Police Officer Alcohol Use and Trauma Symptoms: Associations With Critical Incidents, Coping, and Social Stressors

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Policing is a stressful occupation due to organizational and experiential stressors that can have serious outcomes for officers. Although the aforementioned stressors in policing are well documented, less is known about the social stressors experienced. Guided by Agnew's (Agnew, R., 1992. Foundation for a general strain theory of crime and delinquency. Criminology, 30, 47–87; Agnew, R., 2006. Pressured into crime: An overview of general strain theory. Los Angeles, CA: Roxbury Publishing) General Strain Theory and using self-report online survey data from 750 American police officers, this study examines the relationship between critical incidents, negative coping, and social stressors, and officer problematic alcohol use and posttraumatic stress symptoms, controlling for demographics. Results from hierarchical OLS regressions indicate that critical incidents are positively associated with alcohol use and PTSD symptoms. Coping mediates the relationship between critical incident and alcohol use, and is both directly and indirectly associated with PTSD symptoms. Social stressors reported by officers were not associated with alcohol use, but were related to PTSD symptoms above and beyond critical incidents, negative coping, alcohol use, and other variables in the model. The final models account for 12% of the variance in alcohol use and 53% of the variance in PTSD symptoms. Theoretical and policy implications of these results are discussed.

Keywords: policing, social stressors, coping, posttraumatic stress disorder, alcohol use

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Law enforcement is recognized as one of the most stressful occupations in the United States and around the world (Johnson, 1991). Police officers are continuously exposed to critical incidents, they are criticized and stigmatized, and do not always receive support from their superiors or the public they serve. Further, they work irregular hours, which may make social support to deal with these problems less available and can even be a stressor itself (e.g., family resentment due to missed holidays and special occasions). Research suggests critical incidents and work-related stressors can lead officers to use maladaptive coping strategies, like avoidance (Pasillas, Follette, & Perumean-Chaney, 2006) and dissociation (Aaron, 2000), and to suffer negative outcomes like alcohol problems (Swatt, Gibson, & Piquero, 2007) and posttraumatic stress disorder (PTSD; Marmar et al., 2006; Weiss et al., 2010). Police officers have high rates of alcohol consumption (Ballenger et al., 2010), binge drinking (Weir, Stewart, & Morris, 2012), and their rates of death due to alcoholic liver disease are twice that of the general population (McNeill, 1996). Rates of PTSD among police officers are also high, estimates range between 7% and 19% (Carlier, Lamberts, & Gersons, 1997; Marmar et al., 2006) to as high as 50% (Davidson & Moss, 2008), compared with 6.8% found in the general population (Kessler et al, 2005).

Although a number of studies have examined the links between critical incidents and the development of alcohol problems and traumatic symptoms, less is known about the associations with social stressors on police officers (Marmar et al., 2006). Researchers have begun to use Agnew's (1992, 2006) General Strain Theory (GST) to explore factors that lead to increased alcohol use (Swatt et al., 2007) and decreased organizational commitment among officers (Moon & Jonson, 2012), but less is known about GST's ability to explain other negative outcomes, like PTSD. Thus, theoretically driven research is needed to help identify links between critical incidents, negative coping, and social stressors and alcohol problems and PTSD symptoms among police officers.

The purpose of this study is twofold. First, it examines the relationship between officer demographics, critical incidents, and maladaptive coping strategies (i.e., negative and avoidant coping), and police officers' alcohol use and trauma symptoms. Second, guided by GST, this study examines the relationship between social stressors and officers' alcohol use and trauma symptoms above and beyond more traditionally measured stressors (e.g., critical incidents and negative coping). Understanding the impact of social stressors on police officers has important theoretical and policy implications. Next, we discuss the literature examining critical incidents and officer well-being, the coping strategies officers use to deal with stressors, and the relationship between lack of social support and

police strain. Finally, we present a general overview of GST followed by our three hypotheses.

STRESS AND COPING IN POLICING

Police officers experience stressors from many sources including the paramilitary and bureaucratic nature of law enforcement organizations (Violanti & Aron, 1995), traumatic events, such as the death of an individual or the homicide of a fellow officer (Violanti, 2004), and the lack of support, criticism, stigma, and abuse from citizens (Anshel, 2000). Although the literature indicates organizational stressors are reported at higher levels than are experiential stressors (Brooks & Piquero, 1998; Buker & Wiecko, 2007; Morash, Haarr, & Kwak, 2006), critical incidents and other stressors are also associated with negative outcomes, such as PTSD (Kirschman, 2006; Weiss et al., 2010). The social stressors officers experience from a lack of or ineffective social support have not received the same focus. Arter (2008) identified social stressors as the third most frequently reported, after organizational and experiential stressors, among police officers.

As a consequence of exposure to all types of stressors, normal thinking patterns can be affected and previously available adaptive coping strategies can be ignored or become unavailable to the officers (Selye, 1974). Also, changes in behavior with the adoption of maladaptive coping strategies can take place, which can influence an officer to the detriment of personal health and professional standing (Violanti et al., 2006). Thus, coping strategies are very important in how police officers react to, and deal with, critical incidents and other stressors. Although some officers use adaptive coping strategies (e.g., exercise) to deal with stressors, others use maladaptive ones (e.g., dissociation, suppressing, disengaging, and avoidant behaviors) that may lead to problems (Aaron, 2000; Ballenger et al., 2010; Pasillas et al., 2006; Swatt et al., 2007; Violanti, Marshall, & Howe, 1985). For example, in their study of 48 law enforcement officers, Pasillas and her colleagues (2006) found that escape-avoidance coping was related to an increase in psychological distress. Further, escape-avoidant coping remained significant even after controlling for organizational stressors, partially mediating the association. This finding is noteworthy as avoidant coping is considered by some to be the least effective coping method (Carver, Scheier, & Weintraub, 1989) and yet is the method most consistent with police subculture that shuns showing weakness (Blau, 1994). It is precisely because of police subculture that the current study will focus on negative coping, including escapist and avoidant strategies, such as failure to discuss emotions, failure to seek professional assistance,

social withdrawal, and self-criticism. Other problematic coping behaviors studied among officers include excessive alcohol use, drug use, smoking, overeating, and promiscuity (Anshel, 2000; Band & Manuele, 1987; Beehr, Johnson, & Nieva, 1995; Violanti et al., 1985).

With regard to alcohol use specifically, previous studies estimate as many as 25% of police officers abuse alcohol at levels of concern (Ballenger et al., 2010). Indeed, Territo and Vetter (1981) determined alcohol use and abuse were part of the police subculture and there was significant social pressure to conform. In their investigation of the factors associated with problematic alcohol consumption, Swatt, Gibson, and Piquero (2007) found that male, White officers, who described themselves as more anxious and depressed, were more likely to abuse alcohol than their non-White, less anxious, and less depressed counterparts.

The influence of maladaptive coping on police-related strain cannot be overemphasized. Poor coping skills are associated with a higher frequency and intensity of strain experienced by officers (Anshel, 2000; Toch, 2002). Maladaptive coping strategies are utilized not only to deal with work related stressors, but also as a response to relationship and family stressors (Brink, 2001). Consequently, examining the relationship of negative and avoidant coping and officer well-being is warranted.

IMPORTANCE OF SOCIAL SUPPORT IN POLICING

Research shows positive social support reduces the effects of traumatic experiences (Kirschman, 2006) and that officers with poor social support report more severe symptoms of PTSD (Marmar et al., 2006). Positive social support provides a sense of belonging and recognition, which leads to heightened feelings of self-worth and appreciation of others. Carlier, Lamberts, and Gersons (1997) reported the emotional support of friends, coworkers, and spouses was a key factor in reducing the effects of trauma for police officers. In addition, Stephens, Long, and Miller (1997) found lower social support was related to higher PTSD scores in a sample of officers.

Social support can come from many sources including friends, family, colleagues and, for police officers, the general public. However, police officers frequently do not experience support for their work from these sources (Beehr et al., 1995). To the contrary, they are often rejected by friends, isolated, and consequently suffer resentment from family (due to shift work), and stigmatized by the public (e.g., misunderstood, “us vs. them” mentality; Arter, 2005). Indeed, Anshel (2000) describes the repeated abuse officers experience from those being served; underscoring the impact a lack of support from the public has on officers (Band & Manuele, 1987; Toch,

2002). Lack of social support is associated with adverse responses to critical incidents including problematic alcohol use (Lindsay & Shelly, 2009) and PTSD symptomatology (Kirschman, 2006; Marmar et al., 2006). Thus, social support is important to officers' well-being. In addition to being detrimental to officers' health and recovery following a traumatic experience, lack of support may be a stressor itself.

GST AND ALCOHOL USE AND PTSD

Agnew's (1992) GST posits that individuals subjected to higher levels of strain are more likely to respond in a deviant manner than individuals who do not experience such strain. Three types of strain are described: (a) strain as a failure to achieve positively valued goals, (b) strain as the removal of positively valued stimuli, and (c) strain as the presentation of negatively valued stimuli (Agnew, 1992, p. 47). Frustration and anger are the negative emotions in response to strain identified as those most likely to result in behavior inconsistent with societal expectations (deviance). Further, strains that affect core activities, identity, needs, goals, and values and that are frequent, high in degree, of long duration, recent, or seen as unjust are most likely to result in a deviance (Agnew, 2001).

Basically, GST posits that strain is a by-product of negative situations and relations. These negative situations and relations result in anger and frustration in the individual, who then seeks means to alleviate the strain. Adaptive and maladaptive coping strategies may be employed in attempts to reduce strain, either emotionally, cognitively, or behaviorally. Those who are successful in managing strain are less likely to respond with acts of deviance, or to suffer from the extreme effects, such as posttraumatic stress. However, unique aspects of police work and subculture may make strains more prevalent, and may challenge officers' effectiveness at managing them. Due to the nature of police work (e.g., dangers of the job, shift work), officers frequently experience strain from critical incidents (negative stimuli), stigma, and lack of appreciation from the public (failure to achieve positively valued goals), as well as family resentment and isolation (removal of positively valued stimuli). These situational and relational strains affect officers' core activities, needs, and values and may be seen as unjust (police are providing an important service), which may be especially likely to result in deviant responses. Further, police culture may encourage maladaptive coping (e.g., avoidance, disengaging) resulting in negative outcomes including drinking and posttraumatic stress. Consistent with GST, Arter (2008) found police officers who were more successful at dealing with work related stressors were less likely to report acts of deviance and had fewer adverse outcomes, as

compared with officers who were not as successful in coping with work related stressors or who utilized maladaptive coping strategies in attempts to deal with strain.

Guided by GST, we had three hypotheses. First, Hypothesis 1 (H1) we anticipate the greater the number of critical incidents officers experienced, the greater the negative outcomes as measured using officer's alcohol use and PTSD symptomology. Second, Hypothesis 2 (H2) we expect officers who make greater use of negative and avoidant coping mechanisms will experience more negative outcomes in the form of alcohol use and trauma symptoms than their colleagues, who do not use these coping strategies. Specifically, we anticipate negative coping will have positive direct and indirect (operating through critical incidence) associations with officer outcomes. That is, in addition to being significantly associated with the outcomes, negative coping will decrease the magnitude of the coefficients for critical incidents on the models. Finally, Hypothesis 3 (H3) we expect social stressors (e.g., social isolation, stigma) will have a positive relationship with officers' alcohol use and traumatic symptomatology above and beyond critical incidents and coping (direct) and that these stressors will also mediate the relationship of critical incidents (indirect) on these same negative outcomes.

METHOD

Procedures

Officers were recruited and invited to complete the survey online. Various well known police organizations (e.g., International Association of Chiefs of Police and Fraternal Order of Police) were identified using a Google search of terms such as "police officer association." Specific searches for police associations were completed for each of the six most populous states in the country (i.e., California, Texas, New York, Florida, Illinois, and Pennsylvania) and for underrepresented groups (e.g., women, African American, Hispanic, and Asian). Sixty-five organizations were identified, sent information regarding the survey (i.e., a brochure via e-mail or regular post), and asked to disseminate the information to their members as well as other officers. Additional subjects were also recruited by sending the same survey information and request to 35 police officers and agencies in Canada and the U.S., who were known to the authors.[1] Because contacted agencies were not asked to inform us of their partic-

[1] The first and second authors are former police officers, who worked in Canada and the United States, respectively.

ipation, we are not able to ascertain the number of officers who received information regarding our survey. Those officers who did were informed that the survey was online, confidential, anonymous (only identifier was country), and approved by the investigators' university Institutional Review Board. Officers had to indicate their understanding of their rights as research participants by agreeing to the electronic consent form to gain access to the remainder of the survey.

Participants

The first 1,000 cases of this larger data collection effort were selected for this study. Further, we selected only those officers working in the United States, resulting in a sample of 750 officers (in the multivariate analysis numbers vary due to missing data). Because it cannot be known how many officers were provided with the information to the survey, it is impossible to compute a response rate. However, we can track that 84.3% of those who accessed the survey completed it. Almost 83% of participating officers were male and slightly more than 91% were White, with 2.9% Black, .8% Asian, 3.9% Latino/a, and .9% of other or mixed racial or ethnic background. With regard to relationship status, 17% of officers were single, divorced, or widowed and the remaining 83% were married or cohabiting. It should be noted that although a large percent of officers are currently married, 6% reported divorce as a negative outcome of policing (Arter & Ménard, 2012). Fifty-seven percent of the sample had children living with them at least part of the time. Military experience was reported by 29% of officers. The average age of respondents was 43.37 years (range 23.00–77.00, $SD = 9.57$) and they averaged 18.29 years in policing (range 0.90–50.00; $SD = 9.55$). Our sample is not random and sex and racial data from the recent Department of Justice report (Bureau of Justice Statistics, 2003, Table 1.37) suggests that our sample underrepresents women and minority police officers. Given we recruited officers via police associations; it may be that younger, female, and ethnically diverse officers are not as active in these associations as their older, male, Caucasian counterparts.

Measures

Two dependent variables representing negative outcomes in GST framework were used in the analyses. First, officers' alcohol use was measured using the Alcohol Use Disorders Identification Test (AUDIT; Barbor, Higgins-Biddle, Saunders, & Monteiro, 2001). The AUDIT is a validated and

reliable instrument designed to screen for harmful patterns of alcohol consumption. This scale includes items such as "How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?" and "How often during the last year have you been unable to remember what happened the night before because you were drinking?" Each of the 10 items has a score range of 0 (*no or never*) to 4 (*daily or almost daily*). Because we were interested in alcohol use in a statistical model, rather than as a clinical diagnostic screener, we summed the items to create a dimensional measure, with higher scores representing more problematic drinking ($\alpha = .78$). Second, officers' PTSD symptoms were measured using the PTSD Checklist-Civilian (PCL-C; Weathers, Huska, & Keane, 1991). The PCL-C is a valid and reliable 17-item self-report measure that asks about symptoms in relation to "stressful experiences" ever experienced. Sample items include "How much have you been bothered by avoiding activities or situations because they reminded you of a stressful experience from the past?" "How much have you been bothered by repeated, disturbing dreams of a stressful experience from the past?" and "How much have you been bothered by feeling jumpy or easily startled?" The PCL-C can be scored using diagnostic cutoff criteria or as a total symptom severity score, and the latter was used in this study ($\alpha = .94$).

We also controlled for a number of variables including officers' sex (dummy-coded), age (in years), race or ethnicity (White or non-White), relationship status (single, divorced, or widowed vs. married or cohabiting), dependent children living with them full- or part-time versus those who did not have children or whose children were no longer living with them, and military versus no military experience.

Ten items from Weiss and colleagues' (Weiss et al., 2010) Critical Incidents Questionnaire including "being shot at," "being threatened with a gun, knife, or other weapon," "a colleague being injured" or "killed," and "seeing someone die" were used to represent negative or aversive stimuli. Each item was rated from 0 indicating officers *never experienced the incident described*, to 6 indicating they *experienced it 50 or more times in their life*. These items were summed to indicate officers' experience with critical incidents ($\alpha = .79$). Because we were primarily interested in officers' negative coping strategies (e.g., escape-avoidance), we used 16 items from the 66-item Ways of Coping Questionnaire–Revised (Folkman & Lazurus, 1985) including "criticized or lectured myself," "refused to believe that it had happened," "tried to make myself feel better by eating, drinking, smoking, using drugs or medication, and so forth," and "took it out on other people."[2] Each coping strategy was rated on a 4-point scale from 0 (*never used*) to 3

[2] A list of items used can be obtained from the first author.

(*used a great deal*). The items were summed to represent officers' negative coping strategies ($\alpha = .86$). Finally, to represent the relational strains (i.e., failure to achieve positively valued goals and removal of positively valued stimuli) police officers were asked if they experienced any of six social stressors (e.g., lost previously enjoyed social contacts, enjoy social contacts with civilians other than family—reverse coded, difficulty establishing relationships, lack of understanding from civilians, negative stigma associated with law enforcement, and lost friendships since becoming an officer). Although an open-ended format was used on the survey, because the majority of officers replied with a simple "yes" or "no" answer these variables were recoded (dichotomized) to indicate whether or not the officer experienced these social stressors. The sum of these items was used to represent the total number of social stressors officers experienced ($\alpha = .60$).

Plan of Analysis

Because we were interested in both the direct and indirect associations of variables, we used hierarchical OLS regressions with officers' alcohol use and PTSD symptoms treated as outcomes. For both models, variables were entered in the same order. First, control variables including officers' sex, age, race, parental and relationship status, military experience, and time in policing were entered. Second, critical incidents were added to the model. Third, officers' ways of coping was added. In the fourth step, PTSD was entered for the alcohol use model and alcohol use was entered for the PTSD model. In the fifth step, officers' social stressors were included to determine their associations above and beyond the other variables. We chose this order of entry as we hypothesized the relationship between critical incidents and both alcohol use and PTSD would be mediated by negative coping and social stressors (Aiken & West, 1991; Baron & Kenny, 1986). Finally, we completed mediation tests (Clogg, Petkova, & Haritou, 1995) to determine whether the anticipated mediations were significant.

RESULTS

Bivariate Analysis

Table 1 displays the correlation matrix of all variables. At the bivariate level, alcohol use and PTSD symptoms were positively and significantly related. In addition to its relationship to PTSD, alcohol use was negatively and significantly related to sex, age, and time in policing, suggesting that

Table 1. Means, Standard Deviations, and Zero Order Correlations ($N = 750$)

	M	*SD*	1	2	3	4	5	6	7
1. Sum PTSD	33.00	12.60	(.94)						
2. Sum audit	4.22	4.19	.20***	(.78)					
3. Age	43.37	9.57	−.09*	−.16***	—				
4. Time in policing	18.29	9.55	−.07	−.14***	.87***	—			
5. Critical incidents	12.46	7.16	.24***	.07	.28***	.37***	(.79)		
6. Coping	13.43	7.16	.67***	.25***	−.02	.03	.26***	(.86)	
7. Social stressors	4.03	1.36	.47***	.12**	−.12*	−.08*	.17***	.36***	(.60)

Note. Cronbach alpha reliabilities (α) are listed on the diagonal.
* $p \leq .05$. ** $p < .01$. *** $p < .001$.

men, younger officers, and those with fewer years in policing are more likely to report problematic alcohol use. Alcohol use was also significantly and positively related to both negative coping and social stressors indicating that these constructs covary with problematic drinking behavior. The relationship between negative coping and problematic drinking is to be expected, as alcohol consumption is frequently used as a negative coping strategy. Indeed, one of the 16 items used in our coping measure included alcohol use as well as eating, smoking, and taking drugs and medications to cope with stressors. PTSD was also positively and significantly related to critical incidents, negative coping, and social stressors. None of the remaining independent variables were significantly related to alcohol use or PTSD. Although a number of the independent variables were significantly related to each other, only one such relationship is of concern. Age and number of years in policing were highly correlated ($r = .87$) suggesting that problems of collinearity could arise. However, because both age and years in policing should logically be correlated and were used as control variables in the multivariate analysis, we retained them as separate variables.

Multivariate Analysis

Table 2 presents the regression models for both alcohol consumption and PTSD symptoms. With regard to alcohol use, the first three steps (i.e., control variables, critical incidents, and negative coping) were significant. In the final model, sex, age, and coping accounted for 12% of the variance in alcohol use. Specifically, younger males with higher negative coping scores are more likely to report a pattern of problematic alcohol consumption. Further, although critical incidents were initially significantly associated with alcohol use, it drops from significance with the inclusion of the coping variable. The mediation of coping on the relationship between critical incidents and alcohol use was significant, $t = 5.20$, $p < .001$. However, counter to our hypothesis, social stressors were not significantly associated with alcohol use either

Table 2. OLS Regressions of Officer Alcohol Use and PTSD Symptoms (N = 683)

	Alcohol use			PTSD symptoms		
	b	SE/b	β	b	SE/b	β
Step 1						
Constant	8.60	1.38		43.78	4.20	
Sex	−1.50	.44	−.13***	1.36	1.34	.04
Age	−.09	.03	−.21**	−.22	.10	−.17*
Race	−.55	.58	−.04	.97	1.76	.02
Children	.06	.13	.02	−.41	.40	−.04
Military	−.18	.36	−.02	−.84	1.10	−.03
Time in policing	.01	.03	.03	.11	.11	.08
Relationship status	−.26	.45	−.02	−1.21	1.38	−.04
	R^2 = .05		**ΔF = 5.18*****	R^2 = .02		**ΔF = 1.60**
Step 2						
Constant	7.48	1.43		35.14	4.22	
Sex	−1.35	.44	−.12**	2.52	1.30	.08
Age	−.08	.03	−.17*	−.10	.10	−.08
Race	−.42	.58	−.03	1.99	1.70	.04
Children	.06	.13	.02	−.43	.39	−.04
Military	−.08	.36	−.01	−.12	1.06	.00
Time in policing	−.02	.04	−.04	−.14	.11	−.11
Relationship status	−.25	.45	−.02	−1.15	1.33	−.03
Critical incidents	.07	.02	.12**	.53	.07	.30***
	R^2 = .06		**ΔF = 7.73***	R^2 = .09		**ΔF = 53.12*****
Step 3						
Constant	5.54	1.42		19.67	3.28	
Sex	−1.50	.43	−.14***	1.32	.99	.04
Age	−.07	.03	−.15*	−.02	.08	−.02
Race	−.57	.56	−.04	.76	1.29	.02
Children	.08	.13	.02	−.26	.29	−.03
Military	−.10	.35	−.01	−.26	.81	−.01
Time in policing	−.02	.04	−.04	−.14	.08	−.11
Relationship status	−.09	.44	−.01	.11	1.01	.00
Critical incidents	.03	.02	.04	.19	.06	.10***
Ways of coping	.14	.02	.24***	1.14	.05	.65***
	R^2 = .12		**ΔF = 41.89*****	R^2 = .48		**ΔF = 498.13*****
Step 4						
Constant	5.14	1.46		19.07	3.31	
Sex	−1.53	.43	−.14***	1.48	.99	.04
Age	−.07	.03	−.15*	−.02	.08	−.01
Race	−.59	.56	−.04	.83	1.29	.02
Children	.09	.13	.03	−.27	.29	−.03
Military	−.10	.35	−.01	−.25	.81	−.01
Time in policing	−.02	.04	−.04	−.14	.08	−.11
Relationship status	−.09	.44	−.01	.12	1.01	.00
Critical incidents	.02	.03	.04	.18	.06	.10**
Ways of coping	.12	.03	.21***	1.12	.05	.64***
PTSD or audit	.02	.02	.06	.11	.09	.04
	R^2 = .12		**ΔF = 1.50**	R^2 = .48		**ΔF = 1.50**
Step 5						
Constant	5.32	1.51		11.87	3.25	
Sex	−1.54	.43	−.14***	1.49	.94	.05
Age	−.07	.03	−.15*	.05	.07	.04

(*table continues*)

Table 2. (*continued*)

	Alcohol use			PTSD symptoms		
	b	SE/b	β	b	SE/b	β
Race	−.58	.56	−.04	.55	1.23	.01
Children	.09	.13	.03	−.29	.28	−.03
Military	−.09	.35	−.01	−.31	.77	−.01
Time in policing	−.02	.04	−.03	−.15	.08	−.12*
Relationship status	−.12	.44	−.01	.61	.96	.02
Critical incidents	.02	.03	.04	.12	.06	.07*
Ways of coping	.12	.03	.21***	.99	.05	.57***
PTSD or audit	.02	.02	.07	.12	.08	.04
Social stressors	−.07	.12	−.03	2.09	.24	.25***
	R^2 = .12		**ΔF = .40**	R^2 = .53		**ΔF = 74.90****

*$p \leq .05$. **$p < .01$. ***$p < .001$.

directly or indirectly (through critical incidents) net of other variables in the model.

With regard to PTSD symptoms, the second (critical incidents), the third (coping), and the fifth (social stressors) steps were significant. In the final model, time in policing, critical incidents, negative coping, and social stressors accounted for 53% of the variance in officers' PTSD symptoms. That is, officers with fewer years in policing, who have experienced a greater number of critical incidents, with higher scores on negative coping and social stressors, are more likely to report PTSD symptoms. Officers with PTSD are more likely to manifest negative coping with increasing severity of their PTSD. Specifically, every one standard deviation increase in negative coping, results in a .57 increase in mean PTSD score. Further, it also has a significant indirect association through critical incidents. Although critical incidents remained significant throughout, its beta drops from .30 to .10 and statistical test indicates coping significantly mediated its relationship with PTSD, $t = 6.86$, $p < .001$. Similarly, although the coefficient for critical incidents remains significant after adding social stressors (beta drops from .10 to .07), statistical test reveal that social stressors significantly mediated the relationship between critical incidents and PTSD symptoms, $t = 3.32$, $p < .001$. Thus, both negative coping and social stressors mediate the associations of critical incidents on PTSD symptoms experienced by officers. One additional point should be made regarding these results. Although in the final model, time in policing was negatively related to PTSD, in the first step and in the bivariate analysis the relationship is positive and *nonsignificant*. The relationship flips (from positive to negative) after the addition of critical incidents, indicating that these incidents may distort the relationship between time in policing and PTSD. That is, officers who experience a critical incident early on in their career may suffer greater negative consequences (i.e., PTSD) than those

with more policing experience. Alternatively, it may be older officers who have experienced critical incidents, but show fewer negative consequences are those who never developed PTSD in the first place or recovered from PTSD with or without therapy.

DISCUSSION

Consistent with prior research, our first two hypotheses, and GST, critical incidents were positively associated with negative outcomes among officers and these relationships were mediated by coping. Officers' negative and avoidant coping was related to greater problematic alcohol use and PTSD symptomology and coping had both significant direct and indirect associations (through critical incidents) with these outcomes. Results provide partial support for our third hypothesis, as social stressors had significant direct and indirect associations (again through critical incidents) with PTSD symptoms, but not officers' alcohol use. Taken together our results suggest officers' well-being is not solely related to critical incidents experienced, but also to the coping methods and social support available to deal with them. Our findings demonstrate the importance of these constructs in the investigation of police stress specifically and strain theory more generally. These results, their theoretical and policy implications, and the study's limitations are discussed next.

In this sample, we found 16.7% of officers demonstrate problematic drinking, when using the AUDIT suggested cutoff score of 8. This rate is consistent with prior studies that find high rates of alcohol use and abuse among police officers (Ballenger et al., 2010; Lindsay & Shelley, 2009; Swatt et al., 2007). Consistent with our hypotheses, stressors in the form of critical incidents were related to officers' drinking behavior, and the link with critical incidents was fully mediated by avoidant coping. This finding demonstrates the importance of the relationship between critical incidents and coping on drinking behavior. Also consistent with prior research, younger males were more likely to report problematic alcohol use than their older, female counterparts (Lindsay & Shelley, 2009; Swatt et al., 2007). Younger officers may drink more to adhere to the police subculture. Babin (1980) suggests that police put a high value on alcohol use and a study by Lindsay and Shelley (2009) finds that younger officers are more likely to report drinking to "fit in." Counter to our expectations, social stressors were not associated with alcohol use net of sex, age, and coping. One explanation for this finding may be officers use drinking as both a social outlet, as well as a mechanism to relieve stress (Dietrich & Smith, 1986; Lindsay & Shelley, 2009), thereby diffusing the relationship between social stressors and drinking. Although

significant at the bivariate level, it is interesting to note that alcohol use was not associated with PTSD symptoms in the multivariate analysis. Failure to obtain significant results may be due to the inclusion of avoidant coping, as its beta coefficient was the largest ($\beta = .21$) of any variable in the model.

With regard to PTSD symptoms, 18.5% of the officers' scores met criteria for PTSD, reporting sufficient symptoms from categories A, B, C, and D of the PCL-C (Weathers et al., 1991).[3] These rates are consistent with prior research that finds between 7% and 19% of officers suffer from PTSD symptoms (Carlier et al., 1997; Marmar et al., 2006). As anticipated, critical incidents and social stressors were related to posttraumatic symptoms among police in our sample. Officers' use of avoidant coping strategies also increased PTSD symptoms. Indeed, ways of coping had the largest beta coefficient ($\beta = .58$) of all variables in the model, partially mediating the relationship between critical incidents and PTSD. This finding demonstrates the important role coping plays in officers' well-being. Further, that officers with less experience were more likely to report PTSD symptoms suggests newer officers may not have developed the appropriate skills to deal with the hazards of policing. Alternatively, it may be a combination of attrition and change of duty type. That is, it may be officers with serious trauma leave policing and those who remain are more senior and occupy more management positions where they are less likely to be exposed to the critical incidents commonly seen by their junior, uniformed colleagues.

In sum, it is clear critical incidents, avoidant coping, and social stressors play an important role in police officer health and, therefore, have important theoretical and policy implications, which we turn to next.

Theoretical Implications

Agnew's (1992, 2001, 2006) GST provides a cogent explanation of police officers' problematic alcohol use and PTSD symptomology. Our results were consistent with the primary tenets of the theory concerning strain (critical incidents) and maladaptive coping. Critical incidents and avoidant coping were associated with alcohol use and trauma symptoms, with coping mediating much of the relationship. However, mixed support was found for relational strains as measured in this study. Social stressors were not associated with alcohol use, but were related to PTSD symptoms. Although social stressors were positively related to drinking at the bivariate level, they were not significantly related to alcohol use in the multivariate analysis, suggesting that this type of "strain" is not

[3] It should be noted that this is not a diagnosis as a clinical evaluation by a trained specialist would be required to make such a determination.

associated with all possible negative outcomes. Alternatively, our failure to measure negative affective states as an intermediary between critical incidents and alcohol use may explain our results. This alternative explanation is supported by research from Swatt et al. (2007), who found that the effects of critical incidence on problematic alcohol use were fully mediated by officer anxiety and depression, as well as other research that finds a positive association between emotion- and avoidant-focused coping and negative affect (Ben-Zur, 2002, 2009). Regardless of their lack of association with alcohol use, social stressors were significantly associated with PTSD symptoms above and beyond critical incidents and coping. Further, social stressors partially mediated the relationship between critical incidents and PTSD symptoms, demonstrating the importance of studying this type of strain. Police may be especially susceptible to relational stressors as their moral commitment and genuine concern for accomplishing their duties is incorporated into their core identity and values. Failure to be recognized by the general public or those closest to them could be viewed by officers as a significant "loss" of their self-identity. Officers believe they are performing a valued service and when this is not acknowledged, it can have an adverse impact on the officers involved.

In sum, GST is a productive framework from which to study police stress. Our results suggest that in addition to traditionally measured strains (i.e., critical incidents) and coping strategies, it is productive to examine the relationship between relational strains (i.e., social stressors) and officer well-being. The theorized relationships between strains and alcohol use and PTSD symptoms also have important policy implications, outlined below.

Policy Implications

Given the prevalence of alcohol use and PTSD symptoms among police officers, it is important for agencies to devise treatment and prevention policies to reduce these stress-related problems. With regard to critical incidents, although many departments provide officers with counseling following such incidents, the most commonly used intervention, Critical Incident Stress Debriefing (CISD; Mitchell & Everly, 1996), has not been empirically supported (cf. Newbold, Lohr, & Gist, 2008). A meta-analysis of CISD efficacy found that it did not improve symptoms (van Emmerik, Kamphuis, Hulsbosch, & Emmelkamp, 2002). Further, cognitive–behavioral therapies, unanimously recommended as the most effective treatment for PTSD (U.S. Department of Veterans Affairs, 2010), are not available to many officers (Newbold et al., 2008). Thus, law enforcement agencies need to adopt alternative, evidence-based responses to critical incidents to help officers. Agencies should also incor-

porate officers' support system (e.g., family) into response protocols, as our results and others find social support is related to PTSD symptomatology (Kirschman, 2006; Marmar et al., 2006). In addition, support for officers must be ongoing or long-term, as short-term debriefing has not been found to be effective (van Emmerik et al., 2002).

Similarly, although many departments now include information on coping in officer basic training, our results suggest greater effort is still needed to help officers deal with stress. Departments could provide continuous health education information (e.g., monthly newsletter, wellness classes) to reinforce and normalize adaptive coping behaviors. They could also encourage forms of adaptive coping by providing free or reduced cost services (e.g., gym memberships, counseling) to officers. In essence, law enforcement agencies need to foster a culture of adoptive coping strategies to counter the avoidant, drinking subculture that still exists in many departments (Babin, 1980; Lindsay & Shelley, 2009).

Our results also demonstrate the important role social stressors, including isolation from family and friends, and stigmatizing attitudes from the public can have on officer well-being. Policies designed to reduce social stressors should be implemented, especially for those who experience a critical incident. For instance, in addition to critical response protocols discussed above, voluntary duty reassignments and preferential shift schedules that enable recently affected (by a critical incident) officers to spend more time with supportive family and friends may help to reduce officer trauma symptoms. With regard to public support, a transparent, well-organized, well-respected organization, for which officers can take pride in working, may well reduce the stigma associated with being in law enforcement.

In short, a multiprong approach that incorporates prevention, education, and treatment is needed. We echo the call by Giga, Cooper, and Faragher (2003) for organizations to adopt a framework to deal with work-place stress. Further, that response protocols should not be focused solely on the individual officer, but rather incorporate the organization, the context of the stress, and the officers' support system. Finally, that any implemented programs be continuously evaluated (empirically) and reviewed for efficiency.

Limitations

Although the study employed a large sample, reliable measures, and controlled for a number of important factors related to officers' problematic alcohol use and PTSD symptoms, a number of limitations must also be noted. First, even though the sample was large and included officers who served a diverse group of departments (e.g., large and small based on size of community served), it was not

random and overrepresented older, more senior, male officers. Thus, results are not fully generalizable. Second, because of the sampling method used, it is not possible to determine participants' true response rate. A large, nationally representative survey of federal, state, and local law enforcement officers' well-being would overcome these problems and is needed. Third, this research was correlational, so no causal inferences can be made. However, the study was based on prior research and theory and results suggest replication of our findings with longitudinal data is warranted. Fourth, although we controlled for years on the job, military experience, and critical incidents, we did not control for the type of assignments (e.g., narcotics, child abuse) officers worked during their career. Future studies should include measures of prior and current assignment, to determine their effects on officer health. Finally, self-reports can be problematic in that much coping is conducted at the subconscious level and not recognized as coping by the reporting officers. Assessing important constructs, such as the coping strategies of police officers can be difficult because coping often is not readily identified from observable behaviors and thus, the best method of measurement is in the form of self-reports (Dewe & Guest, 1990). Future research should endeavor to use a multimethod approach (i.e., combining self-report and observational or other objective measures) when examining stress and coping behavior.

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