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Police Work Absence: An Analysis of Stress and Resiliency

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Abstract

Police work is a high stress occupation and stress has been implicated in work absence. The present study examined (1) associations between specific types of police stress and work absences, (2) distinctions between “voluntary” (1-day) and “involuntary” (> 3-days) absences; and (3) the modifying effect of resiliency. Officers (n=337) from the Buffalo Cardio-Metabolic Occupational

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The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the National Institute for Occupational Safety and Health.

Police Stress study were included in the present study. The sample was 72% male, 77% Caucasian, 73% married, and 75% patrol officers. Mean age was 41 years (SD=6.4). Measures included: the Spielberger Police Stress Survey, 1-year payroll absence data, and the Dispositional Resilience Scale. The negative binomial regression was used to estimate rate ratios (RR) of 1-day and >3-days work absences for increasing stress scores. Models were adjusted for age, race/ethnicity, rank, smoking status, alcohol intake, and sleep duration. For one-unit increase in stress scores, the covariate adjusted RRs for one-day work absences were: total stress score (RR=1.19, 95% CI: 1.04–1.36); administrative stress (RR=1.52, 95% CI: 1.05–2.18); physical/psychological stress (RR=1.54, 95% CI: 1.14–2.07); and lack of support (RR=1.75, 95% CI: 1.01–3.05). Results suggest that officers were more likely to take voluntary 1-day absences due to specific types of stress at work. When the entire sample was considered, there was no significant association between police specific stress and episodes of work absence lasting at least three consecutive days. Hardy individuals, including those with high scores on the challenge sub-score, may use 1-day absences as a positive coping strategy.

INTRODUCTION

Reasons that officers may be absent from work are likely to vary widely ranging from occupational, social, cultural, and individual factors (Darr & Johns, 2008). One possible reason is work related stress. Police work is an occupation replete with stress. Several sources of stress in police work have been identified: (1) the obvious inherent aspect, which involves danger and job risk; (2) the police administrative organization; and (3) other less obvious stressors involved in police work such as shift work or work load (Bonnar, 2000; Kop & Euwema, 2001; Patterson, 2002; Spielberger, Grier, & Greenfield, 1981; Violanti & Aron, 1994; Patterson, 2003; Violanti, et al., 2006)

Despite the prevalence of stress in police work, there is limited empirical evidence available that stress is associated with work absence. A recent study by Magnavita and Garbarino (2013) found an association between stress and work absence among police, characterized by high work demands and low control. The authors concluded that work stress influences absenteeism. Korlin, Alexanderson, and Svedberg (2009), conducted a systematic literature review and concluded that there were high rates of work absence among police, particularly women officers. Goodman (1990) found that high levels of work absence among police were a significant predictor of burnout. Tang and Hammontree (1992) found a correlation between life stress, work stress, and absence among police. Berg, Hem, Lau, and Ekeberg (2006) found that approximately 10% of the Norwegian police force reported being absent due to work stress. Guest (1982) reported a five-fold higher rate of work absence among police compared to air force officers.

While an independent relationship between stress and police work absence may exist, other moderating factors can be present which either increase or decrease absence. We have considered a probable effect modifier related to police work: hardiness. Hardiness is an indicator of resiliency and has been identified as a protective factor that reduces the probability of pathogenic psychological reactions (Frederickson, Tugade, Waugh, & Larkin, 2003; Paton, 1994; Paton, Violanti, & Smith, 2003). Hardiness is thought to consist of three

sets of cognitive styles (Maddi, 1990). Commitment reflects the tendency to find meaning and purpose in potentially stressful events; control refers to the tendency to believe that one is capable of managing the stressful event; and challenge is the tendency to see stressful events as an opportunity for personal growth. Thus, hardy individuals are thought to be more resilient to stressors because they tend to see meaning in their lives, feel in control of these events, and seek challenging environments over safety and security (Linley & Joseph, 2004; Paton, et al., 2003). Andrew, et al., (2008) demonstrated that higher levels of hardiness are associated with lower levels of psychological distress among a sample of police officers. Tang & Hammontree (1992) found that hardiness is a moderator of police stress and work absence.

There is little research evidence which breaks down the elements associated with police work absence and stress. The purpose of this paper was to explore the association between specific types of police stress and work absence, and whether resiliency (e.g. hardiness) modifies this association. Specifically, we examined (1) categories of police stressors that include administrative, physical/psychological danger, and lack of organizational support, (2) duration of absence, and (3) modifying effect of hardiness on the association between stress and work absence.

METHODS

Design and Study Participants

Participants were police officers who participated in the Buffalo Cardio-Metabolic Occupational Police Stress (BCOPS) Study. The BCOPS Study is a cross-sectional epidemiologic study conducted between 2004–2009 to examine the association between workplace stress and subclinical cardiovascular disease (CVD). Inclusion criteria were sworn police officer status and willingness to participate in the study. The study was approved by the University of New York at Buffalo Internal Review Board and the National Institute for Occupational Safety and Health Human Subjects Review Board.

Measures

Spielberger Police Stress Survey—The Spielberger Police Stress Survey is a 60-item measure for assessing specific sources of stress in police work (Spielberger, Westberry, Grier, & Greenfield, 1981). The officer rates each item for the stressfulness of experiencing the event from 0–100 (0 = no stress, 100 = maximum stress). The officer also provides the frequency of occurrence of each event over the past month (total frequency in past month) and past year (total frequency in past year). Stress scores based on all 60-items (total) and for three subscales were computed by summing the ratings. Three subscales were calculated: administrative and organizational pressure (23 items) which includes satisfaction with departmental policies and procedures, fairness of rewards, performance, and the judicial system; physical and psychological threat (24 items) which includes dangerous situations and experiences; and lack of support (13 items) which includes political pressures and relationships with supervisor and coworkers. The subscales have acceptable internal consistency scores (Cronbach’s alpha > 0.90).

Work absence—Work history data of the participants from May, 1994 to date of each officer's exam (2004–2009) were available in an electronic format. This longitudinal database of work history records was obtained from the payroll department and contained a day-by-day account of activities for each officer during the 15-year time span. Variables of interest in the database included the start time of work, the type of activity (regular work, court work, overtime work), the type of leave (weekend, sickness, work-related injury, vacation), and the number of hours worked on each activity. For the current analyses, only data during the 1-year period prior to the date of the BCOPS study examination were utilized to estimate episodes of work absence. Work absence was defined using reports of sick leave in the work history data.

Steel (2003) proposed that there is a distinction between two types of work absence measures: time lost and absence frequency. Time lost measures express absence as a sum of units of time away from work, while frequency measures assess a count of absences. Based on these distinctions and availability of data, our strategy in this study was to adopt a one year duration frequency approach. Our reasoning is that police officers who are absent from work due to stress are more likely to take a short duration "mental health day" or day off to temporarily get away from the stress of work. Additionally, absences for more than one or two days require certification from a physician, indicating that the absence was likely of an involuntary nature. Therefore, we chose the frequency of one-day absence as a surrogate indicator of a "voluntary" short duration absence, whereas longer term absences would be more indicative of "involuntary" absence due to sickness or injury-verified by a physician (Steel, 2003; Chadwick-Jones, Nicholson, & Payne, 1987).

Hardiness—Hardiness was measured using the 15-item Dispositional Resilience Scale developed by Bartone (1995) consisting of three dimensions including control, commitment, and challenge. For this instrument, participants respond on a 4-point scale indicating the level at which each of 15 statements apply to them as follows: 0 (not at all true); 1 (a little true); 2 (quite true); 3 (completely true). Scores are obtained by reverse coding the appropriate items and summing items for each dimension. The overall hardiness score is obtained by summing all 15 items. There is a debate as to whether hardiness is a single construct, or if it is best considered as three separate dimensions (Funk, 1992). In the present study, we employed total and the three dimensional measures of hardiness in line with recent studies that view the concept as the best possible approach (Johnsen, Eid, Pallesen, Bartone, & Nissestad, 2009). In our study, hardiness was treated as potential effect modifier of the association of interest.

Statistical Analysis

Police specific stress served as the exposure variable and the count of episodes of one-day and ≥ 3 consecutive days of work absence (derived using work history data during the 1-year period prior to date of examination) served as the two outcome variables of interest. Of the 464 BCOPS study participants, 337 (243 men and 94 women) who had non-missing data on the exposure, outcome, and the effect modifiers were used for the current analyses. The two outcome variables consisted of count data with over-dispersion and hence the negative binomial regression analysis was used as the preferred method to estimate rate ratios (RR) of

work absence and their 95% confidence intervals associated with one-unit increase in stress scores. The Spielberger stress scores varied widely. For example the total score for all 60 items ranged from 20 to 5,205 with a mean of 2,316 (SD=1,247). Therefore, prior to statistical analyses, the overall stress score and the total score for each sub-scale were scaled by dividing the values by 1000. Although scaling affects the magnitude and standard error of coefficients, it does not affect the significance and interpretation of the association. A one-unit increase in scaled versions of the stress scores corresponds to 1.2, 0.5, 0.6, and 0.3 standard deviation increases in the original raw stress scores for total, administrative/ professional, physical/psychological, and lack of support respectively.

In order to examine the effects of hardiness on associations of interest, stratified analyses were conducted. The sample was divided into two groups using the median value of total hardiness and sub-scale scores as the cut point (low ≤ median, high > median). Models were adjusted for potential covariates including demographic and life-style behaviors. Additional alternative statistical methods were also employed to confirm the results obtained from the negative binomial regression. These included comparing mean episodes of each type of work absence across tertiles of police specific stress and regression analyses to assess linear trends. For all tests, statistical significance was assessed at the 5% level and all analyses were conducted using the SAS system, version 9.3.

RESULTS

A majority of the study sample (Table 1) was male (72%), white (77%), married (73%), held the rank of patrol officer (75%), were never smokers (60%), and were overweight (82%). The mean age was 41 years (SD=6.4). Women had more frequent episodes of three day work absences compared to men (Table 2). Patrol police officers had significantly higher episodes of one-day work absence compared to other ranks. Older age and longer years of service were inversely associated with episodes of one-day work absence (Table 2). Hours of sleep were positively associated with one-day work absence (Table 2).

The associations of police stress types with one day work absence are displayed in Table 3 for the entire sample. After adjusting for potential covariates, a one-unit increase in total police specific stress score was associated with a 20% elevation in expected episodes of one-day work absence (RR=1.19, 95% CI: 1.04 – 1.36). Similar one-unit increases in each of the three-subscales of police specific stress (administrative/ professional, physical/ psychological, and lack of support) were associated with significant elevations in episodes of one-day work absence by 52%, 54%, and 75%, respectively. Associations between specific police stress types and involuntary work absences (≥3-days) indicate that when the whole sample is considered, there was no significant association between police specific stress and episodes of work absence lasting at least three consecutive days. This is unlike the association with one-day work absence that showed significant association with police specific stress. The frequency of occurrence of the events, reported by the officers during the past year, was not significantly associated with work absence.

Figure 1 is a graphic summary of rate ratios of one-day and three-day absences as a function of the total and three subscales of police specific stress.

Table 4 displays the association between police specific stress types and one-day work absence stratified by hardiness categorized as low/high using the median as the cut point. The association between police specific stress and episodes of one-day work absence appears to be evident only among those with a high hardiness score (above median) and for those with a high score on the challenge dimension of hardiness. For example, among those with high scores for total hardiness, a one-unit increase in total stress score was associated with a 43% (RR=1.43, 95% CI: 1.15 – 1.80) elevation in expected episodes of one-day work absence. The administrative/professional and physical/psychological stress scores were each associated with 2-fold elevation in one-day work absence whereas the effect size for lack of support was a 4-fold increase in episodes of one-day work absence.

Among those with a high score on the challenge dimension of hardiness, after adjusting for potential confounders, a one-unit increase in total stress score was associated with a 33% elevation in expected episodes of one-day work absence. Increases in the professional, and physical/psychological stress scores were each associated with 2-fold elevation in the expected count of one-day work absence, whereas the lack of support was associated with a 3-fold increase in episodes of one-day work absence. The physical/psychological stress score was also significantly associated with episodes of one-day work absence among those with low scores on both the challenge and commitment dimension of hardiness; there was nearly a 60% elevation in expected episodes of one-day work absence associated with increases in stress scores for both subscales.

Although the association between police stress and three-day work absence in the whole sample was not significant, associations were apparent when stratified by hardiness. The association of police stress with three or more-day work absence stratified by hardiness is shown in Table 5. Associations involving work absence lasting at least three consecutive days appear to be evident only among those with a high overall hardiness score or a high score on the commitment dimension of hardiness. Among those with high total hardiness score, there was a 52% (RR= 1.52, 95% CI: 1.22 – 1.90) elevation in expected episodes of three or more-day work absence associated with a unit increase police specific stress score. The estimated effect size for the administrative/professional and physical/psychological stress scores was a 3-and 2-fold elevation in the expected count of three-day work absence, respectively, whereas a one-unit increase in lack of support was associated with nearly 4-fold increase in episodes of three-day work absence. Similarly, among those with a high hardness commitment dimension, there was a significant elevation in episodes of three-day work absences associated with increase in police specific stress (RR=1.43, 95% CI: 1.14 – 1.80). The administrative/professional and physical/psychological stress scores were each associated with more than a 2-fold elevation in expected count of three-day work absence, whereas an increase in lack of support was associated with nearly 4-fold increase in episodes of three-day work absence.

DISCUSSION

Police work absence can reduce the effectiveness and efficiency of departments. When police personnel are absent, supervisors have to reassign duties to other staff, resulting in fewer officers on patrol, and less protection for the public. Additionally, absence can strain

departmental budgets when it becomes necessary to fill in patrol sectors by requiring overtime from other officers. The present study was among the first to examine specific types of police stress and personal factors which may affect absences. We were able to distinguish associations of stress and the duration of absence, one “voluntary” or three or more consecutive days off “involuntary”, based on a validated taxonomy developed from previous research (Steel, 2003; Chadwick-Jones, et al., 1987).

Our results suggest that officers were more likely to take voluntary 1-day absences associated with the various types of stress at work. After adjusting for potential covariates, a one-unit increase in the (1) total police stress score was associated with a nearly 20% elevation in expected episodes of one-day work absence, (2) administrative stress score was associated with a 52% elevation in expected episodes of one-day work absence, (3) physical/psychological stress score was associated with 54% elevation in expected episodes of one-day work absence, and (4) lack of support score was associated with 75% increase in expected episodes of one-day work absence.

The association between police specific stress and episodes of one-day work absence appeared only among those with a high total hardiness score (above the median). According to Hystad, Eid, and Brevik (2011), high hardy individuals are better able to mobilize resources and choose appropriate actions in a given situation. In our sample, those officers high in hardiness may have chosen to take one day off away from work (i.e. a “mental health day”) as a positive way to deal with work stress. Persons high in hardiness are more likely to employ positive styles of coping to a greater extent than those low in hardiness (Crowley, Hayslip, & Hobdy, 2003).

In particular, for officers high on the challenge dimension of hardiness, there was a positive association between reporting higher perception of stress and one-day work absences. The challenge dimension relates to the ability to interpret potentially stressful events as opportunities. Persons high on the hardiness challenge dimension may believe that changes, rather than stability, are the normal mode of life and that it involves motivating opportunities for personal growth rather than threats to security (Kobasa, 1979; Maddi & Kobasa, 1984). For example, an affirmative response on an example item on the challenge dimension – “changes in routine are interesting to me” – may indicate a motivation to change the stressful situation by removing oneself from the stressor. In the present study, voluntarily taking a day off from work may be a way to satisfy this change.

Concerning three consecutive or greater day absences, we believed these were due primarily to physician documented illness. Consistent with our hypothesis, the association between police stress and three-day work absence in the whole sample was not significant. However, associations were found when we stratified by hardiness. We expected that officers low in hardiness or its dimensions would more likely be absent due to illness, given the association between low hardy persons and health (Kobasa, Maddi, & Kahn, 1982; Bartone, 2000; Sandvik, et al., 2013). Work absence lasting at least three consecutive days (involuntary) appears only among those with a high hardiness score or a high score on the commitment dimension of hardiness. The commitment dimension represents an ability to find meaning in potentially stressful events (e.g. item, “most of my life gets spent doing things that are

worthwhile"). The commitment dimension is believed to be expressed as a tendency to involve oneself in activities and take a genuine interest in, and be curious about the surrounding world. In many respects, commitment is opposite of alienation (Kobasa, Maddi, & Kahn, 1982).

At face value, these results appeared to be inconsistent with existing theory. However, hardiness is but one of many personality variables related to health (Tang & Hammontree, 1992). Regardless of personality differences, it has been previously documented that police officers have significantly higher rates of certain diseases than does the general public and may therefore be off from work more due to illness (Violanti, Vena, & Petralia, 1998).

Associations involving lack of organizational support and work absence were of particular interest. Spielberger et al (1981) commented that officers tend to perceive lack of organizational support as being sources of stress greater than those of physical danger. Previous work has suggested that the police organization does not provide the support necessary for officers to deal with the stress of police work (Paton, et al, 2008). Organizational actions are a source of stress for police officers because they perceive them as beyond their control. A sense of organizational betrayal develops when officers perceive support to be non-existent; undermining feelings of control and commitment to the organization (Reuss-Ianni, 1984; Wechter, 2004). Organizational support positively influences performance when the agency's formal and informal policies reflect concern for the officer as a valuable member. When officers perceive a lack of support, particularly when the agency's management philosophy is autocratic and negative, there may be increased feelings of suspicion toward supervisors and decreased performance (Taylor & Benell 2006).

Limitations

Due to the cross-sectional design of this study, we cannot infer whether higher perception of police specific stress leads to work absences. Personality hardiness and/or its dimensions have limits and may depend heavily upon situational stress and timing. Absence and stress patterns may change depending on differing situations. The influence of other types of life stressors not associated with work can be instrumen- tal on the ability of the officer to cope. McCrae (1984), for example, has demonstrated that the nature of the stressor, whether it involved a loss, a threat, or a challenge greatly influenced the type of responses participants used.

One important advantage in the present study was the availability of objective day-to-day records of absences instead of reliance on subjective participant reports. Another advantage involved the temporal dimension of the data. Analysis of work absence over short time periods of absence may result in highly irregular distributions (Harrison & Hulin, 1989). In the present study we were able to assess absences over a one year period, reducing the methodological problem of skewing and providing a more symmetrical distribution (Steel, 2003). In future research we will have access to additional objective absence records, allowing for analysis over a longer period of time.

Future Research

There are many factors which influence the decision to be absent from work. We have only examined a few. Sigurd et. al., (2011) suggest that future work should extend the concept of hardiness to factors which influence absence outside of the work environment. Previous research has demonstrated that there may be a spillover effect of police stress to the family which may exacerbate conditions at work (Patterson, 2003). Another area of investigation involves gender differences in police stress. In the present study, women had a slightly higher mean number of absences for one day and a significantly higher mean number of three-day absences. This result was consistent with Korlin et. al., (2009) who found that there was a tendency for higher sickness absence among women police. Women are more likely than men to assume responsibility for the family, including care of children (Bond, Thompson, Galinsky, & Prottas, 2002). Women also experience work stress differently than their male counterparts. Berg et. al., (2005) found that while female officers experienced fewer job stressors than their male counterparts; they appraised these stressors as being more severe than men. Gershon, Barocas, Canton, Li, & Vlahov (2009) reported similar levels of perceived work stress among male and female officers. Morash, Kwak, and Haarr (2006) found that female officers reported significantly higher levels of harassment, bias, and lack of influence than their male counterparts. Work hours and overtime may also affect absence. Fekedulegn, et. al., (in press) found the association of total work hours with episodes of one-day work absence was significant in men while the association with episodes of three-day work absence was evident in men and women.

The present research focused primarily on individual level analysis. Evidence exists that there is variance in absence between groups as well as individuals (Rentsch & Steel, 2003). Chadwick, Nicholson, and Brown (1982) suggest the concept of an absence culture, where beliefs and practice define absence (Rentsch & Steel, 2003). In the case of the police, future analysis can look at variation in absence across multiple police districts to determine the effects of factors within those districts that influence absence. This may include levels of stress as well as personal variables. Lastly, there is a need to explore paradigms based on recognition that stress and trauma need not result in such outcomes as absence. As we found in this research, protective factors like hardiness can enhance the police officer's ability to deal with stress and ultimately with its after-effects. Within a more psychologically protective environment, police will have at their disposal a utility that they can use to guide the development and maintenance of resilience in the face of stress and trauma. The problem of work absence is amenable to change through organizational intervention and strategies. Future projects which focus on organizational interventions to improve resilience may facilitate more positive anticipated results in police work absence.

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REFERENCES

Andrew ME, McCanlies EC, Fekedulegn D, Burchfiel CM, Hartley TA, Violanti JM. Hardiness and psychological distress in a cohort of police officers. International Journal of Emergency Mental Health. 2008; 10:137–148. [PubMed: 18788348]

Bartone PT. A short hardiness scale. 1995 http://www.stormingrnedia.us/84/8458/A845892.html.

Berg AM, Hem E, Lau B, Ekeberg O. An exploration of job stress in the Norwegian police service: A cross sectional study. Journal of Occupational and Medical Toxicology. 2006; 1:26–30.

Bond, JT.; Thompson, C.; Galinsky, E.; Prottas, D. Executive Summary. New York, NY: Families and Work Institute; 2002. Highlights of the *National Study of the Changing Workforce*.

Bonnar A. Stress at work: The beliefs and experiences of police superintendents. International Journal of Police Strategies and Management. 2000; 2:285–302.

Chadwick-Jones JK, Brown CA, Nicholson N, Sheppard C. Absence measures: Their reliability and stability in an industrial setting. Personnel Psychology. 1971; 24:463–470.

Crowley BJ, Hayslip B Jr, Hodby J. Psychological hardiness and adjustment to life events in adulthood. Journal of Adult Development. 2003; 70:237–248.

Darr W, Johns G. Work Strain, Health, and absenteeism: a meta-analysis. Journal of Occupational Health Psychology. 2008; 13:293–318. [PubMed: 18837626]

Fekedulegn D, Burchfiel CM, Hartley TA, Buaghman P, Charles LE, Andrew ME, et al. Work hours and absenteeism among police officers. International Journal of Emergency Mental Health and Human Resilience. (in press). (in press).

Fredrickson BL, Tugade MM, Waugh CE, Larkin GR. What good are positive emotions in crises? A prospective study of resilience and emotions following the terrorist attacks on the United States on September 11th, 2001. Journal of Personality and Social Psychology. 2003; 84:365–376. [PubMed: 12585810]

Funk SC. Hardiness: a review of theory and research. Health Psychology, II. 1992:335–345.

Gershon RR, Barocas B, Canton AN, Li X, Vlahov D. Mental, physical, and behavioral outcomes associated with perceived work stress in police officers. Criminal Justice and Behavior. 2009; 36(3):275–289.

Goodman AM. A model for police officer burnout. Journal of Business Psychology. 1990; 5:85–99.

Guest R. A comparison of rates of sickness absence between the male population of Royal Air Force Waddington and the Lincolnshire police force during November, 1980. Journal of Social and Occupational Medicine. 1982; 32:185–189.

Harrison DA, Hulin CL. Investigations of absenteeism: Using event history models to study the absence taking process. Journal of Applied Psychology. 1989; 74:300–316.

Hewitt P, Flett G, Mosher S. The Perceived Stress Scale: Factor structure and relation to depression symptoms in a psychiatric sample. Journal of Psychopathology and Behavioral Assessment. 1992; 14:247–257.

Hystad SW, Eid J, Brevik JI. Effects of psychological hardiness, job demands, and job control on sickness absence: A prospective study. Journal of Occupational Health Psychology. 2011; 16:265–278. [PubMed: 21728435]

Johnsen BH, Eid J, Pallesen S, Bartone PT, Nissestad OA. Predicting transformational leadership in Naval cadets: Effects of hardiness and training. Journal of Applied Social Psychology. 2009; 39:2223–2235.

Kobasa SC. Stressful life events, personality, and health - Inquiry into hardiness. Journal of Personality and Social Psychology. 1979; 37:1–11. [PubMed: 458548]

Kobasa SC, Maddi SR, Kahn S. Hardiness and health: A prospective study. Journal of Personality and Social Psychology. 1982; 42(1):168–177. [PubMed: 7057354]

Kop N, Euwema M. Occupational stress and the use of force by Dutch police officers. Criminal Justice and Behavior. 2001; 28:631–652.

Korlin J, Alexanderson K, Svedberg P. Sickness absence among women in the police: A systematic literature review. Scandinavian Journal of Public Health. 2009; 37:310–319. DOI: 1177/1403494808098508. [PubMed: 19124595]

Linley PA, Joseph S. Positive change following trauma and adversity: a review. Journal of Traumatic Stress. 2004; 17:11–21. [PubMed: 15027788]

Maddi, SR.; Kobasa, SC. The hardy executive: Health under stress. Homewood, IL: Dow Jones-Irwin; 1984.

Maddi, SR. Issues and interventions in stress mastery. In: Friedman, HS., editor. Personality and Disease. New York: John Wiley & Sons; 1990. p. 121-154.

Magnanvita N, Garbarino S. Is absence related to work stress? A repeated cross-sectional study on a special police force. American Journal of Industrial Medicine. 2013 Article first published online: 17 JAN 2013.

Martelli TA, Waters LK, Martelli J. The police stress survey: reliability and relation to job satisfaction and organizational commitment. Psychological Reports. 1989; 64:267–273. [PubMed: 2928440]

McCrae RR. Situational determinants of coping responses: Loss, threat, and challenge. Journal of Personality and Social Psychology. 1984; 46:919–928. [PubMed: 6737200]

Morash M, Kwak DH, Haarr R. Gender differences in the predictors of police stress. Policing: An International Journal of Police Strategies & Management. 2006; 29(3):541–563.

Nickolson N, Payne R. Absence from work: explanations and attributions. Applied Psychology: An International Review. 1987; 36:121–132.

Paton D. Disaster relief work: an assessment of training effectiveness. Journal of Traumatic Stress. 1994; 7:275–288. [PubMed: 8012747]

Paton, D.; Violanti, JM.; Smith, LM. Promoting capabilities to manage posttraumatic stress: Perspectives on resilience. Springfield, Ill: Charles C. Thomas; 2003.

Paton D, Violanti JM, Johnston P, Burke K, Clarke J, Keenan D. Stress shield: A model of police resiliency. International Journal of Emergency Mental Health. 2008; 10:95–107. [PubMed: 18788345]

Patterson GT. Reconceptualizing traumatic incidents experienced by law enforcement personnel. Australasian Journal of Disaster Trauma Studies. 2002:2001–2002.

Patterson GT. Examining the effects of coping and social support on work and life stress among police officers. Journal of Criminal Justice. 2003; 31:215–226.

Penley JA, Tomaka J, Weibe JS. The association of coping to physical and psychological health outcomes: A mete-analytic review. Journal of Behavioral Medicine. 2002; 25:551–603. [PubMed: 12462958]

Rentsch JR, Steel RP. What does unit-level absence mean? Issues for future unit level absence research. Human Resource Management Review. 2003; 13:185–202.

Reuss-Ianni E. Two cultures of policing: Street cops and management cops. Contemporary Sociology. 1984; 13(4):448–449.

Sandvik AM, Bartone PT, Hystad SW, Phillips TM, Thayer JF, Johnsen BH. Psychological hardiness predicts neuroimmunological responses to stress. Psychological Health & Medicine. 2013 published online.

Speilberger C, Grier K, Greenfield G. Major dimensions of stress in law enforcement. Florida Fraternal Order of Police Journal. 1981 Spring;:10–12.

Spielberger, CD.; Westberry, LG.; Grier, KS.; Greenfield, G. Tampa, FL: University of South Florida, College of Social and Behavioral Sciences; 1981. The Police Stress Survey: sources of stress in law enforcement (Human Resources Institute Monograph Series Three, No. 6).

Steel RP. Methodological and operational issues in the construction of absence variables. Human Resource Management Review. 2003; 13:243–251.

Tang TL, Hammontree ML. The effects of hardiness, police stress, and life stress on police officers illness and absenteeism. Public Personnel Management. 1992; 21:493–510.

Taylor A, Bennell C. Operational and organizational police stress in an Ontario police department: A descriptive study. Canadian Journal of Police and Security Services. 2006; 4:223–234.

Violanti JM, Aron F. Ranking police stressors. Psychological Reports. 1994; 75:824–826. [PubMed: 7862790]

Violanti JM, Vena JE, Petralia S. Mortality of a police cohort: 1950–1990. American Journal of Industrial Medicine. 1998; 33:366–373. [PubMed: 9513643]

Violanti JM, Vena JE, Burchfiel CM, Sharp DS, Miller DB, Andrew ME, et al. The Buffalo Cardio-Metabolic Occupational Police Stress (BCOPS) Pilot Study: Design, Methods, and Measurement. Annals of Epidemiology. 2006; 16:148–156. [PubMed: 16165369]

Wechter J. Investigating citizen complaints is different: Special challenges of investigating citizen complaints against police officers. A Report by the Police Professionalism Initiative of the University of Nebraska. 2004 from http://www.nacole.orgjjaysonspaper.pdf.

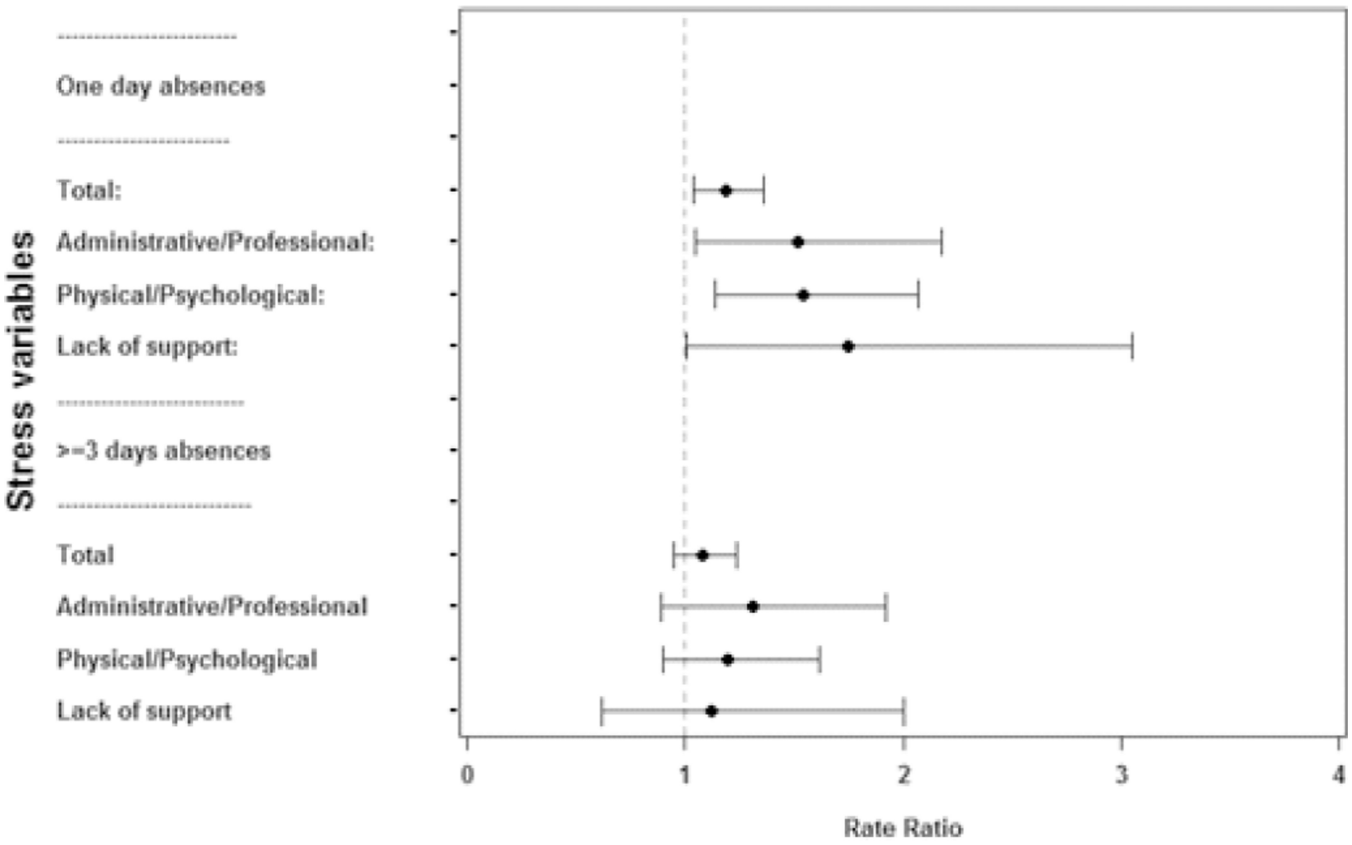

Figure 1. Forest Plot showing rate ratios of one-day and three-day work absences as a function of police specific stress. Rate ratios were adjusted for demographic and life style variables.*

* This forest plot is a graphical representation of associations between police stress and work absence in this study. The left-hand column lists the types of police stress. The right-hand column is a plot of the estimated rate ratios for each of the stress types incorporating confidence intervals represented by horizontal lines. The dashed vertical line represents no effect. If the confidence interval crosses this line, it demonstrates that at the given level of confidence the effect size is not significant. The plot demonstrates that one-day absence is significantly associated with police stressors while three-day absences are not.

Table 1

Demographic and life style characteristics of study participants, BCOPS Study, 2004–2009.

Characteristics	N	% (±SD)
Gender		
Male	243	72.1
Female	94	27.9
Race		
White	257	77.4
Black	70	21.1
Hispanic	5	1.5
Education		
≤High school/GED	36	10.8
College <4 yrs	188	56.1
College 4+ yrs	111	33.1
Marital status		
Single	41	12.2
Married	245	73.1
Divorced	49	14.6
Smoking status		
Current	59	17.7
Former	75	22.5
Never	199	59.7
Rank		
Patrol officer	251	74.7
Sergeant/Lieutenant	41	12.2
Captain/Detective	44	13.1
Body mass index(kg/m^2)		
Normal	62	18.4
Overweight	140	41.6
Obese	134	40.0
Age (years)	337	40.9 ± 6.4
Years of service (years)	336	14.3 ± 6.6
Body mass index(kg/m^2)	336	29.3 ± 4.8
No. of alcohol drinks/week	334	5.0 ± 8.0
Average hours of sleep/day	335	6.2 ± 1.1
Hours of physical activity/week¥	334	15.9 ± 13.9
Stress scores (sum of ratings on items)		
Total	337	2316 ± 1247
Administrative/Professional	337	781 ± 453
Physical/Psychological	337	1060 ± 563
Lack of support	337	475 ± 296
Frequency of occurrence (past year)	337	389 ± 215

Results for continuous variables are means ±SD.

¥ Physical activity hours include occupational, household and leisure time activities

Table 2

Associations of demographic and life style characteristics with episodes of work absence.

		One-day work absence		≥ 3 day work absence	
Characteristics	**N**	**Mean ±SD**	**p-value**	**Mean ±SD**	**P-value**
Gender					
Women	94	2.6 ± 2.8	0.092	1.8 ± 2.7	0.004
Men	243	2.0 ± 3.1		1.1 ± 1.8	
Race+					
White	257	2.4 ± 3.1	0.137	1.2 ± 1.9	0.212
Black	70	1.6 ± 2.9		1.5 ± 2.6	
Hispanic	5	0.8 ± 1.3		2.8 ± 3.8	
Education+					
≤High school/GED	36	1.7 ± 2.7	0.579	1.1 ± 1.4	0.195
College <4 yrs	188	2.3 ± 3.2		1.5 ± 2.4	
College 4+ yrs	111	2.1 ± 2.9		1.1 ± 1.8	
Marital status+					
Single	41	1.8 ± 2.2	0.650	1.7 ± 2.8	0.316
Married	245	2.2 ± 3.0		1.2 ± 2.0	
Divorced	49	2.2 ± 3.8		1.6 ± 2.1	
Smoking status+					
Current	59	2.8 ± 3.3	0.163	1.7 ± 2.1	0.174
Former	75	1.7 ± 2.9		1.4 ± 2.2	
Never	199	2.2 ± 3.0		1.2 ± 2.1	
Rank					
Patrol officer	251	2.7 ± 3.3	0.001	1.3 ± 1.9	0.735
Sergeant/Lieutenant	41	0.7 ± 1.7		1.5 ± 2.5	
Captain/Detective	44	0.6 ± 1.5		1.4 ± 2.9	
Age (years)	337	r = −0.22	0.001	r = 0.09	0.085
Years of service (years)	336	r = −0.30	0.001	r = 0.09	0.073
Body mass index(kg/m2)	336	r = −0.03	0.567	r = −0.11	0.052
No. of alcohol drinks/week	334	r = 0.03	0.590	r = 0.04	0.520

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	One-day work absence		≥ 3 day work absence	
Characteristics	**N**	**Mean ±SD**	**p-value**	**Mean ±SD**	**P-value**
Average hours of sleep/day	335	r = 0.12	0.003	r = −0.07	0.185
Hours of physical activity/week	334	r = 0.03	0.642	r = −0.02	0.722

Results for the categorical covariates are means ± SD. Results for the continuous covariates are correlation coefficients (r).

Table 3

The association of police specific stress and episodes of work absence

	One-day absence		≥ 3-days absence	
	Unadjusted	Multivariate[1] adjusted	Unadjusted	Multivariate adjusted
	RR (95% CI)	RR (95% CI)	RR (95% CI)	RR (95% CI)
Total	1.22 (1.06 – 1.41)	1.19 (1.04 – 1.36)	1.08 (0.95 – 1.23)	1.08 (0.95 – 1.24)
Administrative/Professional	1.64 (1.11 – 2.43)	1.52 (1.05 – 2.18)	1.30 (0.91 – 1.85)	1.31 (0.89 – 1.92)
Physical/Psychological	1.67 (1.22 – 2.27)	1.54 (1.14 – 2.07)	1.17 (0.89 – 1.55)	1.20 (0.90 – 1.62)
Lack of support	1.65 (0.92 – 2.97)	1.75 (1.01 – 3.05)	1.17 (0.67 – 2.06)	1.12 (0.62 – 2.00)

[1] Multivariate model adjusted for age, race, smoking status, rank, alcohol consumption and sleep hours.

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Table 4

The association of police specific stress and episodes of one-day work absence stratified by hardiness scores (low/high).

	Low			High	
	Unadjusted	**Multivariate[1] adjusted**		**Unadjusted**	**Multivariate adjusted**
	RR (95% CI)	**RR (95% CI)**	**p-value[2]**	**RR (95% CI)**	**RR (95% CI)**
			Total hardiness		
	n = 182			n = 155	
Total	1.08 (0.90 – 1.29)	1.12 (0.94 – 1.33)	0.275	1.48 (1.17 – 1.89)	1.43 (1.15 – 1.80)
Administrative/Professional	1.18 (0.72 – 1.92)	1.32 (0.82 – 2.11)	0.342	2.62 (1.37 – 5.02)	2.30 (1.23 – 4.31)
Physical/Psychological	1.30 (0.88 – 1.92)	1.36 (0.92 – 1.99)	0.192	2.44 (1.46 – 4.06)	2.17 (1.35 – 3.47)
Lack of support	1.03 (0.50 – 2.12)	1.37 (0.67 – 2.83)	0.330	3.39 (1.27 – 9.05)	4.00 (1.56 – 10.3)
			Challenge		
	n = 193			n = 144	
Total	1.14 (0.94 – 1.38)	1.16 (0.96 – 1.40)	0.597	1.32 (1.07 – 1.64)	1.33 (1.08 – 1.62)
Administrative/Professional	1.25 (0.75 – 2.08)	1.34 (0.81 – 2.22)	0.514	2.38 (1.30 – 4.37)	2.21 (1.25 – 3.90)
Physical/Psychological	1.53 (1.00 – 2.35)	1.55 (1.02 – 2.36)	0.756	1.83 (1.15 – 2.92)	1.79 (1.16 – 2.79)
Lack of support	1.35 (0.62 – 2.95)	1.48 (0.69 – 3.19)	0.490	2.09 (0.86 – 5.09)	2.85 (1.24 – 6.55)
			Commitment		
	n = 182			n = 155	
Total	1.18 (0.98 – 1.42)	1.19 (1.00 – 1.42)	0.046	1.24 (0.98 – 1.55)	1.16 (0.94 – 1.42)
Administrative/Professional	1.46 (0.88 – 2.41)	1.51 (0.94 – 2.42)	0.061	1.79 (0.94 – 3.41)	1.43 (0.78 – 2.60)
Physical/Psychological	1.63 (1.08 – 2.45)	1.59 (1.07 – 2.37)	0.030	1.60 (0.99 – 2.60)	1.37 (0.88 – 2.11)
Lack of support	1.39 (0.65 – 2.98)	1.71 (0.82 – 3.57)	0.045	1.82 (0.72 – 4.65)	1.79 (0.74 – 4.35)
			Control		
	n = 226			n = 111	
Total	1.16 (0.97 – 1.37)	1.13 (0.96 – 1.33)	0.231	1.38 (1.07 – 1.78)	1.27 (0.99 – 1.63)
Administrative/Professional	1.40 (0.87 – 2.24)	1.29 (0.82 – 2.01)	0.266	2.31 (1.15 – 4.64)	1.82 (0.92 – 3.61)
Physical/Psychological	1.55 (1.07 – 2.25)	1.41 (0.98 – 2.02)	0.206	1.97 (1.12 – 3.44)	1.67 (0.98 – 2.86)
Lack of support	1.22 (0.61 – 2.44)	1.39 (0.71 – 2.70)	0.232	3.29 (1.13 – 9.53)	2.47 (0.86 – 7.08)

[1] Multivariate model adjusted for age, race, smoking status, rank, alcohol consumption and sleep hours.

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[2] p-values for interaction between stress scores and hardiness.

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Table 5

The association of police specifies stress and episodes of three-day work absence stratified by hardiness scores (low/high).

	Low			High	
	Unadjusted	**Multivariate[1] adjusted**		**Unadjusted**	**Multivariate adjusted**
	RR (95% CI)	**RR (95% CI)**	**p-value[2]**	**RR (95% CI)**	**RR (95% CI)**
			Total hardiness		
	n = 182			n = 155	
Total	0.95 (0.80 – 1.12)	0.97 (0.80 – 1.17)	0.827	1.27 (1.05 – 1.55)	1.52 (1.22 – 1.90)
Administrative/Professional	0.93 (0.58 – 1.48)	1.03 (0.61 – 1.74)	0.756	1.95 (1.14 – 3.33)	3.26 (1.75 – 6.07)
Physical/Psychological	0.83 (0.57 – 1.21)	0.88 (0.59 – 1.32)	0.971	1.75 (1.15 – 2.67)	2.44 (1.55 – 3.85)
Lack of support	0.87 (0.43 – 1.77)	0.87 (0.40 – 1.91)	0.642	1.87 (0.75 – 4.68)	3.88 (1.44 – 10.49)
			Challenge		
	n = 193			n = 144	
Total	1.01 (0.85 – 1.21)	0.97 (0.81 – 1.18)	0.452	1.17 (0.97 – 1.42)	1.18 (0.95 – 1.46)
Administrative/Professional	1.19 (0.75 – 1.91)	1.07 (0.64 – 1.78)	0.476	1.47 (0.85 – 2.55)	1.50 (0.81 – 2.76)
Physical/Psychological	0.98 (0.66 – 1.44)	0.90 (0.60 – 1.36)	0.384	1.45 (0.97 – 2.18)	1.48 (0.93 – 2.34)
Lack of support	0.91 (0.44 – 1.90)	0.83 (0.38 – 1.78)	0.609	1.72 (0.72 – 4.14)	1.56 (0.60 – 4.05)
			Commitment		
	n = 182			n = 155	
Total	0.96 (0.81 – 1.13)	0.95 (0.80 – 1.14)	0.544	1.24 (1.01 – 1.53)	1.43 (1.14 – 1.80)
Administrative/Professional	0.99 (0.63 – 1.57)	1.04 (0.63 – 1.70)	0.519	1.78 (1.02 – 3.13)	2.67 (1.39 – 5.12)
Physical/Psychological	0.86 (0.59 – 1.24)	0.85 (0.57 – 1.26)	0.652	1.67 (1.08 – 2.57)	2.15 (1.36 – 3.42)
Lack of support	0.85 (0.43 – 1.70)	0.74 (0.36 – 1.54)	0.382	1.90 (0.72 – 4.99)	3.69 (1.28 – 10.63)
			Control		
	n = 226			n = 111	
Total	1.06 (0.91 – 1.24)	1.05 (0.90 – 1.24)	0.452	1.08 (0.85 – 1.38)	1.14 (0.89 – 1.46)
Administrative/Professional	1.27 (0.84 – 1.94)	1.24 (0.79 – 1.94)	0.372	1.25 (0.64 – 2.43)	1.39 (0.69 – 2.82)
Physical/Psychologial	1.11 (0.79 – 1.54)	1.10 (0.78 – 1.56)	0.575	1.26 (0.75 – 2.11)	1.39 (0.82 – 2.35)
Lack of support	1.16 (0.60 – 2.23)	1.09 (0.55 – 2.15)	0.365	1.06 (0.35 – 3.21)	1.42 (0.45 – 4.54)

[1] Multivariate model adjusted for age, race, smoking status, rank, alcohol consumption and sleep hours.

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[2] p-values for interaction between stress scores and hardiness.