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The impact of killing and injuring others on mental health symptoms among police officers

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Abstract

This study examined the relationship between killing or seriously injuring someone in the line of duty and mental health symptoms in a sample of police officers ($N = 400$) who were first assessed during academy training and at five additional time points over three years. We found that nearly 10% of police officers reported having to kill or seriously injure someone in the line of duty in the first three years of police service. After controlling for demographics and exposure to life threat, killing or seriously injuring someone in the line of duty was significantly associated with PTSD symptoms ($p < .01$) and marginally associated with depression symptoms ($p < .06$). These results highlight the potential mental health impact of killing or seriously injuring someone in the line of duty. Greater attention to mental health services following these types of exposures can serve as a preventative measure for police officers who have been negatively impacted.

Keywords

Killing; Injuring; Use of force; Police; PTSD

The job of a police officer is associated with the high level of exposure to potentially traumatic situations, such as responding to children who are sexual assault victims, motor vehicle crashes, and witnessing violent deaths (McCaslin et al., 2006; Weiss et al., 2010). Previous studies have found that the rates of current duty-related Posttraumatic Stress Disorder (PTSD) in police officers vary between 7% and 19% (Carlier et al., 1997, 1989; Maia et al., 2007; Robinson et al., 1997) and many other officers experience subclinical symptoms (Maia et al., 2007; Stein et al., 1997). Police officers are at times required to use force that may result in the severe injury or death of another person, and the exposure to circumstance in which an officer kills or seriously injures another individual adds to the

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traumatic sequelae. According to the National Institute of Justice Use of Force by Police report (1999), the capacity to use deadly force is central to understanding police function and is a key element in characterizing the police role. The official estimates suggest that the use of deadly force by police is rare (Garner and Maxwell, 1999; Durose et al., 2002). For example, Durose et al. (2002) reported that only 1.5% of contacts between the police and the public involved the threat of use of force by the police. However, there has been very little systematic empirical investigation of experiences of intentionally killing or seriously injuring another person and their potentially traumatic consequences among police officers. Weiss et al. (2010) assessed frequency and severity of lifetime traumatic exposure in a large sample of police officers and found that 25% of the officers reported that they had to kill or seriously injure somebody in the line of duty one or more times over the course of their career.

Most of the previous research on the mental health impact of lethal use of force has focused primarily on military or forensic samples, and less is known about the impact of duty-related use of force resulting in death or serious injury on police officers, a population with a high degree of occupational traumatic exposure. Several prior studies with Veteran samples have demonstrated an association between killing in war and PTSD (Grossman, 1995; Fontana and Rosenheck, 1999; MacNair, 1999, 2001, 2002a, 2002b; Maguen et al., 2009, 2010). Recently, Maguen et al. (2009) examined the relationship between killing in war and several mental health and functioning outcomes in a large Vietnam Veteran sample and found that killing was associated not only with PTSD symptoms, but also with peritraumatic dissociation, functional impairment in a number of domains, and current violent behavior. In another study, Maguen et al. (2010) examined the mental health impact of reported direct and indirect killing among a large sample of soldiers returning from Operation Iraqi Freedom. Forty percent of the sample reported killing or being responsible for killing during their deployment. Killing was significantly associated with PTSD symptoms, alcohol abuse, anger, and current relationship problems. Maguen et al. (2009) suggest that moral conflict, shame, and guilt associated with taking a life can be uniquely related to post-killing mental health consequences. It is unclear if these findings generalize to police officers whose occupational roles may require use of force including killing. MacNair (2002b) suggested that killing-related PTSD might be associated with greater severity of symptoms than non killing-related PTSD. She found that Vietnam Veterans who reported killing in combat had greater PTSD symptom levels than Veterans who did not. PTSD symptoms were even higher for those who said they were directly involved in atrocities compared to those who only witnessed them (MacNair, 2002a).

In the current study, we describe the rates of self-reported killing or seriously injuring another individual in a large sample of police officers. Further, we examine the association between killing or causing serious injury to others in the line of duty and PTSD symptoms, as well as other mental health outcomes, including depression, alcohol abuse, and social maladjustment, after controlling for demographics and the exposure to other potentially traumatic events (i.e., events that result in life threat to the officer).

1. Methods

1.1. Participants

Data were drawn from a larger prospective longitudinal study of risk and resilience to developing PTSD in police officers. Participants were recruited during police academy training in four urban police departments. A total of 400 participants were initially enrolled in the current study. The sample sizes of subsequent reassessments are presented in Table 1. The average age of police officers in this sample was 27 years ($SD = 4.81$), and 85% ($n =$

341) were men. One hundred forty-one participants were Caucasian (35.3%) and 214 of the participants (53.5%) reported being married or being in a serious relationship.

1.2. Measures

Demographics—Participants were asked to report their age, gender, relationship status (single vs. married/in serious relationship), and minority status.

The Beck Depression Inventory – 2nd Edition—(BDI-II, Beck et al., 1996) was used to assess depression symptoms. The BDI-II is a 21-item self-report measure of depression, designed to evaluate the severity of depression symptoms over the preceding week. The instrument has solid psychometric properties, with Cronbach's alpha coefficient ranging from .73 to .95. For the current study, we used participants' BDI-II sum scores at 36 months.

The Critical Incident History Questionnaire—(CIHQ, Weiss et al., 2010) is a 39-item self-report instrument that assesses cumulative exposure to potentially traumatic events defined as “critical incidents,” in the line of duty. Participants were asked to report whether listed events ever happened to them over the past 6 months or since the last assessment. The CIHQ demonstrated good agreement on incident severity ratings (.94) and validity indicators. For the purposes of this study, we divided the CIHQ questions into two separate indices: 1) exposure to direct life threat (a total of 15 items; e.g., “Being seriously beaten in the line of duty”) and 2) killing/causing serious injury to others (i.e., “Having to kill or seriously injure someone in the line of duty”). A cumulative dichotomous score was computed for each index across all six time points as an indicator of career exposure to these events.

The Mississippi Combat Scale – Civilian Version—(MCS—CV, Keane et al., 1988) was used to assess PTSD symptoms. The MCS—CV is a self-report instrument that was revised from the Mississippi Scale for Combat-related PTSD, which was designed to capture diagnostic criteria and associated symptoms of PTSD. The MCS—CV consists of 35 questions about a range of potential posttraumatic stress reactions, including intrusion, avoidance, hyperarousal, emotional numbing, and related functional impairment. Each item is rated on a 5-point scale, ranging from “not at all true” to “extremely true”. The measure results in a total score ranging from 35 to 175 points, with higher scores indicating higher PTSD symptoms. The civilian version has been previously used to assess PTSD in emergency services personnel following a disaster (Marmar et al., 1996; Weiss et al., 1995). This instrument has demonstrated good reliability and validity. For the current study, we used participants' scores at 36 months.

The Michigan Alcohol Screening Test—(MAST, Selzer, 1971) was used to assess problems with alcohol. The MAST includes 25 questions rated on a dichotomous scale (Yes/No) and three additional questions asking to indicate the amount of alcohol and cigarette use. The measure is widely used and accepted and has good psychometric properties (Teitelbaum and Mullen, 2000). Due to the severely skewed distribution of this variable, with most participants reporting no problems, participants' total scores were dichotomized. Those participants who reported any symptoms, received a score of 1, and those who denied all symptoms received a score of 0. Participants' scores at 36 months were used for analyses.

The Social Adjustment Scale – Self Report—(SAS—SR) is a 40-item self-report measure that assesses adjustment and functioning in work and relationship domains over the preceding two weeks. Each question is rated on a 5-point rating scale. An overall social adjustment scale score was derived from this measure, with higher scores indicating greater level of maladjustment. Participants' scores at 36 months were used for analyses.

1.3. Procedures

Academy trainees were referred to the study by research team personnel during academy training. The study presentation included the distribution of a letter from the study team, a letter from the commissioner or police chief of the affiliated department, a description of the study procedures, a participation form, and a contact number. The study procedures were described and the written informed consent was obtained. The participants were assessed at baseline during academy training and at 6, 12, 18, 24, and 36 months of police service. All procedures were approved by the New York University and the University of California, San Francisco institutional review boards and a Federal Certificate of Confidentiality was obtained.

The outcome variables were collected at the 36-month time point. The overall response rate at 36 months was 57.25% for the self-report measures. Table 1 presents a summary of the outcome variables, including missing data. At the 36-month follow-up, over half of the participants (55.25%) of the original 400 subjects completed the MCS—CV, 55% completed the BDI-II, 44.25% completed the SAS—SR, and only 33% completed the MAST. The groups with and without missing data were compared on a number of demographic variables including age, gender, minority status, and relationship status. The results indicated that minority status was the only demographic variable that distinguished the groups, with officers who are members of an ethnic minority group being more likely to have missing data on each of those variables. Ethnicity was included as a covariate in tests of the relationships among reported killing/seriously injuring in the line of duty and mental health outcomes.

1.4. Data analysis

The analyses were performed using the statistical software package SPSS version 19.0 for Windows. First, we calculated the number and percentage of participants who reported potentially traumatic exposure to critical incidents involving direct life threat and having to kill or seriously injure another person in the line of duty.

We conducted multiple regression analyses to determine if reported killing/seriously injuring another person in the line of duty at any time during the first three years of police service was associated with self-reported PTSD symptoms, depression symptoms, and social adjustment at 36 months of police service. Hierarchical logistic regression was used to assess the association between reported killing/seriously injuring another person and alcohol abuse. In all of these regression analyses, we controlled for age, gender, relationship status, minority status, and exposure to life threat at Step 1, and entered killing/seriously injuring at Step 2 to assess its individual contribution.

2. Results

Two hundred and seventy-five officers (68.8% of the total sample) reported being exposed to at least one event in which they felt direct threat to their own lives at any time from the baseline assessment to 36 months. Experiences of having to kill or seriously injure another person were less common: A total of 39 police officers (9.8% of the total sample) reported having to kill or seriously injure someone in the line of duty.

Four regression analyses were conducted, one for each of the mental health outcomes (i.e., PTSD, depression, social adjustment, and alcohol problems). The results are summarized in Table 2. In the multiple regression predicting PTSD symptoms, relationship status and exposure to direct life threat were each significant predictors. When it was added to the model, killing or seriously injuring someone in the line of duty also was significantly

associated with the PTSD symptoms, even after controlling for demographic variables and other types of traumatic exposure, $F(6, 211) = 2.92, p = .009$ ($\beta = .15, p = .03$).

In the multiple regression predicting depression, the BDI-II total score was transformed using a logarithmic transformation due to the non-normal distribution of the variable. The overall model was significant and only relationship status was a significant predictor, $F(6, 207) = 2.57, p = .02$. Having to kill or seriously injure someone in the line of duty approached significance ($\beta = .13, p = .06$).

Using social adjustment scores as a dependent variable and age, gender, relationship status, and exposure to life threat as predictors resulted in the significant model fit, $F(5, 169) = 2.76, p = .020$, with only age as a significant predictor ($\beta = .22, p = .005$). The addition of killing/seriously injuring someone as a predictor in the second step of the regression reduced the model fit, $F(6, 168) = 2.32, p = .035$. Finally, in the hierarchical logistic regression predicting alcohol abuse, none of the independent variables were significantly associated with the outcome ($\chi^2 = 2.58, df = 6, p = .859$).

3. Discussion

Police work is among the most challenging and dangerous occupations, with a high potential for traumatic exposure in the line of duty. The results of the current study indicated that over two-thirds of police officers reported being exposed to at least one event in which they felt direct life threat. Experiences of having to kill or seriously injure someone in the line of duty were less common, with almost 10% of the participants reporting exposure to those events within the first three years of their service. Given that these rates are only for the first three years of service, it is not surprising that they are lower than the 25% reported by Weiss et al. (2010) for career exposure. Another possibility is that these lower rates represent an underestimate of the true rates of the experiences of having to kill or seriously injure someone in the line of duty, since reluctance to disclose such experiences by police officers could be related to fear of criticism, stigma, and the “code of silence” that hinders communication from officers to their supervisors (Crank, 1998) and possibly researchers.

The psychology of inflicting harm to others or taking a life in the line of duty is complex and impacts several aspects of the individual’s life. In addition to the potentially traumatic nature of killing or injuring another individual, such experiences in police are complicated by complaints by citizens, attention of the media, as well as internal and criminal investigations that may accompany those events. In the current study, killing or seriously injuring someone in the line of duty was associated with PTSD symptoms and marginally with depression symptoms, but not with social adjustment or alcohol use. Killing or seriously injuring someone in the line of duty was a significant predictor of PTSD symptoms even after controlling for age, gender, minority status, relationship status, and exposure to direct personal life threat. These results are in line with the findings from the studies with Veterans on the relationship between killing and PTSD symptoms (Maguen et al., 2009, 2010; MacNair, 1999).

The association between killing or seriously injuring someone in the line of duty approached significance in predicting depression severity, suggesting a potential contribution of those experiences to the development of depressive symptoms, above and beyond relationship status and the exposure to other potentially traumatic events. In contrast, social adjustment in the areas of work and relationships and alcohol use were not associated with either direct life threat or the reported killing or injuring someone in the line of duty. It is likely that other factors, such as overall work stress and burnout, which were beyond the scope of this study,

are more significant contributors to the social adjustment at work and relationships among police officers.

The results of the current study point to the importance of assessment and intervention for the officers who are required to kill or seriously injure someone in the line of duty. Although the situations that involve the use of deadly force by police are relatively infrequent, when they occur they are associated with mental health problems, such as PTSD symptoms and possibly depression symptoms. Providing timely interventions for those who are at risk for developing PTSD symptoms is important in mitigating potentially serious outcomes.

The current study has several limitations. It relied on participants' self-report of potentially traumatic experiences as well as PTSD symptoms. As was noted above, stigma associated with the use of force by police might have limited the participants' willingness to disclose those experiences. Experiences of needing to kill and seriously injure someone in the line of duty were assessed with a single question, which should be taken into account when interpreting the results. Most importantly, we are unable to estimate separately the rates of killing and the rates of seriously injuring another person in the line of duty. Future studies should evaluate the differential role of various types of use of force on mental health outcomes among police officers separately. The study only measured the presence of exposure to life threat and not severity/intensity of exposure, which should be addressed in future research. In addition, our sample demonstrated an overall resilience in terms of the reported PTSD symptoms, which is not uncommon in police samples early in service. The average scores obtained on the MCS—CV were lower than the scores obtained in other samples (e.g., Maguen et al., 2009). It is also possible that low rates of PTSD symptoms were due to underreporting because of stigma and career concerns. The overall low degree of mental health problems might have limited the ability to detect stronger associations between the experiences of killing or seriously injuring another person in the line of duty and PTSD symptoms in the current sample. In addition, our assessment of mental health outcomes in this study, including PTSD, was limited to symptoms reported at 36 months. It is possible that some participants might have experienced symptoms at later time points, which were not captured at the 36-month assessment.

While this study established an association between having to kill or seriously injure someone in the line of duty and PTSD symptoms, it did not investigate the mechanisms by which those experiences impact mental health outcomes. It is likely that multiple pathways are involved in the relationship between those types of events and increased PTSD symptoms. For example, Litz et al. (2009) proposed a conceptual model of moral injury and moral repair in order to better understand the experiences of taking a life in war among military personnel. Although the experience of police officers cannot be equated with that of Veterans, the model of moral injury might be applicable to the police population. Other factors that could play a role in the relationship between killing or injuring another person in the line of duty and mental health outcomes include heightened levels of neurobiological activation involved in the high stress response; stigma associated with these experiences, which may in turn promote avoidance and interfere with emotional processing of those events; and maladaptive changes in one's self-image and identity. Future studies should examine, neurobiological, cognitive, emotional mechanisms involved in the experiences of killing or causing a serious injury to another individual.

Overall, the current study found that although a small percentage of police officers report experiences of seriously injuring or killing another person in the line of duty in the first three years of service, when these experiences occur, they are significantly associated with posttraumatic stress symptoms and possibly depression. The results highlight the importance

of providing timely assessment and when indicated treatment for those who have been exposed to killing or seriously injuring someone in the line of duty.

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Table 1

Distribution of mental health outcome scores at 36 months.

Variables	M	SD	n (%)
PTSD (MCS—CV)	62.33	13.11	221 (55.25%)
Depression (BDI-II)	4.11	5.03	220 (55%)
Social adjustment (SAS—SR)	1.62	.40	177 (44.25%)
Alcohol use (MAST)	Yes = 43 (10.8%)	No = 89 (22.3%)	132 (33%)

Note. MCS – Mississippi Combat Scale – Civilian Version (Keane et al., 1988); BDI-II – Beck Depression Inventory Second Edition (Beck et al., 1996); MAST – Michigan Alcohol Screening Test (MAST, Selzer, 1971); SAS–SR – Social Adjustment Scale – Self Report.

Table 2

Multiple regression predicting PTSD scores from types of traumatic exposure.

	PTSD (<i>n</i> = 217)		Depression (<i>n</i> = 213)		Social adjustment (<i>n</i> = 174)		Alcohol use (<i>n</i> = 130)	
	β	<i>R</i> ²	β	<i>R</i> ²	β	<i>R</i> ²	Odds ratio	<i>x</i> ²
Step 1		.03*		.03*		.05*		2.55
Age	.05		-.04		.22**			1.00
Gender	-.06		-.06		.05			.79
Minority status	.13 (<i>p</i> = .05)		-.03		-.03			.69
Relationship status	.16*		.17*		.09			.84
Direct life threat	.07		.13		.06			1.78
Step 2		.05**		.04*		.04*		2.58
Killing or seriously injuring in the line of duty	.15*		.13 ⁺		-.04			.53

* *p* < .05** *p* < .01⁺ *p* = .60.