Mindfulness (2016) 7:851–858
DOI 10.1007/s12671-016-0522-z

ORIGINAL PAPER

# Changes in Facets of Mindfulness Predict Stress and Anger Outcomes for Police Officers

**Aaron L. Bergman**[1] · **Michael S. Christopher**[1] · **Sarah Bowen**[1]

Published online: 6 April 2016


**Abstract** Policing is widely considered to be one of the most stressful occupations, wherein organizational and operational stressors put law enforcement officers' (LEO) physical and mental health at risk. This stress is often experienced within a context of excessive anger, which decreases officer well-being and has the potential to negatively impact public well-being as well. Police officers are often left to manage stress and anger in a cultural context that does not support help-seeking behavior and that encourages maladaptive coping mechanisms. The current study examined whether increases in facets of mindfulness accounted for reductions in these outcomes. Results demonstrated that discrete facets of mindfulness accounted for significant differential variance in the reduction of organizational stress, operational stress, and anger. Implications for clinical practice are discussed.

**Keywords** Police · Law enforcement · Anger · Stress · Mindfulness · Facets · Resilience

## Introduction

Law enforcement officers (LEOs) have one of the most stressful professions, in which they are subjected to both operational and organizational stressors (United States Bureau of Labor Statistics January (2014). Operational stressors include suspect encounters, exposure to violence and death, pressure to perform efficiently, and potentially life-threatening situations (McCraty and Atkinson 2012; Waters and Ussery 2007). Organizational stressors include departmental politics, impending litigation, irregular shifts, changing policies, perceived miscarriages of justice, and lack of opportunity for promotion and specialization, all of which compound the impact of stressors related to actual policing (Gelderen et al. 2007; Juniper et al. 2010; Shane 2010; Tuckey et al. 2012). Police officers often face these stressors without being prepared to manage the cognitive, affective, behavioral, and physiological consequences of chronic stress and acute trauma (Anshel 2000) and often struggle to cope with stress and its consequences within a context of co-occurring anger (Abernathy 1995). As a result, officers may be prone to poor coping when faced with these challenges and may employ ineffective strategies, such as avoidance and alcohol use (Menard and Arter 2013). In turn, these poor coping strategies have been associated with increased rates of depression (Wang et al. 2010), post-traumatic stress disorder (PTSD; Marmar et al. 2006), and substance use disorders (Rees and Smith 2008) among LEOs relative to the general population, the consequences of which can be fatal; an officer is more likely to die by suicide than in the line of duty (Miller 2006).

In the general population, anger has been associated with mental health concerns including major depressive disorder, dysthymia, bipolar disorders, agoraphobia, specific phobia, panic disorder, generalized anxiety disorder, obsessive-compulsive disorder, PTSD, and substance use disorders (Barrett et al. 2013). Anger seems to exacerbate consequences of these disorders. For example, depression with comorbid anger attacks is associated with more suicidal behavior than depression alone (Painuly et al. 2007). Anger negatively impacts physical health as well and is associated with cigarette smoking (Cougle et al. 2013), quickened physiological arousal (Rhodes et al. 2002), coronary heart disease, and reduced

✉ Aaron L. Bergman
abergman@pacificu.edu

[1] School of Professional Psychology, Pacific University, 190 SE 8th Avenue, Hillsboro, OR 97123, USA

general longevity (Smith et al. 2004). In the workplace, anger has been shown to moderate the relationship between workplace stressors and counterproductive work behavior, such that these stressors predict the counterproductive behavior when anger is elevated (Ilie et al. 2012). Additionally, specific work-related stressors are associated with a variety of physical health problems (Schaubroeck et al. 2001) and are more predictive of aggression than general interpersonal stressors (Sprague et al. 2011).

Anger appears to be particularly problematic in the work of policing. Among LEOs, anger is negatively correlated with constructive problem solving (Arslan 2010) and ethical decision-making (Kligyte et al. 2013), and positively related to attributing hostile intention and inclination to punish (Ask and Pina 2011), and to punish more harshly (Seip et al. 2014). Similarly, anger is associated with selective attention to hostile social cues, interpretation of behavior as hostile, and tendency to ruminate over past anger-provoking experiences (Owen 2011). Moreover, the relationship between anger and stress can be amplified when the potential for exposure to traumatic stress is high. For example, Meffert et al. (2008) found that trait anger predicted PTSD in police recruits, and that occurrences of PTSD were associated with officers' greater state anger. The various operational and organizational stressors of policing may increase LEO's anger towards suspects (Rajaratnam et al. 2011), with this anger elevation subsequently increasing the negative impact of other stressors on officers' well-being (Maan Diong et al. 2005). Anger and stress, particularly in the context of a traumatic environment, appear to have negative consequences for LEOs and the citizens they serve.

Because police culture values emotional toughness, suppression, and control (Burke 1994), LEOs are less likely to access mental health services (Fox et al. 2012). In fact, anger is one of the most commonly suppressed emotions among LEOs and has been shown to contribute to emotional exhaustion (Van Gelderen et al. 2011). Data from other populations suggest, however, that interventions may mitigate these outcomes. Whiting and Bryant (2007) found that post-trauma cognitive appraisals mediated the relationship between daily stressors and post-traumatic anger, and group cognitive-behavior therapy (CBT) has been show to reduce anger in drivers (Deffenbacher et al. 2002). However, therapy retention rates with LEOs are low (Siddle et al. 2003), and although CBT reduced self-reported general anger among officers, it did not appear to improve self- and other-reported anger arousal (Gerzina and Drummond 2000). Other wellness programs have included elements of CBT (Gersons et al. 2000), visualization techniques (Arnetz et al. 2009), progressive muscle relaxation (Ranta 2009), stress inoculation (Shipley and Branski 2002), and cognitive decision-making training (Alpert and Rojek 2011), all of which have shown positive effects on psychological and physiological health. However, when examined collectively via a recent meta-analysis, Patterson et al. (2012) found small effect sizes, concluding that the interventions "had no significant effect on psychological, behavioral, or physiological outcomes" (p. 27). Given this finding, researchers must continue to look towards novel and effective wellness programs for police officers, with a particular focus on stress and anger. One approach that may be well suited to target these outcomes is mindfulness training.

Mindfulness-based stress reduction (MBSR; Kabat-Zin 1990) is the most widely researched mindfulness-based intervention (MBI) and has been shown to significantly reduce stress across a wide range of populations and settings (De Vibe et al. 2012; Eberth and Sedelmier 2012). MBIs also show promise as an innovative approach to addressing anger (Fix and Fix 2013), which has been supported by review (Wright et al. 2009) and small study design (Singh et al. 2014). Mindfulness has been shown to be negatively associated with aggression and hostile attribution (Heppner et al. 2008) and to reduce anger among psychotherapists in training (Rodriguez Vega et al. 2014) and in individuals in correctional settings (Shonin et al. 2013). Additionally, greater dispositional mindfulness is associated with lower levels of anger, aggression, and hostile attribution bias in criminal justice professionals (Kelley and Lambert 2012). Moreover, nonjudging of internal experience moderated the relationship between acting with awareness and anger rumination in college students (Peters et al. 2013), suggesting reductions may be a result of increased awareness of and defusion from these ruminative experiences. Anger management also mediated the relationship between acting with awareness and nonreactivity to physical aggression among college students (Shorey et al. 2014). Other specific facets of mindfulness that appear important in the reduction of anger are curiosity and decentering, both of which were associated with decreased anger after a mindfulness intervention (Ortner and Zelazo 2014).

Recently, Christopher et al. (2015) examined the feasibility and efficacy of a mindfulness-based intervention (Mindfulness-Based Resilience Training—MBRT), designed to address the specific needs and culture of LEOs. Results showed significant reductions in anger and stress and improvement in several other psychosocial variables among participants immediately following the intervention. Given the literature suggesting associations between constituent elements of mindfulness and stress and anger, further study of which specific aspects of mindfulness contribute to these outcomes with LEOs in an intervention context is warranted. The present study is a secondary analysis of the pilot MBRT trial (Christopher et al. 2015), examining which of the three hypothesized facets of mindfulness (acting with awareness, nonjudgment, and nonreactivity; Baer et al. 2006) accounted for most variance in the reduction of both anger and stress among LEOs who received MBRT, and to ultimately further our understanding of which elements of mindfulness may be most helpful in working with anger and stress for police officers.

## Method

### Participants

Participants ($N = 62$) were recruited from the municipal police department of a medium-sized city in the Pacific Northwestern USA. Three separate cohorts of officers underwent MBRT offered at different times to accommodate the variable nature of their schedules. Three participants withdrew (citing lack of time or scheduling conflicts) before the program commenced; thus, 59 officers began the program. Seven participants dropped out before the fourth session, three between sessions four and eight, and two were unable to complete all post-MBRT measures, resulting in a final sample of 47 (see Table 1). The final sample was comprised of 64 % male officers, the average age was 42.75 years (SD = 7.25; range = 30–61), and in terms of race and ethnicity, 40 (85 %) were Euro-American; 6 (10 %) were Latino/a American; and 2 (5 %) identified as other. The average experience level was 13.83 years (SD = 7.52; range = 2–25) of police service. The various ranks of participants were 37 officers, 7 sergeants, and 3 lieutenants.

### Procedure

MBRT was developed to enhance physiological and psychological resilience in the face of the stressors common in the work and home lives of police officers. Like MBSR, MBRT is an 8-week experiential curriculum designed to help participants cultivate a practical stance of mindfulness to effectively manage daily stressors. Many elements and exercises of MBRT are drawn from MBSR (Kabat-Zin 1990), with adaptations made to engage and respond to the specific culture and needs of LEOs (see Christopher et al. 2015 for full description of the intervention).

**Table 1** Pre-post-intervention means and standard deviations

| | Pre-MBRT | Post-MBRT |
|---|---|---|
| PSQ-Org | 68.02 (19.94) | 58.29 (20.99) |
| PSQ-Op | 61.37 (18.19 | 49.64 (15.74) |
| PROMIS | 18.91 (5.68) | 14.63 (4.45) |
| AA | 14.43 (3.62) | 17.70 (3.41) |
| NJ | 17.11 (3.37) | 19.96 (3.10) |
| NR | 15.02 (2.53) | 17.89 (3.00) |

Mean (standard deviation)

*PSQ-Org* Police Stress Questionnaire, organizational subscale; *PSQ-Op* Police Stress Questionnaire, operational subscale; *PROMIS* PROMIS Anger Short Form; *AA* act with awareness mindfulness facet; *NJ* nonjudgmental mindfulness facet; *NR* nonreactivity mindfulness facet

### Measures

The *Five Facet Mindfulness Questionnaire* (FFMQ; Baer et al. 2006) is a 39-item measure assessing individuals' dispositional tendency to be mindful in daily life using a Likert-type scale from 1 (*never or rarely true*) to 5 (*very often or always true*). The FFMQ consists of five facets of mindfulness: observing, describing, acting with awareness, nonjudging of inner experience, and nonreactivity to inner experience. Higher scores indicate greater mindfulness. The FFMQ has demonstrated good internal consistency and convergent validity (Baer et al. 2006, 2008). To reduce participant burden, we used the 24-item version of the FFMQ developed by Bohlmeijer et al. (2011) and only administered the acting with awareness, nonjudging of inner experience, and nonreactivity to inner experience subscales because the describing and observing facets have been found to be relatively less reliable across individuals with differing levels of meditation experience (e.g., Christopher et al. 2012; de Bruin et al. 2012). Each of these facets had five items resulting in a 15-item scale. Internal consistency of the scale in the present sample was good (acting with awareness pre-MBRT $\alpha = 0.79$; acting with awareness post-MBRT $\alpha = 0.88$; nonjudging pre-MBRT $\alpha = 0.84$; nonjudging post-MBRT $\alpha = 0.86$; nonreactivity pre-MBRT $\alpha = 0.72$; nonreactivity post-MBRT $\alpha = 0.84$).

The 8-item short form of the *Patient Reported Outcomes Measurement Information System* (PROMIS®) was used to assess anger as a specific health domain. Items are rated on a 5-point Likert-type scale (1 = *Never* to 5 = *Always*). Higher scores indicate higher anger. PROMIS short forms have demonstrated acceptable psychometric properties as stand-alone narrowband measures (Cella et al. 2007). Reliability for the current sample was good (pre-MBRT $\alpha = 0.89$; post-MBRT $\alpha = 0.89$).

*The Police Stress Questionnaire* (PSQ; McCreary and Thompson 2006) is a 40-item questionnaire consisting of two subscales measuring operational stressors (PSQ-Op; 20 job content items) and organizational stressors (PSQ-Org; 20 job content items) on a seven-point Likert-type scale, ranging from 1 (*no stress at all*) to 7 (*a lot of stress*), with higher summed scores indicating greater stress. The organizational and operational subscales have demonstrated excellent internal consistency ($\alpha$'s > 0.90), factorial validity, and expected correlations with other constructs (Shane 2010). Reliability in the current study ranged from good to excellent (PSQ-Org pre-MBRT $\alpha = 0.86$; PSQ-Op pre-MBRT $\alpha = 0.88$; PSQ-Org post-MBRT $\alpha = 0.93$; PSQ-Op post-MBRT $\alpha = 0.91$).

### Data Analysis

To create measures of change across the training, we regressed each variable at the end of the training on the same variable at baseline and saved the standardized residuals (e.g., we

regressed responses on the FFMQ at post-MBRT on FFMQ responses at baseline); creating a residualized change score variable for each measure. This way of creating a change score statistically accounts for regression towards the mean and has been used in past research in MBSR (Greeson et al. 2011). Pearson's zero-order correlations using the residualized change scores were used to investigate whether changes in mindfulness facet scores from pre- to post-MBRT correlated with changes in outcome measures across the same assessment points. To determine whether increases in each of the three facets of mindfulness (i.e., acting with awareness, nonjudging of inner experience, and nonreactivity) were predictive of anger, police operational stress, and police organizational stress, three hierarchical linear regression analyses were used. In each regression, acting with awareness, nonjudging, and nonreactivity residualized change scores were entered as predictors of post-MBRT anger, police operational stress, and police organizational stress scores in step two, after controlling for pre-MBRT anger, police operational stress, and police organizational stress scores, respectively, in step one. For the regression analyses, $p$ value was adjusted to 0.01 to account for potential inflation of type I error resulting from multiple independent regressions.

## Results

All variables approximated a normal distribution, with no problematic univariate or multivariate outliers. As shown in Table 1, the means for all variables moved in the expected direction from pre- to post-MBRT. As shown in Table 2, all zero-order correlations between residualized change scores for the three facets of mindfulness (acting with awareness, nonjudging of inner experience, and nonreactivity) and the three outcomes variables (anger, police operational stress, and police organizational stress) were statistically significant (all $p$'s <0.05). No demographic variables were statistically significant correlates of any of the outcome variables.

In the anger regression model (Table 3), pre-MBRT anger accounted for a significant amount of variance in the prediction of outcome anger ($\Delta R^2 = 0.09$, $\Delta F = 4.07$, $p = 0.05$) in step one. In the second step, adding the residualized change scores for the three facets of mindfulness also accounted for a significant amount of variance ($\Delta R^2 = 0.41$, $\Delta F = 10.95$, $p < 0.001$). Increased acting with awareness ($\beta = -0.38$, $p = 0.004$) and nonjudging ($\beta = -0.42$, $p = 0.001$) were significant predictors of reductions in post-MBRT anger, but nonreactivity was not ($\beta = -0.02$, $p = 0.90$).

Baseline operational stress significantly predicted outcome operational stress ($\Delta R^2 = 0.32$, $\Delta F = 20.99$, $p < 0.001$). In the second step, adding the residualized change scores for the three facets of mindfulness also accounted for a significant amount of variance ($\Delta R^2 = 0.51$, $\Delta F = 11.11$ $p < 0.001$). Nonjudging ($\beta = -0.34$, $p = 0.007$) was the only individual facet of mindfulness to significantly predict outcome operational stress. Acting with awareness ($\beta = -0.13$, $p = 0.31$) and nonreactivity ($\beta = -0.08$, $p = 0.53$) did not.

Lastly, baseline organizational stress significantly predicted outcome organizational stress ($\Delta R^2 = 0.27$, $\Delta F = 16.19$, $p < 0.001$). As with the other two models, in the second step, adding the residualized change scores for the three facets of mindfulness also accounted for a significant amount of variance ($\Delta R^2 = 0.23$, $\Delta F = 6.48$, $p = 0.001$). In step two, only increased acting with awareness ($\beta = -0.35$, $p = 0.01$) significantly predicted outcome organizational stress, whereas nonjudging ($\beta = -0.11$, $p = 0.35$) and nonreactivity ($\beta = -0.15$, $p = 0.28$) did not.

## Discussion

Stress and anger are significant concerns for LEOs. Effectively addressing these concerns is of vital importance not only for the officers' physical and mental health (Hartley et al. 2011) but also for society at large, given that impaired officers can negatively impact the public (Rajaratnam et al. 2011). MBRT was recently developed to address the unique stressors encountered by LEOs and has demonstrated preliminary effectiveness in reducing both stress and anger among LEOs (Christopher et al. 2015). To further understand these promising outcomes, the current study examined which specific facets of mindfulness accounted for the reduction in officer anger, operational stress, and organizational stress. By understanding how changes in components of mindfulness might account for these reductions, mental health practitioners can attempt to tailor interventions to target these specific facets to more efficiently respond to the needs of the officers with whom they are working.

Increases in acting with awareness and nonjudging appeared to partially account for statistically significant reductions in anger over the course of the intervention, while nonreactivity did not. This is consistent with Peters et al. (2013), who found that nonjudging moderated the relationship between acting with awareness and angry rumination, both of which significantly accounted for reductions in anger. Shorey et al. (2014) also reported a relationship between acting with awareness and physical aggression, though these authors described a mediating role of anger management and, inconsistent with current nonsignificant findings, included nonreactivity as a predictor variable in the mediation model. Our findings may seem counterintuitive, as reactivity appears closely related to anger; thus, we might expect increases in nonreactivity would account for significant reductions in anger. However, it is possible that police officer training instills a functional reactivity in officers as a way to quickly respond to

**Table 2** Correlations between residualized change scores for study variables

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. Act with awareness | | | | | | | | | | |
| 2. Nonjudgmental | 0.31* | | | | | | | | | |
| 3. Nonreactivity | 0.51** | 0.40** | | | | | | | | |
| 4. Operational stress | 0.33* | −0.50** | −0.34* | | | | | | | |
| 5. Organizational stress | −0.51** | −0.31* | −0.41** | 0.67** | | | | | | |
| 6. Anger | −0.51** | −0.53** | −0.36* | 0.51** | 0.50** | | | | | |
| 7. Sex | −0.01 | 0.19 | 0.12 | −0.16 | −0.12 | −0.11 | | | | |
| 8. Age | −0.18 | 0.12 | −0.14 | −0.17 | 0.15 | 0.07 | 0.04 | | | |
| 9. Years on force | 0.03 | 0.29* | −0.21 | −0.21 | −0.08 | −0.19 | 0.05 | 0.46** | | |
| 10. Race | 0.08 | 0.13 | 0.24 | 0.25 | −0.27 | −0.13 | −0.06 | −0.08 | −0.04 | |
| 11. Position on force | −0.21 | −0.22 | −0.16 | 0.14 | −0.06 | 0.03 | 0.35** | 0.04 | 0.22 | −0.04 |

*$p < 0.05$ (two-tailed); **$p < 0.01$ (two-tailed)

stressors that is potentially not as problematic for LEOs. Furthermore, acting with awareness may increase officers' objectivity when observing their own cognitive and physiological process of anger arousal and reduce the problematic impact of the experience, similar to the interaction between curiosity and decentering that has been previously associated with reduced anger (Ortner and Zelazo 2014). Analytical rumination has been demonstrated to maintain anger arousal in laboratory settings (Denson et al. 2012), so increasing nonjudging could potentially undermine this process and contribute to the decrease in anger. By increasing nonjudging, perhaps officers are better able to defuse from thoughts, events, or situations that contribute to persisting maintenance of angry arousal.

Only increased nonjudging accounted for statistically significant decreases in operational stress, whereas acting with awareness and nonreactivity did not. Cash and Whittingham (2010) found similar results among college students and meditators, whereby nonjudging was found to predict lower levels of stress-related symptomatology, among other outcomes. This suggests policing operations may also be impacted by the officer's judgment of self or others. Increasing a

**Table 3** Regression outcomes for anger, operational stress, and organizational stress

| | | | | | | |
|---|---|---|---|---|---|---|
| Anger change score | | | $\Delta R^2$ | *B* | SEB | β | *p* |
| | | Step 1 | 0.09 | | | | |
| | Baseline anger | | | 0.27 | 0.13 | 0.29 | 0.05 |
| | | Step 2 | 0.41 | | | | |
| | Δ Acting with awareness | | | −2.74 | 0.91 | −0.38 | 0.004 |
| | Δ Nonjudging | | | −3.06 | 0.88 | −0.42 | 0.001 |
| | Δ Nonreactivity | | | −0.11 | 0.94 | −0.02 | 0.904 |
| Operational stress change score | | | $\Delta R^2$ | | | | |
| | | Step 1 | 0.32 | | | | |
| | Baseline operational stress | | | 0.53 | 0.12 | 0.56 | 0.000 |
| | | Step 2 | 0.20 | | | | |
| | Δ Acting with awareness | | | −2.27 | 2.20 | −0.13 | 0.308 |
| | Δ Nonjudging | | | −5.86 | 2.08 | −0.34 | 0.007 |
| | Δ Nonreactivity | | | −1.44 | 2.29 | 0.08 | 0.534 |
| Organizational stress change score | | | $\Delta R^2$ | | | | |
| | | Step 1 | 0.27 | | | | |
| | Baseline organizational stress | | | 0.51 | 0.13 | 0.51 | 0.000 |
| | | Step 2 | 0.23 | | | | |
| | Δ Acting with awareness | | | −6.96 | 2.59 | −0.35 | 0.010 |
| | Δ Nonjudging | | | −2.29 | 2.44 | −0.12 | 0.354 |
| | Δ Nonreactivity | | | −2.92 | 2.68 | −0.15 | 0.282 |

nonjudgmental approach may allow officers to experience operational stressors purely as they are, without rumination or other cognitive patterns that may increase associated stress. Once the operational stressor has abated, it is possible that a more nonjudgmental attitude may also better allow the officer to leave the experience at work versus re-experiencing the stressful event through rumination. In the development of Mindfulness-Based Mind Fitness Training (MMFT), Stanley and Jha (2009) found that a mindfulness-training program for pre-deployment Marines was associated with greater cognitive functioning, as well as decreased stress, lending support to the notion that operational stressors are related to the cognitive experience of the individual. Furthermore, because many of the operational stressors involve contact with the public, perhaps increased nonjudging allows officers to engage potential suspects without attributing negative judgments that then influence both covert and overt behavior.

Increased acting with awareness was the only facet of mindfulness that accounted for significant organizational stress reduction. Acting with awareness may have a unique relationship to stress and related disorders. Boden et al. (2012) found that increased acting with awareness explained unique variance in post-treatment PTSD severity among military veterans. Perhaps by consistent practice of mindful awareness of routine activities throughout the day, such as mindful eating, or mindful breathing during work meetings, officers may increase resilience in relation to organizational stressors by increasing awareness of their actions. It is also possible that acting with awareness assists officers in cultivating a stance of acceptance and compassion for their coworkers, thereby reducing the impact of organizational stress.

Several limitations of this exploratory study should be noted. The primary limitation involves the absence of a control condition, which should be included in future studies, and precludes direct claims of causality in the current one. Also, all MBRT participants were recruited from one municipal police department, which limits the extent to which findings can be discussed within the larger context of LEO culture. Finally, operational and organizational stress were assessed with a measure specifically developed for use with LEOs, while anger was not. This limits the extent to which the stress and anger regression findings can be directly compared, in addition to the inherent limitations of self-report measures in general.

Alongside these limitations, however, are treatment implications that may inform future studies. The examination of specific facets of mindfulness accounting for variance in outcome measures appears to be an important next step in understanding the mechanisms of clinical change, given that mindfulness is a multifaceted construct, which alters the experience of psychopathology (Curtiss and Klemanski 2014). Individual facets of mindfulness have been demonstrated to differentially predict a number of outcomes, such as meditators' experience of stress (Neale-Lorello and Haaga 2015), substance use (Eisenlohr-Moul et al. 2012), physical health (Tomfohr et al. 2015), and smoking cessation (Spears et al. 2015). While some have argued that the overall construct of mindfulness can be accounted for by just one facet (Lilja et al. 2013), the current study supports a larger body of research suggesting that specific factors of mindfulness uniquely impact different outcome variables of interest.

In the treatment of police officer stress and anger, it appears that emphasizing specific components of mindfulness-training protocols based on the presenting problem may enhance treatment. Theoretically, if anger is the primary target for intervention, the MBI clinician can devote special attention to training specific acting with awareness and nonjudging facets of mindfulness. Likewise, if operational stress is the primary target, perhaps in the aftermath of a critical incident, placing nonjudging at the center of the treatment approach may have the greatest impact. Finally, if operational stress is of utmost concern, working with simple acting with awareness exercises could be an effective approach to helping officers manage the day-to-day stressors of work.

As MBIs increase in popularity and demonstrated effectiveness, future research needs to continue to examine the mechanisms by which these changes occur. MBRT has demonstrated preliminary efficacy in reducing stress and anger, two highly problematic conditions among police officers, in a culturally acceptable manner. The current study supports the application of individualized mindfulness training, based on the specific presenting problems of police departments. In future studies, MBRT trainers should develop familiarity with assessing the specific needs of the officers in the program to identify how participants are experiencing anger, operational stress, and organizational stress and how to directly address these concerns, based on specific components of mindfulness training.

## References

Abernathy, A. D. (1995). The development of an anger management training program for law enforcement personnel. In R. Lawrence, J. Joseph, S. L. Sauter, & G. P. Keita (Eds.), *Job stress interventions*. Washington, DC: American Psychological Association.

Alpert, G., & Rojek, J. (2011). *Frontline police officer assessments of risk and decision making during encounters with offenders (Briefing paper issue 5)*. Queensland: ARC Centre of Excellence in Policing and Security.

Anshel, M. H. (2000). A conceptual model and implications for coping with stressful events in police work. *Criminal Justice and Behavior, 27*, 375–400.

Arnetz, B. B., Nevedal, D. C., Lumley, M. A., Backman, L., & Lublin, A. (2009). Trauma resilience training for police: psychophysiological and performance effects. *Journal of Police and Criminal Psychology, 24*(1), 1–9.

Arslan, C. (2010). An investigation of anger and anger expression in terms of coping with stress and interpersonal problem-solving. *Educational Sciences: Theory and Practice, 10*(1), 25–43.

Ask, K., & Pina, A. (2011). On being angry and punitive: how anger alters perception of criminal intent. *Social Psychological and Personality Science*, 1948550611398415.

Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment, 13*(1), 27–45.

Baer, R. A., Smith, G. T., Lykins, E., Button, D., Krietemeyer, J., Sauer, S., Walsh, E., Duggan, D., & Williams, J. M. G. (2008). Construct validity of the five facet mindfulness questionnaire in meditating and nonmeditating samples. *Assessment, 15*(3), 329–342.

Barrett, E. L., Mills, K. L., & Teesson, M. (2013). Mental health correlates of anger in the general population: findings from the 2007 National Survey of Mental Health and Wellbeing. *Australian and New Zealand Journal of Psychiatry*, 0004867413476752.

Boden, M. T., Bernstein, A., Walser, R. D., Bui, L., Alvarez, J., & Bonn-Miller, M. O. (2012). Changes in facets of mindfulness and posttraumatic stress disorder treatment outcome. *Psychiatry Research, 200*(2), 609–613.

Bohlmeijer, E., Peter, M., Fledderus, M., Veehof, M., & Baer, R. (2011). Psychometric properties of the Five Facet Mindfulness Questionnaire in depressed adults and development of a short form. *Assessment, 18*(3), 308–320.

Burke, R. J. (1994). Stressful events, work-family conflict, coping, psychological burnout, and well-being among police officers. *Psychological Reports, 75*(2), 787–800.

Cash, M., & Whittingham, K. (2010). What facets of mindfulness contribute to psychological well-being and depressive, anxious, and stress-related symptomatology? *Mindfulness, 1*(3), 177–182.

Cella, D., Yount, S., Rothrock, N., Gershon, R., Cook, K., Reeve, B., & Rose, M. (2007). The Patient-Reported Outcomes Measurement Information System (PROMIS): progress of an NIH Roadmap cooperative group during its first two years. *Medical care, 45*(5 Suppl 1), S3.

Christopher, M. S., Goerling, R. J., Rogers, B. S., Hunsinger, M., Baron, G., Bergman, A. L., & Zava, D. T. (2015). A pilot study evaluating the effectiveness of a mindfulness-based intervention on cortisol awakening response and health outcomes among law enforcement officers. *Journal of Police and Criminal Psychology*, 1-14.

Christopher, M. S., Neuser, N. J., Michael, P. G., & Baitmangalkar, A. (2012). Exploring the psychometric properties of the Five Facet 987 Mindfulness Questionnaire. *Mindfulness, 3*, 124–131. doi:10.1007/988s12671-011-0086-x.

Cougle, J. R., Zvolensky, M. J., & Hawkins, K. A. (2013). Delineating a relationship between problematic anger and cigarette smoking: a population-based study. *Nicotine & Tobacco Research, 15*(1), 297–301.

Curtiss, J., & Klemanski, D. H. (2014). Factor analysis of the five facet mindfulness questionnaire in a heterogeneous clinical sample. *Journal of Psychopathology and Behavioral Assessment, 36*(4), 683–694.

de Bruin, E. I., Topper, M., Muskens, J. G., Bögels, S. M., & Kamphuis, J. H. (2012). Psychometric properties of the Five Facets Mindfulness Questionnaire (FFMQ) in a meditating and a non-meditating sample. *Assessment, 19*(2), 187–197.

De Vibe, M., Bjørndal, A., Tipton, E., Hammerstrøm, K. T., Kowalski, K., & Bjørndal, A. (2012). Mindfulness based stress reduction (MBSR) for improving health, quality of. *Campbell Systematic Reviews*, 8(3).

Deffenbacher, J. L., Filetti, L. B., Lynch, R. S., Dahlen, E. R., & Oetting, E. R. (2002). Cognitive-behavioral treatment of high anger drivers. *Behaviour Research and Therapy, 40*(8), 895–910.

Denson, T. F., Moulds, M. L., & Grisham, J. R. (2012). The effects of analytical rumination, reappraisal, and distraction on anger experience. *Behavior Therapy, 43*(2), 355–364.

Eberth, J., & Sedelmier, P. (2012). The effects of mindfulness meditation: a meta-analysis. *Mindfulness, 3*, 174–189.

Eisenlohr-Moul, T. A., Walsh, E. C., Charnigo, R. J., Lynam, D. R., & Baer, R. A. (2012). The "what" and the "how" of dispositional mindfulness: using interactions among subscales of the Five-Facet Mindfulness Questionnaire to understand its relation to substance use. *Assessment, 19*(3), 276–286. 1073191112446658.

Fix, R. L., & Fix, S. T. (2013). The effects of mindfulness-based treatments for aggression: a critical review. *Aggression and Violent Behavior, 18*(2), 219–227.

Fox, J., Desai, M. M., Britten, K., Lucas, G., Luneau, R., & Rosenthal, M. S. (2012). Mental-health conditions, barriers to care, and productivity loss among officers in an urban police department. *Connecticut medicine, 76*(9), 525.

Gelderen, B., Heuven, E., Veldhoven, M., Zeelenberg, M., & Croon, M. (2007). Psychological strain and emotional labor among police-officers: a diary study. *Journal of Vocational Behavior, 71*, 446–459.

Gersons, B. P., Carlier, I. V., Lamberts, R. D., & van der Kolk, B. A. (2000). Randomized clinical trial of brief eclectic psychotherapy for police officers with posttraumatic stress disorder. *Journal of Traumatic Stress, 13*(2), 333–347.

Gerzina, M. A., & Drummond, P. (2000). A multimodal cognitive-behavioural approach to anger reduction in an occupational sample. *Journal of Occupational and Organizational Psychology, 73*(2), 181–194.

Greeson, J. M., Webber, D. M., Smoski, M. J., Brantley, J. G., Ekblad, A. G., Suarez, E. C., & Wolever, R. Q. (2011). Changes in spirituality partly explain health-related quality of life outcomes after mindfulness-based stress reduction. *Journal of Behavioral Medicine, 34*(6), 508–518.

Hartley, T. A., Burchfiel, C. M., Fekedulegn, D., Andrew, M. E., & Violanti, J. M. (2011). Health disparities in police officers: Comparisons to the US general populations. *International journal of emergency mental health, 13*(4), 211.

Heppner, W. L., Kernis, M. H., Lakey, C. E., Campbell, W. K., Goldman, B. M., Davis, P. J., & Cascio, E. V. (2008). Mindfulness as a means of reducing aggressive behavior: dispositional and situational evidence. *Aggressive Behavior, 34*(5), 486–496.

Ilie, A., Penney, L. M., Ispas, D., & Iliescu, D. (2012). The role of trait anger in the relationship between stressors and counterproductive work behaviors: convergent findings from multiple studies and methodologies. *Applied Psychology, 61*(3), 415–436.

Juniper, B., White, N., & Bellamy, P. (2010). A new approach to evaluating the well-being of police. *Occupational Medicine, 60*, 560–565. doi:10.1093/occmed/kqq130.

Kabat-Zin, J. (1990). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain, and illness*. New York, NY: Delta Publishing.

Kelley, T. M., & Lambert, E. G. (2012). Mindfulness as a potential means of attenuating anger and aggression for prospective criminal justice professionals. *Mindfulness, 3*(4), 261–274.

Kligyte, V., Connelly, S., Thiel, C., & Devenport, L. (2013). The influence of anger, fear, and emotion regulation on ethical decision making. *Human Performance, 26*(4), 297–326.

Lilja, J. L., Lundh, L. G., Josefsson, T., & Falkenström, F. (2013). Observing as an essential facet of mindfulness: a comparison of FFMQ patterns in meditating and non- meditating individuals. *Mindfulness, 4*(3), 203–212.

Maan Diong, S., Bishop, G. D., Enkelmann, H. C., Tong, E. M., Why, Y. P., Ang, J. C., & Khader, M. (2005). Anger, stress, coping, social support and health: modeling the relationships. *Psychology & Health, 20*(4), 467–495.

Marmar, C. R., McCaslin, S. E., Metzler, T. J., Best, S., Weiss, D. S., & Neylan, T. (2006). Predictors of posttraumatic stress in police and other first responders. *Annals of the New York Academy of Sciences, 1071*(1), 1–18.

McCraty, R., & Atkinson, M. (2012). Resilience training program reduces physiological and psychological stress in police officers. *Global Advances in Health and Medicine, 1*, 42–64.

McCreary, D. R., & Thompson, M. M. (2006). Development of two reliable and valid measures of stressors in policing: The operational and organizational police stress questionnaires. *International Journal of Stress Management, 13*(4), 494.

Meffert, S. M., Metzler, T. J., Henn-Haase, C., McCaslin, S., Inslicht, S., Chemtob, C., & Marmar, C. R. (2008). A prospective study of trait anger and PTSD symptoms in police. *Journal of Traumatic Stress, 21*(4), 410–416.

Menard, K. S., & Arter, M. L. (2013). Police officer alcohol use and trauma symptoms: associations with critical incidents, coping, and social stressors. *International Journal of Stress Management, 20*, 37–56.

Miller, L. (2006). *Practical police psychology: stress management and crisis intervention for law enforcement*. Springfield, IL: Thomas.

Neale-Lorello, D., & Haaga, D. A. (2015). The "Observing" facet of mindfulness moderates stress/symptom relations only among meditators. *Mindfulness, 6*(25), 1–6.

Ortner, C. N., & Zelazo, P. D. (2014). Responsiveness to a mindfulness manipulation predicts affect regarding an anger-provoking situation. *Canadian Journal of Behavioural Science/Revue canadienne des sciences du comportement, 46*(2), 117.

Owen, J. M. (2011). Transdiagnostic cognitive processes in high trait anger. *Clinical Psychology Review, 31*(2), 193–202.

Painuly, N., Sharan, P., & Mattoo, S. K. (2007). Antecedents, concomitants and consequences of anger attacks in depression. *Psychiatry Research, 153*(1), 39–45.

Patterson, G., Chung, I., & Swan, P. G. (2012). The effects of stress management interventions among police officers and recruits. *Campbell Systematic Reviews*, 8(7).

Peters, J. R., Eisenlohr-Moul, T. A., Upton, B. T., & Baer, R. A. (2013). Nonjudgment as a moderator of the relationship between present-centered awareness and borderline features: synergistic interactions in mindfulness assessment. *Personality and Individual Differences, 55*(1), 24–28.

Rajaratnam, S. W., Brager, L. K., Lockley, S. W., Shea, S. A., Wang, W., Landrigan, C. P., & Czeisler, C. A. (2011). Sleep disorders, health and safety in police officers. *Journal of the American Medical Association, 306*, 2567–2578.

Ranta, R. S. (2009). Management of stress and coping behaviour of police personnel through Indian psychological techniques. *Journal of the Indian Academy of Applied Psychology, 35*(1), 47–53.

Rees, B., & Smith, J. (2008). Breaking the silence: the traumatic circle of policing. *International Journal of Police Science & Management, 10*, 267–279. doi:10.1350/ijps.2008.10.3.83.

Rhodes, R. D., Harrison, D. W., & Demarre, H. A. (2002). Hostility as a moderator of physical reactivity and recovery to stress. *International Journal of Neuroscience, 112*(2), 167–186.

Rodriguez Vega, B., Melero-Llorente, J., Bayon Perez, C., Cebolla, S., Mira, J., Valverde, C., & Fernández-Liria, A. (2014). Impact of mindfulness training on attentional control and anger regulation processes for psychotherapists in training. *Psychotherapy Research, 24*(2), 202–213.

Schaubroeck, J., Jones, J. R., & Xie, J. L. (2001). Individual differences in utilizing control to cope with job demands: effects on susceptibility to infectious disease. *Journal of Applied Psychology, 86*(2), 265.

Seip, E. C., Van Dijk, W. W., & Rotteveel, M. (2014). Anger motivates costly punishment of unfair behavior. *Motivation and Emotion, 38*(4), 578–588.

Shane, J. M. (2010). Organizational stressors and police performance. *Journal of Criminal Justice, 38*, 807–818. doi:10.1016/j.jcrimjus.2010.05.008.

Shipley, P., & Branski, J. V. (2002). Police officer performance under stress: a pilot study on the effects of visuo-motor behavior rehearsal. *International Journal of Stress Management, 9*(2), 71–80.

Shonin, E., Van Gordon, W., Slade, K., & Griffiths, M. D. (2013). Mindfulness and other Buddhist-derived interventions in correctional settings: a systematic review. *Aggression and Violent Behavior, 18*(3), 365–372.

Shorey, R. C., Seavey, A. E., Quinn, E., & Cornelius, T. L. (2014). Partner-specific anger management as a mediator of the relation between mindfulness and female perpetrated dating violence. *Psychology of violence, 4*(1), 51.

Siddle, R., Jones, F., & Awenat, F. (2003). Group cognitive behaviour therapy for anger: a pilot study. *Behavioural and Cognitive Psychotherapy, 31*(01), 69–83.

Singh, N. N., Lancioni, G. E., Karazsia, B. T., Winton, A. S., Singh, J., & Wahler, R. G. (2014). Shenpa and compassionate abiding: mindfulness-based practices for anger and aggression by individuals with schizophrenia. *International Journal of Mental Health and Addiction, 12*(2), 138–152.

Smith, T. W., Glazer, K., Ruiz, J. M., & Gallo, L. C. (2004). Hostility, anger, aggressiveness, and coronary heart disease: an interpersonal perspective on personality, emotion, and health. *Journal of Personality, 72*(6), 1217–1270.

Spears, C. A., Houchins, S. C., Stewart, D. W., Chen, M., Correa-Fernández, V., Cano, M. Á., … & Wetter, D. W. (2015). Nonjudging facet of mindfulness predicts enhanced smoking cessation in Hispanics. *Psychology of Addictive Behaviors*, e-Pub 5/2015.

Sprague, J., Verona, E., Kalkhoff, W., & Kilmer, A. (2011). Moderators and mediators of the stress-aggression relationship: executive function and state anger. *Emotion, 11*(1), 61.

Stanley, E. A., & Jha, A. P. (2009). Mind fitness: improving operational effectiveness and building warrior resilience. *Joint Force Quarterly: JFQ, 55*, 144.

Tomfohr, L. M., Pung, M. A., Mills, P. J., & Edwards, K. (2015). Trait mindfulness is associated with blood pressure and interleukin-6: exploring interactions among subscales of the Five Facet Mindfulness Questionnaire to better understand relationships between mindfulness and health. *Journal of Behavioral Medicine, 38*(1), 28–38.

Tuckey, M. R., Winwood, P. C., & Dollard, M. F. (2012). Psychosocial culture and pathways to psychological injuries within policing. *Police Practice and Research, 13*(3), 224–240. doi:10.1080/15614263.2011.574072.

United States Bureau of Labor Statistics (January, 2014). *Police and detectives: occupational outlook handbook*. Retrieved from http://www.bls.gov/ooh/protective-service/police-and- detectives.htm

Van Gelderen, B. R., Bakker, A. B., Konijn, E. A., & Demerouti, E. (2011). Daily suppression of discrete emotions during the work of police service workers and criminal investigation officers. *Anxiety, Stress & Coping, 24*(5), 515–537.

Wang, Z., Inslicht, S. S., Metzler, T. J., Henn-Haase, C., McCaslin, S. E., 1247 … & Marmar, C. R. (2010). A prospective study of predictors of 1248 depressive symptoms in police. *Psychiatry Research*, 175, 211- 1249 216.doi: 10.1016/j.psychres.2008.11.010

Waters, J. A., & Ussery, W. (2007). Police stress: history, contributing factors, symptoms and interventions. *Policing: An International Journal of Police Strategies and Management, 30*, 169–188.

Whiting, D., & Bryant, R. A. (2007). Role of appraisals in expressed anger after trauma. *Clinical Psychologist, 11*(1), 33–36.

Wright, S., Day, A., & Howells, K. (2009). Mindfulness and the treatment of anger problems. *Aggression and Violent Behavior, 14*(5), 396–401.