of this study, the instrument was scored by adding the number of types of traumatic events experienced outside of the line of duty. Duty-related trauma was assessed using the Critical Incident History Questionnaire (Weiss et al., 2005), a measure that asks respondents how frequently they were exposed to each of 40 police-related critical incidents (e.g., being present when a fellow officer was killed, being shot at, making a mistake that led to the serious injury of a bystander) and how much they were distressed by each incident. For the purposes of this study, this instrument was scored by summing the number of critical incidents experienced by the respondent.

Coping. We used the Ways of Coping Questionnaire (Folkman & Lazarus, 1988), a 66-item questionnaire that assesses strategies that the respondent used to cope with his worst duty-related critical incident. Each item was rated on a 4-point scale ranging from 0 = *does not apply or not used* to 3 = *used a great deal*. To reduce the number of variables in this study, we focused on active coping and passive coping by obtaining the sum of items belonging to two smaller subtypes of coping. Active coping included confrontive coping (e.g., "I stood my ground and fought for what I wanted") and planful problem solving (e.g., "I made a plan of action and followed it"). Passive coping included distancing coping (e.g., "I didn't let it get to me; I refused to think too much about it") and escape-avoidance coping (e.g., "I made myself feel better by eating, drinking, smoking, using drugs or medication, etc.").

Posttraumatic growth. We used the Posttraumatic Growth Inventory (Tedeschi & Calhoun, 1995), a 21-item questionnaire assessing the extent to which the participant believed that his or her life was changed in positive ways as a result of his or her worst duty-related critical incident. Each item was rated on a 6-point scale in which 1 = *not at all* and 6 = *a very great degree*. The measure was reduced by obtaining the mean score across all items as a general index of posttraumatic growth.

Nontraumatic work stress. We used the Work Environment Inventory (Liberman et al., 2002), a 68-item instrument to measure nontraumatic, routine, police-related occupational stressors. Participants completed the measure with respect to their work environment at the time of their worst duty-related critical incident. Items were rated on a scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*. Several domains of routine work stress were assessed including administrative hassles (e.g., "The administration/management caused pressure and job stress"), shift work (e.g., "Working a night shift disrupted my eating and sleeping"), workplace safety (e.g., "Inadequate radio and communication equipment left me exposed in critical situations"), and keeping work secret (e.g., "I felt that I could not discuss my work with people outside my profession"). The mean of all items was obtained to index overall nontraumatic work stress.

Measures of Criterion Variables

Physical health. We administered the Health Survey, which consisted of 28 items that assessed overall subjective health since beginning police work and asked participants whether they experienced any of several health conditions (asthma, arthritis, diabetes, arteriosclerosis, hypertension, stroke, heart attack, cancer, hepatitis, cirrhosis, ulcers, anemia, skin condition, prostate problem, neck or back pain) since beginning police service. We calculated the total number of health problems endorsed by the officer.

Mental health. We measured alcohol use with the Michigan Alcohol Screening Test (Selzer, Vinokur, & Van Rooijen, 1975), a 25-item self-report instrument that has been widely used as a screening instrument for alcohol-related problems. Respondents answered each item with respect to the past month (e.g., "In the past month, could you stop drinking without a struggle after one or two drinks?"). This measure resulted in a summary score indicating the severity of problematic drinking. We assessed cumulative PTSD symptoms in response to all police work using the Mississippi Scale–Police Version, a 40-item self-report measure adapted from the Mississippi Scale for Combat-Related Posttraumatic Stress Disorder (Keane, Caddell, & Taylor, 1988). Each item was rated on a 5-point scale ranging from 1 = *not at all true* to 5 = *extremely true* with respect to how the respondent was changed by police work. The instrument was scored by reverse scoring some items so that higher ratings indicated greater distress and then summing the ratings of all 40 items to obtain an index of cumulative duty-related PTSD symptoms. Finally, we assessed current PTSD symptoms with respect to

the respondent's worst critical incident using the PTSD Checklist (Weathers & Ford, 1996), a 17-item measure that mirrors the *DSM-IV* criteria for PTSD. Items were rated on a 5-point scale in which 1 = *not at all* and 5 = *extremely*. The measure was scored by calculating the sum of the ratings given to each of the 17 items to derive an index of current PTSD symptom severity.

Interpersonal functioning. We assessed interpersonal functioning using the Social Adjustment Scale–Self Report (Weissman, Prusoff, Thompson, Harding, & Meyers, 1978), a 40-item self-report measure. Respondents rated each item on a 5-point scale with respect to the previous 2 weeks. Responses were summarized by computing the mean rating given to items related to each of the following six domains: work/school, social/leisure, relationship with extended family, marital relationship, parenting role, and functioning in the family unit.

Data Analytic Strategy

Because of the large number of variables in this study and the small number of participants, we adopted the following strategy to reduce the possibility of Type I error. We computed an overall resilience score by first establishing standardized composite scores (z scores) for physical health problems, mental health problems (substance use, current and cumulative PTSD symptoms), and interpersonal functioning problems (functioning in work/school, social/leisure activities, marriage, parenting, and extended family). We then recoded these scores so that larger numbers indicated positive functioning and calculated the mean of these scores to create overall resilience scores.

After examining descriptive statistics of all the study variables, we examined the correlations between the proposed predictor variables and the resilience scores. To reduce the number of tests, we used overall summary scores whenever they were available (e.g., passive coping rather than the specific distancing and escape-avoidance subscales). However, when significant effects were detected, we followed these up by repeating the analysis with the subscales to determine the source of the effect. We then conducted a stepwise regression analysis with the significant bivariate predictors to identify the best predictors of resilience. We retained a significance level of $p < .05$ for all analyses.

Table 1.   Descriptive Statistics of Total Sample on Predictor Variables

Measure	M	SD	Min	Max
Social desirability score (SDS)	4.48	2.32	0	8
Number of mental illnesses in the family	0.95	1.20	0	4
Personality (NEO-FFI)				
Neuroticism	15.84	7.72	3.0	33.0
Extraversion	27.58	5.43	16.0	39.0
Openness to experience	26.83	5.91	16.0	39.0
Agreeableness	31.38	7.17	17.0	43.0
Conscientiousness	29.83	5.03	20.0	39.0
Trauma exposure				
Non–duty-related trauma exposure (THQ)	6.43	3.56	0	15
Duty-related trauma exposure (CIHQ)	24.5	7.1	4	36
Coping style (WOC)				
Active coping	4.33	3.05	1.0	10.50
Passive coping	4.93	2.98	0.5	10.50
Posttraumatic growth (PTGI)	3.70	0.94	2.14	5.14
Nontraumatic Work Stress (WEI)	2.51	0.52	1.76	3.52

NOTE: SDS = Social Desirability Scale; NEO-FFI = NEO Five-Factor Inventory; THQ = Trauma History Questionnaire; CIHQ = Critical Incident History Questionnaire; WOC = Ways of Coping Questionnaire; PTGI = Posttraumatic Growth Inventory; WEI = Work Environment Inventory.

Results

Descriptive Statistics

The 21 participants were on average 59.5 years old ($SD = 10.2$), had 15.2 ($SD = 3.1$) years of education, 47.6% were Catholic, 28.6% were Protestant, all reported being heterosexual, and 76.2% were married. Thirty-eight percent had served in the military, and 14.3% had participated in military combat. They had served about 21.2 years on the police force ($SD = 7.7$) and had been retired an average of 15.3 years ($SD = 3.1$). Table 1 presents additional descriptive statistics on the main predictor variables.

What Variables Are Associated With Resilience?

Bivariate correlations between potential predictors and resilience scores are presented in Table 2. These results are accompanied by correlations with the three components of resilience (physical health

Table 2. Correlations Between Predictors and Physical Health, Mental Health, Interpersonal Functioning, and Overall Resilience

Measure	Physical Health	Mental Health	Interpersonal	Resilience
Age (years)	−.10	.33	.33	.34
Education (years)	.13	−.18	.03	−.02
Police service (years)	−.08	.32	−.09	.11
Retired (years)	−.06	.17	.39	.30
Military service[a]	−.20	.02	−.38	−.31
Military combat[a]	−.20	.16	−.23	−.14
Married[a]	.13	.36	.44*	.55**
Social desirability	.38	.19	.52*	.63**
Family psychopathology	.05	−.56**	−.39	−.54*
Neuroticism	−.01	−.54*	−.47*	−.61**
Extraversion	.09	.00	.40	.27
Openness to experience	.42	−.08	.19	.29
Agreeableness	.31	−.08	.40	.35
Conscientiousness	.56**	−.19	.31	.38
Non–duty-related trauma exposure	.07	−.56**	−.29	−.48*
Duty-related trauma exposure	−.17	.01	−.40	−.33
Active coping	−.13	−.06	−.34	−.30
Passive coping	−.26	−.40	−.25	−.54**
Posttraumatic growth	.53*	−.28	−.02	.12
Nontraumatic work stress	.07	−.60**	−.43	−.58**

NOTE: Resilience is defined as the composite of physical health, mental health, and interpersonal functioning.
a. This variable is coded 0 = no and 1 = yes.
*$p < .05$; **$p < .01$.

functioning, mental health functioning, and interpersonal functioning).

Demographics. We found that among the demographic variables, only marital status (i.e., being married) was significantly associated with resilience ($r = .55$, $p < .01$). This result appeared to be primarily driven by the fact that married retired officers had better interpersonal functioning ($r = .44$, $p < .05$). Officers who had been retired longer reported marginally better interpersonal functioning ($r = .39$, $p = .09$). Age, years of education, prior military service, and prior combat exposure were not significantly related to resilience.

Reporting bias. With regard to social desirability reporting bias, we found that greater social desirability scores were correlated with significantly higher total resiliency scores ($r = .63$, $p < .01$), which seemed due to its relationship with better reported interpersonal functioning ($r = .52$, $p < .05$) and marginally better reported mental health scores ($r = .38$, $p = .09$).

Family history of psychopathology. As expected, we found that retirees who reported more mental illnesses

among their biological relatives were less resilient ($r = −.54$, $p < .01$). This was apparently due to the fact that they reported poorer mental health functioning ($r = −.56$, $p < .01$) and marginally poorer interpersonal functioning ($r = −.39$, $p = .08$). There was no association between family history of mental illness and the retirees' physical health.

Personality. Consistent with our hypothesis and previous literature, greater neuroticism was significantly associated with less overall resilience ($r = −.61$, $p < .01$), apparently due to its association with poorer mental health ($r = −.54$, $p < .01$) and poorer interpersonal functioning ($r = −.47$, $p < .05$). Greater conscientiousness was marginally associated with higher total resilience ($r = .38$, $p = .09$), apparently due to its significant association with better physical health ($r = .56$, $p < .01$). Overall resilience was not related to extraversion, openness to experience, or agreeableness.

Trauma exposure. Exposure to more non–duty-related trauma was related to less resilience ($r = −.48$, $p < .05$), due to its association with poorer mental health functioning ($r = −.56$, $p < .01$). Exposure to duty-related

critical incidents was not significantly related to resilience ($r = -.33$, $p = .14$).

Coping style. Although active coping was not significantly related to resilience, we found that retired officers who used passive coping strategies in response to their worst duty-related critical incident were less resilient ($r = -.54$, $p < .01$), perhaps owing to its marginal correlation with poorer mental health ($r = -.40$, $p = .08$). An examination of the specific passive coping strategies related to resilience revealed that both distancing coping ($r = -.44$, $p < .05$) and escape-avoidance coping were related to less total resilience ($r = -.49$, $p < .05$).

Posttraumatic growth. We found that the level of posttraumatic growth following the retired officer's worst critical incident was not significantly related to overall resilience. However, retirees who reported greater posttraumatic growth following their worst duty-related trauma had fewer physical health problems ($r = .53$, $p < .05$).

Nontraumatic routine work stress. We found that retirees who reported greater routine work stress at the time of their worst critical incident were less resilient ($r = -.58$, $p < .01$). This seemed to be due to the fact that greater routine work stress was associated with significantly poorer mental health ($r = -.60$, $p < .01$) and marginally poorer interpersonal functioning ($r = -.43$, $p = .052$). An examination of the particular routine work stressors that were associated with lower resilience identified safety-related stress ($r = -.50$, $p < .05$), administrative hassles ($r = -.61$, $p < .01$), and keeping aspects of their professional lives secret from family and friends ($r = -.59$, $p < .01$) as the main factors.

What Are the Most Important Predictors of Resilience?

To determine which of the several correlates of resilience was most important, we conducted a hierarchical linear regression analysis. The fact that our resiliency measure was positively correlated with the participant's social desirability score suggests that some respondents may have given an overly optimistic presentation of their functioning. Thus, we entered social desirability in the first step as a control variable. We then entered the remaining significant correlates of resilience (marital status, family history of mental illness, neuroticism, exposure to

Table 3. Summary of Final Stepwise Regression Model Predicting Resilience

Predictor	B	SE B	β	ΔR^2	R^2
Social desirability bias	.20**	.06	.43	.40**	.40
Keeping work secret	−.54***	.12	−.55	.25**	.65
Distancing coping	−.11*	.04	−.33	.09*	.74

*$p < .05$; **$p < .01$; **$p < .001$.

non–duty-related trauma, distancing coping, escape-avoidance coping, safety concerns in the workplace, administrative hassles, keeping profession secret from friends and family) in a stepwise fashion. The results (displayed in Table 3) reveal that after controlling for social desirability reporting bias, resilience was best predicted by less distancing coping and less tendency to keep their professional lives secret from friends and family. Although the overall model explained 74% of the variance in resilience (as we defined it), approximately 40% of this variance was explained by social desirability reporting bias. Thus, it would be more relevant to note that keeping police work secret and distancing coping accounted for about 34% of the variance in overall resilience.

Discussion

We studied a sample of retired male Michigan police officers and found that their postretirement resilience (as defined by a combination of relatively positive mental health, physical health, and interpersonal functioning) was significantly correlated with being married, having fewer mental illnesses in their families, less neurotic personality, less exposure to non–duty-related trauma, less reliance on distancing and escape-avoidant coping strategies, and having worked in police departments in which they had relatively few concerns about safety, few administrative hassles, and less inclination to hide aspects of their work from family and friends. A regression analysis revealed that among these correlates, postretirement resilience was best predicted by less distancing coping and less withholding of work-related matters from friends and family.

Many of these findings were consistent with previous literature. For example, other studies have reported that marriage can protect men from undesirable health outcomes (Levenson, Carstensen, & Gottman, 1993) and that negative outcomes are made more likely by the presence of family history of psychopathology (McFarlane, 1998; Nomura,

Warner, & Wickramaratne, 2001), neurotic personality traits (Malouff, Thorsteinsson, & Schutte, 2005), and passive coping strategies (Marmar, Weiss, Metzler, & Delucchi, 1996). Our results are also consistent with the previously reported finding that a variety of nontraumatic, routine work-related stressors are strongly related to negative outcomes and may be more important contributors to these outcomes than exposure to the more dramatic (and arguably traumatic) duty-related critical incidents (Kohan & Mazmanian, 2003; Liberman et al., 2002). Nonetheless, our results deserve further elaboration and discussion.

For heuristic purposes, our results may be divided into positive and negative predictors of resilience. Among the former type, which are salient for their presence rather than their absence, being married was the only statistically significant predictor, but there was a trend for conscientious personality traits to also be associated with greater resilience. Married officers also had better interpersonal functioning. Thus, it is possible that officers with the emotional and social skills necessary to maintain as intimate a relationship as a marriage also have skills to maintain a broader array of family and social relationships that contribute to their overall resilience. The marginal correlation between conscientiousness and resilience was driven by a significant correlation with better physical health. Conscientious people are focused, goal oriented, and high in attention to detail and systematic thinking. Perhaps these qualities in police officers lead to better adherence to healthy diet and exercise and greater attention to safety precautions, resulting in better physical health.

Among the negative predictors of resilience (i.e., those that were salient for their absence rather than their presence) were family history of mental illness, neurotic personality, exposure to non–duty-related trauma, distancing and escape-avoidance coping, and nontraumatic work stress. Police officers with family histories of psychopathology are more likely to develop mental illnesses themselves via genetic vulnerability, exposure to negative family environments, and increased vulnerability to the stressors that accompany police work (Nomura, Warner, & Wickramaratne, 2001). Similarly, neuroticism has been shown to confer increased risk for psychopathology in previous studies (Malouff et al., 2005) and in our own data was also related to more interpersonal dysfunction.

Turning to trauma exposure, although exposure to duty-related trauma was unrelated to resilience, exposure to non–duty-related trauma was associated with less resilience. This result is consistent with the interpretation that although police officers are well trained to handle the trauma exposure that they face on the job, they are nonetheless vulnerable to the traumatic events that they encounter in their civilian lives (some of which may have occurred before they received their police training). Perhaps greater attention should be given to providing psychological interventions for these kinds of events. At the very least, non–duty-related trauma should be given greater attention in the police stress and coping literature. Furthermore, it is worth noting that although the relationship between duty-related trauma and resilience was not statistically significant, it was in the predicted direction of more exposure associated with less resilience. Thus, a larger sample might be necessary to detect the significance of this effect.

With regard to coping, we found two specific coping styles that are commonly used by police officers (Evans, Coman, & Stanley, 1993) and that may indeed be encouraged by the culture of police work (Biggam et al., 1997; Joyce, 1989) are actually associated with less resilience. Distancing and escape-avoidance coping, which are both passive coping strategies, seem to undermine resilience by contributing to marginally poorer mental health. Of the two, our findings show that distancing coping is more detrimental for long-term resilience. However, we believe that it would be wise to teach future officers to refrain from such coping strategies and to seek more productive methods.

With regard to our findings about nontraumatic, routine work stressors, we speculate that one reason that such stressors are so strongly associated with poor resilience is that work-related stress may alienate the officer from his or her preferred sources of support: his or her peers and supervisors. Many officers believe that they can share their experiences only with other law enforcement professionals, but a conflict arises when the police organization itself is the source of the stress. Keeping work-related matters secret from family and friends may undermine resilience for similar reasons. Such a choice can quickly lead to social isolation and may reduce the number of opportunities that the officer has to discuss duty-related critical incidents and other stressors. Open discussion of stressful events in the

context of a close relationship is believed to play an important role in reducing distress, and avoidance of such discussions can maintain traumatic stress symptoms (Foa, Rothbaum, Riggs, & Murdock, 1991). For example, among Desert Storm veterans, the number of people with whom the veterans felt comfortable sharing their war experiences was inversely related to their PTSD symptom severity (Ross & Wonders, 1993). At least one study found that "lack of social interaction support in the private sphere" can predict negative mental health outcomes for police and that officers who have difficulty expressing feelings were more likely to have mental health problems after critical incident exposure (Carlier et al., 1997).

One final set of findings that are worthy of discussion pertain to posttraumatic growth. Although posttraumatic growth was unrelated to overall resilience, it was related to better physical health. This could mean that officers who are in better physical health (e.g., those who are not physically injured by their police work) find it easier to make positive psychological changes following a traumatic event. On the other hand, it is also possible that adopting a positive perspective after trauma contributes to long-term physical health. This possibility should be examined more closely in future studies as it could point to interventions to prevent physical health problems among retired police officers.

It is worth noting that we failed to find several relationships that have been reported by other investigators. For example, other studies have reported that extraversion (Carlier et al., 1997; Hart et al., 1995) and active coping (Biggam, Power, & MacDonald, 1997) are associated with positive outcomes and that prior military service (Patterson, Poole, Trew, & Harkin, 2001) and severity of duty-related trauma exposure (Carlier et al., 1997; Marmar et al., 1996) are associated with negative outcomes. Our failure to replicate these results is most likely due to the relatively low statistical power of our study owing to its small sample size. Because this is an ongoing study, we expect to be able to overcome this limitation in future articles from this data set.

Other limitations of our study include the fact that the sample is self-selective, from a particular cohort, and performed police service in a specific geographic region. It is difficult to know whether the results would generalize to other cohorts of retirees from other regions of the world and in other times. There have been many changes in standard law enforcement practices over the past several decades

that could alter the formula for resilience for future generations. Furthermore, the data, which are from retrospective self-report measures, raise concerns about the validity of the results. Our assessment of and controlling for social desirability reporting bias mitigates concerns about intentional distortions, but we have no way of knowing how accurately our respondents were able to recall experiences that occurred 15 or more years ago. A concurrent examination of psychophysiological variables known to be associated with trauma exposure might clarify the reporting issues (Neylan et al., 2005; Otte et al., 2005; Pole, Neylan, Best, Orr, & Marmar, 2003). Relatedly, our study focused on a broad yet nonetheless incomplete array of predictor variables. There were many variables that have appeared in the literature that were not examined in our study (e.g., type A personality, locus of control, leisure activities, suicidal ideation), but it would be hard to do so in such a restricted sample. Furthermore, we did not use a well-validated measure of resilience and would encourage future investigators to consider using one of the newer psychometrically sound measures of resilience (e.g., Connor & Davidson, 2003). Finally, the analyses were correlational and cannot make claims of a causal connection between our chosen predictor and criterion variables.

Limitations notwithstanding, the study also had several strengths. Primary among them is that we adopted a rigorous definition of resilience that required good functioning across several domains. Second, our study examined a wider array of personality, coping, and work stress variables than have commonly been reported in this literature. Third, the validity of our results is supported by the fact that it replicates so many previously reported findings. Finally, and arguably most important, our study provides a rare look at the effects of policing from the perspective of retired police officers, allowing for a snapshot of the long-term effects of police work.

Many of the predictors identified in this study could be incorporated in screening instruments for either the selection of officers or assignment of officers to high-risk duties. They could also be used in deciding when to intervene (e.g., recommend debriefing) with an officer who has been exposed to a significant duty-related critical incident or non–duty-related trauma. The findings might also be incorporated into plans to reform law enforcement agencies. For example, family or couples counseling may become a vital part of the intervention package offered to

officers to explore ways to share some aspects of their work. In situations in which it is unrealistic or unprofessional to share such information with family, then alternative supports should be built into routine police work. For example, planned discussion or support groups could be held in adaptive environments that do not involve unhealthy and avoidant practices such as drinking and smoking. In addition, a buddy system could be created in which senior or retired officers provide needed support. This latter suggestion would have the additional benefit of helping retirees to maintain a connection to the law enforcement agencies. In our research, we have found that many retirees expressed surprise in the way that they seem to have been forgotten by their former employers. In sum, this study opened an important window into understanding the factors that contribute to better quality of life for those who have spent their careers serving and protecting society so that their retirement years can be lived with relative ease and comfort. Future studies will establish the reliability of these findings.

Acknowledgments

References

Alexander, D. A., & Wells, A. (1991). Reactions of police officers to body handling after a major disaster: A before and after comparison. *British Journal of Psychiatry*, *159*, 517-555.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text revision). Washington, DC: Author.

Bartone, P. T., Ursano, R., Wright, K., & Ingraham, L. (1989). The impact of military air disaster on the health of assistance workers. *Journal of Nervous and Mental Disease*, *177*, 317-328.

Beehr, T. A., Johnson, L. B., & Nieva, R. (1995). Occupational stress: Coping of police and their spouses. *Journal of Organizational Behavior*, *16*, 3-25.

Beutler, L. E., Nussbaum, P. D., & Meredith, K. E. (1988). Changing personality patterns of police officers. *Professional Psychology: Research and Practice*, *19*, 503-507.

Biggam, F. H., Power, K. G., & MacDonald, R. R. (1997). Coping with the occupational stressors of police work: A study of Scottish officers. *Stress Medicine*, *13*, 109-115.

Bonanno, G. A. (2004). Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? *American Psychologist*, *59*, 20-28.

Carlier, I., Lamberts, R., & Gersons, B. (1997). Risk factors for posttraumatic stress symptomatology in police officers: A prospective analysis. *Journal of Nervous and Mental Disease*, *185*, 498-506.

Connor, K. M., & Davidson, J. R. T. (2003). Development of a new resilience scale: The Connor-Davidson Resilience Scale (CD-RISC). *Depression and Anxiety*, *18*, 76-82.

Costa, P. T., Jr., & McCrae, R. R. (1989). *The NEO-PI/NEO-FFI manual supplement*. Odessa, FL: Psychological Assessment Resources.

Evans, B. J., Coman, G. J., & Stanley, R. O. (1993). The police personality: Type A behaviour and trait anxiety. *Journal of Criminal Justice*, *20*, 429-441.

Foa, E. B., Rothbaum, B. O., Riggs, D. S., & Murdock, T. B. (1991). Treatment of posttraumatic stress disorder in rape victims: A comparison between cognitive-behavioral procedures and counseling. *Journal of Consulting and Clinical Psychology*, *59*, 715-723.

Folkman, S., & Lazarus, R. S. (1988). *Manual for the Ways of Coping Questionnaire, research ed*. Palo Alto, CA: Consulting Psychologists Press.

Green, B. L. (1996). Psychometric review of Trauma History Questionnaire (Self-Report). In B. H. Stamm (Ed.), *Measurement of stress, trauma, and adaptation* (pp. 242-243). Lutherville, MD: Sidran Press.

Hart, P. M., Wearing, A. J., & Headey, B. (1995). Police stress and well-being: Integrating personality, coping, and daily work experiences. *Journal of Occupational and Organizational Psychology*, *68*, 133-156.

Henry, V. E. (2004). *Death work: Police, trauma, and the psychology of survival*. New York: Oxford University Press.

Joyce, D. (1989). Why do police officers laugh at death? *Psychologist*, *2*, 379-380.

Keane, T. M., Caddell, J. M., & Taylor, K. L. (1988). Mississippi Scale for Combat-Related Posttraumatic Stress Disorder: Three studies in reliability and validity. *Journal of Consulting and Clinical Psychology*, *56*, 85-90.

King, L. A., King, D. A., Fairbank, J. A., Keane, T. M., & Adams, G. A. (1998). Resilience-recovery factors in posttraumatic stress disorder among female and male Vietnam veterans: Hardiness, postwar social support, and additional stressful life events. *Journal of Personality and Social Psychology*, *74*, 420-434.

Kohan, A., & Mazmanian, D. (2003). Police work, burnout, and pro-organizational behavior: A consideration of daily work experiences. *Criminal Justice and Behavior*, *30*, 559-583.

Levenson, R. W., Carstensen, L. L., Gottman, J. M. (1993). Long-term marriage: Age, gender, and satisfaction. *Psychology and Aging*, *8*, 301-313.

Liberman, A. M., Best, S. R., Metzler, T. J., Fagan, J. A., Weiss, D. S., & Marmar, C. R. (2002). Routine occupational stress as and psychological distress in police. *Policing: An International Journal of Police Strategies and Management*, *25*, 421-439.

Malouff, J. M., Thorsteinsson, E. B., & Schutte, N. S. (2005). The relationship between the five-factor model of personality and symptoms of clinical disorders: A meta-analysis. *Journal of Psychopathology and Behavioral Assessment*, *27*, 101-114.

Marmar, C. R., Weiss, D. S., Metzler, T. J., & Delucchi, K. (1996). Characteristics of emergency services personnel related to peritraumatic dissociation during critical incident exposure. *American Journal of Psychiatry*, *153*, 94-102.

McCafferty, F. L., Domingo, G. D., & McCafferty, E. A. (1990). Posttraumatic stress disorder in the police officer: Paradigm of occupational stress. *Southern Medical Journal*, *83*, 543-547.

McFarlane, A. C. (1988). The etiology of post-traumatic stress disorder following a natural disaster. *British Journal of Psychiatry*, *151*, 116-121.

Neylan, T. C., Brunet, A., Pole, N., Best, S. R., Metzler, T. J., Yehuda, R., et al. (2005). PTSD symptoms predict waking salivary cortisol levels in police officers. *Psychoneuroendocrinology*, *30*, 373-381.

Nomura, Y., Warner, V., & Wickramaratne, P. (2001). Parents concordant for major depressive disorder and the effect of psychopathology in offspring. *Psychological Medicine*, *31*, 1211-1222.

Otte, C., Neylan, T. C., Pole, N., Metzler, T., Best, S., Henn-Haase, C., et al. (2005). Association between childhood trauma and catecholamine response to psychological stress in police academy recruits. *Biological Psychiatry*, *57*, 27-32.

Patterson, M. C., Poole, A. D., Trew, K. J., & Harkin, N. (2001). The psychological and physical health of police officers retired recently from the Royal Ulster Constabulary. *Irish Journal of Psychology*, *22*, 1-27.

Paton, D., & Violanti, J. M. (1996). *Traumatic stress in critical occupations: Recognition, consequences, and treatment*. Springfield, IL: Charles C Thomas.

Pole, N., Best, S. R., Metzler, T., & Marmar, C. R. (2005). Why are Hispanics at greater risk for PTSD? *Cultural Diversity and Ethnic Minority Psychology*, *11*, 144-161.

Pole, N., Best, S. R., Weiss, D. S., Metzler, T., Liberman, A. M., Fagan, J., et al. (2001). Effects of gender and ethnicity on duty-related posttraumatic stress symptoms among urban police officers. *Journal of Nervous and Mental Disease*, *189*, 442-448.

Pole, N., Neylan, T. C., Best, S. R., Orr, S. P., & Marmar, C. R. (2003). Fear-potentiated startle and posttraumatic stress symptoms in urban police officers. *Journal of Traumatic Stress*, *16*, 471-479.

Reynolds, W. M. (1982). Development of a reliable and valid short form of the Marlowe-Crowne Social Desirability Scale. *Journal of Clinical Psychology*, *38*, 119-125.

Roberts, N. A., & Levenson, R. W. (2001). The remains of the workday: Impact of job stress and exhaustion on marital interaction in police couples. *Journal of Marriage and Family*, *63*, 1052-1067.

Ross, M. C., & Wonders, J. (1993). An exploration of the characteristics of post-traumatic stress disorder in reserve forces deployed during Desert Storm. *Archives of Psychiatric Nursing*, *7*, 265-269.

Russell, H. E., & Beigel, A. (1982). *Understanding human behavior for effective police work*. New York: Basic Books.

Rutter, M. (1985). Resilience in the face of adversity: Protective factors and resistance to psychiatric disorders. *British Journal of Psychiatry*, *147*, 598-611.

Selzer, M. L., Vinokur, A., & Van Rooijen, L. (1975). A self-administered Short Michigan Alcoholism Screening Test (SMAST). *Journal of Studies on Alcohol*, *36*, 117-176.

Tedeschi, R. G., & Calhoun, L. G. (1995). *Trauma and transformation: Growing in the aftermath of suffering*. Thousand Oaks, CA: Sage.

Wagnild, G. M., & Young, H. M. (1993). Development and psychometric validation of the Resilience Scale. *Journal of Nursing Measurement*, *1*, 165-178.

Weathers, F., & Ford, J. (1996). Psychometric review of PTSD Checklist (PCL-C, PCL-S, PCL-M, and PCL-PR). In B. H. Stamm (Ed.), *Measurement of stress, trauma, and adaptation* (pp. 250-251). Lutherville, MD: Sidran Press.

Weiss, D. S., Brunet, A., Best, S. R., Metzler, T., Liberman, A., Pole, N., et al. (2005). *The Critical Incident History Questionnaire: A method for measuring total cumulative exposure to critical incidents in police officers*. Manuscript in preparation.

Weissman, M. M., Prusoff, B. A., Thompson, W. D., Harding, P. S., & Myers, J. K. (1978). Social adjustment by self-report in a community sample and in psychiatric outpatients. *Journal of Nervous and Mental Disease*, *166*, 317-326.

Yehuda, R., & McFarlane, A. C. (1995). Conflict between current knowledge about posttraumatic stress disorder and its original conceptual basis. *American Journal of Psychiatry*, *152*, 1705-1713.